Assessing the Performance of Rural and Northern Hospitals in Manitoba: A First Look

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

David K. Stewart, PhD
Charlyn D. Black, MD, ScD
Patricia J. Martens, PhD
Sandra Peterson, MSc
David Friesen, BSc

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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. 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 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 MCHPE to contribute to improvements in the health policy process.

MCHPE undertakes several major research projects, such as this one, every year under contract to Manitoba Health. In addition, MCHPE researchers secure major funding through the competitive grants process. Widely published and internationally recognized, they collaborate with a number of highly respected scientists from Canada, the United States and Europe.

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Introduction

Canadians spend billions of dollars every year on health care. In Manitoba alone, more than two billion dollars are budgeted for funding the health care system. But, as federal Health Minister Alan Rock recently pointed out, "it's astonishing to look at how little we know about what we get for the money." Politicians, health care managers and consumers are increasingly asking for more information about health care operations in general and hospitals in particular. Manitoba Health asked MCHPE to develop indicators for assessing rural hospital performance and to use these indicators for a preliminary assessment of how rural and northern hospitals function in this province.

Responding to this request presented a challenge. Virtually none of the existing literature on hospital performance is relevant for an analysis of rural and northern hospitals. Most previous work on hospital performance has focused on urban or teaching hospitals, and has limited applicability to rural hospitals. These smaller hospitals deal with a different case mix, have lower service volumes, different economies of scale, and a much higher proportion of non-specialist physicians and nurses.

Accordingly, we developed a set of indicators especially relevant for rural hospitals. The indicators we developed cover multiple aspects of hospital performance. An important part of our analysis is the linkage between assessments of hospitals and population based data. The use of hospitals by particular populations was identified, and considered in relation to the population's need for hospital services. The need for hospital services was estimated on the basis of population characteristics, which are clearly associated with need for health care such as age, gender, socio-economic status and premature mortality rates. We used data on need to rank order the 51 physician service areas in rural Manitoba. We then used the data on hospital use to create a use to need ratio that informed our examination of the performance of each hospital.

Additionally, we used four specific indicators of individual hospital performance. Two were straightforward measures that have been used in other hospital assessments: occupancy rate

and the share of hospitalizations of area residents captured by a particular institution. The other indicators were developed specifically for this report and emerged from extensive methodological work as well as discussions with stakeholders. These indicators identified the intensity of services provided by individual hospitals and their efficiency in discharging patients.

To measure the intensity of services provided by each hospital, we looked at the proportion of cases involving surgery or deliveries, the complexity of typical medical cases, and the proportion of cases that had a length of stay greater than one day. In our assessment of discharge efficiency we identified the degree to which the stays of a hospital's patients were longer or shorter than average stays for that mix of cases.

For each of our indicators we identified each hospital's score, and how it ranked in relation to the other hospitals in rural Manitoba. Moreover, we identified how the hospital ranked in relation to hospitals of similar size and function. In presenting the data we provide analysis at the level of Regional Health Authorities, by hospital type, as well as individual profiles of each hospital.

Many hospitals in rural Manitoba handle a low volume of cases. We therefore based our analysis of hospital performance on data covering a three year period (1996-1999) rather than a single year.

Findings

- Residents of some areas are hospitalized at a rate higher than expected given their 'need' profile, while others less frequently than would be expected given average levels of use in rural and northern Manitoba. Residents of about one PSA in five were using hospital services at a rate that was more than 10% greater than expected. At the other end, residents of seven PSAs had use relative to need ratios that were more than 10% less than expected.

- The occupancy rates in rural Manitoba suggest that many empty beds are available: only one of the 68 hospitals had an occupancy rate above 80%. The mean occupancy rate for all the hospitals studied is less than 60% and twenty hospitals had occupancy rates of less than 50%.

- There are important differences in the rates at which rural residents use their local hospitals. Less than one-fifth of the rural hospitals accounted for more than half of the hospitalizations of area residents; and almost one fifth of the hospitals have a capture rate of less than 10% for the areas we studied.

- Local use rates are related to hospital type. While the capture rates are highest for major rural hospitals, they were much lower for small rural and small multi-use hospitals. In contrast, northern isolated hospitals provide a relatively larger proportion of services to local residents.

- The intensity of services delivered is closely related to the hospital type. Virtually all of the hospitals scoring in the high range of our intensity scale were major rural or intermediate rural hospitals. The lowest intensity scores were recorded by northern isolated hospitals.

- The mean discharge efficiency score for Manitoba's rural hospitals indicates that we were able to adjust for differences in hospital type and develop a measure that is fair to all types of hospital. Thus, no one type of hospital was shown to be less efficient than the others. However, there were differences across individual hospitals.

- Discharge efficiency is unrelated to the intensity of services the hospital provides.

- Occupancy rates are an imperfect and sometimes misleading indicator for judging hospital performance. Many hospitals that reported high occupancy rates, received low scores on the discharge efficiency and intensity measures: that is, their high occupancy

rates may reflect a practice of keeping patients longer than would other hospitals or admitting patients who are not as sick. A high occupancy rate is not necessarily a positive indicator of hospital performance. However, occupancy rates are sometimes difficult to reliably determine. A handful of hospitals reported occupancy rates and figures for set-up beds that differed from those we obtained from the Manitoba Health data base. It is important that we move to a consistent reporting of these measures.

Our use of multiple indicators makes clear the importance of not evaluating hospitals on the basis of a single indicator. For example, any review of occupancy rates must also take into consideration other factors such as, efficiency in patient discharge, the intensity of services provided and whether area residents are using hospital services at expected levels.

The analysis of hospital performance benefited immensely from the division of Manitoba's rural hospitals into five different categories. These categories allowed for meaningful comparisons to be drawn as hospitals were contrasted with other institutions of similar size and function. These categories are an important part of the analysis and proved most valuable in assessing capture rates as well as the intensity of services provided. The categories we have used should be reviewed by others and become more widely discussed.

Hospitals performing well on a variety of indicators might be used as benchmarks to target improvement of the overall performance of rural hospitals. Institutions which combine high intensity services with high discharge efficiency scores and high occupancy rates, provide models worthy of emulation, particularly if they are serving populations which are using hospitals at the expected level.

Patterns of greater and less than expected use of hospital services require further investigation. In particular, it is important to determine whether those populations using hospitals at lower than expected levels have access to other services (home care, nursing homes) that may compensate for this low level of use, and/or whether this low level of use may represent an emerging standard towards which other populations might aim. Since the

world-wide standard over the last several decades has been to decrease our reliance on hospitals, these areas may be showing the way.

Given the relatively small number of cases handled by many of the rural hospitals, institutions with low scores or rankings on a number of the indicators may be explained by a few unusual cases each year or by an unusual event (departure of local physician). Such explanations should be sought and taken into consideration when the data are reviewed.

1. INTRODUCTION

There is a growing demand among politicians, health care managers and consumers for information about health care operations in general and hospitals in particular. As federal Health Minister Allan Rock noted, "Canadians spend $80 billion a year on health care and it's astonishing to look at how little we know about what we get for the money" (Hill Times, October 18, 1999: 11). A number of provinces are attempting to collect and release comparative material on their hospitals; and media outlets are increasingly interested in such 'Report Cards.' Indeed Maclean's Magazine is committed to producing an annual report that measures and ranks the quality of health care provided in Canada's major urban areas. And, in the speech cited above, Minister Rock refers explicitly to the desire on the part of federal and provincial health departments for "putting together a plan for accumulating and publishing information which will give you an idea of the performance of the health care system" (Hill Times, ibid.).

Despite this developing demand for information, it remains much easier to obtain access to information on the quality of hotels and restaurants than it is for hospitals. The desire of governments and health administrators for such information is not only driven by a wish to acquire easy access to information on the quality of care provided in hospitals. The need for such data is based in part on the growing interest in reforming Canada's health care system.

Examinations of hospital performance are based on more than a desire for reform. Comparative data on hospital performance can provide a benchmark of value to hospital administrators and other health care professionals. Hospitals performing most effectively and efficiently can serve as examples for other hospitals to emulate. Ideally the goal of hospital evaluations should be to improve all hospitals, not simply to identify "underachievers". However, without performance indicators which allow hospitals to be ranked on a variety of measures, hospitals and hospital administrators often do not know whether their institution is performing well. Thus, as with hotels and restaurants, and despite the inevitable but unpleasant result of relatively poor performances, comparative rankings are an essential component of hospital evaluation.

This report responds to the desire for information that can enhance public sector accountability by examining the performance of rural hospitals in Manitoba. We present a portrait of what the various hospitals are doing and identify how their performance compares with other rural hospitals.

In order for comparisons to be meaningful they must be restricted to similar cases. Simply put, a comparison of apples with other apples is more helpful than a comparison of apples and oranges. With respect to hospital evaluations, this means that simply ranking all hospitals across the province on every indicator will not likely be helpful. In the Manitoba context, comparing Lynn Lake with the Health Sciences Centre is unlikely to yield much information of value to administrators in Lynn Lake or the Burntwood Regional Health Authority. In the California Hospital Outcomes Project, researchers found that a major theme in letters submitted in response to their report was that "Very different types of hospitals with different capabilities, such as rural and urban hospitals, should not be directly compared" (Romano et al., 680).

Rural hospitals differ from their urban counterparts in a number of important ways. Health care considerations aside, rural hospitals are often major employers and provide a number of economic spin offs to the towns in which they are located. As well, they provide a source of community pride.

The role of rural hospitals in the provision of health care differs considerably from urban hospitals. For instance, rural hospitals have a much lower service volume and cannot enjoy the same economies of scale as larger urban hospitals. Nor do rural hospitals have access to equipment that is as technologically advanced as the equipment in urban hospitals. And rural hospitals face a very different set of personnel challenges. Hospitals in rural locations find it harder to recruit and retain workers, particularly those with specialized skills.

The unique situation of rural hospitals means that many of the indicators used in assessing urban hospitals are simply not relevant. Low volumes and non-specialist physicians/nurses

will likely mean that complex elective cases will go directly to larger centres, and emergency cases will be transferred as soon as feasible. Thus the case mix at these hospitals will inevitably be less intense than the case mix at urban hospitals. As well, the low volume of cases means that a few patients with atypical stays can distort a hospital's performance for an entire year. In recognition of this, we base our analysis of Manitoba's rural hospitals on a three year average (1996-1997, 1997-1998,1998-1999) rather than on data from a single year. And rather than replicate performance indicators designed for urban hospitals, this report has developed a series of important new measures designed to be useful for profiling the performance of rural hospitals, while remaining sensitive to the fact that, even among rural hospitals, "there is considerable variation in their scale of operations." (Alexander, D'Aunno and Succi, 241).

2. INDICATORS OF RURAL HOSPITAL PERFORMANCE:

In reaction to the growing demands for public sector accountability discussed above, efforts have been focused on creating measurements that can be used to evaluate performance. In the Manitoba context, officials in the Department of Health and regional health care planners in the Regional Health Authorities (RHAs) require information for planning and monitoring hospital performance. This study focuses on the 68 rural hospitals in Manitoba. These hospitals differ from their urban and teaching counterparts to such a degree that performance assessments need to be tailored specifically to the rural environment. In our analysis we look at each of the 68 hospitals and also provide commentary at the RHA level. These rural hospitals differ from one another; some have only a handful of beds and do not perform surgery, while others are very similar to urban hospitals in many of the services they deliver. In order to take such differences into account, we identified five different types of hospitals in the study.[1] They include ten Major Rural hospitals with an average of 71 beds, ten Intermediate Rural hospitals with an average of 30 beds, 37 Small Rural hospitals with an average of 17 beds, six Small Multi Use with an average of 9 beds and five Northern Isolated hospitals with an average of about eleven beds.

Disparities in hospital type make it difficult to select appropriate measures for comparison. A recent study of Ontario hospitals examined hospital performance by looking at a number of common conditions or procedures requiring hospital care. These included Acute Myocardial Infarction, Congestive Heart Failure, Gastrointestinal Bleeding, Cataracts and Joint replacements (The Hospital Report '98: A System-Wide Review of Ontario's Hospitals, 1998). Similarly, the Department of Health in England has released data comparing hospitals on measures such as 'deaths within hospital within 30 days of surgery' and 'rates of emergency readmission to hospitals within 28 days of discharge' ("England publishes first tables of hospital performance", BMJ Volume 318, 26 June 1999). Given the small size of many of the rural hospitals in Manitoba and the fact that many of the most serious cases are treated in Winnipeg hospitals, it is simply not appropriate to assess hospital performance using readmissions or mortality. Moreover, the small number of patients treated in many of

these facilities gives individual cases such weight that averages are misleading. We were thus faced initially with the question of how hospitals could be meaningfully compared in ways that would meet the needs of health care planners, professionals and the general public. Extensive efforts were made to select hospital performance indicators suitable for rural hospitals. This was done in collaboration with key stakeholders.

It is obviously possible and important to examine individual hospitals, but this provides only part of the picture. Rural hospitals essentially serve a particular population and a full understanding of these hospitals requires attention to the population base itself. An important part of our analysis assesses the population's 'need' for hospitalization, a measure which assesses the age and other characteristics of area residents (including distance from hospital facilities) which might be expected to influence that population's need for hospital care. We then order the presentation of data from hospitals according to the area population's projected need for hospital services.

To facilitate this analysis we divided the rural population of Manitoba into 51 distinct areas. These divisions are not arbitrary but build on earlier MCHPE reports which identified population areas served by a specific set of physicians (Comparative Indicators of Population Health and Health Use for Manitoba's Regional Health Authorities, 1999). More specifically, the boundaries for these Physician Service areas (PSAs)[2] reflect where area residents generally go to visit a physician. Each of these areas falls within one of the Regional Health Authorities, simplifying analysis and ensuring that the sub-divisions have practical meaning for policy makers. Our study thus linked descriptions of hospital performance to the population served by that hospital. Since rural populations may use several different hospitals, we also report the proportion of area residents which use the hospital(s) to which they are linked.

[1] Sorting Manitoba hospitals into similar categories was conducted in 1992 in association with Capital Planning. The types include urban hospitals as well, but these are not presented in this report.

In short, we used two different sets of indicators in assessing rural hospitals. One set of indicators focused directly on the population area served by particular hospitals and the other used a set of more traditional perspectives by focusing on the clients of each hospital.

2.1 Population Based Indicators:

Our assessment of rural hospitals begins by looking at the populations served by hospitals and the use these populations make of hospital services. To provide a better perspective on hospital use, we developed a specific indicator that estimated the need a particular area has for hospital services. We compared our estimations of area needs with the actual use area residents made of hospitals and calculated a ratio of use to need. In determining patterns of actual hospital 'use' we identified the average number of hospitalizations per 1000 population in each of the 51 Physician Service Areas for the three year fiscal period on which our analysis is based: 1996-1997, 1997-1998, and 1998-1999.

Need for Hospital Care:

Hospital use does not necessarily correspond to need. It is important to understand the use of hospitals in light of factors which most people would agree should influence the need for hospital services. Accordingly, we used a model (See Issues in Developing Indicators for Needs Based Funding, 1997) that estimates an area's need for hospital services on the basis of a number of population characteristics, including age, gender, socio-economic status, and health status, all of which have been shown to be associated with a population's need for health care. In addition, this estimate includes relevant information on the area's geographic location –whether the area is beside a major urban centre, is rural, or a northern or isolated area- since where a hospital is located affects residents' options when seeking hospital care. The measure is expressed in terms of the number of hospitalizations needed per 1000 residents (see Appendix II for a discussion of how this model is constructed).

[2] We recognize that these service areas do not necessarily correspond to the districts which are being created by the RHAs. We will incorporate these new districts into Centre reports as soon as they are finalized. The maps of PSAs included in Appendix V are only rough geographic locations. On occasion, some hospitals serve populations that receive physician services in an area that is not geographically contiguous. For example, Notre Dame Hospital is actually part of the Carman PSA and Birtle is part of Russell.

The final step in our estimation of an area's hospital needs was to rank order the 51 population areas. We then divided the areas into three equal groups. Areas ranked from 1 to 17 were said to have a 'high need' for hospitalization; areas ranked from 18 to 34 have a 'medium need' and those ranked from 35 to 51 have a 'low need'. These rankings can be seen in Figure 1.

Use Relative to Need Ratio:

Once we identified the need for hospitalization, the next step was to determine whether the population's use of hospitals was consistent with need. Records of the actual use of hospitals by area residents were calculated (actual hospitalizations per 1000 population) and contrasted with our estimations of the need for hospital services, given the characteristics of that population (estimated hospitalizations per 1000 population). We used this information to create a scale indicating whether the population's use of area hospitals is higher, lower, or the same as projected levels.[3] We again divide the 51 population areas into three different categories: Higher than Expected Use (Use Relative to Need Ratio of 1.1 or more), Use as Expected (Use Relative to Need Ratio between 0.9 and 1.1), and Lower than Expected Use (Use Relative to Need Ratio below 0.9).[4]

Our population measures thus provide us with two measures that we use throughout the analysis: 'Population Need for Hospitals', and the 'Use Relative to Need Ratio'. If area residents are using hospitals in accordance with their expected need (given the age, gender and other characteristics of area residents) a ratio close to '1' would be expected. Figure 2 indicates that there are some areas which vary from this 'expected' range, with residents of Alonsa and Russell being hospitalized much more frequently than expected and Oxford House and East Interlake area residents much less frequently than expected. These patterns of use will be of interest to health care planners and allow questions of hospital use to be discussed in conjunction with area need.

[3] Our measures of use include all hospitalizations of area residents, not just those which took place in local hospitals.
[4] Using the 75th and 25th percentiles would have yielded very similar breakpoints. However, the breakpoints we used seemed more appropriate when the actual scores of each hospital were examined.

Figure 1: Need for Hospital Services 1996/97, 1997/98, 1998/99

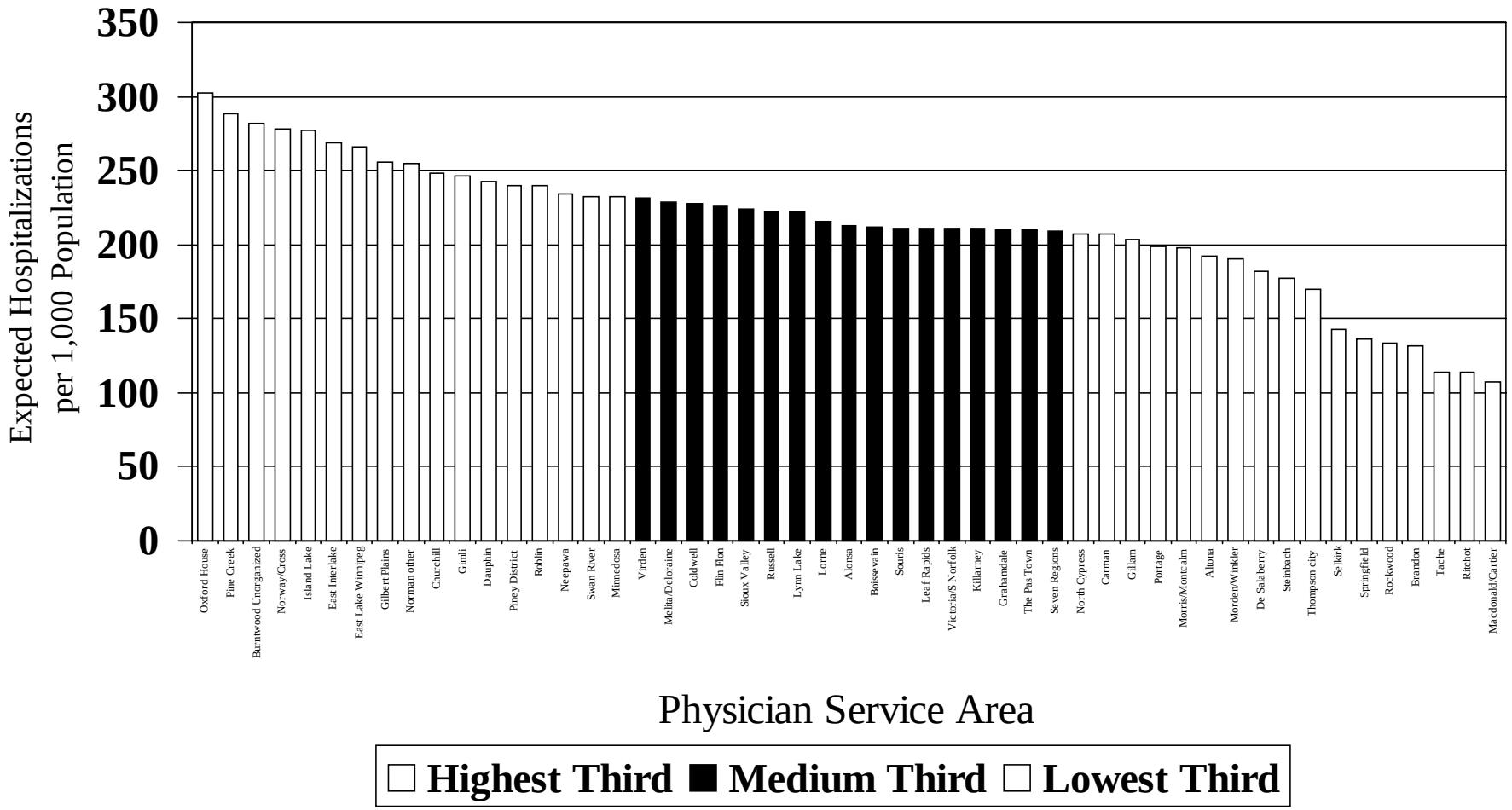
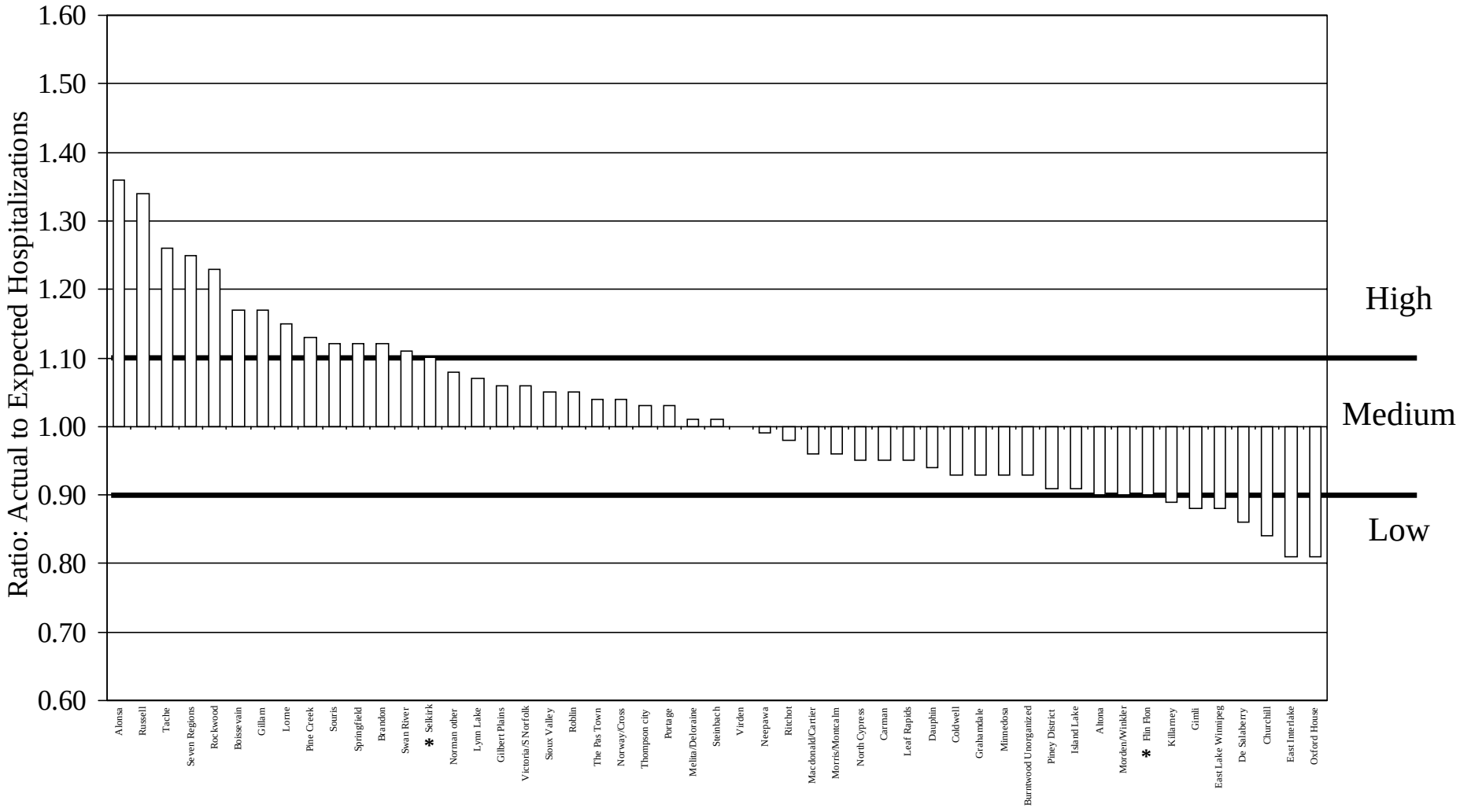


Figure 2: Use Relative to Need Ratio 1996/97, 1997/98, 1998/99



* First hospital in new category

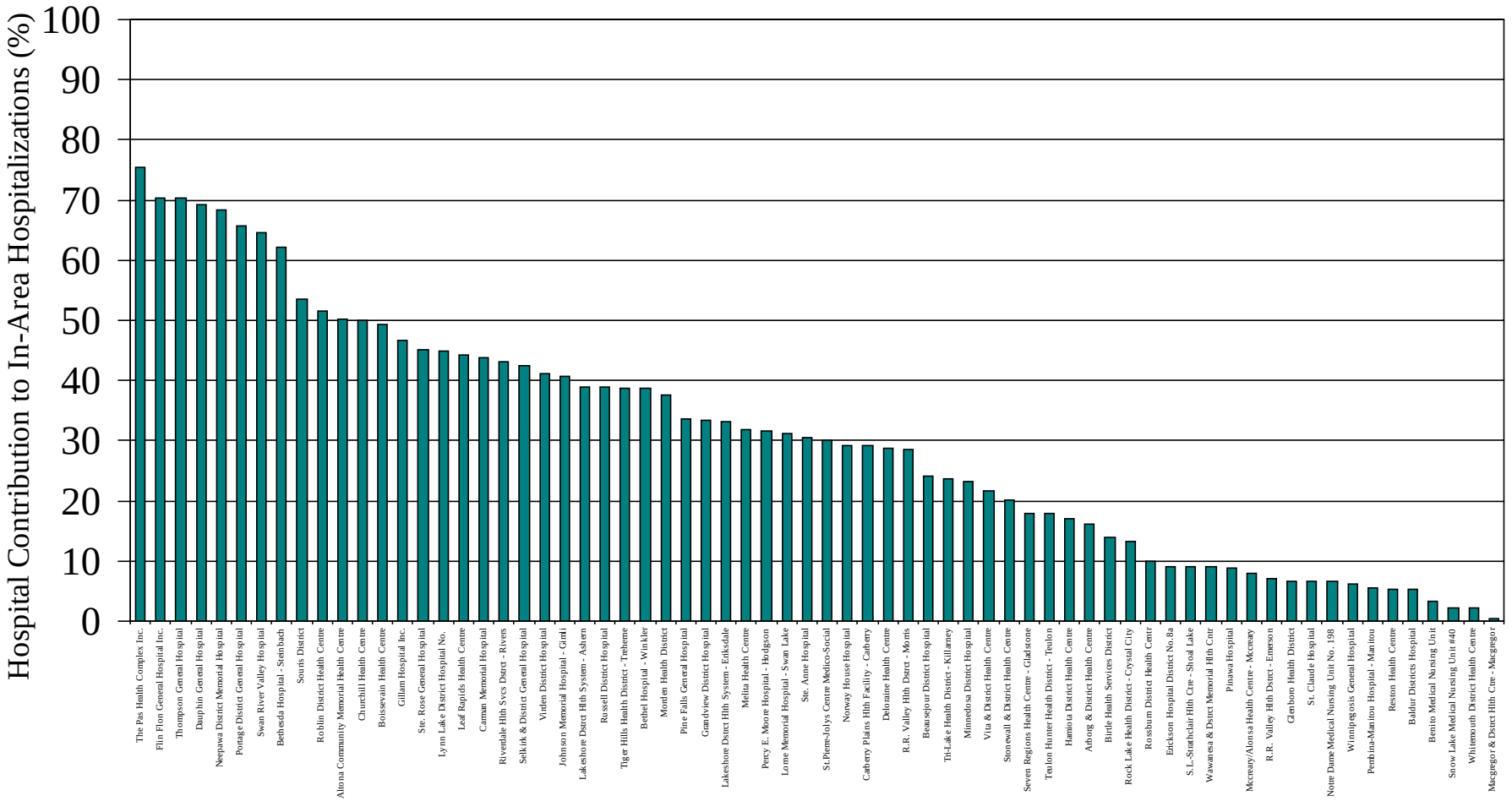
2.2 Hospital Based Indicators:

The measures discussed above focused on how populations of different areas use or are expected to use hospitals. While those measures provide important information, it is impossible to assess hospital performance from that perspective alone. We therefore examined hospitals on the basis of the patterns of care they provide. The following characteristics were used: 1- hospital's share of area admissions, 2- intensity of cases treated, 3- discharge efficiency, and 4- occupancy rate. It is important to keep in mind that all hospitalizations may not actually require acute care. As DeCoster et al. found in their "Alternatives to Acute Care" study, "Overall, 33% of days were assessed as requiring Acute care-two of every three days spent by Manitobans receiving acute inpatient hospital care for medical conditions could potentially be treated in a setting other than that of an acute care ward" (1996: 4).

Hospital Share of Area Admissions:

We calculated the proportion of area residents hospitalized during the period who received treatment in the identified hospital. Of course many of the more serious cases receive treatment in Winnipeg hospitals, and other less acute cases also used hospital resources outside their area, so no single hospital accounted for 100% of the hospital stays in its area. Nonetheless, this measure enabled us to assess the degree to which a hospital provides service to its population. Figure 3 provides both the proportion of stays in each area hospital and a ranking of the 68 hospitals on this dimension. As it shows, some hospitals accounted for three-fifths or more of area stays while many others accounted for less than one-tenth. Many factors account for variability on this measure, including how close the hospital is to major urban centres, how many other hospitals are in the area, and how the hospital provides service; thus in interpreting this data it is important to keep in mind the area's Use Relative to Need Ratio and to assess the degree to which the identified hospital may be contributing to the population's pattern of hospital use.

Figure 3: Hospitalization Share 1996/97, 1997/98, 1998/99



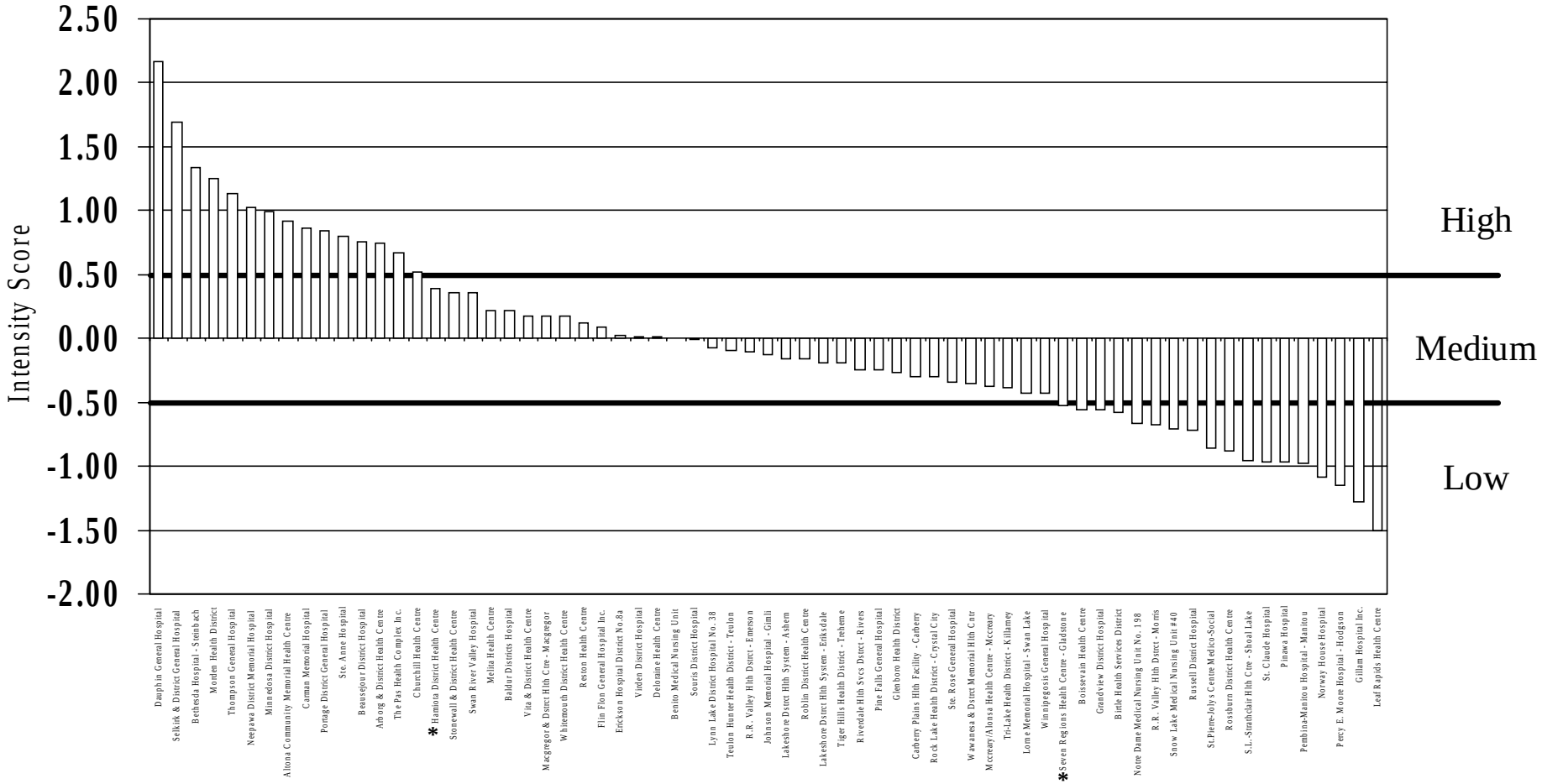
Intensity of Cases Treated:

An important indicator of hospital performance is the acuity or intensity of cases treated in a given hospital. This was the most complex part of our measurement construction since previous work has focussed primarily on large hospitals that have a large number of cases. We needed to develop indicators that were reliable, valid and meaningful for rural hospitals. After reviewing previous work in this area and consulting with stakeholders, we constructed an indicator of intensity by combining three characteristics of the care delivered: 1- the percentage of inpatient cases that involved delivery or a surgical procedure, 2- the percentage of cases that had a length of stay greater than one day or which represented a reasonable one day stay (cases admitted just for observation were therefore excluded), and 3- the average complexity score for typical medical cases (measured using RDRG weights). For a full explanation of how this measure was developed see Appendix II.

For purposes of comparison we rank-ordered the 68 hospitals on the combined intensity score and created a scale of intensity with three categories: High intensity (those with Intensity scores above 0.5), Medium intensity (Intensity scores between –0.5 and 0.5), and Low intensity (hospitals with Intensity scores below -0.5).[5] Figure 4 presents the intensity score for each hospital.

[5] Using the 75th and 25th percentiles would have yielded very similar breakpoints. However, the breakpoints we used seemed more appropriate when the actual scores of each hospital were examined. That is, the distances between hospitals at the breakpoint were much wider.

Figure 4: Intensity
1996/97, 1997/98, 1998/99



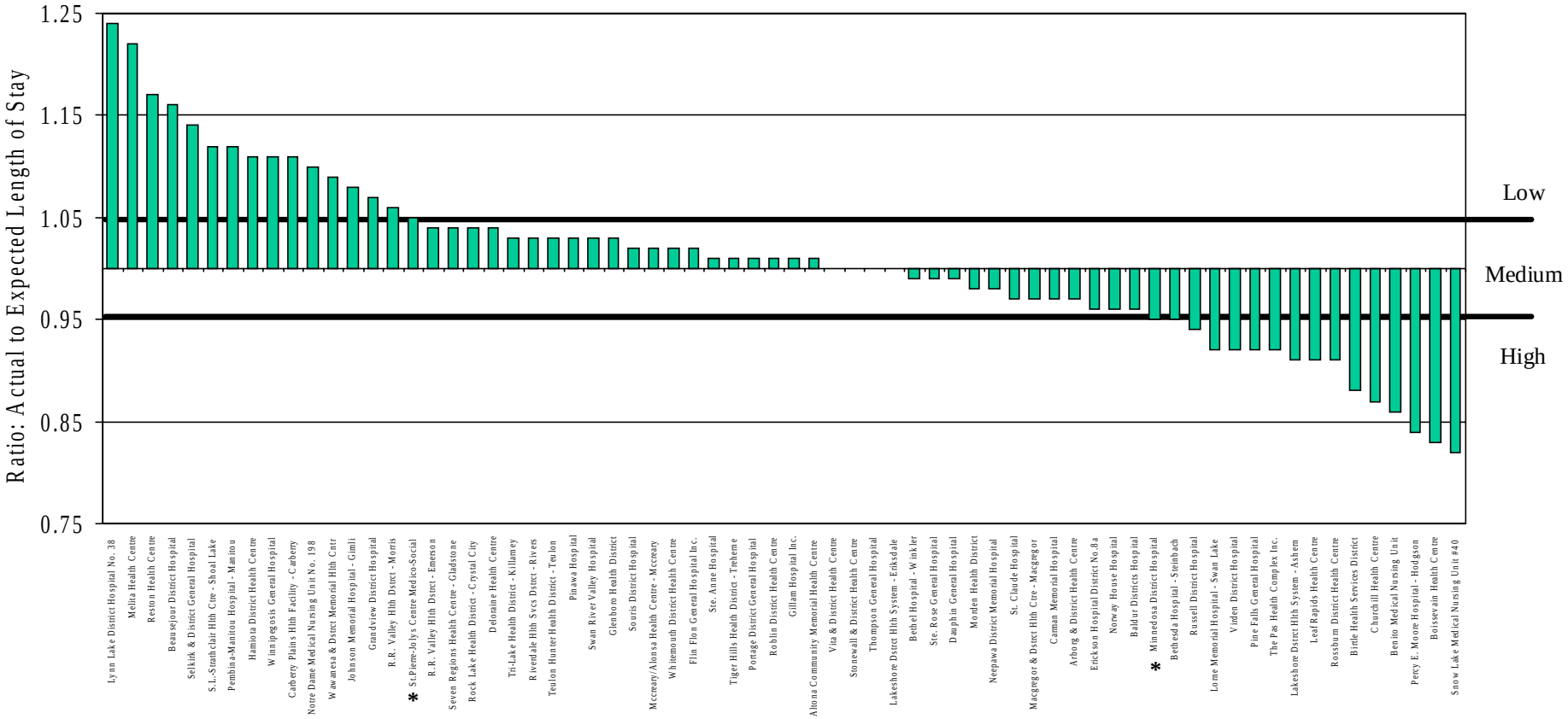
* First hospital in new category

Discharge Efficiency:

One of our key performance indicators is the degree to which hospitals meet general targets for the timely discharge of patients. After taking account of the types of patients treated (age, gender and Treaty First Nation status) we describe how the length of stay of each hospital's patients compared with that expected, given the average Manitoba length of stay for a typical case (using RDRGs). Using statistical techniques, we examined the expected stay and determined the expected length of stay (LOS) for the full set of cases treated. For all cases we then summed the actual number of days of care provided by the hospital and compared it with the total number of days of care they were expected to use. This ratio created a 'discharge efficiency score'. Hospitals with scores greater than one used more hospital days of care than expected given their case mix and were therefore described as less efficient. Those with scores of less than one discharge their patients faster than the average expected for the cases they treat and therefore are considered to be performing at a higher level in discharge efficiency (see Figure 5). Again, our emphasis is making it possible for hospitals to compare their performance with each other so we rank ordered the hospitals. In our presentation we consider hospitals with scores below 0.95 to be 'High' on the discharge efficiency scale, those whose scores fell between 0.95 and 1.05 as 'Medium', and those with scores of 1.05 or higher as 'Low' in discharge efficiency.[6]

[6] The 75th and 25th percentiles provide the breakpoints between categories.

Figure 5: Discharge Efficiency Ratio 1996/97, 1997/98, 1998/99



* First hospital in new category

This discharge efficiency scale requires careful consideration. Thomas and Guire, in a study of Medicare beneficiaries in Michigan which examined the relationship between LOS and quality of care, concluded that "The relationship is stronger in some conditions, particularly those involving surgery, than others, but it appears that in all conditions poor quality is associated with longer LOSs" (1997: 504). However, this measure is also best understood in the context of the other measures of hospital performance. For instance, does a hospital achieve a high level of discharge efficiency by hospitalizing many more patients than would be expected relative to the need of area residents, indicating that is hospitalizing people who may not need to be treated in hospital. This would make it possible to discharge patients more rapidly than hospitals that are only admitting very sick patients.

Theoretically, it might be easier for hospitals treating cases of lower intensity to achieve better scores on our discharge efficiency measure. *However, we found no statistically significant relationship between our intensity and discharge efficiency measures.*

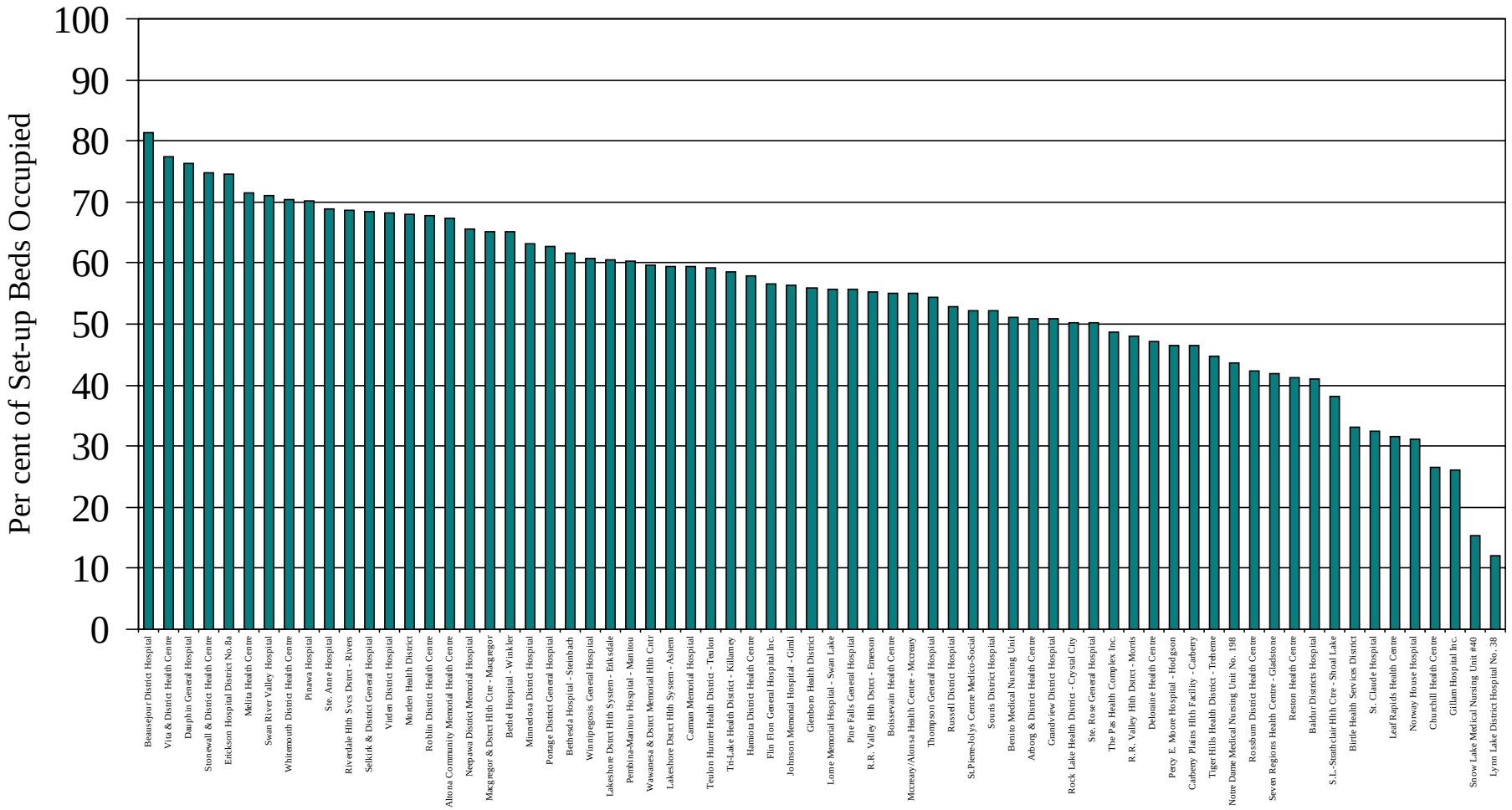
Occupancy Rate:

Our final indicator is one of the more standard measures used to compare hospitals, namely the degree to which hospital beds are full. This is a very straightforward indicator. Based on Manitoba Health's Bed count and hospital discharge data, we determined the average proportion of beds in each hospital that were filled throughout the three year period, in other words the hospital's 'Occupancy Rate' (Number of Beds Occupied/ Number of Beds).[7] As Figure 6 reveals, there was substantial variation in occupancy rates. Some hospitals had rates in excess of 70% while others filled only about one-third of their beds. Throughout the analysis we present the actual Occupancy Rates as well as an indication of where the hospital ranked out of 68. As with our other hospital specific measures, it is important to compare the information derived from this measure with that derived from others. It is possible that higher rates of occupancy may indicate 'over-servicing' or inefficient discharges rather than

[7] We attempted to further validate our occupancy rate data by asking the CEO's of each RHA to confirm the numbers. In most cases the numbers were identical, in a few cases the variation was by only one percentage point (likely due to the way in which the numbers for each year were rounded), and in a handful of cases there were larger discrepancies. In the tables that follow we indicate those hospitals that report occupancy rates varying from those we calculated by more than one percentage point. To ensure comparability in the analysis we report only the figures calculated from the hospital discharge abstracts in the text.

an appropriate use of hospitals reflecting the needs of area residents. Alternatively, it may indicate that an area has an appropriate number of beds to respond to population need.

Figure 6: Occupancy Rate 1996/97, 1997/98, 1998/99



3. INTERPRETING HOSPITAL PERFORMANCE INDICATORS:

We use all six of the indicators described above (Population Need for Hospitalization, Use Relative to Need Ratio, Hospital Share of Area Hospitalizations, Intensity of Cases treated, Discharge Efficiency, and Hospital Occupancy Rates) in our description of rural hospital performance. It is important to keep in mind that our measures were not designed to indicate whether hospitals are providing outstanding or poor service to their patients or their areas. Rather they enable hospitals to see where they rank in comparison to all other hospitals, to other hospitals within their RHA and to other hospitals of the same type, on a range of indicators. They also enable planners to paint a picture of the role a rural hospital is playing by putting together material from the combination of indicators.

These indicators (and the associated rankings of institutions) will suggest questions that regional policy makers may wish to address, including: why is a particular population's use of hospitals incongruent with its projected need; why are some hospitals so infrequently used; why do some hospitals deal essentially with low intensity cases, and why do some hospitals keep patients longer than expected? These rankings should also be useful in identifying institutions from which other hospitals in the area can learn: do hospitals which attract a reasonably high share of local area residents do things differently? Do hospitals which score well on the discharge efficiency measure (assuming they treat a reasonably high intensity population and serve a population which is hospitalized no more frequently than expected) have admission and discharge patterns which might be emulated? Confronting these issues should contribute to improved hospital performance and to more rational resource allocation. For example, policy makers may wish to consider how much of their scarce resources should be directed to hospitals which serve areas of low need, are used relatively infrequently, contribute little to area hospitalizations, treat relatively minor cases, score relatively poorly in discharge efficiency and have low occupancy rates. The indicators we use allow such assessments to be made and enhance the accountability of hospitals to both RHAs and the populations they represent. To enhance the practical significance of our measures we provide an examination which looks initially at each RHA, then focuses on hospitals of the same type and finally presents portraits of individual hospitals.

4. EXAMINATION BY REGIONAL HEALTH AUTHORITY:

This section presents a compilation of hospital profiles for each RHA, in tabular, graphical and text format. This perspective facilitates an understanding of how the combination of hospitals in a given RHA is functioning in several key areas. It does not provide a complete picture of all of the factors that need to be considered by RHAs in evaluating the roles played by rural hospitals, but it does provide perspective on several critical issues. We begin our RHA overviews with a brief description that indicates the number of hospitals and beds it contains, as well as its Physician Service areas, beds per 1000 population, health status, and the share of hospital separations which occur within the RHA. The RHAs are ordered according to premature mortality rates with the regions with the highest premature mortality rates presented first.[8] Profiles of each hospital are presented in a subsequent section.

4.1 Churchill RHA

1 hospital with 31 set-up beds serving a population of 1058 and 1 Physician Service Area[9]: Churchill

Beds per 1000: 29.30
Population the least healthy in province[10]
% of hospital separations from regional hospitals: 50

1 of 10 Intermediate Rural Hospitals

[8] The Premature Mortality Rates are 1991-1995 figures and are taken from Black, Roos, Fransoo and Martens, Health and Health Care use for Manitoba's Regional Health Authorities, 1999: 18.
[9]Beds per 1000 were calculated by dividing the number of set-up beds for 1998-1999 by the population assigned to each RHA as of 31 March 1999 and multiplying by 1000. The beds per 1000 will therefore differ from the numbers reported in Black, Roos, Fransoo and Martens, Health and Health Care use for Manitoba's Regional Health Authorities, 1999: 132. Physician Service Areas (PSAs) are listed only if they contain a hospital.
[10] Health descriptions of RHAs are taken from Black, Roos, Fransoo and Martens, Health and Health Care use for Manitoba's Regional Health Authorities, 1999.

Table 1: Hospital Profiles Churchill RHA

			Population Based[11]		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
CHURCHILL	IR*	CHURCHILL	High	.84	50%	High	High	27%
Overall Rank			10	49	12	16	5	65
Rank in Type					4	6	1	10

*MR refers to Major Rural, IR to Intermediate Rural, SR to Small Rural, SMU to Small Multi-Use, and NI to Northern and Isolated.

Churchill has one hospital – classified as an Intermediate Rural Hospital – that serves the Churchill RHA and a dispersed population farther north. For purposes of this project, only the RHA population was considered for the population-based indicators.

The Churchill Hospital serves a high need population (10th out of the 51 PSAs). This population is hospitalized less frequently than expected with a Use Relative to Need Ratio .84, 16% below the expected ratio. Overall, the population ranks 49th out of the 51 population areas studied on this dimension.

Given that it is the sole provider of hospital care for the RHA, the Churchill Hospital accounts for 50% of all RHA hospitalizations, ranking 12th in the province[12] in terms of the percentage of the population it captures. It provides services that are of relatively high intensity, ranking 16th in the province and 6th among its peer group of Intermediate Rural Hospitals. Discharge efficiency, as reflected by use of hospital days, is high, ranking 5th in the province; this likely is related to the short stays that occur in northern hospitals. Occupancy rate in the hospital is extremely low at 27%, suggestive of considerable excess capacity.[13]

[11] In the tables and figures that follow it is important to keep in mind that the population based measures refer to the population area in which a hospital is located, rather than to the hospital itself. A high use relative to need ratio may not indicate that a particular hospital is admitting more patients than expected. Instead, it indicates that the population in the area where the hospital is located are using more hospital services than expected. Those services can be in any hospital.

[12] References to provincial rankings apply only to the 68 rural and northern hospitals.

[13] Occupancy rates are based on all patients admitted to the hospital including out of area residents.

Churchill therefore has a single hospital, serving a high need RHA population. Despite evidence of excess capacity, residents are not overserviced. The Churchill Hospital has a good capture rate and provides relatively high intensity services in an efficient manner.

Map 1: Location of Acute Care Hospitals in Manitoba - Northern MB, Churchill

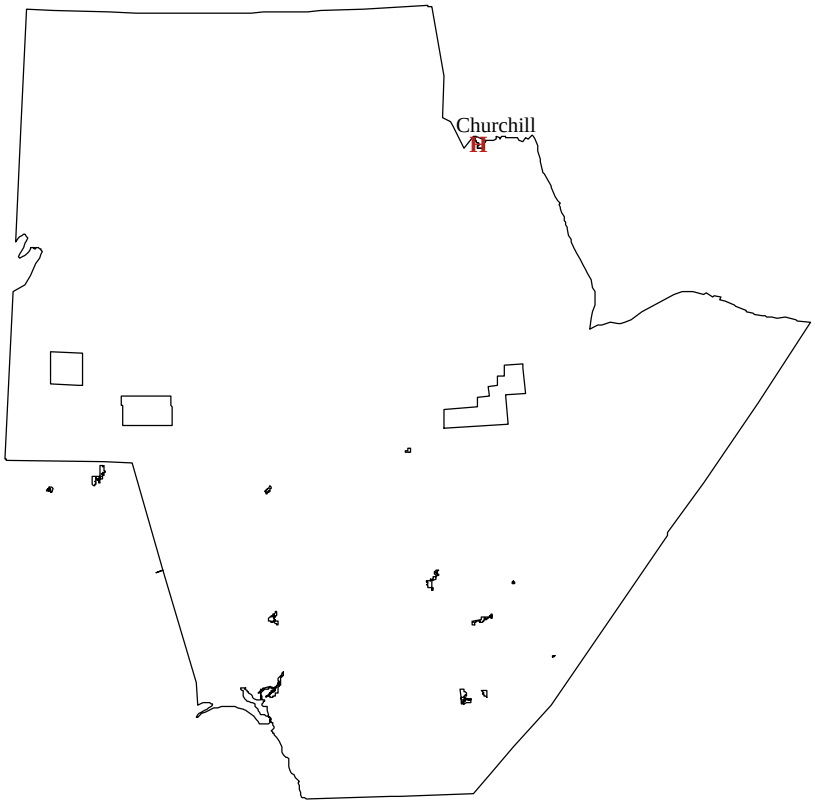


Figure 7: Need and Use Relative to Need Ratio - Churchill 1996/97, 1997/98, 1998/99

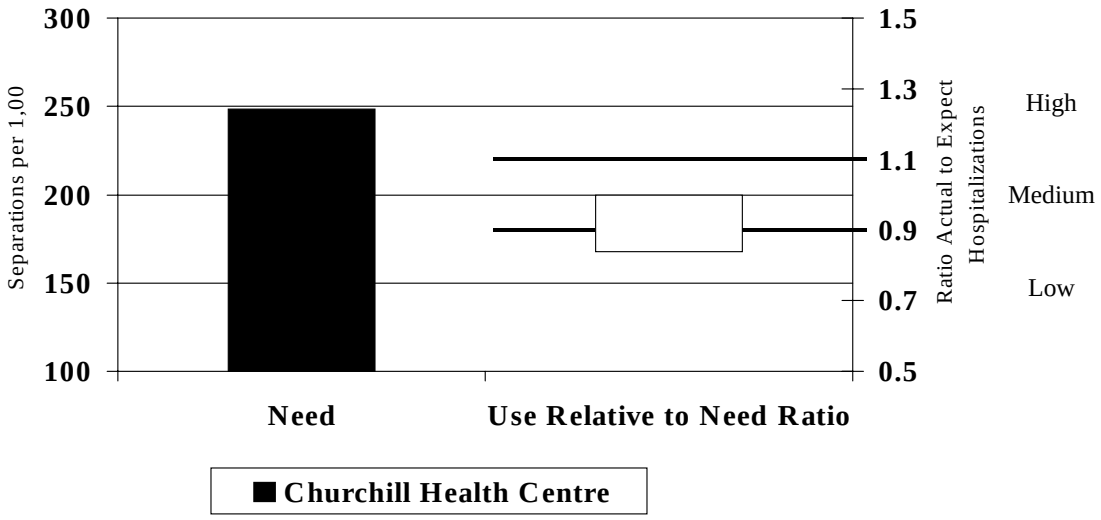


Figure 8: Intensity - Churchill 1996/97, 1997/98, 1998/99

Figure 9: Discharge Efficiency - Churchill 1996/97, 1997/98, 1998/99

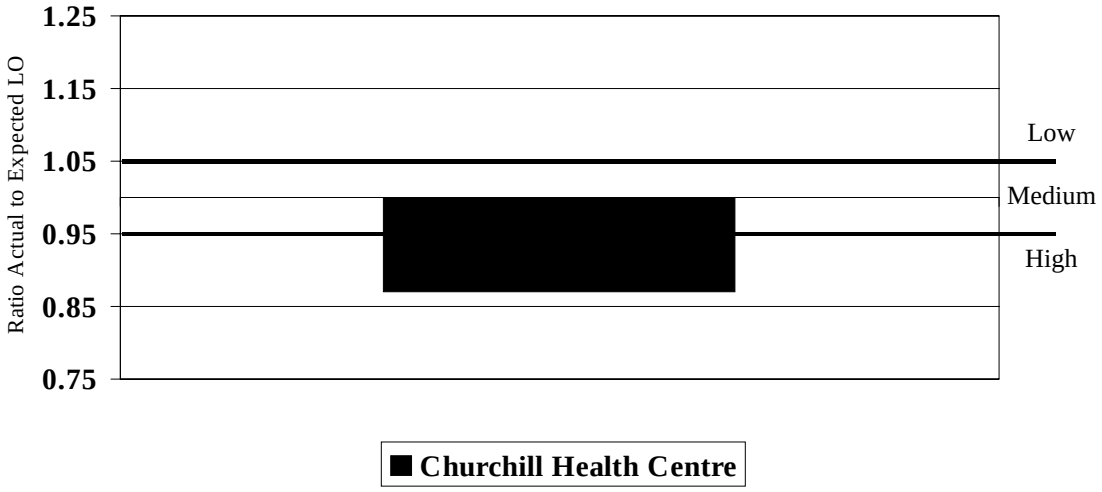
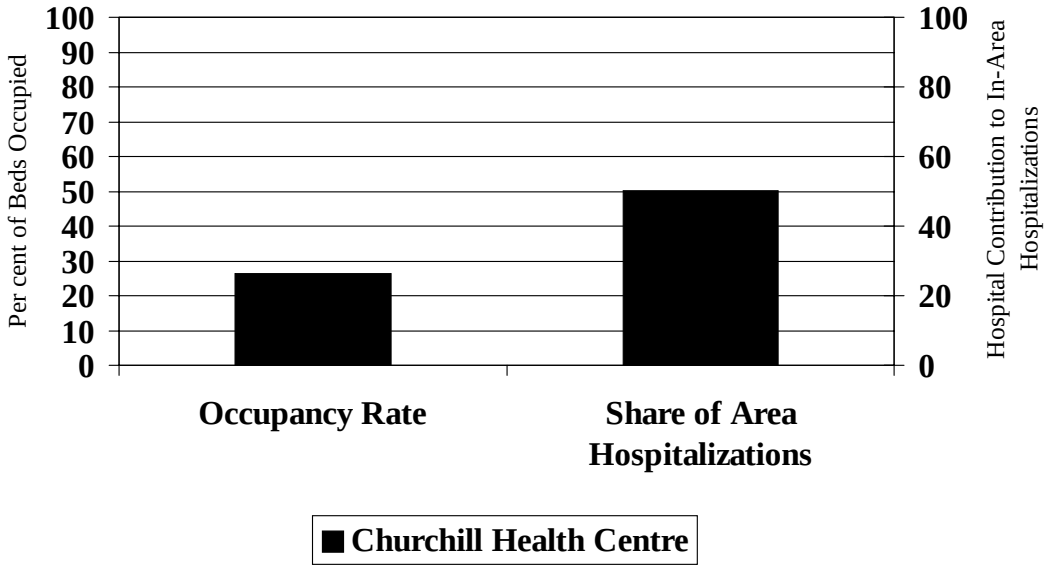


Figure 10: Occupancy Rate and Share of Area Hospitalizations - Churchill 1996/97, 1997/98, 1998/99



4.2 Norman RHA

3 hospitals with 134 set-up beds serving population of 25,459 and 2 Physician Service Areas: The Pas and Flin Flon

Beds per 1000: 5.30
Population among the least healthy in province
% of hospital separations from regional hospitals: 76

2 of 10 Major Rural Hospitals
1 of 5 Northern Isolated Hospitals

Table 2: Hospital Profiles Norman RHA[14]

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Flin Flon Overall Rank Rank in Type	MR	Flin Flon	Medium 21	.90 44	70% 2 2	Medium 26 10	Medium 39 8	57% 32 8
Snow Lake Overall Rank Rank in Type	NI	Flin Flon	Medium 21	.90 44	2% 66 5	Low 57 2	High 1 1	15% 67 4
The Pas Overall Rank Rank in Type	MR	The Pas	Medium 33	1.04 21	75% 1 1	High 15 8	High 10 1	49% 49 10

MR refers to Major Rural, IR to Intermediate Rural, SR to Small Rural, SMU to Small Multi-Use, and NI to Northern and Isolated.

Norman has three hospitals contained within two PSAs. Two of these hospitals function as Major Rural Hospitals, and the other is a Northern Isolated hospital. All three hospitals serve populations with a medium level of *need* for health care, with The Pas serving a relatively lower need population than the other two (it serves a PSA ranking 33rd on the need indicator in comparison to a PSA ranking of 21st for Flin Flon and Snow Lake). The populations served by these hospitals are all using hospital services at close to expected levels.

[14] See Figures 11-14 which display the results for the hospitals in the RHA for all indicators.

Both Flin Flon and The Pas provide over 70% of area hospitalizations, representing the first and second highest provincial capture rates for the populations they serve. In contrast, Snow Lake only provides 2% of the hospital services that the PSA population receives – one of the lowest capture rates in the province.

The level of intensity of services provided by The Pas hospital appears to be relatively high, ranking 15th in the province. However, a different perspective is provided when considering its function in comparison to other Major Rural Hospitals; in this comparison it ranks low in the intensity of services it provides (8th out of 10 Major Rural Hospitals). The other two hospitals also provide fairly low intensity services. Flin Flon ranks 26th in the province in intensity of services provided, and provides the lowest intensity services in its peer group of ten Major Rural Hospitals. Snow Lake provides low intensity services, ranking 57th overall, but 2nd in its peer group of five Northern Isolated Hospitals.

Discharge efficiency is relatively high, related to short stays that occur in northern hospitals. Snow Lake has the shortest hospital stays in the province, while The Pas ranks 10th and Flin Flon ranks 39th (or 8th in its category of ten Major Rural Hospitals). Occupancy rates for hospitals in the Norman RHA are very low, ranging from 15 to 57 percent, suggesting that there is considerable excess capacity in the Norman RHA hospital system.

In summary, Norman's two Major Rural Hospitals and one Northern Isolated Hospital provide hospital care that is fairly low in intensity to a population with an intermediate need for care. Discharge efficiency, as indicated by appropriate stays, is high and there appears to be considerable excess capacity in the hospital system, as evidenced by occupancy rates.

Map 2: Location of Acute Care Hospitals in Manitoba - Northern MB, Norman

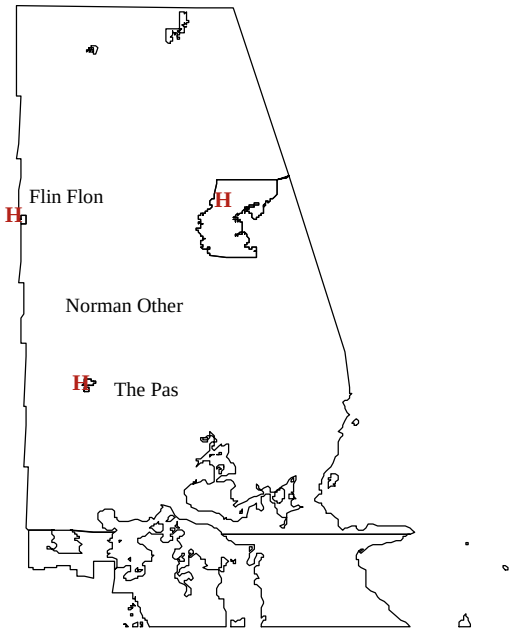


Figure 11: Need and Use Relative to Need Ratio - Norman 1996/97, 1997/98, 1998/99

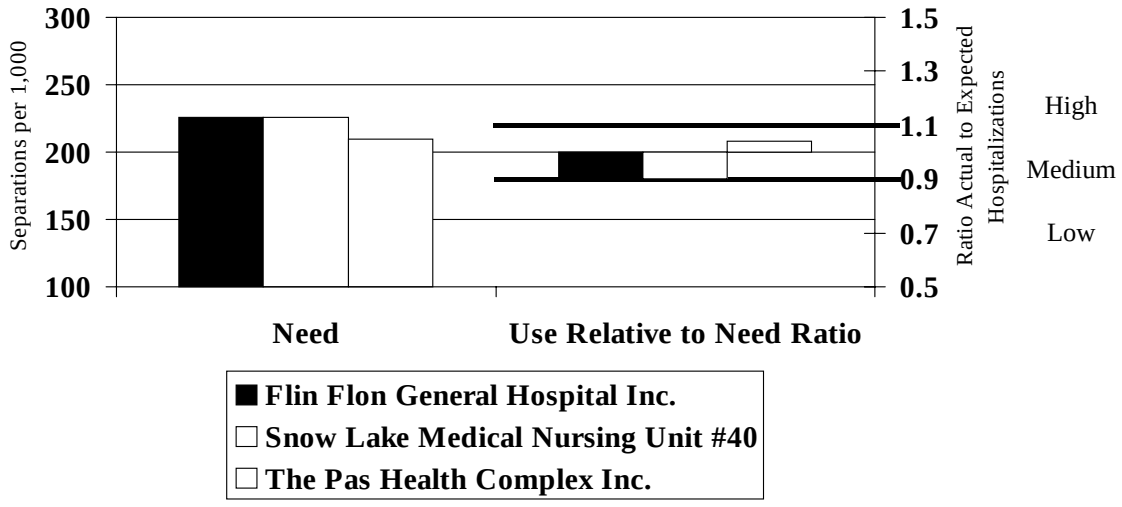


Figure 12: Intensity - Norman 1996/97, 1997/98, 1998/99

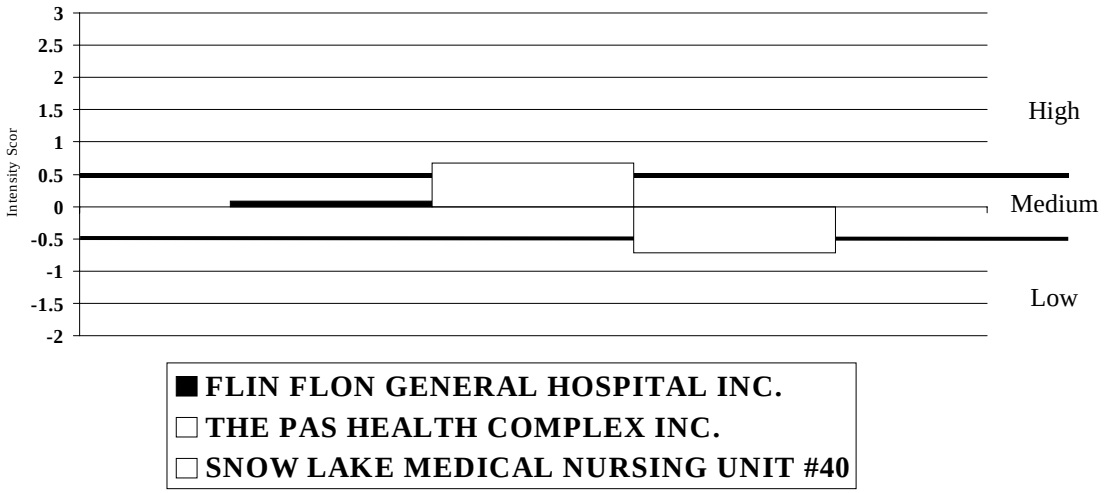


Figure 13: Discharge Efficiency Ratio - Norman 1996/97, 1997/98, 1998/99

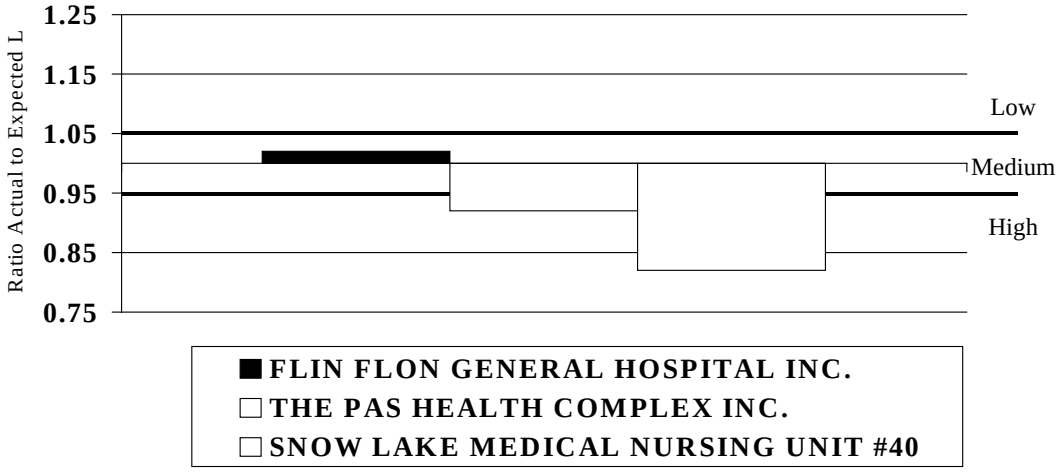
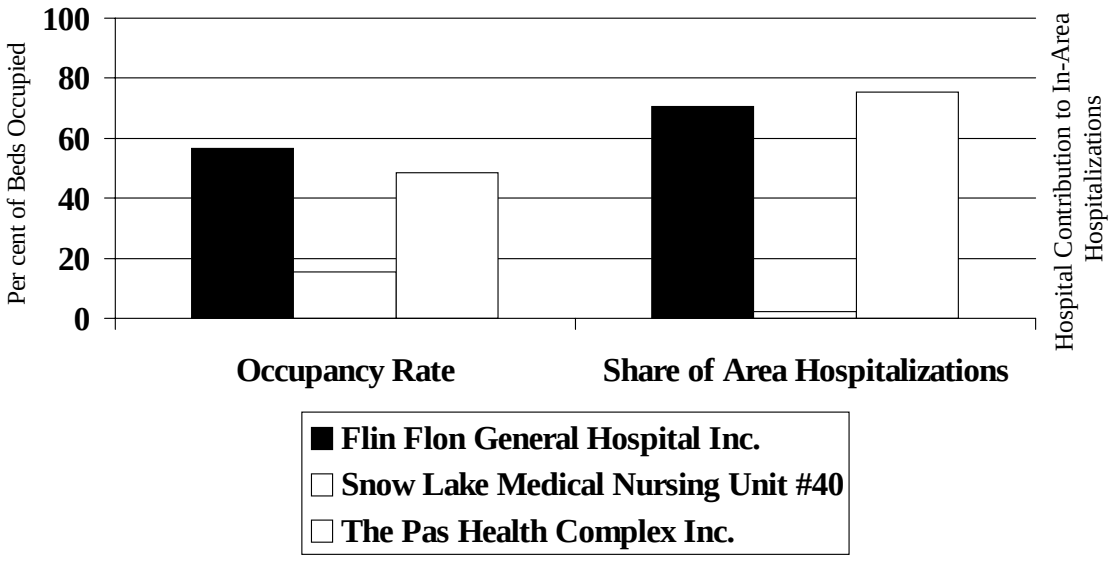


Figure 14: Occupancy Rate and Share of Area Hospitalizations - Norman 1996/97, 1997/98, 1998/99



4.3 Burntwood RHA:

5 Hospitals with 123 beds serving population of 44,881 and 5 Physician Service Areas: Norway-Cross, Lynn Lake, Thompson, Gillam and Leaf Rapids
Beds per 1000: 2.61
One of the least healthy areas of Manitoba
% of hospital separations from regional hospitals: 64

1 of 10 Major Rural hospitals
4 of 5 Northern Isolated hospitals

Table 3: Hospital Profiles Burntwood RHA[15]

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Norway House[16] Overall Rank Rank in Type	NI	Norway/ Cross	High 4	1.04 22	29% 36 4	Low 65 3	Medium 18 3	31% 64 2
Lynn Lake Overall Rank Rank in Type	NI	Lynn Lake	Medium 24	1.07 16	45% 16 2	Medium 32 1	Low 68 5	12% 68 5
Leaf Rapids Overall Rank Rank in Type	NI	Leaf Rapids	Medium 29	.95 34	44% 17 3	Low 68 5	High 8 2	32% 63 1
Gillam Overall Rank Rank in Type	NI	Gillam	Low 37	1.17 7	47% 14 1	Low 67 4	Medium 34 4	26% 66 3
Thompson Overall Rank Rank in Type	MR	Thompson	Low 44	1.03 23	70% 3 3	High 6 6	Medium 30 6	54% 40 9

MR refers to Major Rural, IR to Intermediate Rural, SR to Small Rural, SMU to Small Multi-Use, and NI to Northern and Isolated.

Burntwood RHA covers a vast geographical area and contains five hospitals including one of the province's ten major rural hospitals and four of its five northern isolated hospitals. Previous research has demonstrated that it contains the most varied sub-populations of all of the RHAs, in that it contains PSAs ranging form the healthiest to the least healthy (Black et al. 1999). This is reflected in the *need* indicators for the populations served by the five hospitals: Thompson Hospital, the Major Rural hospital and Gillam Hospital serve low need populations, while Lynn Lake and Leaf Rapids serve populations that have medium need levels. Norway House serves one of the highest need populations in the province (4th out of 51 areas).

In spite of its status as a low need population, the population served by Gillam appears to have a 17% higher rate of hospitalization than would be predicted based on its health status, the number of elderly residents and the distance from other facilities (use relative to need

[15] See Figures 15-18 which display the results for the hospitals in the RHA for all indicators.

ratio of 1.17). Populations served by the other three hospitals are hospitalized at expected levels.

Thompson Hospital provides a large proportion (70%) of the hospital care that its residents receive (ranked 3rd in the province). Lynn Lake, Leaf Rapids and Gillam all have a slightly lower share of hospitalizations (44% to 47%), but these still reflect a high capture rate in comparison to other rural Manitoba hospitals, while Norway House provides only 29% of the hospitalizations its population uses.

Hospitalizations in Thompson Hospital are of relatively high intensity (ranked 6th among the ten Major Rural hospitals), and medium discharge efficiency, as measured by how quickly patients are discharged. Lynn Lake provides approximately 45% of hospitalizations to its surrounding population. The type of care provided is categorized as of medium intensity and the lengths of stay are longer than would be expected, given the types of cases treated, hence its discharge efficiency is low. Leaf Rapids delivers very low intensity services in a manner that uses hospital days efficiently (i.e. it discharges patients quickly). Combining this information on intensity with data showing the population's higher than expected use relative to need ratio suggests that there may be some over provision of care. Gillam provides a very low intensity of hospital services, which combined with its population's much higher than expected use relative to need ratio, also suggests a higher than expected level of servicing is occurring. Discharge efficiency in use of hospital days for those patients admitted is medium. Norway House provides low intensity services to its high need population, but at a rate that is consistent with expectations.

Occupancy rates for all of the hospitals in the RHA are very low, indicating significant excess capacity in the Burntwood hospital system. Even Thompson Hospital, with the highest occupancy (54%) ranks 40th in the province, while the four Northern Isolated hospitals with even lower occupancy rates (12% to 32%) have some of the lowest occupancy rates in the province.

[16] Although Norway House is located within the geographic area covered by the Burntwood RHA, the RHA is not responsible for the hospital.

In summary, Burntwood RHA contains a diverse and geographically isolated population. Only the Thompson Hospital provides high intensity services to a major proportion of the residents it serves. The other hospitals, with the exception of Lynn Lake, provide low intensity services. There is some evidence of higher than expected patterns of provision of care for Gillam residents and there is evidence of considerable overcapacity in the hospital system. However, considerations of this overcapacity must be tempered by the knowledge that Burntwood also contains the high need PSA of Oxford House which recorded the lowest use relative to need ratio in rural Manitoba.

Map 3: Location of Acute Care Hospitals in Manitoba - Northern MB, Burntwood

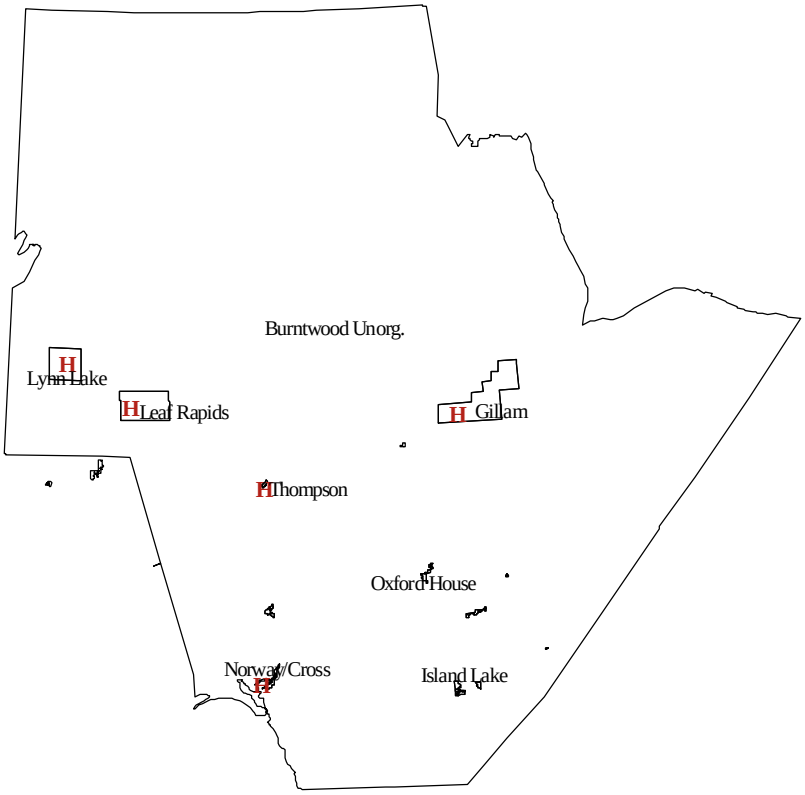


Figure 15: Need and Use Relative to Need Ratio - Burntwood 1996/97, 1997/98, 1998/99

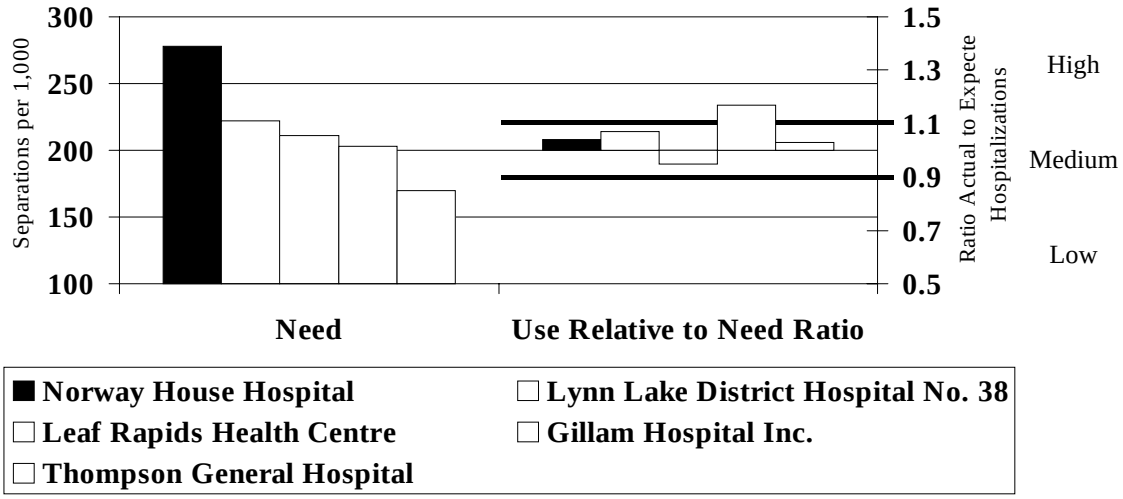


Figure 16: Intensity - Burntwood 1996/97, 1997/98, 1998/99

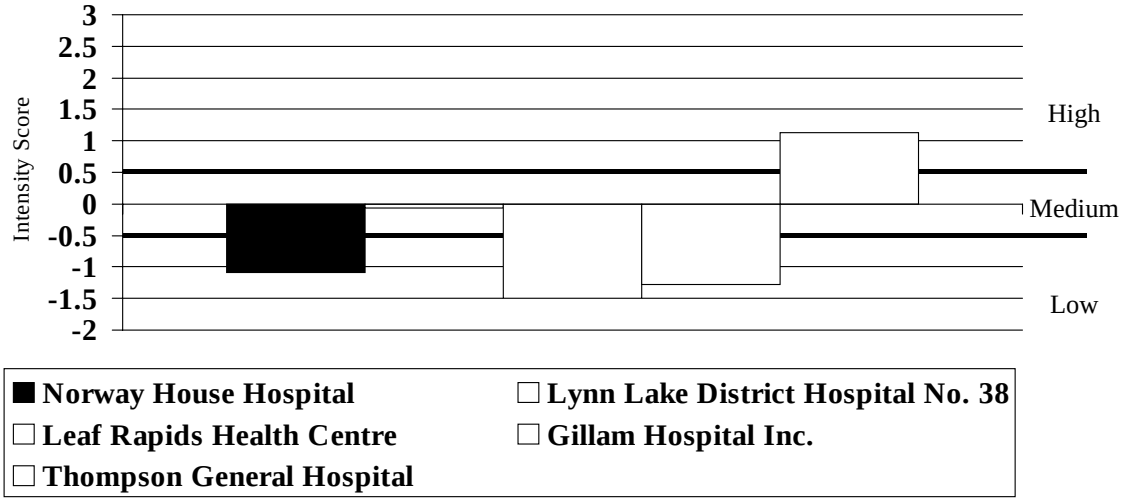


Figure 17: Discharge Efficiency - Burntwood 1996/97, 1997/98, 1998/99

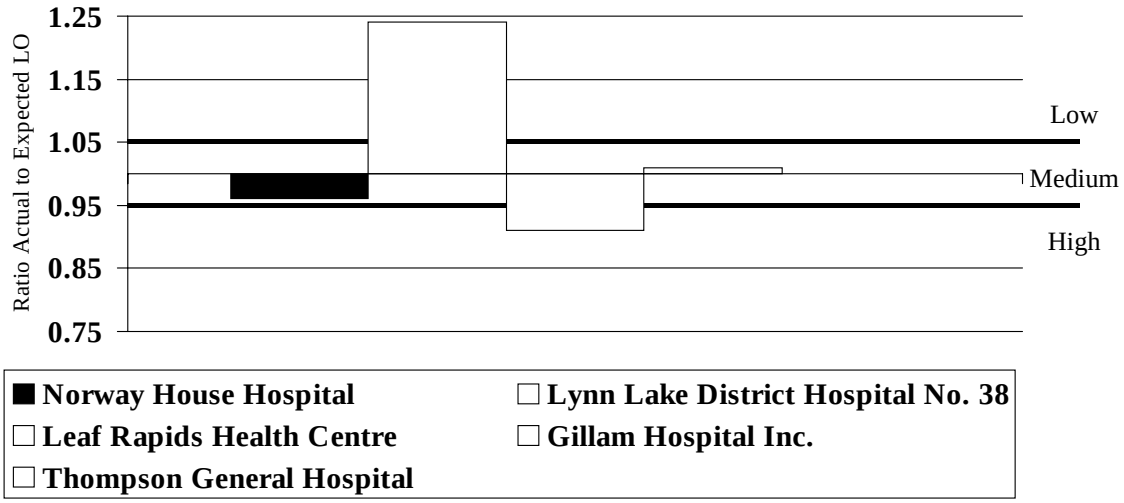
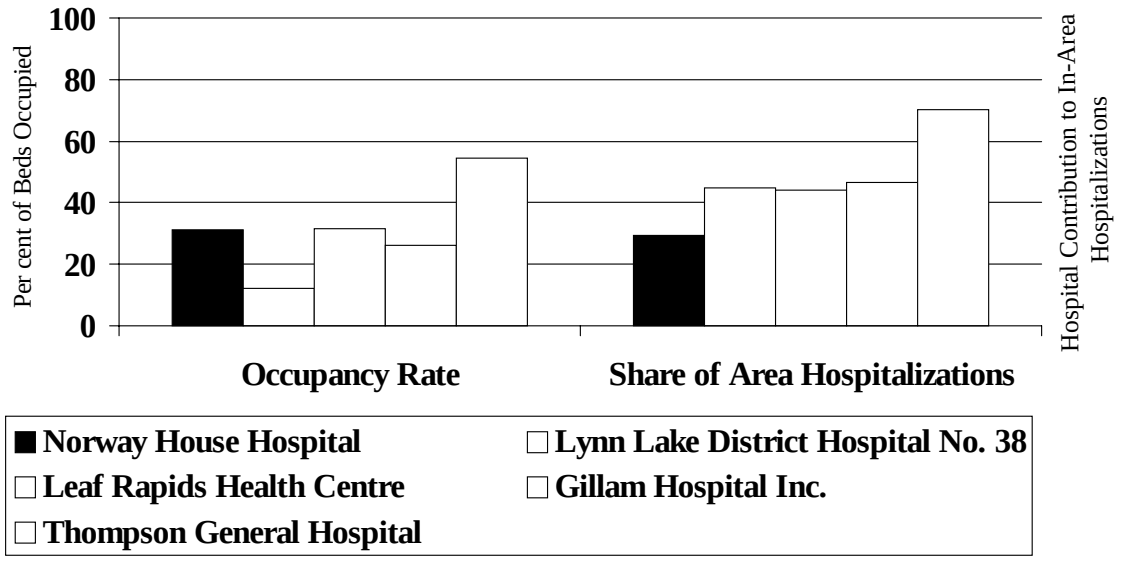


Figure 18: Occupancy Rate and Share of Area Hospitalizations - Burntwood 1996/97, 1997/98, 1998/99



4.4 Interlake RHA[17]

8 hospitals with 193 beds serving population of 74,660 and 6 Physician Service Areas: Grahamdale, Coldwell, East Interlake, Gimli, Selkirk and Rockwood.
Beds per 1000: 2.56
Population slightly less healthy than average
% of hospital separations from regional hospitals: 47

1 of 10 Major Rural Hospitals
1 of 10 Intermediate Rural Hospitals
6 of 37 Small Rural Hospitals

Table 4: Hospital Profiles Interlake RHA

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Arborg Overall Rank Rank in Type	SR	East Interlake	High 6	.81 50	16% 48 24	High 14 2	Medium 20 10	51% 45 24
Hodgson Overall Rank Rank in Type	SR	East Interlake	High 6	.81 50	32% 32 11	Low 66 37	High 3 2	47% 52 29
Gimli Overall Rank Rank in Type	IR	Gimli	High 11	.88 46	41% 22 8	Medium 35 9	Low 56 9	56% 33 7
Eriksdale Overall Rank Rank in Type	SR	Coldwell	Medium 20	.93 36	33% 30 9	Medium 38 14	Medium 29 12	61% 24 10
Ashern Overall Rank Rank in Type	SR	Grahamdale	Medium 32	.93 37	39% 23 4	Medium 36 12	High 9 4	60% 27 12
Selkirk Overall Rank Rank in Type	MR	Selkirk	Low 45	1.08 14	42% 20 8	High 3 3	Low 64 10	69% 12 3
Teulon Overall Rank Rank in Type	SR	Rockwood	Low 47	1.22 5	18% 46 22	Medium 33 10	Medium 46 21	59% 29 13
Stonewall Overall Rank Rank in Type	SR	Rockwood	Low 47	1.22 5	20% 44 20	Medium 18 4	Medium 31 13	75% 4 2

MR refers to Major Rural, IR to Intermediate Rural, SR to Small Rural, SMU to Small Multi-Use, and NI to Northern and Isolated.

[17] See Figures 19-22 which display the results for the hospitals in the RHA for all indicators.

Interlake RHA has eight hospitals, one of which is a major rural hospital (Selkirk), one of which is an intermediate rural hospital (Gimli), while the rest are classified as small rural hospitals. Two of these hospitals (Arborg and Hodgson) are located within a single PSA whose population has a high need for health care services, while two other hospitals (Teulon and Stonewall) are located within a single, low need PSA.

In total, three of Interlake's hospitals are situated in locations where they serve high need populations, while an equal number appear to serve relatively low need populations. Patterns of how hospital services are used by these Interlake sub-populations (i.e. the use relative to need ratio) provide an interesting perspective – suggesting that in general, the high need populations receive *less* hospital care than would be expected, given their level of need. Specifically, the East Interlake PSA residents' use of hospital services is 19% lower than expected and the Gimli PSA's use is 12% lower than expected after accounting for the poor health and higher need of these populations. In contrast, the lower need PSA population of Rockwood is hospitalized at rates that are 22% *above* the expected level (and Selkirk ranks 14th on this measure).

In terms of how they service local populations, Selkirk and Gimli hospital provide a relatively high percentage of the services received by local populations (42% and 41%) when compared to other rural hospitals; they rank 20th and 22nd, respectively. However, when compared to their peer groups, they do not appear to be performing as well: Selkirk ranks 8th out of ten Major Rural hospitals and Gimli ranks 8th out of ten Intermediate Hospitals. Ashern, Eriksdale and Hodgson provide a smaller percentage of care to local residents, ranking 23rd, 30th, and 32nd in the province, respectively, on this measure. Stonewall, Teulon and Arborg have very low penetration in terms of their capture rates.

An examination of the services provided by these different hospitals reveals that only two – Selkirk and Arborg – appear to be providing care that is high in intensity. Hodgson, which serves a high need population, is the only hospital in the RHA providing low intensity services. Only two hospitals score in the high range on our discharge efficiency index –

Hodgson and Ashern. Gimli appears to be much less efficient in using hospital days than would be expected.

Occupancy rates for hospitals in the Interlake RHA range from 47% to 75%. Selkirk Hospital has a relatively high occupancy rate of 69% and ranks 12th in the province. The low discharge efficiency indicator for this hospital, however, suggests that the occupancy rate would be lower if hospital days were used more efficiently within the hospital. The other hospital with a high occupancy rate is the Stonewall Hospital; it ranks 4th highest in the province with its occupancy rate of 75%. However, the population it serves is a low need population that is receiving considerable overservicing – 20% more than expected. In addition, the hospital is providing services of medium intensity (but higher than those provided by Teulon, the other hospital serving this same low need population). It is therefore likely that this very high occupancy rate is in some measure related to provision of a higher than necessary level of service to surrounding populations. The same is true for the 59% occupancy rate of the Teulon Hospital. With a level of servicing more in line with expectations, occupancy rates for these hospitals would likely be lower. Hodgson has the lowest occupancy rate at 47%, even though it serves a high need population that is less likely to be hospitalized than expected. Since it provides fairly low intensity services, if hospitalizations were restricted to those cases that really need to be in hospital, occupancy rates would likely be even lower. Occupancy rates for hospitals in the Interlake RHA therefore are suggestive of overcapacity in the system, especially when interpreted in the context of understanding derived from the other indicators.

In summary, Interlake RHA has eight hospitals, each of which plays a different role within its hospital system. Three hospitals serve high need populations. However, in spite of this, the high need populations are relatively underserved. Moreover, two of these hospitals serving high need populations have the lowest occupancy rates in the RHA (Arborg and Hodgson). Five of the eight hospitals serve the needs of populations who require a low or medium level of service – these populations appear to be receiving more hospital services than expected. Six of the eight hospitals are providing hospital services of low or medium intensity and only two rank highly in discharge efficiency. While occupancy rates for

hospitals serving the low and medium need populations are reasonably high, they would likely be lower – if hospitalization rates could be reduced to a level consistent with those for the rest of the Manitoba rural population and if use of hospital days could be made more efficient. The picture is one of multiple hospitals providing care that is not well targeted to high need populations, is not of high intensity and is generally not highly efficient. In summary, there is evidence of significant over capacity in the system.

Map 4: Location of Acute Care Hospitals in Manitoba - Interlake MB

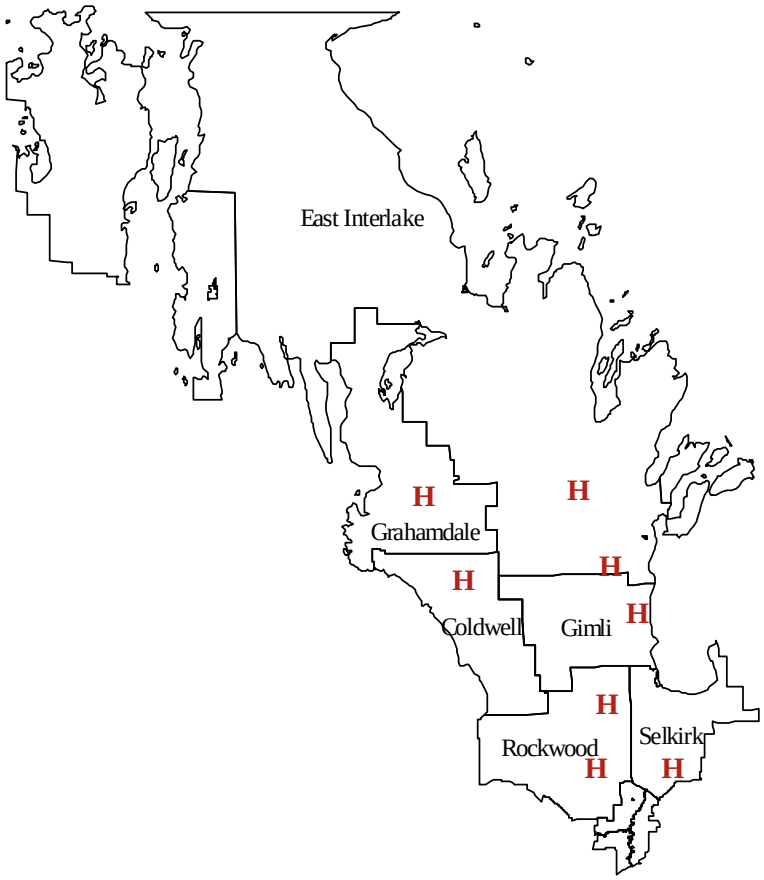


Figure 19: Need and Use Relative to Need Ratio - Interlake 1996/97, 1997/98, 1998/99

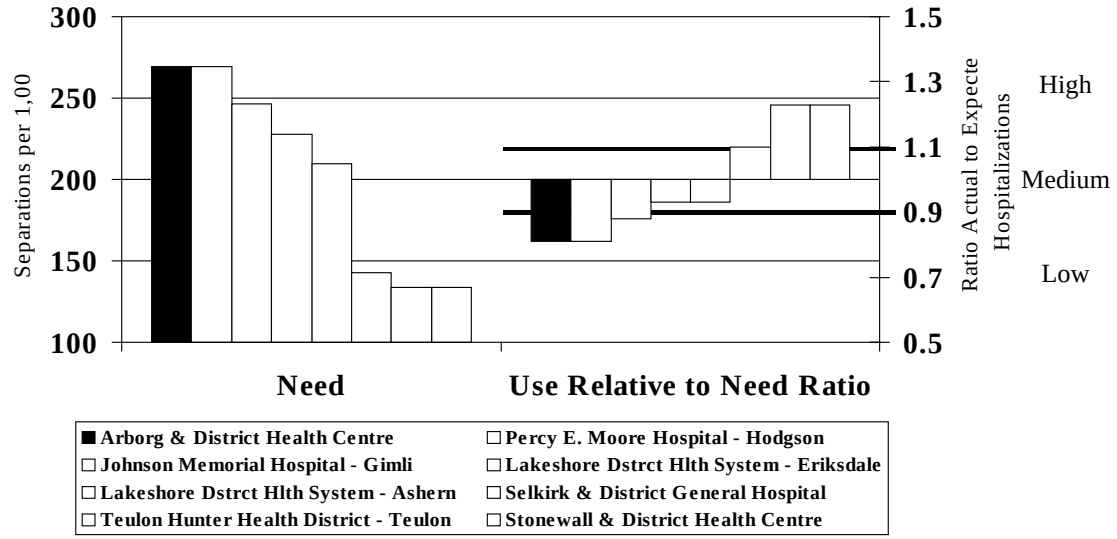


Figure 20: Intensity - Interlake 1996/97, 1997/98, 1998/99

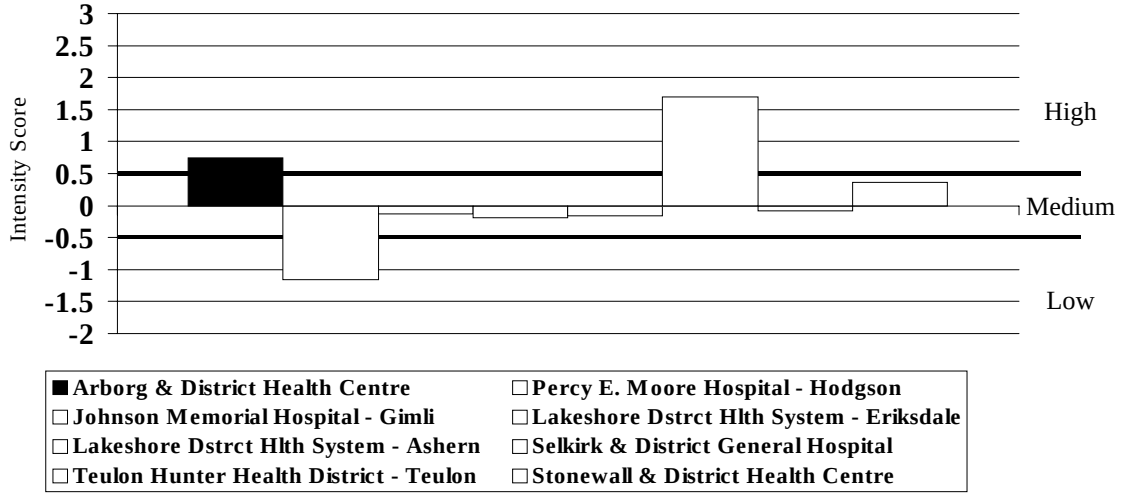


Figure 21: Discharge Efficiency - Interlake 1996/97, 1997/98, 1998/99

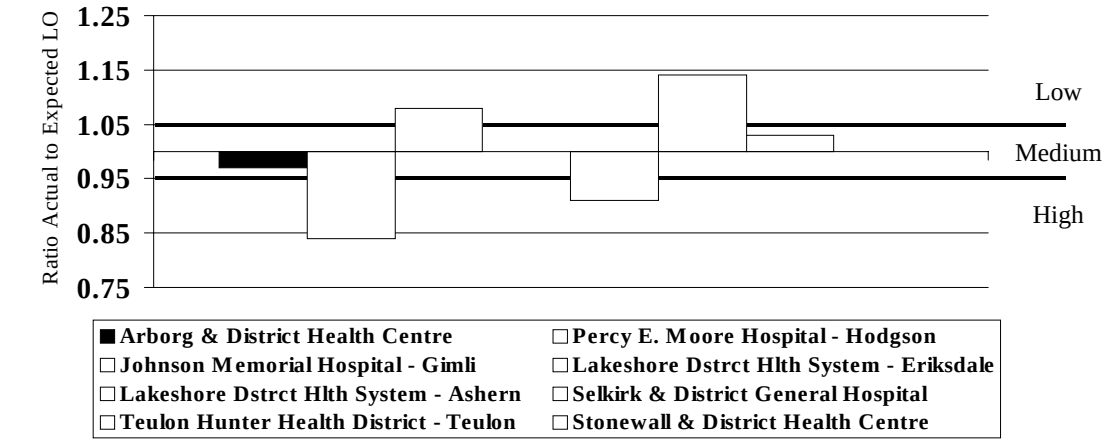
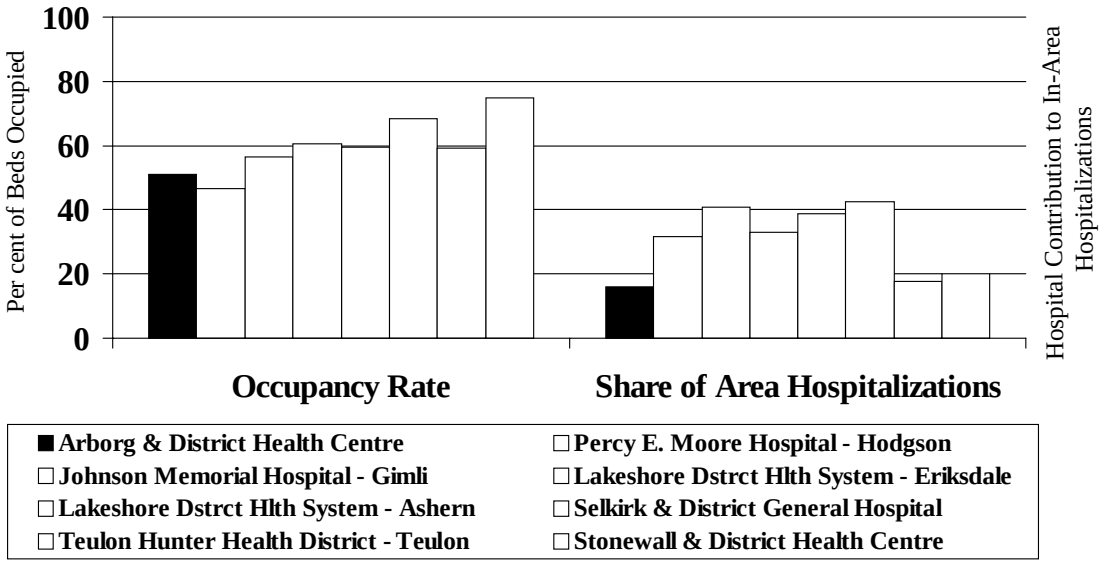


Figure 22: Occupancy Rate and Share of Area Hospitalizations - Interlake 1996/97, 1997/98, 1998/99



4.5 North Eastman RHA

4 hospitals with 80 beds serving population of 38,817 and 2 Physician Service Areas: East Lake Winnipeg and Springfield
Beds per 1000: 2.06
Population of average health
% of hospital separations from regional hospitals: 39

No Major Rural Hospitals
1 of 10 Intermediate Rural Hospitals
2 of 37 Small Rural Hospitals
1 of 6 Small Multi-Use Hospitals

Table 5: Hospital Profiles North Eastman RHA[18]

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Pine Falls Overall Rank Rank in Type	SR	East Lake Winnipeg	High 7	.88 47	34% 28 7	Medium 41 17	High 11 5	56%[19] 36 18
Beausejour Overall Rank Rank in Type	IR	Springfield	Low 46	1.12 11	24% 40 9	High 13 5	Low 65 10	81% 1 1
Pinawa Overall Rank Rank in Type	SR	Springfield	Low 46	1.12 11	9% 55 30	Low 63 36	Medium 45 20	70% 9 5
Whitemouth Overall Rank Rank in Type	SM U	Springfield	Low 46	1.12 11	2% 67 5	Medium 24 2	Medium 40 4	70% 8 1

MR refers to Major Rural, IR to Intermediate Rural, SR to Small Rural, SMU to Small Multi-Use, and NI to Northern and Isolated.

North Eastman has four hospitals, the largest of which is Beausejour, classified as an Intermediate Rural hospital. In addition, it has two PSAs, one with a high need population and the other with a low need population. In terms of location, only one of North Eastman's four hospitals is located in its high need PSA; the other three hospitals are located in the geographically smaller low need PSA. Patterns of how hospital services are used are as follows. The high need population of East Lake Winnipeg receives a lower level of hospital

[18] See Figures 23-26 which display the results for the hospitals in the RHA for all indicators.
[19] The occupancy rate reported by Pine Falls is 58%.

care than expected (12% below expectations), while the lower need and healthier population of Springfield is hospitalized at a higher rate than expected (12% above expectations).

North Eastman's hospitals provide the lowest average share of area hospitalizations of any of the RHA's. Pine Falls Hospital has the region's highest capture rate at 34% and even it ranks only 28th in the province on this indicator. Beausejour Hospital an Intermediate Rural hospital is next highest. It provides 24% of the hospitalizations that residents of Springfield receive and ranks 40th in the province on this measure. Both Pinawa and Whitemouth provide an extremely low share of area hospitalizations – 9% and 2%, respectively.

In terms of patterns of services delivered, only Beausejour Hospital delivers services that appear to be of high intensity. However, it scores low on the discharge efficiency measure meaning it uses more hospital days than expected to provide this care. Whitemouth and Pine Falls deliver care of intermediate intensity, while Pinawa provides low intensity services. Only Pine Falls receives a high score on the discharge efficiency measure.

Occupancy rates for hospitals within the RHA range from 56% to 81%. Beausejour, with an occupancy rate of 81% (the highest in the province)[20] serves a population that has a low need for hospital care; moreover this population appears to be receiving a higher level of service than expected. In addition, services are delivered in a less than efficient manner compared with other rural hospitals. Pinawa and Whitemouth also have high occupancy rates of 70% each. They serve the same population as Beausejour, but provide a very small percentage of services to this population. Pine Falls has the lowest occupancy rate for hospitals in the RHA. It is the only hospital serving a high need population – a population that appears to receive lower levels of hospital care than expected.

In summary, the North Eastman area has four hospitals, each of which plays a different role. Only one of these hospitals serves a high need population – and this population makes less use of hospitals than expected. Moreover, this hospital had the lowest occupancy rate among

[20] It is important to keep in mind that the provincial rankings apply only to the 68 rural and northern hospitals. Hospitals in Winnipeg and Brandon are not in the comparison group.

the four hospitals. In contrast, three hospitals with very high occupancy rates serve the low need and healthy population of Springfield – for which there is a higher rate of hospitalization than expected. Only one of these hospitals (Beausejour) is providing a high level of intensity in the services it provides. However, it falls short on the discharge efficiency measure. The other two hospitals serving this low need population are providing only a very small percentage of the hospitalizations received by residents of their local areas and are providing care of low or medium intensity.

Map 5: Location of Acute Care Hospitals in Manitoba - North Eastman MB

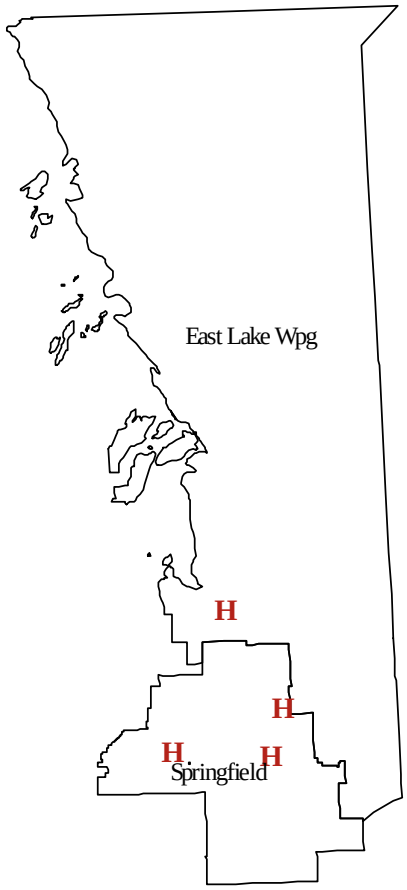


Figure 23: Need and Use Relative to Need Ratio - North Eastman 1996/97, 1997/98, 1998/99

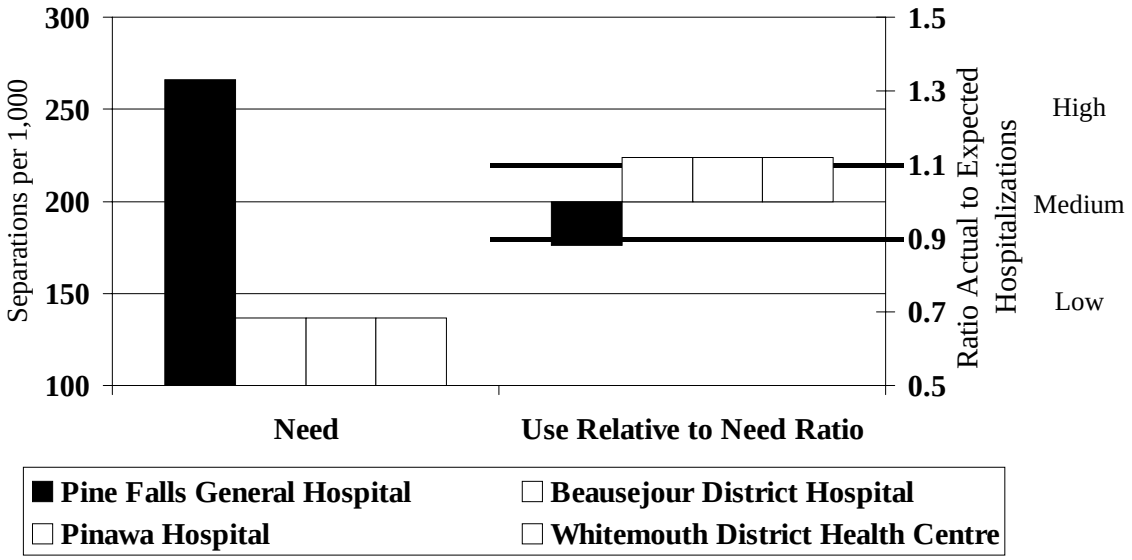


Figure 24: Intensity - North Eastman 1996/97, 1997/98, 1998/99

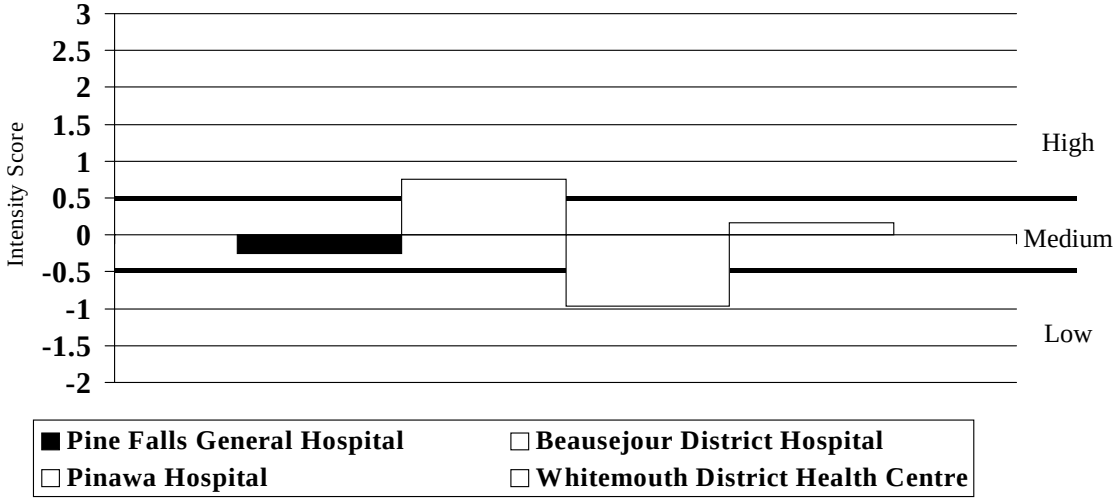
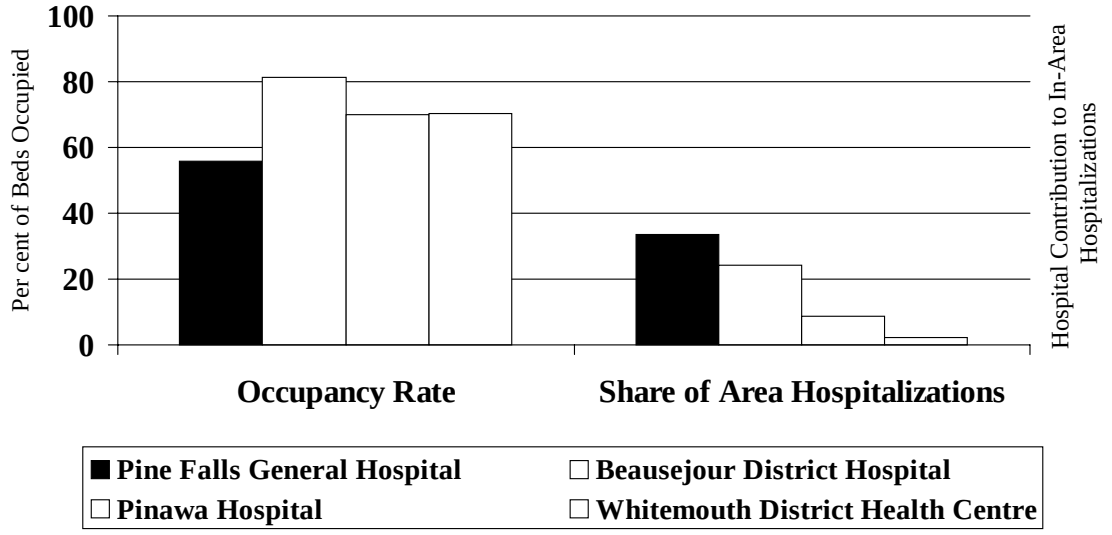


Figure 25: Discharge Efficiency - North Eastman 1996/97, 1997/98, 1998/99

Figure 26: Occupancy Rate and Share of Area Hospitalizations - North Eastman 1996/97, 1997/98, 1998/99



4.6 Parkland RHA

8 hospitals with 263 beds serving population of 43,568 and 5 Physician Service Areas: Roblin, Swan River, Alonsa, Dauphin and Gilbert Plains
Beds per 1000: 5.87
Population of average health
% of hospital separations from regional hospitals: 78

2 of 10 Major Rural Hospitals
1 of 10 Intermediate Rural Hospitals
4 of 37 Small Rural Hospitals
1 of 6 Small Multi-Use Hospitals

Table 6: Hospital Profiles Parkland RHA[21]

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Grandview Overall Rank Rank in Type	SR	Gilbert Plains	High 8	1.06 17	33% 29 8	Low 53 28	Low 55 30	51% 46 25
Dauphin Overall Rank Rank in Type	MR	Dauphin	High 12	.94 35	69% 4 4	High 2 2	Medium 26 4	76%[22] 3 1
Winnipegosis Overall Rank Rank in Type	SR	Dauphin	High 12	.94 35	6% 61 36	Medium 50 25	Low 60 34	61%[23] 23 9
Roblin Overall Rank Rank in Type	SR	Roblin	High 14	1.05 20	51% 10 1	Medium 37 13	Medium 35 15	68% 15 8
Swan River Overall Rank Rank in Type	MR	Swan River	High 16	1.11 13	64% 7 6	Medium 19 9	Low 44 9	71% 7 2
Benito Overall Rank Rank in Type	SMU	Swan River	High 16	1.11 13	3% 65 4	Medium 30 4	High 4 1	51% 44 4
Ste. Rose Overall Rank Rank in Type	IR	Alonsa	Medium 26	1.36 1	45% 15 5	Medium 45 10	Medium 27 6	50%[24] 48 9
McCreary-Alonsa Overall Rank Rank in Type	SR	Alonsa	Medium 26	1.36 1	8% 56 31	Medium 47 22	Medium 41 18	55%[25] 39 21

MR refers to Major Rural, IR to Intermediate Rural, SR to Small Rural, SMU to Small Multi-Use, and NI to Northern and Isolated.

[21] See Figures 27-30 which display the results for the hospitals in the RHA for all indicators.
[22] Dauphin reports an occupancy rate of 81.
[23] Winnipegosis reports an occupancy rate of 69%.
[24] Ste Rose reports an occupancy rate of 63%. This discrepancy appears largely due to a difference in the number of set-up beds they report (30) and that in Manitoba Health's bed count (37).
[25] McCreary-Alonsa reports an occupancy rate of 71%.

Residents of Parkland are served by eight hospitals, two of which are major rural hospitals. Hospitals are located in five different Physician service areas and three of these areas contain more than one hospital. Parkland PSAs are of relatively high need: four of them have high need populations and the other, Alonsa, is a medium need PSA. Both of the major rural hospitals are located in a high need area. In fact, they are the only major rural hospitals in the province to be located in high need areas.

Despite the relatively high need for hospitalization throughout Parkland, two of the PSA populations, Swan River and Alonsa, use higher levels of hospital care than expected. Indeed, residents of the medium need Alonsa area receive 36% more hospitalizations than expected, reflected in the highest Use Relative to Need Ratio in the province. This likely represents significant overutilizations of hospital resources. Residents of the remaining PSAs utilized hospitals at the expected rates.

Not surprisingly, the major rural hospitals of Dauphin and Swan River have the highest capture rates for area hospitalizations. Dauphin provides 69% of the PSA's hospital services while using approximately 6% fewer hospital services than expected. Swan River provides 64% of the hospital services to the Swan River PSA, which uses 11% more hospital services than expected. Roblin accounts for more than half of the hospitalizations of area residents and ranks first among small rural hospitals on this measure. Benito and Winnipegosis each provide less than 7% of area hospitalizations and both rank in the bottom 10 of the province on this dimension. Among small rural hospitals, only one hospital accounts for a smaller share of area hospitalizations than Winnipegosis.

Dauphin is the only area hospital to provide services of high intensity. With the exception of Grandview with its 53rd place ranking, the remaining hospitals provide services of medium intensity. Neither Dauphin or Swan River record discharge efficiency scores in the highest category and Swan River ranks 9th among major rural hospitals on this dimension. The small multi-use hospital in Benito receives the region's highest discharge efficiency score ranking 4th over all. None of the other hospitals were in the most efficient category.

The hospitals in the region appear relatively full with occupancy rates ranging from 50% to 76%. Dauphin, with an occupancy rate of 76%, not only has the highest occupancy rate in the RHA, it also has the highest occupancy rate of the major rural hospitals. Ste. Rose and McCreary-Alonsa, serving a population with substantially more hospitalizations than expected, report occupancy rates of 50% and 55% respectively.[26] Ste. Rose ranks 9th among intermediate rural hospitals on this dimension. Swan River has the second highest occupancy rate in the region (71%) but this may be due in part to its rather low score on the discharge efficiency index (it uses more hospital days than expected for its case mix). Similarly, the 61% occupancy rate of Winnipegosis must be understood in light of its low ranking in discharge efficiency.

In summary, Parkland is a relatively high need RHA. Within it three quarters of the region's hospitals serve high need populations. However, it is the medium need population that records the highest use relative to need ratio in rural Manitoba. This population is served by two hospitals: Ste Rose provides 45% of the PSA's services and McCreary-Alonsa provides 8%. Neither of these hospital's records high scores on the discharge efficiency index and both rank well below the provincial mid point with respect to intensity and occupancy rate. Grandview, serving the highest need population in the region, provides the least intense services in the region and also ranks low in both discharge efficiency and occupancy rate.

[26] The greatest discrepancy between occupancy rates reported by a hospital and those we calculated occurred with McCreary-Alonsa. It reports an occupancy rate of 71%.

Map 6: Location of Acute Care Hospitals in Manitoba - Parkland

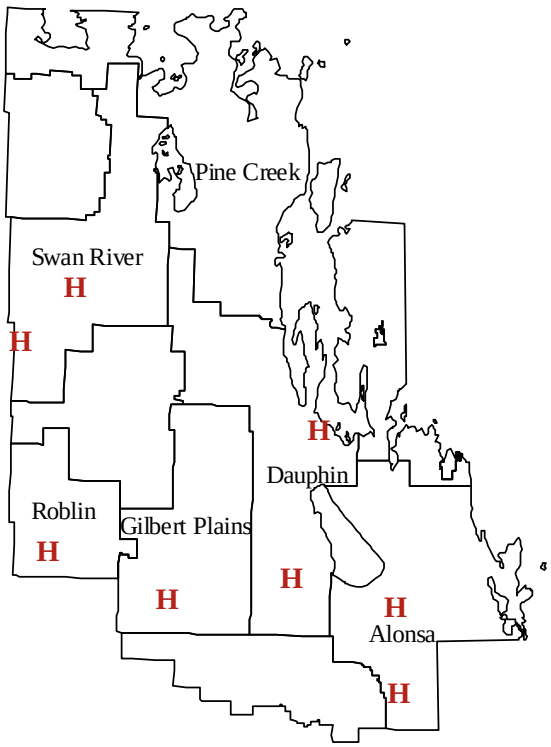


Figure 27: Need and Use Relative to Need Ratio - Parkland 1996/97, 1997/98, 1998/99

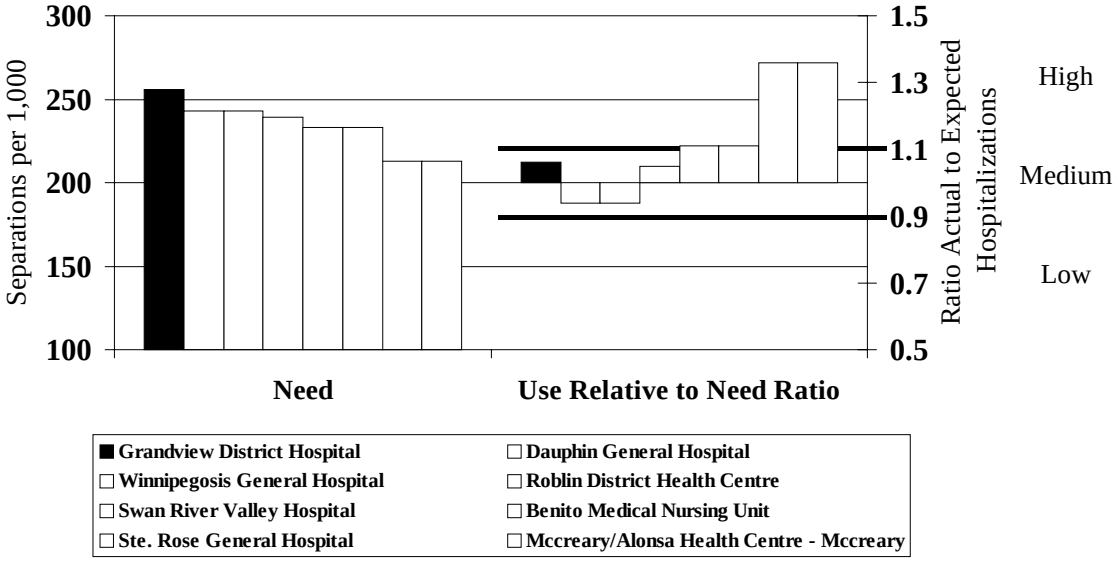


Figure 28: Intensity - Parkland 1996/97, 1997/98, 1998/99

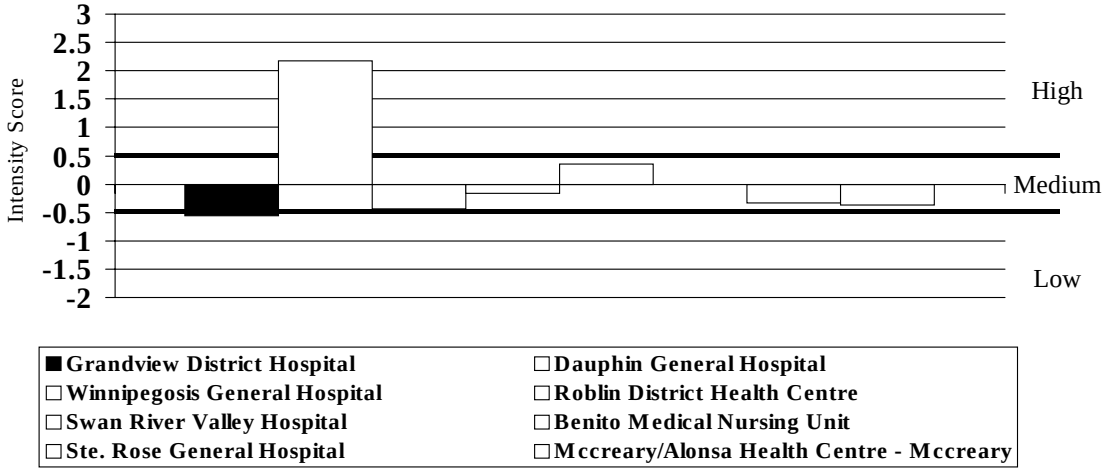


Figure 29: Discharge Efficiency - Parkland 1996/97, 1997/98, 1998/99

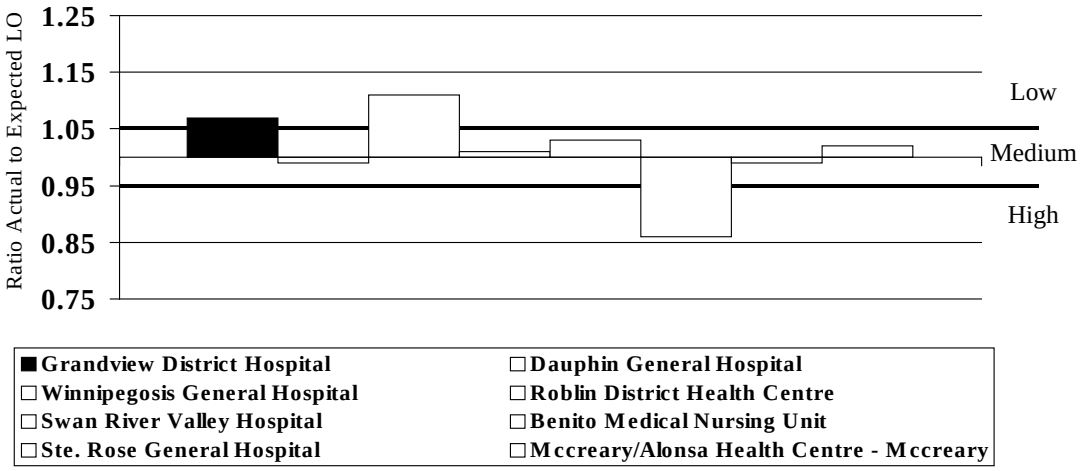
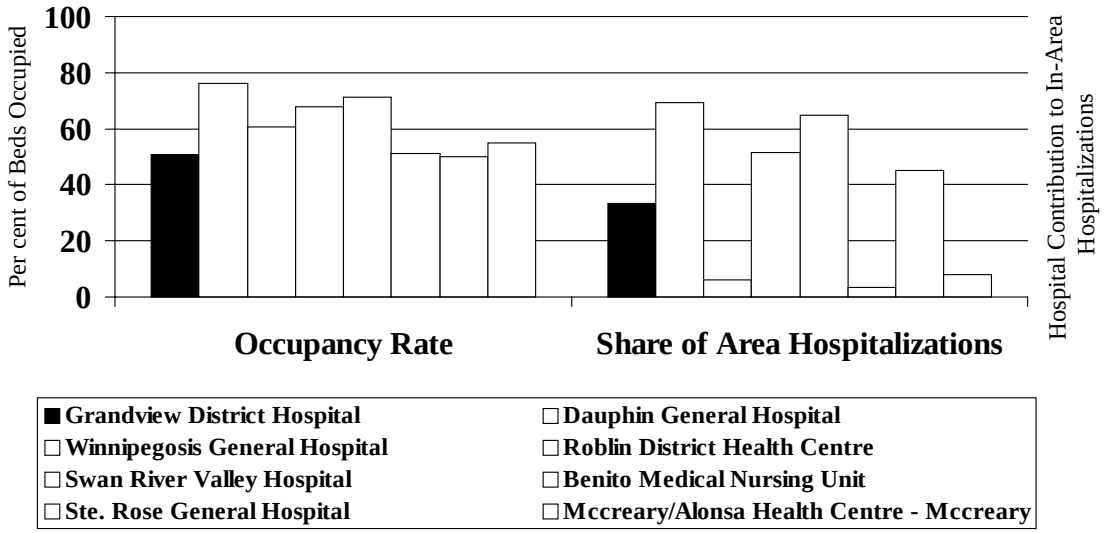


Figure 30: Occupancy Rate and Share of Area Hospitalizations - Parkland 1996/97, 1997/98, 1998/99



4.7 Marquette RHA

10 hospitals with 224 beds serving population of 37,773 and 5 Physician Service Areas: Sioux Valley, Russell, North Cypress, Neepawa and Minnedosa
Beds per 1000: 5.90
Population slightly more healthy than average
% of hospital separations from regional hospitals: 64

No Major Rural Hospitals
2 of 10 Intermediate Rural Hospitals
7 of 37 Small Rural Hospitals
1 of 6 Small Multi-Use Hospitals

Table 7: Hospital Profiles Marquette RHA[27]

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Neepawa	IR	Neepawa	High	.99	68%	High	Medium	66%
Overall Rank			15	28	5	7	24	17
Rank in Type					1	1	5	4
Minnedosa	IR	Minnedosa	High	.93	23%	High	High	63%
Overall Rank			17	38	42	8	16	20
Rank in Type					10	2	3	5
Hamiota	SR	Minnedosa	High	.93	17%	Medium	Low	58%
Overall Rank			17	38	47	17	61	31
Rank in Type					23	3	35	15
Shoal Lake	SR	Minnedosa	High	.93	9%	Low	Low	38%
Overall Rank			17	38	53	61	63	60
Rank in Type					28	34	36	35
Erickson	SR	Minnedosa	High	.93	9%	Medium	Medium	75%
Overall Rank			17	38	52	27	19	5
Rank in Type					27	8	9	3
Riverdale	SR	Sioux	Medium	1.05	43%	Medium	Medium	69%
Overall Rank		Valley	22	19	19	40	47	11
Rank in Type					3	16	22	7
Russell	SR	Russell	Medium	1.34	39%	Low	High	52%
Overall Rank			23	2	24	58	14	41
Rank in Type					5	32	7	22
Birtle	SR	Russell	Medium	1.34	14%	Low	High	33%
Overall Rank			23	2	49	54	6	61
Rank in Type					25	29	3	36
Rossburn	SMU	Russell	Medium	1.34	10%	Low	High	42%
Overall Rank			23	2	51	60	7	56
Rank in Type					1	5	2	5
Carberry Plains	SR	North	Low	.95	29%	Medium	Low	46%
Overall Rank		Cypress	35	32	37	43	59	53
Rank in Type					15	19	33	30

MR refers to Major Rural, IR to Intermediate Rural, SR to Small Rural, SMU to Small Multi-Use, and NI to Northern and Isolated.

[27] See Figures 31-34 which display the results for the hospitals in the RHA for all indicators.

The Marquette RHA is made up of five physician service areas and contains ten hospitals. The Minnedosa and Russell PSAs between them have seven hospitals. Two of the PSAs, Neepawa and Minnedosa, serve high need populations while one, North Cypress contains a low need population. The largest hospitals in the region are the intermediate rural hospitals in Neepawa and Minnedosa.

Residents of four of the PSA are using hospitals at the rate expected. However, residents of the medium need Russell PSA are utilizing hospital services at a much greater rate than expected. Indeed, use exceeds expectations by 34%, the second greatest discrepancy in the province, reflecting significant over servicing of this population.

Of the ten regional hospitals, only the Neepawa hospital provides more than half of area hospitalizations and at 68% it possesses the highest capture rate for intermediate rural hospitals. In contrast, Minnedosa at 23% ranks last among hospitals of this type. Together the three small rural hospitals in the Minnedosa PSA account for 35% of area hospitalization. In total 63% of the hospitalizations of Russell area residents occur in area hospitals, but Russell accounts for a larger share than Birtle and Rossburn combined. Erickson and Shoal Lake in the Minnedosa PSA each provide less than 10% of area hospitalizations, a proportion that is less than half the mean for small rural hospitals. Riverdale, in contrast, with 43% of area hospitalizations is almost double the small rural mean.

The two intermediate rural hospitals both deliver high intensity services and both rank among the top 10 in the province. None of the other hospitals in the region are delivering services of high intensity. Each of the three hospitals in the overserviced Russell PSA deliver low intensity services as does the Shoal Lake hospital.

Each of the Russell area hospitals scores well on the discharge efficiency index with Birtle and Rossburn both ranking in the province's top 10. Minnedosa also scores highly on this measure, ranking third among intermediate rural hospitals. Two of the hospitals in the Minnedosa area (Hamiota and Shoal Lake) rank among the bottom 10 in the province on the discharge efficiency index and Carberry Plains joins them in this group.

The range in occupancy rates among the ten hospitals is relatively large with Erickson reporting an occupancy rate of 75% while Birtle's occupancy rate was just 33%. The occupancy rates for Birtle and Shoal Lake left them among the lowest ten in rural Manitoba. Both of the intermediate rural hospitals had occupancy rates of more than 60% as did the Riverdale hospital. All of the Russell area hospitals have occupancy rates below the average for their type.

An overview of Marquette hospitals must begin by noting the performance of the Minnedosa hospital. This hospital serves a high need population which utilizes hospital services at expected rates. The hospital itself combines high intensity services with high discharge efficiency and a high occupancy rate. In the same PSA, the Shoal Lake hospital combines low intensity services with a low discharge efficiency score and a low occupancy rate. The Minnedosa hospital, as discussed above, however, had a very low capture rate, likely due to the presence of three smaller hospitals within the PSA. As mentioned above, the other intermediate rural hospital in the RHA, Neepawa, accounted for a proportion of area hospitalizations almost three times that of Minnedosa. The existence of three hospitals in the Russell PSA, each providing low intensity care, may well contribute to the high use relative to need ratio for this PSA population.

Map 7: Location of Acute Care Hospitals in Manitoba - Marquette

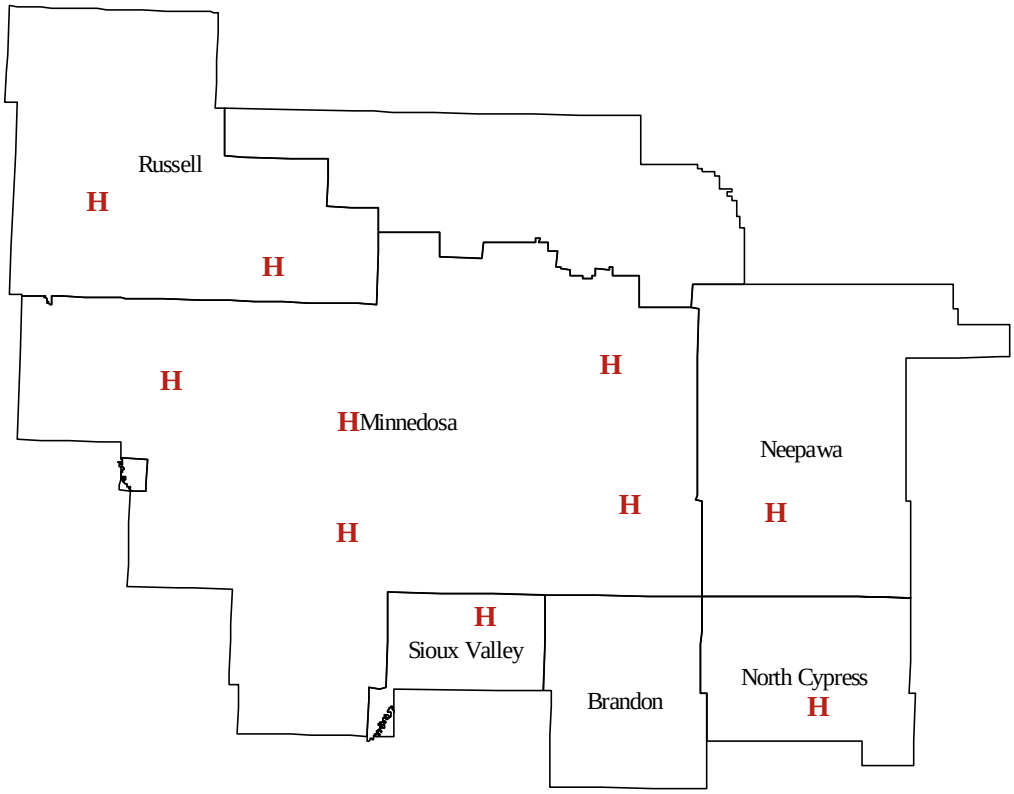


Figure 31: Need and Use Relative to Need Ratio - Marquette 1996/97, 1997/98, 1998/99

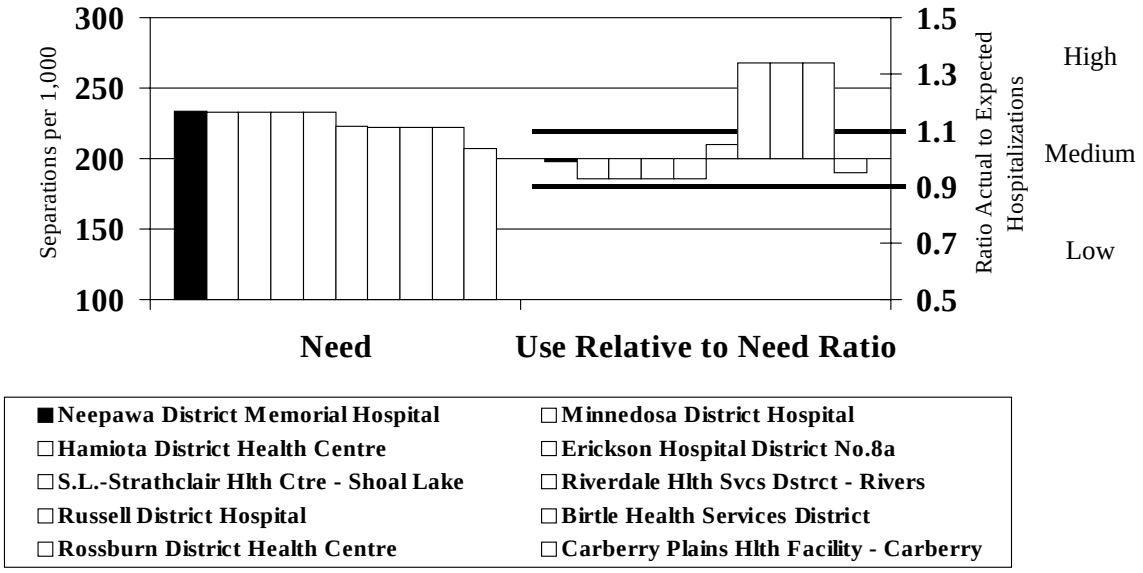


Figure 32: Intensity - Marquette 1996/97, 1997/98, 1998/99

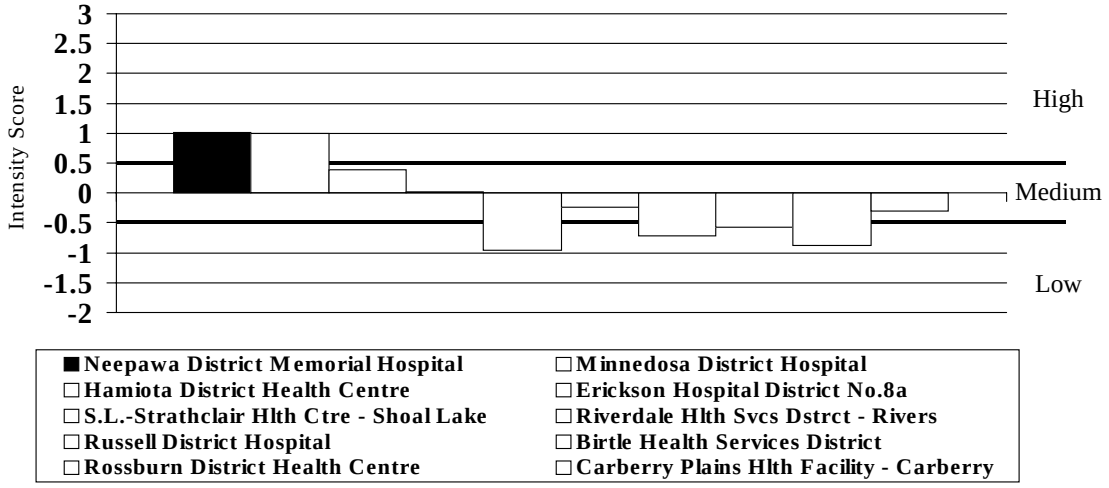


Figure 33: Discharge Efficiency - Marquette 1996/97, 1997/98, 1998/99

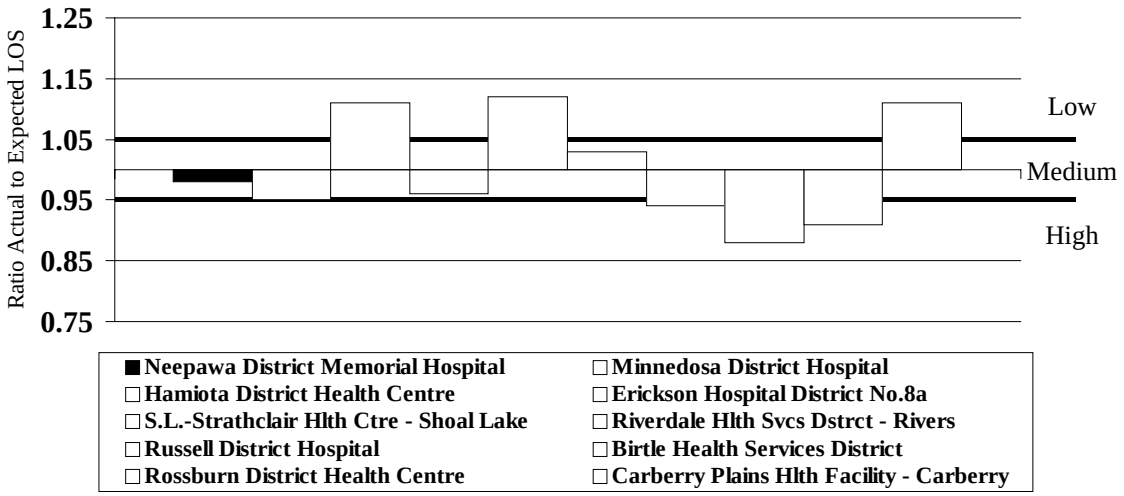
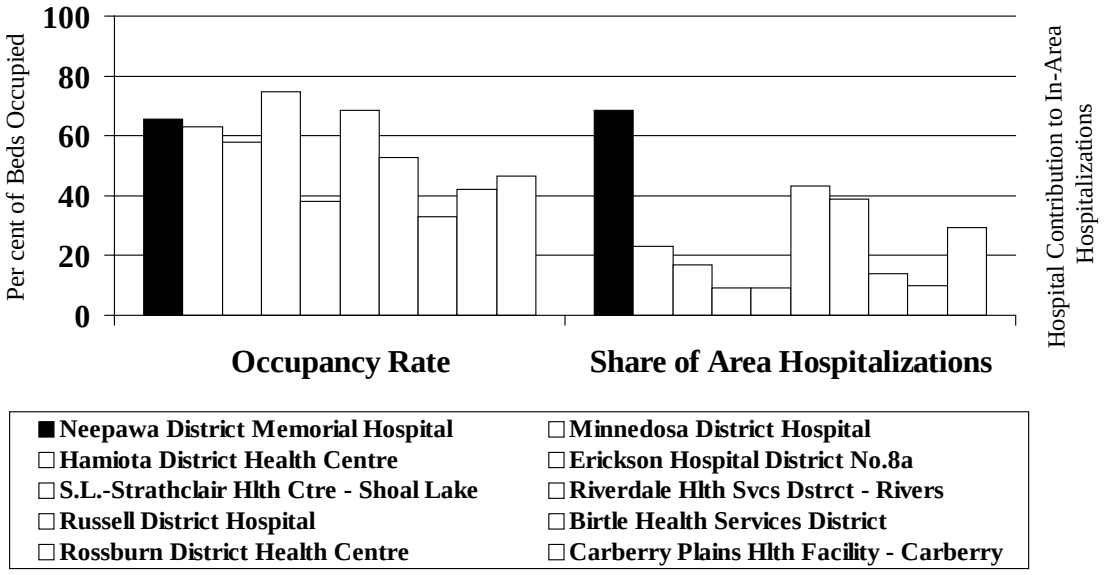


Figure 34: Occupancy Rate and Share of Area Hospitalizations - Marquette 1996/97, 1997/98, 1998/99



4.8 Central RHA

14 hospitals with 407 beds serving population of 97,241 and 7 Physician Service Areas: Seven Regions, Portage, Lorne, Morris-Montcalm, Altona, Carman and Morden-Winkler
Beds per 1000: 4.12
Population much healthier than average
% of hospital separations from regional hospitals: 65

3 of 10 Major Rural Hospitals
2 of 10 Intermediate Rural Hospitals
7 of 37 Small Rural Hospitals
2 of 6 Small Multi-use Hospitals

Table 8: Hospital Profiles Central RHA[28]

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Swan Lake	SR	Lorne	Medium	1.15	31%	Medium	High	56%
Overall Rank			25	8	33	49	13	35
Rank in Type					12	24	6	17
Crystal City[29]	SR	Lorne	Medium	1.15	13%	Medium	Low	50%
Overall Rank			25	8	50	44	50	47
Rank in Type					26	20	25	26
Manitou	SMU	Lorne	Medium	1.15	6%	Low	Low	60%
Overall Rank			25	8	62	64	62	25
Rank in Type					2	6	5	3
Gladstone	SR	Seven Regions	Medium	1.25	18%	Low	Medium	42%
Overall Rank			34	4	45	51	51	57
Rank in Type					21	26	26	33
Carman	IR	Carman	Low	.95	44%	High	Medium	59%
Overall Rank			36	33	18	10	21	28
Rank in Type					6	4	4	6
Notre Dame	SR	Carman	Low	.95	7%	Low	Low	44%
Overall Rank			36	33	60	55	58	55
Rank in Type					35	30	32	32
St. Claude	SR	Carman	Low	.95	7%	Low	Medium	33%
Overall Rank			36	33	59	62	23	62
Rank in Type					34	35	11	37
Portage	MR	Portage	Low	1.03	66%	High	Medium	63%
Overall Rank			38	24	6	11	36	21
Rank in Type					5	7	7	6
MacGregor	SMU	Portage	Low	1.03	.4%	Medium	Medium	65%
Overall Rank			38	24	68	23	22	18
Rank in Type					6	1	3	2
Morris	SR	Morris/	Low	.96	29%	Low	Low	48%

[28] See Figures 35-38 which display the results for the hospitals in the RHA for all indicators.
[29] The RHA reported occupancy rates for six of the area hospitals diverging from those reported by more than 2 percentage points. However, a different calculation was used by the RHA. The reported rates are: Crystal City 57%, Manitou 63%, Carman 51%, MacGregor 78%, Emerson 59%, and Altona 74%.

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Overall Rank Rank in Type		Montcalm	39	31	39 17	56 31	54 29	50 27
Emerson Overall Rank Rank in Type	SR	Morris/ Montcalm	Low 39	.96 31	7% 57 32	Medium 34 11	Medium 52 27	55% 37 19
Altona Overall Rank Rank in Type	IR	Altona	Low 40	.90 42	50% 11 3	High 9 3	Medium 33 7	67% 16 3
Morden[30] Overall Rank Rank in Type	MR	Morden/ Winkler	Low 41	.90 43	37% 27 10	High 5 5	Medium 25 3	68% 14 4
Winkler Overall Rank Rank in Type	MR	Morden/ Winkler	Low 41	.90 43	39% 26 9	High 1 1	Medium 28 5	65% 19 5

MR refers to Major Rural, IR to Intermediate Rural, SR to Small Rural, SMU to Small Multi-Use, and NI to Northern and Isolated.

Central RHA has the largest number of hospitals in rural Manitoba (14) and these hospitals are located in seven different physician service areas. Five of these PSAs are served by more than one hospital. Previous research has revealed the Central region to have one of the healthiest populations in Manitoba and this is borne out by data on the need for hospitalizations: none of the region's hospitals is located in a high need PSA. Indeed, most (ten) serve low need populations. The region has three major rural hospitals (Portage, Morden and Winkler) and two intermediate rural hospitals (Carman and Altona). All of these hospitals serve low need areas.

The region's relatively low need for hospital services is not reflected by its use patterns. Four hospitals (Swan Lake, Crystal City, Manitou and Gladstone) serve populations that are using hospital resources at rates well in excess of expectations. Indeed, the populations of both these PSAs (Lorne and Seven Regions) record use patterns which rank them in the province's top 10 on the use relative to need ratio.

Although two-thirds of the RHA's hospitalizations take place in regional hospitals only two hospitals (Portage and Altona) account for more than half of their PSA's hospitalizations.

Three-quarters of the hospitalizations in Morden-Winkler take place within the PSA but in terms of individual shares, Morden and Winkler rank at the bottom of major rural hospitals on this measure, perhaps because of their proximity to each other. Carman's capture rate of 44% is precisely at the category mean, but is likely lower because of the 14% of PSA hospitalizations that take place in other local hospitals. Five of the region's hospitals reveal extremely low capture rates: MacGregor, Manitou, Emerson, St. Claude and Notre Dame all provide less than 10% of area hospitalizations. For the latter three, this proportion ranks them near the bottom for small rural hospitals.

The region's high intensity services are delivered exclusively in the major and intermediate rural hospitals all of which record high intensity scores, while all of the other hospitals deliver low intensity services. Gladstone, the hospital serving the area with the highest use relative to need ratio, ranks 51st in intensity. Overall, five of the small rural or small multi-use facilities are delivering services of low intensity. None of the hospitals serving areas with greater patterns of use than expected delivered services of high intensity.

Hospitals in the Central RHA did not score highly on the discharge efficiency index. Only Swan Lake hospital recorded a score in the high range on the discharge efficiency index ranking 13th in the province. Four regional hospitals recorded discharge efficiency scores in the low range. Notre Dame, Morris, Manitou and Crystal City ranking 58th, 54^{th,} 52nd and 50th respectively.

Six hospitals had occupancy rates of 60% or more, but none of these hospitals ranked high in discharge efficiency. Morden reported the highest occupancy rate in the region at 68%. Four hospitals, Gladstone, Notre Dame, St. Claude and Morris had occupancy rates below 50%. St. Claude at 33%, records the lowest occupancy rate among small rural hospitals. In none of these hospitals is the low occupancy rate associated with a high discharge efficiency score.

[30] The hospitals in Morden and Winkler are scheduled for closure in 2001 with the opening of a combined facility.

An examination of the region's hospitals reveals that none of them are serving high need populations, but four serve PSAs which utilize hospital services at rates in excess of expectations. The high intensity services are delivered by the region's largest hospitals but none of these hospitals score in the high range on the discharge efficiency index. With only one of 14 hospitals scoring highly on discharge efficiency, it may be the case that the region's occupancy rates are higher than necessary. None of the hospitals delivering low intensity services scored highly on the discharge efficiency measure, and three of these hospitals, Gladstone, Notre Dame and Morris had occupancy rates of less than 50%.

Map 8: Location of Acute Care Hospitals in Manitoba - Central

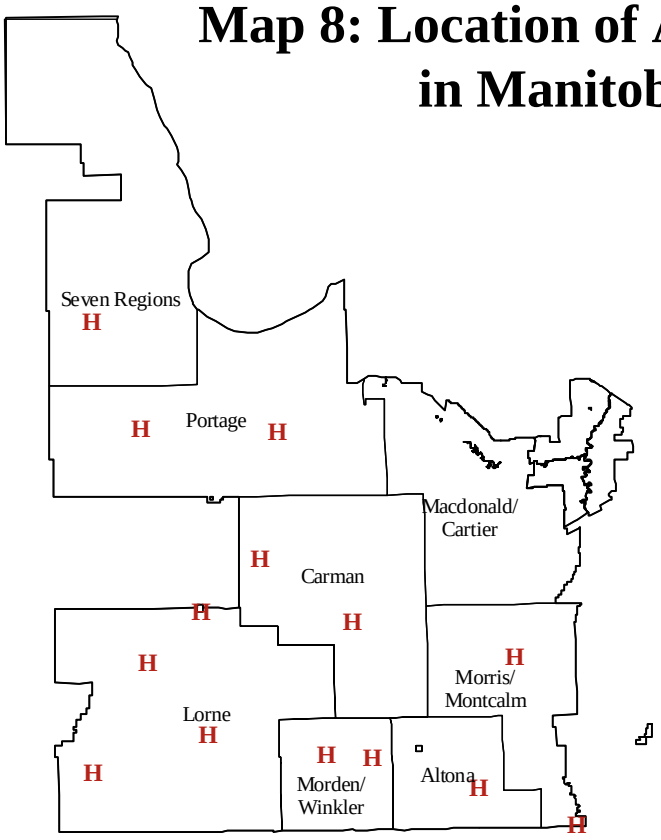


Figure 35: Need and Use Relative to Need Ratio - Central 1996/97, 1997/98, 1998/99

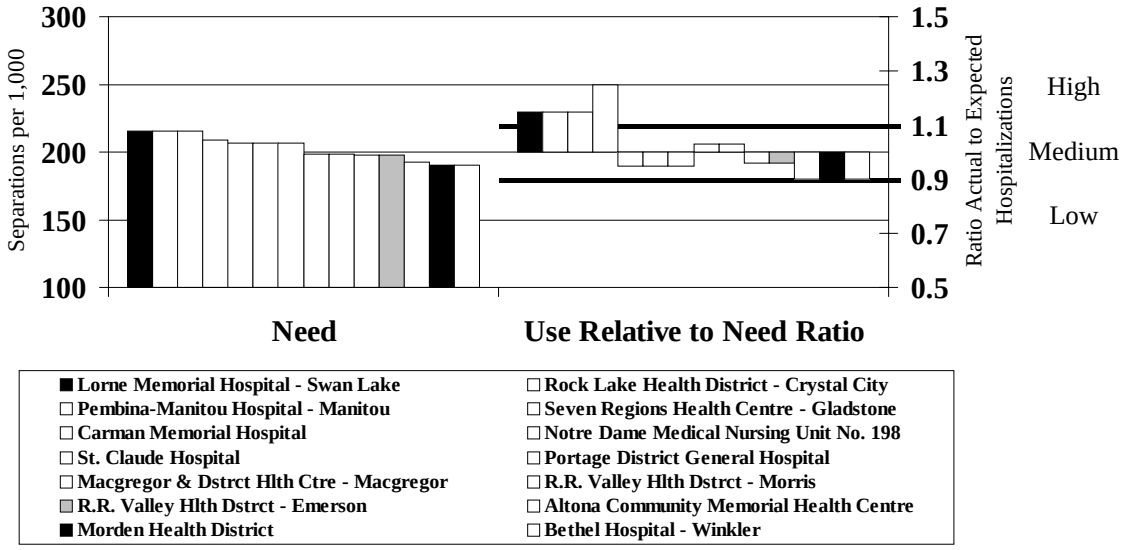


Figure 36: Intensity - Central 1996/97, 1997/98, 1998/99

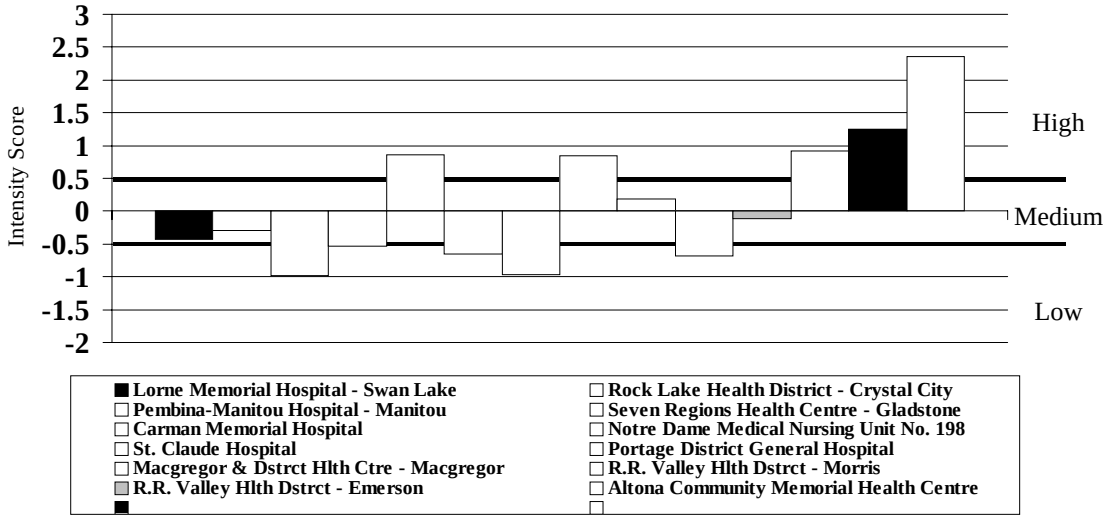


Figure 37: Discharge Efficiency - Central 1996/97, 1997/98, 1998/99

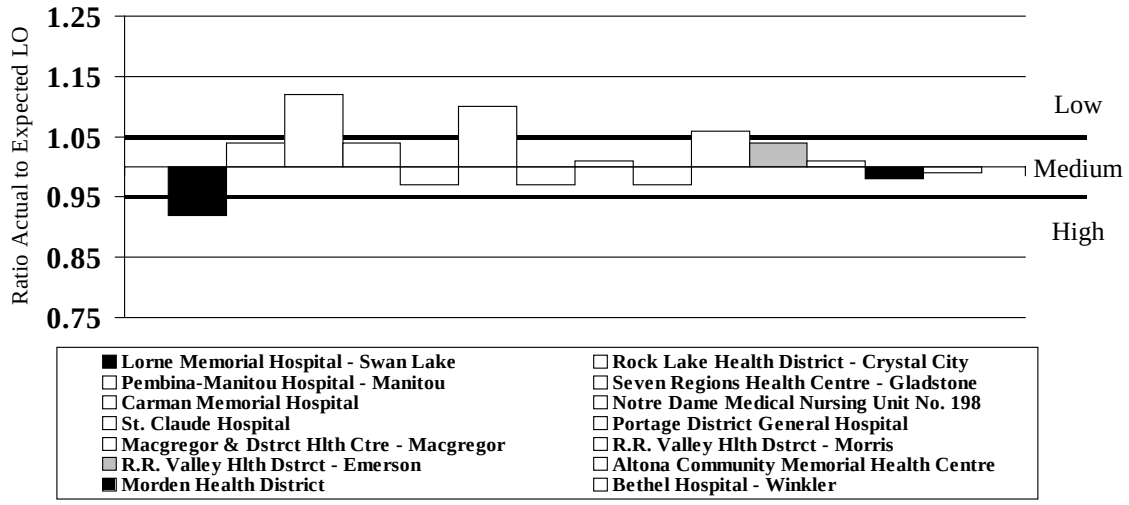
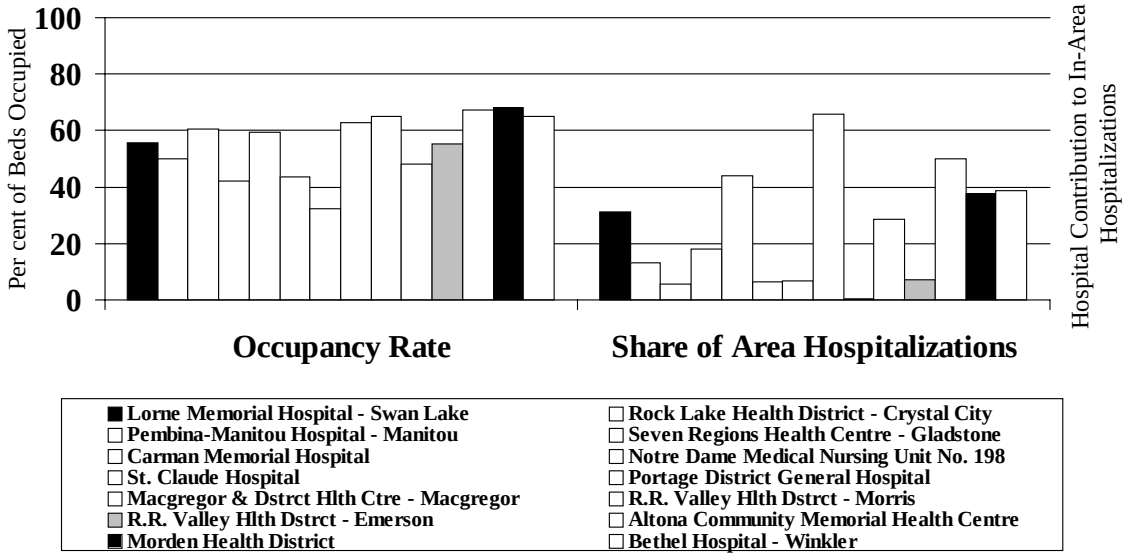


Figure 38: Occupancy Rate and Share of Area Hospitalizations - Central 1996/97, 1997/98, 1998/99



4.9 South Westman RHA

11 hospitals with 192 beds serving population of 34,772 and 6 Physician Service Areas: Souris, Virden, Victoria-South Norfolk, Melita-Deloraine, Killarney and Boissevain
Beds per 1000: 5.49
Population much healthier than average
% of hospital separations from regional hospitals: 54

No Major Rural Hospitals
2 of 10 Intermediate Rural Hospitals
8 of 37 Small Rural Hospitals
1 of 6 Small Multi Use Hospitals

Table 9: Hospital Profiles South Westman RHA[31]

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Virden Overall Rank Rank in Type	IR	Virden	Medium 18	1.00 27	41% 21 7	Medium 28 7	High 12 2	68% 13 2
Reston Overall Rank Rank in Type	SMU	Virden	Medium 18	1.00 27	5% 63 3	Medium 25 3	Low 66 6	41% 58 6
Deloraine Overall Rank Rank in Type	SR	Melita/ Deloraine	Medium 19	1.01 25	29% 38 16	Medium 29 9	Medium 49 24	47% 51 28
Melita Overall Rank Rank in Type	SR	Melita/ Deloraine	Medium 19	1.01 25	32% 31 10	Medium 20 5	Low 67 37	72% 6 4
Boissevain Overall Rank Rank in Type	SR	Boissevain	Medium 27	1.17 6	49% 13 2	Low 52 27	High 2 1	55% 38 20
Souris Overall Rank Rank in Type	IR	Souris	Medium 28	1.12 10	53% 9 2	Medium 31 8	Medium 42 8	52% 43 8
Tiger Hills Overall Rank Rank in Type	SR	Victoria/ South Norfolk	Medium 30	1.06 18	39% 25 6	Medium 39 15	Medium 37 16	45% 54 31
Killarney Overall Rank Rank in Type	SR	Killarney	Medium 31	.89 45	24% 41 18	Medium 48 23	Medium 48 23	58% 30 14
Baldur Overall Rank Rank in Type	SR	Killarney	Medium 31	.89 45	5% 64 37	Medium 21 6	High 17 8	41% 59 34

[31] See Figures 39-42 which display the results for the hospitals in the RHA for all indicators.

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Glenboro	SR	Killarney	Medium	.89	7%	Medium	Medium	56%
Overall Rank			31	45	58	42	43	34
Rank in Type					33	18	19	16
Wawanesa	SR	Killarney	Medium	.89	9%	Medium	Low	60%
Overall Rank			31	45	54	46	57	26
Rank in Type					29	21	31	11

MR refers to Major Rural, IR to Intermediate Rural, SR to Small Rural, SMU to Small Multi-Use, and NI to Northern and Isolated.

Like Central, South Westman RHA has a population healthier than the Manitoba average. This RHA has the second largest number of hospitals (11) and PSAs (6) in the province. And again like Central, none of these hospitals serves a high need population. However, none of the hospitals serves a low need area as each PSA in the region contains a population with a medium level of need for hospitalization services. The region's largest hospitals are the intermediate rural hospitals located in Virden and Souris. Three of the region's PSAs contain more than one hospital and Killarney, the PSA with the lowest need for hospitalization in the region, has four small rural facilities.

In half of the region's PSAs, residents are utilizing hospitals at expected levels. However, two of the PSA (Boissevain and Souris) report use patterns that are greater than expected. The use of hospital services for Boissevain residents is 17% more than expected while for Souris residents it is 12% greater. In contrast, the residents of Killarney are using 11% fewer hospital resources than expected.

A relatively small number of area hospitalizations take place in area hospitals. The largest proportions are in the Souris and Boissevain hospitals (53% and 49%) although both of these PSAs use hospital services at a greater than expected level. The four hospitals in the Killarney PSA in total capture less than half of area hospitalizations. Indeed, three of these hospitals (Baldur, Glenboro and Wawanesa) each provide less than 10% of area hospitalizations. In the rest of the region, only the small multi-use hospital in Reston accounts for such a low share. The 5% capture rate of Reston places it slightly above the

category mean. In contrast, the capture rates for Baldur, Glenboro and Wawanesa are less than half the small rural average.

None of the hospitals in the region deliver high intensity services and both Virden and Souris rank near the bottom of intermediate rural hospitals on this dimension. The most intense services are provided at the Melita hospital and it ranks only 20th in the province.

Three regional hospitals score highly on discharge efficiency. Boissevain, ranks second in the province on our discharge efficiency index while Virden ranks 2nd among intermediate rural hospitals and Baldur 8th among small rural hospitals. Reston and Melita received some of the lowest discharge efficiency scores in the province with Reston ranking 66th and Melita 67th.

Occupancy rates in regional hospitals vary widely. Three hospitals have occupancy rates of 60% or more and seven of the 11 facilities have occupancy rates of more than 50%. In the Killarney PSA, the relatively low use relative to need ratio is not matched by low occupancy rates. Only the highly efficient Baldur hospital, with an occupancy rate of 41% is below the provincial mean. However, the busiest area hospital, Wawanesa at 60%, has the lowest discharge efficiency score of the four.

Melita reports the highest occupancy rate in the region at 72% and it ranks 6th in the province on this dimension. This high occupancy rate is likely due in part to its low score on the discharge efficiency index. It ranks last among small rural hospitals and overall, only one provincial hospital has a lower discharge efficiency rating. In contrast, two of the hospitals with high scores on discharge efficiency, Virden and Boissevain, both have occupancy rates of 55% or more.

An overview of the RHA highlights the consistently medium level of need for hospitalizations and the absence of any hospitals delivering high intensity services. This is the only RHA which has no hospital providing services of high intensity. Although both

Souris and Boissevain serve populations that are using hospitals at greater than expected rates, neither has an occupancy rate above the provincial mean.

In general, the bulk of area hospitalizations occur outside the PSA of residence. In only two PSAs do the hospitals account for 50% of hospitalizations. Three of the Killarney area hospitals have relatively low capture rates.

Map 9: Location of Acute Care Hospitals in Manitoba - S. Westman/Brandon

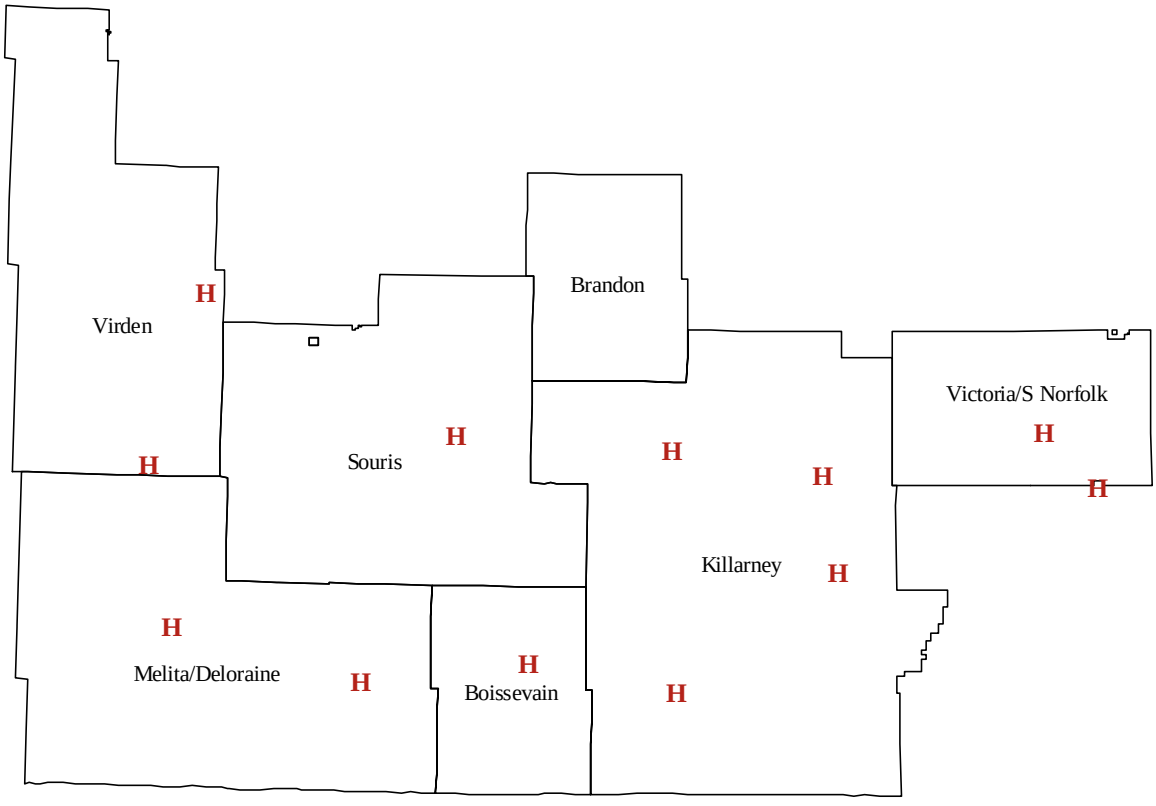


Figure 39: Need and Use Relative to Need Ratio - South Westman 1996/97, 1997/98, 1998/99

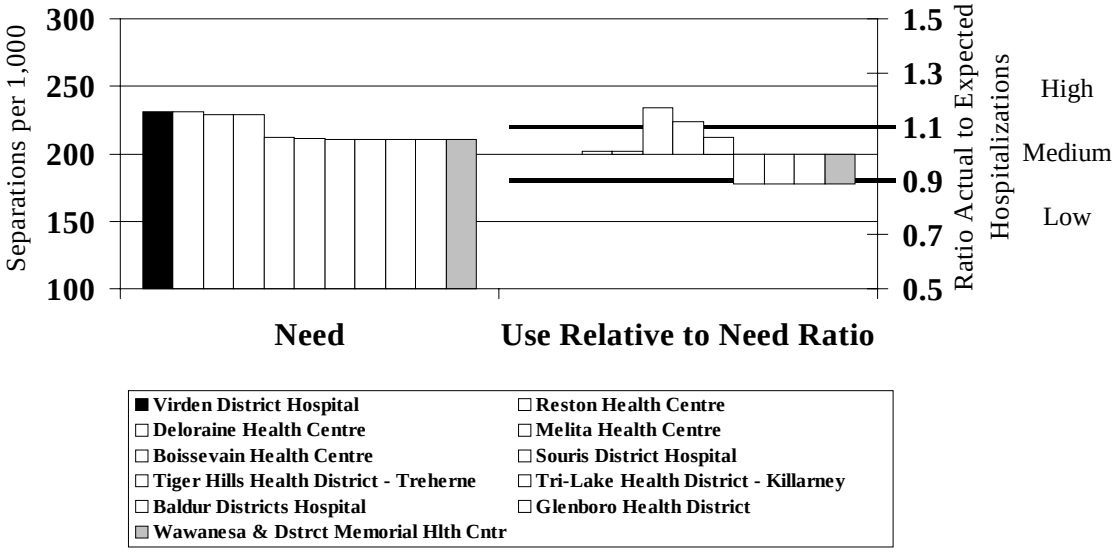


Figure 40: Intensity - South Westman 1996/97, 1997/98, 1998/99

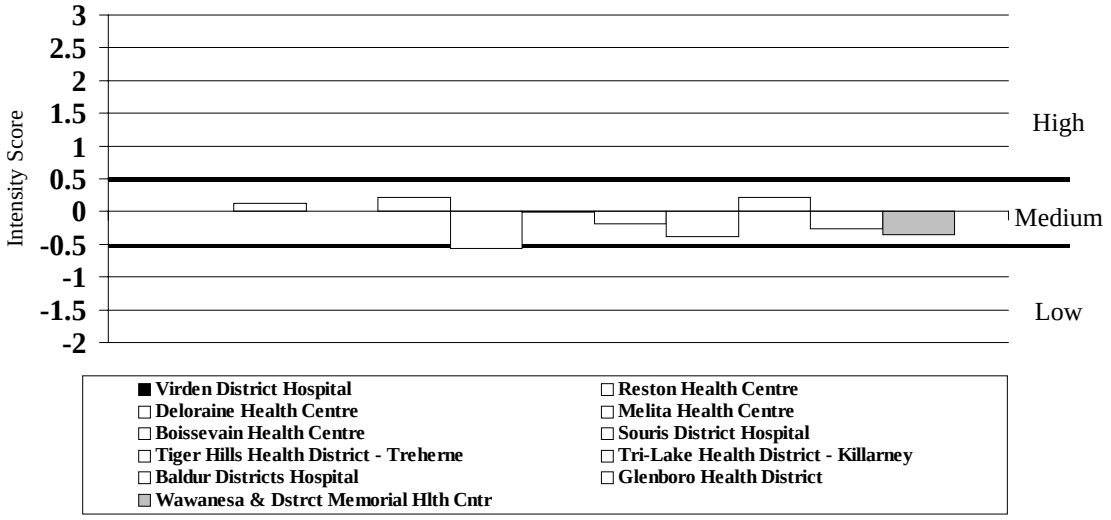


Figure 41: Discharge Efficiency - South Westman 1996/97, 1997/98, 1998/99

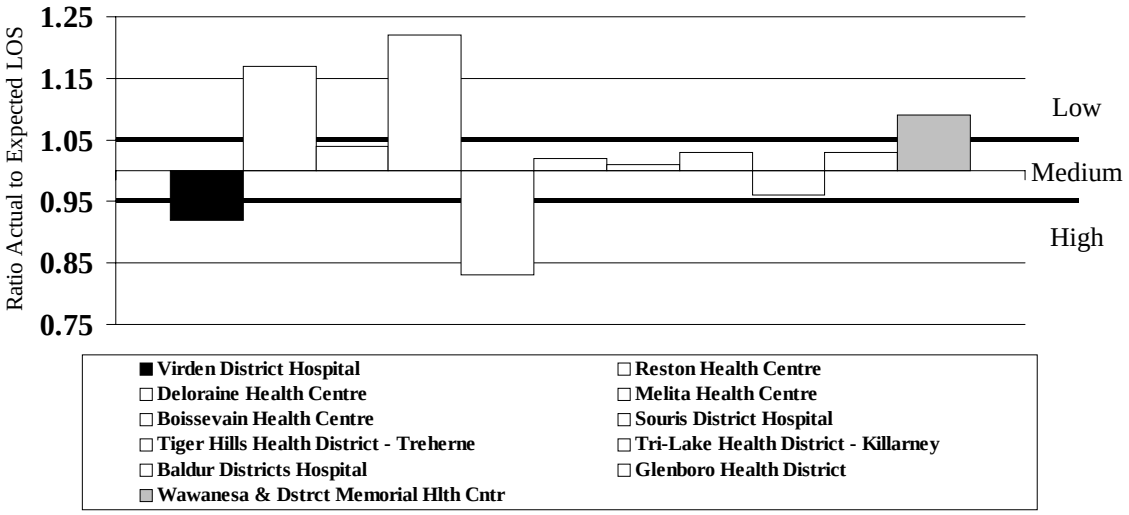
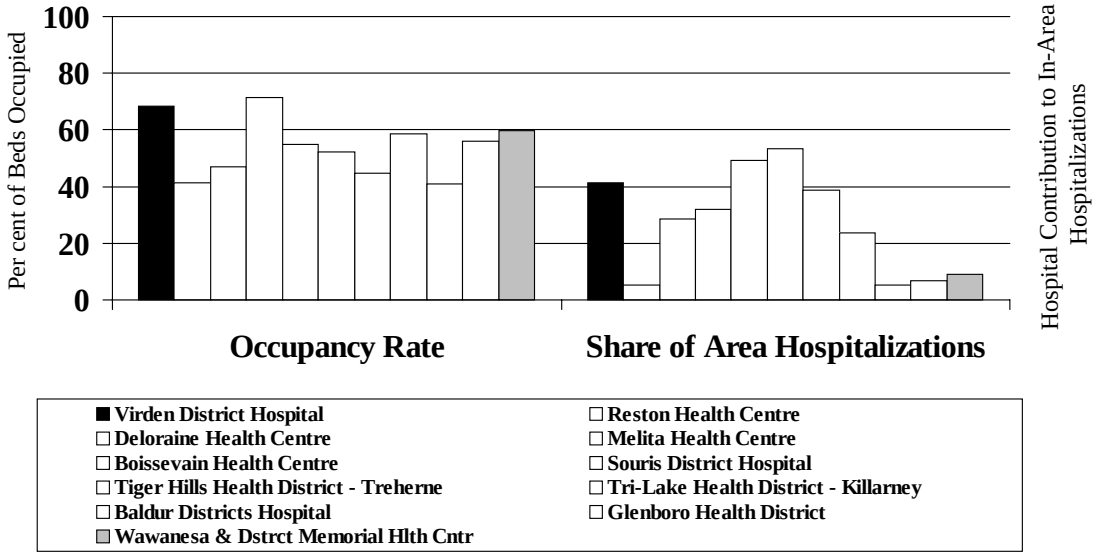


Figure 42: Occupancy Rate and Share of Area Hospitalizations - South Westman 1996/97, 1997/98, 1998/99



4.10 South Eastman RHA

4 hospitals with 124 beds serving population of 52,755 and 4 Physician Service Areas: Piney District, De Salaberry, Steinbach and Tache
Beds per 1000: 2.35
Population healthiest in province
% of hospital separations from regional hospitals: 56

1 of 10 Major Rural Hospitals
3 of 37 Small Rural Hospitals

Table 10: Hospital Profiles South Eastman RHA[32]

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Vita	SR	Piney	High	.91	22%	Medium	Medium	77%
Overall Rank		District	13	40	43	22	32	2
Rank in Type					19	7	14	1
St. Pierre	SR	De	Low	.86	30%	Low	Low	52%
Overall Rank		Salaberry	42	48	35	59	53	42
Rank in Type					14	33	28	23
Steinbach	MR	Steinbach	Low	1.01	62%	High	High	62%[33]
Overall Rank			43	26	8	4	15	22
Rank in Type					7	4	2	7
Ste. Anne	SR	Tache	Low	1.26	30%	High	Medium	69%
Overall Rank			49	3	34	12	38	10
Rank in Type					13	1	17	6

MR refers to Major Rural, IR to Intermediate Rural, SR to Small Rural, SMU to Small Multi-Use, and NI to Northern and Isolated.

The South Eastman RHA contains four hospitals each of which serves a different physician service area. The Steinbach hospital is a major rural hospital while the remaining institutions are all small rural hospitals. The Vita hospital in Piney district serves a high need population while the other hospitals are located in low need PSAs.

Three distinct patterns of use are evident in the RHA. Residents of the high need Piney District utilize hospital resources at the expected level as do residents of the low need Steinbach area. In contrast, use in De Salaberry is much lower than expected, with this area ranking 48th in the province in use. Tache residents, on the other hand, rank 3rd in the

[32] See Figures 43-46 which display the results for the hospitals in the RHA for all indicators.
[33] Steinbach reports an occupancy rate of 65%.

province on the use relative to need ratio. These residents are using hospital services at a rate 26% greater than expected.

Steinbach stands out from the other regional hospitals with respect to its share of area hospitalization. It accounts for 62% of these hospitalizations and ranks 8th in the province on this dimension. None of the other hospitals have shares in excess of 30% and all rank below the provincial mid-point. Almost two-thirds of Steinbach residents are hospitalized in Steinbach while most residents of the other PSAs are hospitalized elsewhere.

In terms of the intensity of services provided Steinbach once again ranks first in the region in delivering high intensity services. Indeed, it ranks 4th in the province in this area. Ste. Anne also delivers high intensity services to its patients, ranking 12th overall and 1st among small rural hospitals. St. Pierre ranks near the bottom on intensity both for its type and overall.

St. Pierre is also the only area hospital to score in the low range on the discharge efficiency index. Vita and Ste. Anne both record medium level discharge efficiency scores while Steinbach' s score ranks in the high range and leaves it 2nd in the major rural category.

All of the region's hospitals have occupancy rates of greater than 50%. Indeed, only St. Pierre has an occupancy rate of less than 60%. Vita ranks 2nd in rural Manitoba with an occupancy rate of 77% and it is joined in the top ten by Ste. Anne with 69%. Steinbach's rate is 62%, an especially impressive figure when juxtaposed with Steinbach's high intensity and discharge efficiency ratings. The high occupancy rates for Vita and Ste. Anne must be interpreted in light of discharge efficiency scores that rank in the bottom half of the province. For Ste. Anne, the interpretation must also consider the high score on the Use Relative to Need Ratio, indicating more hospitalizations than expected given the characteristics of area residents that would be expected to influence the need for hospitalizations.

The Steinbach hospital provides one of the bench mark examples of hospital performance. While it serves a low need population, this population is using hospital resources at the expected level. The hospital accounts for a high proportion of area hospitalizations, delivers

high intensity services, scores highly on the discharge efficiency index and has a relatively high occupancy rate. In contrast, St. Pierre in the low need De Salaberry PSA has the region's lowest occupancy rate and has the lowest scores in intensity and discharge efficiency.

Map 10: Location of Acute Care Hospitals in Manitoba - S. Eastman

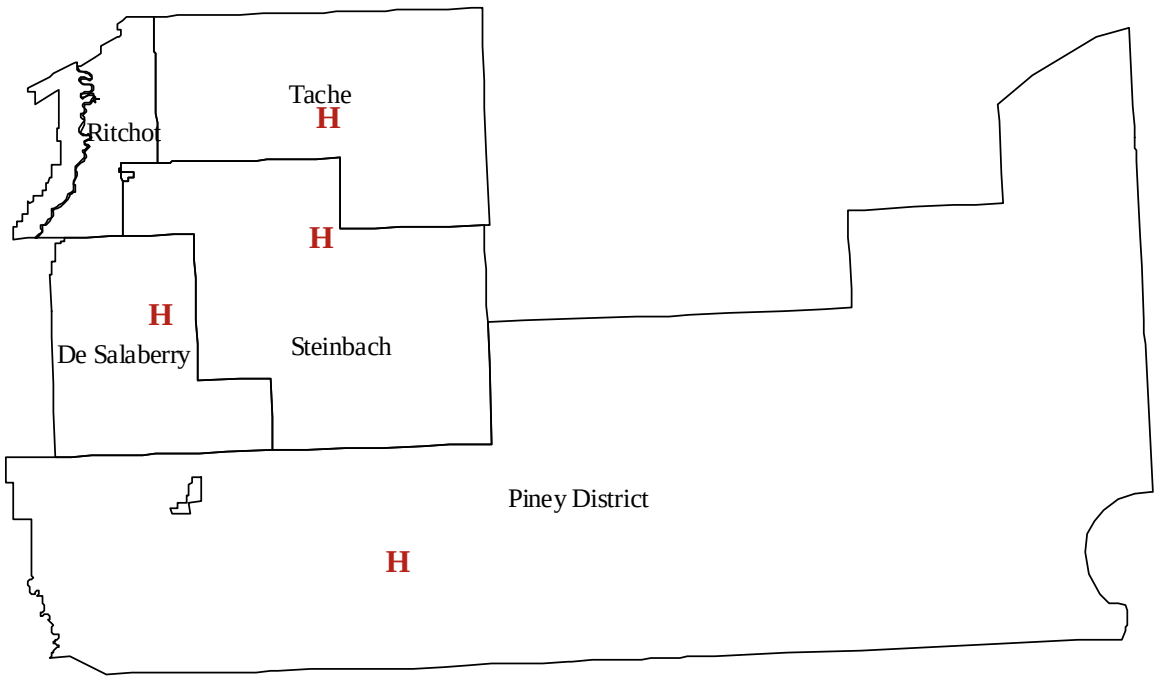


Figure 43: Need and Use Relative to Need Ratio - South Eastman 1996/97, 1997/98, 1998/99

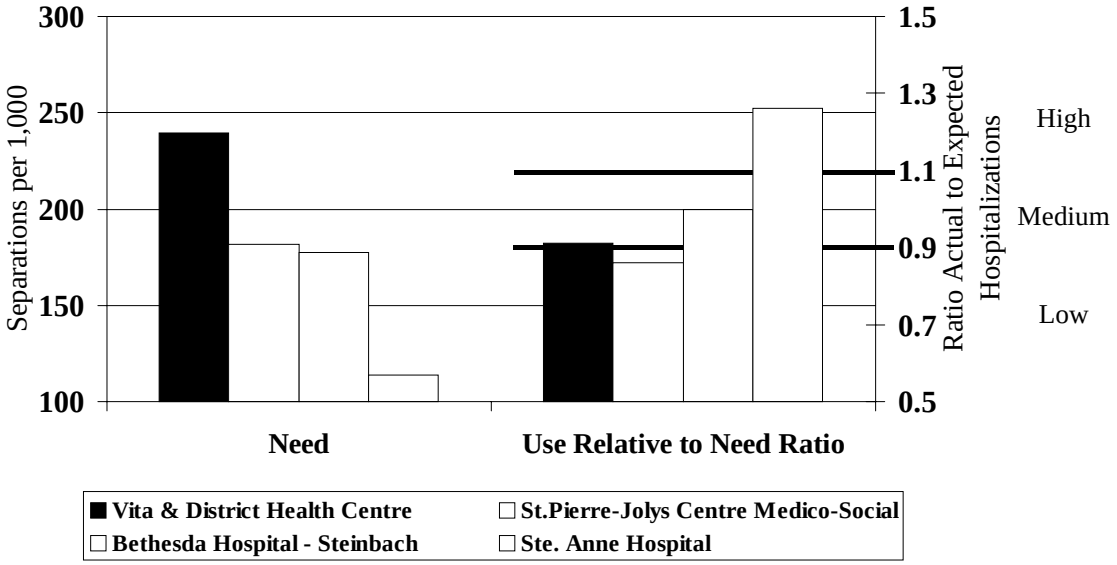


Figure 44: Intensity - South Eastman 1996/97, 1997/98, 1998/99

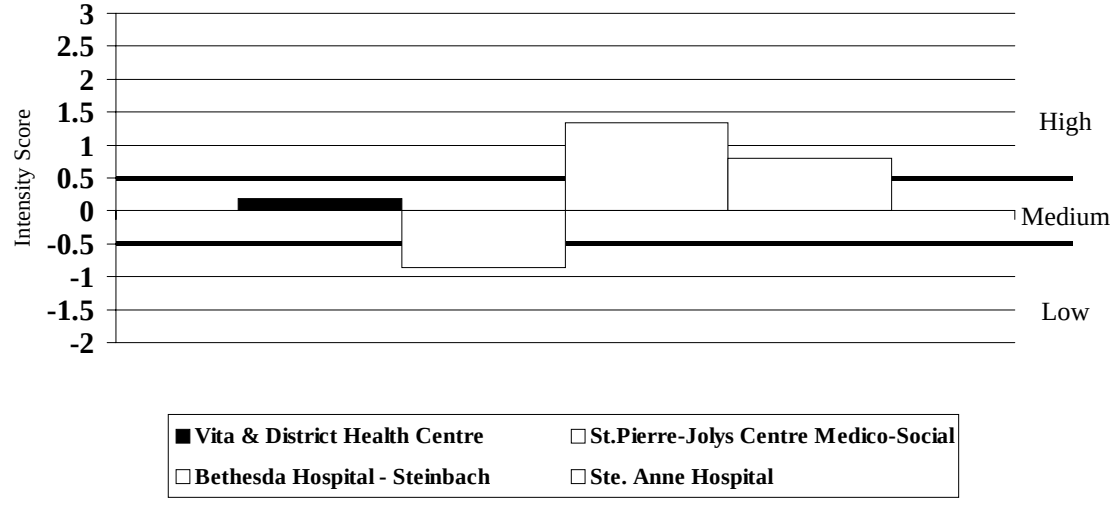


Figure 45: Discharge Efficiency - South Eastman 1996/97, 1997/98, 1998/99

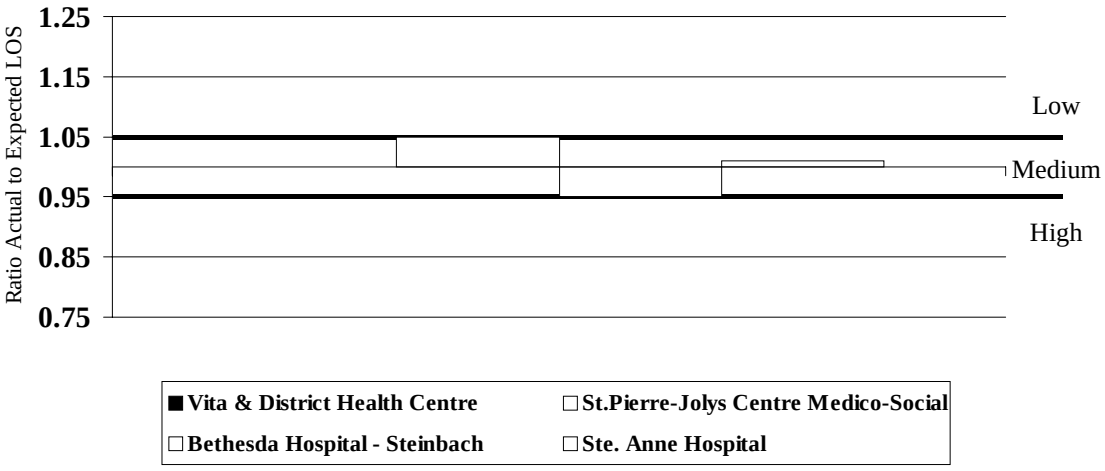
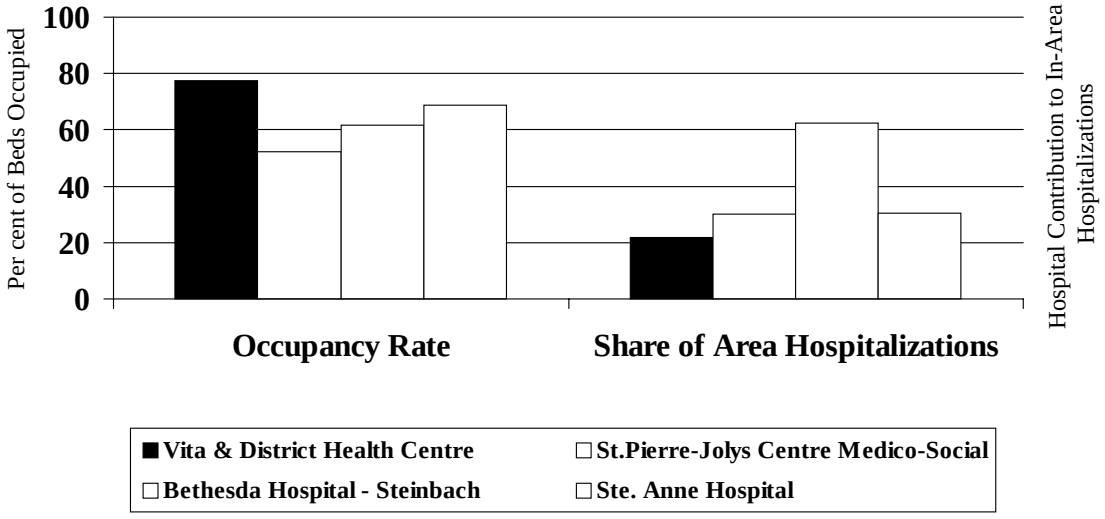


Figure 46: Occupancy Rate and Share of Area Hospitalizations - South Eastman 1996/97, 1997/98, 1998/99



5. EXAMINATION BY HOSPITAL TYPE:

In this part of our analysis of Manitoba's rural hospitals, we look briefly at each of the five types of hospitals since comparisons among similar institutions form another distinct and important element of the report.

A comparison of average rankings by hospital type with respect to Hospitalization Share, Intensity, Discharge Efficiency and Occupancy Rate provide some verification that the indicators are measuring what they are supposed to be measuring. The larger hospitals account for a higher proportion of their area hospitalizations and treat cases of higher intensity. The mean scores on the intensity index provide us with further confirmation of the validity of both the intensity indicator and of the categorizations we have used (although some individual hospitals may be misclassified). We also find that the measures that should not be related to hospital type do not seem to be. Given that the discharge efficiency measure we have developed adjusts for case mix, there is no reason why a northern isolated hospital should be less efficient than a major rural hospital, and, in fact, they are not. Indeed, the rankings on the discharge efficiency scale are unrelated to size with the smallest hospitals often among the most efficient.[34] A look at occupancy rates shows the MRH hospitals to be the busiest, but the differences among the four largest hospital types are not striking. In contrast, the NIH are clearly the least busy, but their shares of area hospitalizations are very high, higher than either the mean for SRH or SMU. This also makes sense, since as their name suggests, the northern isolated institutions serve populations with limited access to other facilities.

[34] It is important to reiterate that there was no statistically significant relationship between intensity and discharge intensity.

Table 11: Hospital Type by Mean Score on Individual Hospital Indicators

	Hospitalization Share (%)	Intensity Score	Discharge Efficiency Score	Occupancy Rate (%)
Major Rural (n=10)	59.6	1.18	1.00	63.3
Intermediate Rural (n=10)	44.0	0.45	.99	59.0
Small Rural (n=37)	22.8	-0.28	1.02	55.2
Small Multi-Use (n=6)	4.5	-0.23	1.03	55.1
Northern Isolated (n=5)	33.5	-0.93	1.02	23.3

5.1 Major Rural Hospitals:

Mean Scores
Hospitalization Share: 59.6%
Intensity: 1.18 (High)
Discharge efficiency: 1.00 (Medium)
Occupancy Rate: 63.3%

As one would expect, hospitals in this category occupy the first four places with respect to share of area hospitalizations. The two lowest hospitals on this dimension, Morden and Winkler are within the same population area. Selkirk also reports a relatively low share on this indicator. The northern hospitals of The Pas, Flin Flon and Thompson account for the largest share of area hospitalizations.

Table 12: Major Rural Hospital Profiles

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Dauphin	MR	Dauphin	High	.94	69%	High	Medium	76%
Overall Rank			12	35	4	2	26	3
Rank in Type					4	2	4	1
Swan River	MR	Swan River	High	1.11	64%	Medium	Low	71%
Overall Rank			16	13	7	19	44	7
Rank in Type					6	9	9	2
Flin Flon	MR	Flin Flon	Medium	.90	70%	Medium	Medium	57%
Overall Rank			21	44	2	26	39	32
Rank in Type					2	10	8	8
The Pas	MR	The Pas	Medium	1.04	75%	High	High	49%
Overall Rank			33	21	1	15	10	49
Rank in Type					1	8	1	10
Portage	MR	Portage	Low	1.03	66%	High	Medium	63%
Overall Rank			38	24	6	11	36	21
Rank in Type					5	7	7	6
Morden	MR	Morden/	Low	.90	37%	High	Medium	68%
Overall Rank		Winkler	41	43	27	5	25	14
Rank in Type					10	5	3	4
Winkler	MR	Morden/	Low	.90	39%	High	Medium	65%
Overall Rank		Winkler	41	43	26	1	28	19
Rank in Type					9	1	5	5
Steinbach	MR	Steinbach	Low	1.01	62%	High	High	62%
Overall Rank			43	26	8	4	15	22
Rank in Type					7	4	2	7
Thompson	MR	Thompson	Low	1.03	70%	High	Medium	54%
Overall Rank			44	23	3	6	30	40
Rank in Type					3	6	6	9
Selkirk	MR	Selkirk	Low	1.08	42%	High	Low	69%
Overall Rank			45	14	20	3	64	12
Rank in Type					8	3	10	3

A surprising number of major rural hospitals are located in low need areas, but there is very little indication of overservicing of PSA populations. These hospitals also dominate the top positions on the intensity scale accounting for the first six places. Swan River and Flin Flon treat cases of a lower level of intensity than the other hospitals.

Although most major rural hospitals treat cases which are of higher intensity, they do not score particularly highly on the discharge efficiency scale. Only The Pas ranked among the top 10 in the province and it was joined only by Steinbach in the top third. Selkirk, on the

other hand, ranked 64th in discharge efficiency, 20 places lower than Swan River which ranked 9th in the category.

Major rural hospitals display no particular pattern with regard to occupancy rates. Dauphin reports the third highest occupancy rate in the province and is joined in the top 15 by Swan River, Selkirk (note the low discharge efficiency score above) and Morden. The three northern hospitals rank noticeably lower than the other MRH with The Pas actually falling into the bottom third on this dimension. The occupancy rates may be somewhat misleading, particularly for those hospitals that rank low on the discharge efficiency dimension.

5.2 Intermediate Rural Hospitals:

Mean Score
Hospitalization Share: 44.0%
Intensity: 0.46 (Medium)
Discharge efficiency: 0.99 (Medium)
Occupancy Rate: 59.0%

These hospitals serve a range of high, medium and low need populations. There is some evidence of overservicing for the populations served by certain hospitals: Ste. Rose, Souris and Beausejour. Six of these hospitals rank in the top third in terms of area hospitalization share and Neepawa and Souris are both in the top 10. Beausejour and Minnedosa anchor the other end of the intermediate rural hospital rankings but neither of these hospitals falls into the bottom third.

These hospitals treat cases of relatively high intensity with four of them joining six major rural hospitals in the top 10 and only Ste. Rose falling into the bottom third. For half of these hospitals, less than 6% of their cases involve surgery or deliveries and for Virden and Gimli the percentage is under 2. For Carman, Minnedosa, and Neepawa, almost one-fifth of their cases involve surgery or deliveries, a percentage similar to most of the major rural hospitals.

Table 13: Intermediate Rural Hospital Profiles

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Churchill Overall Rank Rank in Type	IR	Churchill	High 10	.84 49	50% 12 4	High 16 6	High 5 1	27% 65 10
Gimli Overall Rank Rank in Type	IR	Gimli	High 11	.88 46	41% 22 8	Medium 35 9	Low 56 9	56% 33 7
Neepawa Overall Rank Rank in Type	IR	Neepawa	High 15	.99 28	68% 5 1	High 7 1	Medium 24 5	66% 17 4
Minnedosa Overall Rank Rank in Type	IR	Minnedosa	High 17	.93 38	23% 42 10	High 8 2	High 16 3	63% 20 5
Virden Overall Rank Rank in Type	IR	Virden	Medium 18	1.00 27	41% 21 7	Medium 28 7	High 12 2	68% 13 2
Ste. Rose Overall Rank Rank in Type	IR	Alonsa	Medium 26	1.36 1	45% 15 5	Medium 45 10	Medium 27 6	50% 48 9
Souris Overall Rank Rank in Type	IR	Souris	Medium 28	1.12 10	53% 9 2	Medium 31 8	Medium 42 8	52% 43 8
Carman Overall Rank Rank in Type	IR	Carman	Low 36	.95 33	44% 18 6	High 10 4	Medium 21 4	59% 28 6
Altona Overall Rank Rank in Type	IR	Altona	Low 40	.90 42	50% 11 3	High 9 3	Medium 33 7	67% 16 3
Beausejour Overall Rank Rank in Type	IR	Springfield	Low 46	1.12 11	24% 40 9	High 13 5	Low 65 10	81% 1 1

The discharge efficiency index reveals a good deal of dispersion. Churchill is the only hospital in this category to make the top 10, ranking 5th. Beausejour ranks near the bottom for the province (65th) and Gimli joins it in the bottom quintile.

Occupancy rates also vary widely across the ten intermediate rural hospitals. Beausejour has the highest occupancy rate in the province (but see the discharge efficiency ranking) and Virden also makes the top quintile. Churchill reports one of the lowest occupancy rates in the province with Ste. Rose and Souris also well below the mid-point.

5.3 Small Rural Hospitals:

Mean Score
Hospitalization Share: 22.9%
Intensity: -.28 (Medium)
Discharge efficiency: 1.01 (Medium)
Occupancy Rate: 55.2%

More than half of Manitoba's rural hospitals are found in this category and they cover a wide range of rankings. Summary assessments of the category are therefore difficult to make.

Ten of the hospitals serve high need populations and ten serve low need populations. Eleven small rural hospitals are serving populations which are using hospital services at higher than expected levels. With respect to hospitalization share, only Roblin makes it into the top ten (Boissevain makes the top 15), while four hospitals, St. Claude, Notre Dame, Winnipegosis and Baldur rank in the bottom 10. The average hospitalization share for small rural hospitals is lower than that of the northern and isolated hospitals.

Intensity measures demonstrate a similar pattern of dispersion. Only Arborg and Ste. Anne rank in the top fifteen, while St. Pierre, Shoal Lake, St. Claude, Pinawa and Hodgson all are in the bottom 10. The mean intensity score for small rural hospitals is actually lower than that of small multi-use hospitals. Ste. Anne stands out as it handles a higher proportion of cases involving surgery or delivery than most of the intermediate rural hospitals. As well, hospitals like Hamiota, Arborg and Wawanesa handled more surgeries and deliveries than half of the intermediate rural hospitals. In contrast, in 22 of the small rural hospitals less than 1% of the cases involved surgery or delivery.

Table 14: Small Rural Hospital Profiles

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Arborg Overall Rank Rank in Type	SR	East Interlake	High 6	.81 50	16% 48 24	High 14 2	Medium 20 10	51% 45 24
Hodgson Overall Rank Rank in Type	SR	East Interlake	High 6	.81 50	32% 32 11	Low 66 37	High 3 2	47% 52 29
Pine Falls Overall Rank Rank in Type	SR	East Lake Winnipeg	High 7	.88 47	34% 28 7	Medium 41 17	High 11 5	56% 36 18
Grandview Overall Rank Rank in Type	SR	Gilbert Plains	High 8	1.06 17	33% 29 8	Low 53 28	Low 55 30	51% 46 25
Winnipegosis Overall Rank Rank in Type	SR	Dauphin	High 12	.94 35	6% 61 36	Medium 50 25	Low 60 34	61% 23 9
Vita Overall Rank Rank in Type	SR	Piney District	High 13	.91 40	22% 43 19	Medium 22 7	Medium 32 14	77% 2 1
Roblin Overall Rank Rank in Type	SR	Roblin	High 14	1.05 20	51% 10 1	Medium 37 13	Medium 35 15	68% 15 8
Hamiota Overall Rank Rank in Type	SR	Minnedosa	High 17	.93 38	17% 47 23	Medium 17 3	Low 61 35	58% 31 15
Erickson Overall Rank Rank in Type	SR	Minnedosa	High 17	.93 38	9% 52 27	Medium 27 8	Medium 19 9	75% 5 3
Shoal Lake Overall Rank Rank in Type	SR	Minnedosa	High 17	.93 38	9% 53 28	Low 61 34	Low 63 36	38% 60 35
Deloraine Overall Rank Rank in Type	SR	Melita/ Deloraine	Medium 19	1.01 25	29% 38 16	Medium 29 9	Medium 49 24	47% 51 28
Melita Overall Rank Rank in Type	SR	Melita/ Deloraine	Medium 19	1.01 25	32% 31 10	Medium 20 5	Low 67 37	72% 6 4
Eriksdale Overall Rank Rank in Type	SR	Coldwell	Medium 20	.93 36	33% 30 9	Medium 38 14	Medium 29 12	61% 24 10
Riverdale Overall Rank Rank in Type	SR	Sioux Valley	Medium 22	1.05 19	43% 19 3	Medium 40 16	Medium 47 22	69% 11 7
Russell Overall Rank Rank in Type	SR	Russell	Medium 23	1.34 2	39% 24 5	Low 58 32	High 14 7	52% 41 22
Birtle Overall Rank	SR	Russell	Medium 23	1.34 2	14% 49	Low 54	High 6	33% 61

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Rank in Type					25	29	3	36
Swan Lake Overall Rank Rank in Type	SR	Lorne	Medium 25	1.15 8	31% 33 12	Medium 49 24	High 13 6	56% 35 17
Crystal City Overall Rank Rank in Type	SR	Lorne	Medium 25	1.15 8	13% 50 26	Medium 44 20	Medium 50 25	50% 47 26
McCreary-Alonsa Overall Rank Rank in Type	SR	Alonsa	Medium 26	1.36 1	8% 56 31	Medium 47 22	Medium 41 18	55% 39 21
Boissevain Overall Rank Rank in Type	SR	Boissevain	Medium 27	1.17 6	49% 13 2	Low 52 27	High 2 1	55% 38 20
Tiger Hills Overall Rank Rank in Type	SR	Victoria/ South Norfolk	Medium 30	1.06 18	39% 25 6	Medium 39 15	Medium 37 16	45% 54 31
Killarney Overall Rank Rank in Type	SR	Killarney	Medium 31	.89 45	24% 41 18	Medium 48 23	Medium 48 23	58% 30 14
Baldur Overall Rank Rank in Type	SR	Killarney	Medium 31	.89 45	5% 64 37	Medium 21 6	High 17 8	41% 59 34
Glenboro Overall Rank Rank in Type	SR	Killarney	Medium 31	.89 45	7% 58 33	Medium 42 18	Medium 43 19	56% 34 16
Wawanesa Overall Rank Rank in Type	SR	Killarney	Medium 31	.89 45	9% 54 29	Medium 46 21	Low 57 31	60% 26 11
Ashern Overall Rank Rank in Type	SR	Grahamdale	Medium 32	.93 37	39% 23 4	Medium 36 12	High 9 4	60% 27 12
Gladstone Overall Rank Rank in Type	SR	Seven Regions	Medium 34	1.25 4	18% 45 21	Low 51 26	Medium 51 26	42% 57 33
Carberry Plains Overall Rank Rank in Type	SR	North Cypress	Low 35	.95 32	29% 37 15	Medium 43 19	Low 59 33	46% 53 30
Notre Dame Overall Rank Rank in Type	SR	Carman	Low 36	.95 33	7% 60 35	Low 55 30	Low 58 32	44% 55 32
St. Claude Overall Rank Rank in Type	SR	Carman	Low 36	.95 33	7% 59 34	Low 62 35	Medium 23 11	33% 62 37
Morris Overall Rank Rank in Type	SR	Morris/ Montcalm	Low 39	.96 31	29% 39 17	Low 56 31	Low 54 29	48% 50 27
Emerson Overall Rank	SR	Morris/ Montcalm	Low 39	.96 31	7% 57	Medium 34	Medium 52	55% 37

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Rank in Type					32	11	27	19
St. Pierre Overall Rank Rank in Type	SR	De Salaberry	Low 42	.86 48	30% 35 14	Low 59 33	Low 53 28	52% 42 23
Pinawa Overall Rank Rank in Type	SR	Springfield	Low 46	1.12 11	9% 55 30	Low 63 36	Medium 45 20	70% 9 5
Teulon Overall Rank Rank in Type	SR	Rockwood	Low 47	1.22 5	18% 46 22	Medium 33 10	Medium 46 21	59% 29 13
Stonewall Overall Rank Rank in Type	SR	Rockwood	Low 47	1.22 5	20% 44 20	Medium 18 4	Medium 31 13	75% 4 2
Ste. Anne Overall Rank Rank in Type	SR	Tache	Low 49	1.26 3	30% 34 13	High 12 1	Medium 38 17	69% 10 6

Discharge efficiency rankings again reveal dispersions among these hospitals. Although the mean discharge efficiency score is the lowest among all hospital types, four of these hospitals have scores placing them in the top 10: Boissevain, Hodgson, Birtle, and Ashern, and three others join them in the top quintile. In contrast, Carberry Plains, Winnipegosis, Hamiota, Shoal Lake and Melita are found in the bottom 10 and three others also rank in the bottom quintile.

With respect to occupancy rates, the mean for small rural hospitals is 55%. The SRH dominate the top 10 rankings with six of them ranking that highly: Vita, Stonewall, Erickson, Melita, Pinawa and Ste. Anne, with Riverdale ranking 11th and Roblin 15th. Of these hospitals, only Melita had an extremely low rating on the discharge efficiency scale. Four SRH, St. Claude, Baldur, Birtle and Shoal Lake are found among the 10 hospitals with the lowest occupancy rates. Birtle's low occupancy rate may be partially due to its strong score on the discharge efficiency index, while Shoal Lake ranks among the lowest 10 for both discharge efficiency and occupancy.

5.4 Small Multi-Use Hospitals:

Mean Scores
Hospitalization Share: 4.5%
Intensity: -.23 (Medium)
Discharge Efficiency: 1.00 (Medium)
Occupancy Rate: 55.1%

Only one of these hospitals served a high need population and there is considerable evidence of overservicing. These relatively small hospitals do not account for a very large share of the hospitalizations of their areas with five of them ranking in the bottom 10. Rossburn ranks first among the small multi-use hospitals at 51 out of 68. On average, less than 5% of the hospitalizations of the area residents occur in these hospitals.

There is a much greater degree of variation with respect to intensity of cases treated. MacGregor, Whitemouth, Reston and Benito all have intensity scores above the provincial midpoint (MacGregor is first at 23rd) while Rossburn and Manitou rank among the 10 rural hospitals providing services of lowest intensity.

Benito and Rossburn are both among the top ten rural hospitals on the discharge efficiency scale. In contrast, Manitou and Reston fall into the bottom 10.

In terms of occupancy rate, Whitemouth leads the category with an 8th place overall ranking. It was the only small multi-use hospital to make the top quintile, but only two of these hospitals fell into the bottom quartile on this dimension.

Table 15: Small Multi-Use Hospital Profiles

			Population Based		Hospital Specific Indicators			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Benito	SMU	Swan River	High	1.11	3%	Medium	High	51%
Overall Rank			16	13	65	30	4	44
Rank in Type					4	4	1	4
Reston	SMU	Virden	Medium	1.00	5%	Medium	Low	41%
Overall Rank			18	27	63	25	66	58
Rank in Type					3	3	6	6
Rossburn	SMU	Russell	Medium	1.34	10%	Low	High	42%
Overall Rank			23	2	51	60	7	56
Rank in Type					1	5	2	5
Manitou	SMU	Lorne	Medium	1.15	6%	Low	Low	60%
Overall Rank			25	8	62	64	62	25
Rank in Type					2	6	5	3
MacGregor	SMU	Portage	Low	1.03	.4%	Medium	Medium	65%
Overall Rank			38	24	68	23	22	18
Rank in Type					6	1	3	2
Whitemouth	SMU	Springfield	Low	1.12	2%	Medium	Medium	70%
Overall Rank			46	11	67	24	40	8
Rank in Type					5	2	4	1

5.5 Northern Isolated Hospitals:

Mean Scores
Hospitalization Share: 33.5%
Intensity: -.93 (Low)
Discharge efficiency: .98 (Medium)
Occupancy Rate: 23.3%

Only one of these hospitals serves a high need population, but there is little evidence of overservicing. Although these hospitals have only a small number of beds, they provide a relatively high proportion of the hospitalizations of area residents. With a mean hospitalization share of 33.5%, the northern isolated mean is well above that for the small rural and small multi-use hospitals. Despite having only a handful of set-up beds, Leaf Rapids, Lynn Lake and Gillam all rank in the top quarter in the province on this dimension. Snow Lake stands out from the other northern isolated hospitals with a ranking of 66th on this indicator.

As one would expect, these hospitals have by far the lowest mean score on the intensity index. Three of them rank in the bottom ten. Lynn Lake stands out from its counterparts with a position that is 25 places higher than the next ranking hospital in the category (Snow Lake) and above the provincial midpoint. More than 10% of the cases at Lynn Lake involve surgery or delivery, a proportion that is higher than all of the small multi-use, most of the small rural and half of the intermediate rural hospitals.

Table 16: Northern and Isolated Hospital Profiles

			Population Based		**Hospital Specific Indicators**			
Hospital	Type	Physician Service Area	Need	Use Relative to Need Ratio	Share of Area Hospitalizations	Intensity	Discharge Efficiency	Occupancy Rate
Norway House Overall Rank Rank in Type	NI	Norway/ Cross	High 4	1.04 22	29% 36 4	Low 65 3	Medium 18 3	31% 64 2
Snow Lake Overall Rank Rank in Type	NI	Flin Flon	Medium 21	.90 44	2% 66 5	Low 57 2	High 1 1	15% 67 4
Lynn Lake Overall Rank Rank in Type	NI	Lynn Lake	Medium 24	1.07 16	45% 16 2	Medium 32 1	Low 68 5	12% 68 5
Leaf Rapids Overall Rank Rank in Type	NI	Leaf Rapids	Medium 29	.95 34	44% 17 3	Low 68 5	High 8 2	32% 63 1
Gillam Overall Rank Rank in Type	NI	Gillam	Low 37	1.17 7	47% 14 1	Low 67 4	Medium 34 4	26% 66 3

Lynn Lake also stands out from its counterparts on the discharge efficiency scale. It ranks last in the province while three of the other northern isolated hospitals rank above the midpoint, Gillam stands 34th and Snow Lake ranks first in the province. Overall, the mean discharge efficiency score for these hospitals is higher than those for any other hospital type.

Despite their contribution to area hospitalizations, the northern isolated hospitals have very low occupancy rates. All five of these hospitals rank among the bottom six of the province, with the top hospital, Leaf Rapids, ranking 63rd.

6. CONCLUSIONS:

As we begin our conclusions it is useful to review briefly the overall results of our hospital analysis. As we see from Table 17, Manitoba's 68 rural hospitals vary considerably in the number of set-up beds available, but the mean result is 25.7 set-up beds per hospital. These hospitals account on average for 30.6% of the hospitalizations incurred by residents of their area, with the range extending from less than 1% to more than 75%. Our intensity measure is standardised to the rural average which sets the mean to 0; thirty provincial hospitals have intensity scores higher than that. The overall mean discharge efficiency score suggests that Manitoba's rural hospitals are clustered near the expected standard. Finally, occupancy rates at rural hospitals are generally low; on average approximately half of the beds in a hospital are filled, but again there is extensive variation among hospitals.

Table 17: Mean Score and Range of Manitoba's Rural Hospitals on Hospital Specific Indicators

Rural Hospitals (n=68)	Mean	Minimum	Maximum
Number of set-up beds	25.7	4	122
Share of Area Hospitalizations	30.6%	0.41%	75.4%
Intensity	0 (standardised)	-1.50	2.36
Discharge Efficiency	1.01	0.82	1.24
Occupancy Rate	54.6%	12.1%	81.4%

Throughout this analysis we have made extensive use of previous research which has divided Manitoba's hospitals into a number of different types. It is important that we make such distinctions. However, this particular categorization is not used by Manitoba Health, nor are there clear directives as to the expectations for different types of hospitals. It would be useful to re-examine these groupings in light of the measures we have presented, or possibly to consider other ways of classifying these hospitals. An examination of the framework Ontario has been developing for rural and northern health care might well prove useful. That province identified "five basic types of hospitals serving rural and remote communities, each of which serves a different but vital role in the delivery of health care services. These hospitals differ very significantly in their ability to provide 24 hour care" (Draft Planning Guidelines: Planning to Implement the Rural and Northern Health Care Framework, 5).

It would also be useful to integrate considerations of distance more fully into the analysis. Many of the rural hospitals, particularly in southern Manitoba are located within 25 kilometres of another institution and a full consideration of the hospital should take into account differences in geographic concentration (see Appendix V).

This examination of Manitoba's rural hospitals is wide ranging and must be seen as a preliminary but important first step. In this section we point out some of the issues which captured our attention and provide some examples which support one of the recommendations that we make, namely that any given individual performance indicator utilized in this study should not be considered in isolation.

Our analysis of Manitoba's rural hospitals reveals quite clearly that "hallway medicine" is not much of an issue in the province's rural areas. Only 19 of the 68 hospitals had occupancy rates in excess of 65%, so for most hospitals more than a third of the set-up beds were generally empty. Indeed in 20 hospitals the occupancy rate was less than 50%.

A careful examination of hospital performance also suggests the need for caution in assuming that high occupancy rates are a sign of positive performance. Occupancy rates provide an incomplete means of assessing hospitals.

When we look at the ten hospitals with the highest occupancy rates in rural Manitoba, we see that none of them score in the high range of the discharge efficiency index. That is, hospitals that have high occupancy rates appear to keep their patients longer than do other rural hospitals. In contrast, the ten hospitals with the highest scores on the discharge efficiency index have an average occupancy rate of only 40.9%, well below the provincial mean. Indeed, the discharge efficiency ratio for the eight hospitals with an occupancy rate of less than 35% was .96, while the corresponding figure for the 19 hospitals with occupancy rates above 65% was 1.02. Simply measuring the number of beds filled in a hospital, then, can give a misleading indication of a hospital's performance. Low occupancy rates may in some cases represent the appropriate treatment of low intensity cases. Correspondingly, it is

possible that high occupancy rates may partially be based on inefficient discharge patterns. At the very least a hospital's scores on these indicators need to be considered simultaneously.

And when we consider discharge efficiency and occupancy rates simultaneously, we are able to point out different patterns. Some hospitals have occupancy rates of more than 55% yet still score highly on discharge efficiency: Steinbach, Minnedosa, Virden, Swan Lake, Pine Falls, and Ashern. A number of other hospitals with relatively high occupancy rates are matched with low scores on our discharge efficiency index. These include Selkirk, Beausejour, Gimli, Winnipegosis, Swan River, Wawanesa, Melita and Manitou. However, attention should also be paid to hospitals that combine low discharge efficiency with low occupancy rates. Carberry Plains, Grandview, Morris, Notre Dame, Shoal Lake, Reston and Lynn Lake all fall into this category.

It is important to keep in mind that the larger hospitals did not score very well on the discharge efficiency index. Only one of the major rural hospitals ranked in the top 10 on this dimension and even that hospital ranked only 10th. Among smaller hospitals, Snow Lake, Boissevain, Hodgson and Benito scored very highly on our discharge efficiency measure. This may suggest that case mix has some impact on the measure.

On the other hand, the larger hospitals provide services of the highest levels of intensity. As expected, it is the major rural hospitals which are providing services of the highest intensity and only they and a few intermediate rural hospitals make the top 10 on this index. Relatively low intensity services are provided by the northern and isolated hospitals as well as the small multi-use hospitals. Given the smaller number of cases handled by these facilities, the lower intensity scores likely represent good practice standards, especially since many of these institutions perform neither surgery or deliveries.

The relationship of intensity to discharge efficiency is worth further exploration. Theoretically, it might be easier for hospitals treating cases of lower intensity to achieve higher scores on our discharge efficiency measure (although we included adjustments for intensity in the discharge efficiency indicator). *However, there was no statistically*

significant relationship between these measures. Indeed, the ten most efficient hospitals had a mean intensity score of .67, a score falling into the high intensity category. Hospitals which combine high discharge efficiency scores with high intensity provide important benchmarks. Included in this category are hospitals such as Steinbach, The Pas, Churchill and Minnedosa. At the other end, we see hospitals that are both low in discharge efficiency, and low in intensity like Gimli, Melita, Wawanesa, and Lynn Lake.

Our look at the share of area hospitalizations points out the important role played by northern and isolated hospitals. These tiny hospitals account for a higher proportion of area hospitalizations than either small multi-use or small rural hospitals; they provide an important service to area residents. With only a handful of beds, they account for over a third of the hospitalizations of area residents, and even this mean percentage is pulled down slightly by Snow Lake. In contrast the small rural hospitals account for just over a fifth of hospitalizations in their areas.

Overall, 12 of the 68 hospitals accounted for more than half of the hospitalizations incurred by residents of their area, eight for 60% or more and, three, Flin Flon, The Pas and Thompson, for at least 70% of the hospitalizations. None of these three hospitals serve areas which are using hospital services at a greater than expected rate.

More than one-third of the rural hospitals account for less than 20% of area hospitalizations and 17 provide less than10%. Setting aside the small multi-use and northern and isolated hospitals leaves us with 11 small rural hospitals which capture only a minor share of their area's hospitalizations: Baldur, Erickson, Glenboro, McCreary-Alonsa, Notre Dame, Pinawa, Emerson, Shoal Lake, St. Claude, Wawanesa, and Winnipegosis. These hospitals have shares of area hospitalizations which are less than half of the average for small rural hospitals but on average they have 14 set-up beds, only slightly below the small rural average of 17. Baldur, Glenboro and Wawanesa all serve the same Physician Service Area.

In the interest of developing a fuller picture of hospitals and their use in rural Manitoba, we wish to draw attention to the use made of hospital services by various population areas, and

in particular, one of the areas that has no hospital within it. Oxford House ranked first among the 51 population areas with respect to the need for hospital services and 51st on the Use Relative to Need Ratio, indicating a high need, but a very low use. This is an issue that planners in the Burntwood RHA might want to consider. Residents of East Interlake, Churchill, De Salaberry and East Lake Winnipeg also utilize hospital services at a low level relative to need: are there other resources in these areas such as nursing homes or home care that are filling the breach, or are these residents under served?[35]

A number of populations were hospitalized at rates much greater than expected. Topping this list were residents of Alonsa, Russell, Tache and Seven Regions. Planners and hospital administrators in these areas may wish to consider whether there is something in the admission policies of the hospitals serving those areas which needs to be addressed. It is significant that none of the hospitals in the Russell or Alonsa areas treat cases of high intensity. Ste Anne hospital in Tache does treat high intensity cases, but its high occupancy rate must be assessed in conjunction with a discharge efficiency score that ranks in the bottom half of rural hospitals. Thus its tendency to discharge patients slowly combined with what may be a tendency to admit more cases than the rural standard may influence residents' high use of hospital services.

This leads us to conclude by reiterating our key recommendation that a single measurement not be considered in isolation. A complete portrait of hospital performance must consider all of the measures, as well as issues we have not addressed such as cost efficiency (report forthcoming) and patient satisfaction (an issue addressed in Ontario's Hospital Reports). It is also important to remember that this, like all profiles of performance, captures a particular moment in time. It does not purport to predict the future performance of any hospital, but it aims at providing a yardstick by which all hospitals can understand and evaluate their performance in the wider Manitoban environment.

[35] It is important to keep in mind though, that as a recent report by HSURC showed (Assessing the Impact of the 1993 Acute Care Funding Cuts to Rural Saskatchewan Hospitals, 1999) easy access to hospitals is not necessarily a predictor of better health.

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APPENDIX I

Methods Appendix

A) Need for Hospital Services

As a first step we identified the age and gender profile of each of our population areas. It is well established that the need for health care is associated with age and gender. For example, elderly people are admitted to hospital more frequently and women of child bearing age are more likely to use health care resources than men of similar ages. Thus accurate projections of health care need must take into consideration these critical categories. Indeed some researchers have argued that age and gender adjustments should be used as the fundamental basis for allocating health care resources. Data collected every five years as part of the Canadian census enables us to identify the age and gender composition of each of our population areas and thereby project the area's need for hospital service. However, some of our previous analyses indicates that the simple use of such adjustments does not provide a complete description of area need (Frohlich and Carriere, 1997).

Other population characteristics are also strongly associated with need for health care and we utilized some of these in estimating an area population's need for health care. Canadian census data provides a wealth of information on the population characteristics of particular areas. In addition to the age and sex variables discussed above, six other variables closely associated with health status and the utilization of health care have been identified (See Mustard and Frohlich, 1995). These include levels of area unemployment, the percentage of single parent female households in a given area, level of education, the percentage of females participating in the labour force, and the average value of dwellings in the region. These variables have been combined into an index called SERI (Socio-Economic Risk Index) and have been used in combination with the age and gender data to project the need for health care services.

We used one more step in our description of the health care needs of a given population area by adding in data regarding the region's premature mortality rate (PMR). It is well established that the proportion of the population dying before the age of 75 is a good indication of an area's need for health care services. Simply put, an early death is an

indication of poor health. Therefore, after we used Age, Gender and SERI adjustments to project an area's need for health services, we also took into account differences in PMR in each area. The model thus works with the assumption that areas with a less healthy population will need more hospitalizations than areas with healthier populations.

The census data on which our model is based comes from two different census periods. We used both 1986 and 1991 data for two reasons. First, to minimise errors which might be created by rounding, miscounting or sampling problems (SERI is based on a 20% sample of Canadians) and second, because these factors influence health over time.

B) Intensity

In developing this measurement we kept in mind that measures appropriate for measuring the acuteness of care delivered in urban and teaching hospitals are not as likely to be relevant for smaller rural hospitals. We consulted Manitoba Health officials and a variety of other stakeholders as we moved through various stages in developing our 'Intensity' measure. We began with a pool of more than 80 potential indicators culled from previous Centre reports, scientific studies and consultations with stakeholders. Using a variety of statistical techniques we eventually chose three indicators which together provided the best portrait of service intensity. First, we identified the percentage of inpatient cases in each hospital that involved either surgery or a delivery. These cases usually require more specialized services as well as special infrastructure. Second, we noted the percentage of medical cases with a length of stay greater than one day or which reflected a reasonable one day stay. This was based on the assumption that most one day cases are provided for observation and do not represent care that needs to be provided in an acute care setting. Third, we estimated the hospital's average case weight for adult and paediatric typical medical cases. To do this we used RDRGs, a classification system which places cases into levels of severity based on the likely impact on hospital resources. A standardized indicator was developed based on the degree to which each of these measures diverged from the rural average. That is, the indicators were normalized to the rural average by subtracting the rural average and dividing by the standard deviation of the rural average. To generate a single intensity score we

combined our three indicators into a single index by weighting them (on the recommendation of stakeholders): 50%, 25% and 25%.

C) Discharge Efficiency

Measures of discharge efficiency have frequently been used in assessments of hospitals. Maclean's magazine, for example, uses a length of stay measurement developed by CIHI in order to measure how quickly (i.e. efficiently) hospitals discharge patients. The measure of discharge efficiency used in this project was developed specifically for rural hospitals in Manitoba.

To develop this measure, a regression model was developed to predict the expected length of stay for each individual inpatient case in rural and northern hospitals. The data set was limited to typical cases, cases for which the length of stay was less than or equal to the trim and involved no transfers or death. Only cases with a length of stay greater than 1, or which represented a 'reasonable' 1 day stay were included. Within this data set, each RDRG-specific case was first assigned an average length of stay from an earlier project conducted by MCHPE (Shanahan, 1993-1994). A regression model was then created to develop an adjusted length of stay for each case. This was accomplished by including the following variables which are known to influence length of stay: patient age and gender; an identifier to indicate whether the patient had First Nations status; the type of case (i.e. neonatal, paediatric surgical, paediatric medical, obstetric psychiatric, adult surgical or adult medical); and type of hospital (i.e. major rural, intermediate rural, small rural, small multi-use or northern isolated). Thus for each case, we had three measures: the Manitoba average length of stay for this type of case; the expected length of stay (as predicted by the regression model), and the actual length of stay. For each hospital, two summary measures were then developed for all cases discharged in a year: 1) the sum of the actual lengths of stay and 2) the sum of the expected lengths of stay. Finally, for each hospital, a ratio of these two measures was constructed (sum of actual length of stay/ sum of expected length of stay). This ratio provides an indication of whether the overall length of stay for each hospital was greater than expected, as expected, or less than expected.

D) OCCUPANCY RATE:

Occupancy rates were calculated by looking at the number of set-up beds in each hospital for each fiscal year as well as the total number of inpatient days (excluding newborns) for each hospital. The occupancy rate is then found by dividing the inpatient days by the number of beds times 365.25 and then multiplying the fraction by 100 to generate a percentage.

APPENDIX II

Ordering of Hospitals

PSA by Need for Hospitalization
Hospital by Number of Set-up Beds

Oxford House- No Hospitals

Pine Creek- No Hospitals

Burntwood Unorganized- No Hospitals

Norway- Cross
    Norway House

Island Lake- No Hospitals

East Interlake
    Arborg
    Hodgson

East Lake Winnipeg
    Pine Falls

Gilbert Plains
    Grandview

Norman Other- No Hospitals

Gimli
    Gimli

Dauphin
    Dauphin
    Winnipegosis

Piney District
    Vita

Roblin
    Roblin

Neepawa
    Neepawa

Swan River
- Swan River
- Benito

Minnedosa
- Minnedosa
- Hamiota
- Shoal Lake
- Erickson

Virden
- Virden
- Reston

Melita- Deloraine
- Deloraine
- Melita

Coldwell
- Eriksdale

Flin Flon
- Flin Flon
- Snow Lake

Sioux Valley
- Riverdale

Russell
- Russell
- Birtle
- Rossburn

Lynn Lake
- Lynn Lake

Lorne
- Swan Lake
- Crystal City
- Manitou

Alonsa
- Ste. Rose
- McCreary/Alonsa

Boissevain
- Boissevain

Souris
- Souris

Leaf Rapids
- Leaf Rapids

Victoria- South Norfolk
- Tiger Hills

Killarney
- Killarney
- Baldur
- Glenboro
- Wawanesa

Grahamdale
- Ashern

The Pas
- The Pas

Seven Regions
- Gladstone

North Cypress
- Carberry Plains

Carman
- Carman
- Notre Dame
- St. Claude

Gillam
- Gillam

Portage
- Portage
- MacGregor

Morris-Montcalm
- Morris
- Emerson

Altona
- Altona

Morden-Winkler
- Morden
- Winkler

De Salaberry
- St. Pierre

Steinbach
- Steinbach

Thompson
- Thompson

Selkirk
- Selkirk

Springfield
- Beausejour
- Pinawa
- Whitemouth

Rockwood
- Teulon
- Stonewall

Tache
- Ste. Anne

Richot-No Hospitals

Macdonald/Cartier- No Hospitals

APPENDIX III

Manitoba Rural Hospital Profiles: 1996-1997 through 1998-1999

Part of our goal was to develop a profile of individual hospital performance and in pursuit of that goal we present portraits of individual hospitals. The hospitals are profiled with respect to where each ranked on our need indicator. That is, the hospitals which serve population areas of the greatest need are presented first, and those serving population areas with the lowest need for hospital use given the characteristics of area residents, are presented last. Hospital reports are organized by PSAs and summary descriptions of the PSA follow the individual hospital reports. The six indicators we used in our RHA and Hospital Type profiles are presented in relation to each of Manitoba's 68 Rural Hospitals.[36] In addition, we provide other important descriptive information. For each individual hospital we indicate the RHA in which it is located, the number of set-up beds, and the percentage of inpatient cases involving delivery or surgery since these are critical to the calculation of some of our measures.

1 Norway-Cross Physician Service Area

1.1 Norway House Hospital: Northern Isolated hospital

Set-up beds[37]: 16
Percentage of Inpatient Cases Involving Delivery or Surgery: 3
RHA: Burntwood

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a very high need for hospital services, ranks 4th in province on this dimension. The population uses these services at the expected rate.
SHARE OF AREA HOSPITALIZATIONS -accounts for about 29% of area hospitalizations ranking around the provincial midpoint
INTENSITY -treats cases of low intensity ranking 4th last in the province
DISCHARGE EFFICIENCY -scores in the medium range on the discharge efficiency index ranking 18th in the province
OCCUPANCY RATE -one of lower occupancy rates in the province at 31% but nonetheless 2nd among NIH[38]

[36] The actual values as well as the rank order position on the six indicators can be found either under the RHA listing or the hospital type listing above.
[37] The number of set-up beds is the three year average for 1996-1997, 1997-1998, and 1998-1999. The number for each year is taken from Manitoba Health's bed map of acute care hospitals. Their figures report the number of beds as of March 31, 1997; March 31, 1998; and March 31, 1999.

Surgical cases or deliveries account for a greater proportion of cases than is true of any of the SMU and most of the SRH. Scores on the discharge efficiency index are relatively high.

2 East Interlake Physician Service Area

2.1 Arborg: Small Rural Hospital

Set-up beds: 16
Percentage of Inpatient Cases Involving Delivery or Surgery: 8
RHA: Interlake

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a high need for hospital services but the population's use of services is lower than expected. Only one other area has lower use relative to need than East Interlake.
SHARE OF AREA HOSPITALIZATIONS -accounts for 16% of area hospitalizations, in bottom third of province
INTENSITY -treats cases of high intensity, ranks in top 15 and 2nd among SRHs
DISCHARGE EFFICIENCY -scores in medium range of discharge efficiency index ranking 20th
OCCUPANCY RATE -Occupancy rate of 51% places it below the midpoints for both the province and SRH

2.2 Hodgson: Small Rural Hospital

Set-up beds: 16
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: Interlake

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Arborg
SHARE OF AREA HOSPITALIZATIONS -accounts for 32% of area hospitalizations, somewhat above provincial midpoint
INTENSITY -treats cases of low intensity. Records the lowest intensity rating among SRH and only two hospitals in the province have lower intensity scores
DISCHARGE EFFICIENCY -scores in high range of discharge efficiency index, ranks 3rd overall and 2nd among SRHs
OCCUPANCY RATE -Occupancy rate of 47% places it in the bottom quartile

Hodgson is a busier and more efficient hospital than Arborg but Arborg handles cases of much greater intensity. Neither hospital is above the provincial average in occupancy. Residents in this region are not using hospital services at the expected level.

[38] Throughout the hospital profiles NIH refers to Northern Isolated Hospitals; SMU to Small Multi-Use hospitals, SRH to Small Rural Hospitals, IRH to Intermediate Rural Hospitals; and MRH to Major Rural Hospitals.

3 East Lake Winnipeg Physician Service Area

3.1 Pine Falls: Small Rural Hospital

Set-up beds: 27
Percentage of Inpatient Cases Involving Delivery or Surgery: 4
RHA: North Eastman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a high need for hospital services but these are utilized at a lower than expected level. In top provincial quintile on this dimension.
SHARE OF AREA HOSPITALIZATIONS -accounts for 34% of area hospitalizations, ranking above the provincial midpoint and in top quartile for SRH
INTENSITY -treats cases of medium intensity
DISCHARGE EFFICIENCY -scores in the high range of discharge efficiency index ranking 11th
OCCUPANCY RATE -Occupancy rate of 56% places it just below the provincial midpoint

An efficient hospital with an occupancy rate that is slightly below the provincial midpoint. The health needs of the population are high and hospital use rates low relative to these needs.

4 Gilbert Plains Physician Service Area

4.1 Grandview: Small Rural Hospital

Set-up beds: 18
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: Parkland

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a high need for hospital services and which utilizes these services at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 33% of area hospitalizations ranking it the middle third
INTENSITY -treats cases of low intensity, ranks in lowest quartile of province
DISCHARGE EFFICIENCY -scores in low range of discharge efficiency index falling into the lowest quartile
OCCUPANCY RATE -Occupancy rate of 51% places it below the provincial midpoint

Serves a high need population and provides services at the expected level. Two-thirds of area hospitalizations take place outside the area and the cases treated are of low intensity. The discharge efficiency score is also relatively low.

5 Gimli Physician Service Area

5.1 Gimli: Intermediate Rural Hospital

Set-up beds: 34
Percentage of Inpatient Cases Involving Delivery or Surgery: 1
RHA: Interlake

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a high need for hospital services but which utilizes services at less than the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 41% of area hospitalizations placing it in top third of province
INTENSITY -treats cases of medium intensity, just below provincial midpoint
DISCHARGE EFFICIENCY -scores in low range of discharge efficiency index, placing it in lowest quintile and ranking it 2nd last among IRH
OCCUPANCY RATE -Occupancy rate of 56% places it just above provincial midpoint

This hospital serves a population with relatively high needs but one that is not utilizing these services at the expected level. It does not treat high intensity cases and 99% of its cases do not involve surgery or delivery. No other IRH has a lower proportion of cases in this category, this is not completely unexpected given the proximity to Winnipeg hospitals. It scores low in discharge efficiency.

6 Churchill Physician Area

6.1 Churchill: Intermediate Rural Hospital

Set-up beds: 31
Percentage of Inpatient Cases Involving Delivery or Surgery: 13
RHA: Churchill

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a high need for hospital services but which utilizes these services at a lower rate than expected. Only two PSAs have a lower Use Relative to Need Ratio score
SHARE OF AREA HOSPITALIZATIONS -accounts for 50% of area hospitalizations ranking it 12th in the province and 4th among IRH
INTENSITY -treats cases of high intensity, ranking in the top quartile and 6th in the medium rural category
DISCHARGE EFFICIENCY -scores in the high range of discharge efficiency index ranking 5th overall and 1st among IRH
OCCUPANCY RATE -Occupancy rate of 27% places it last in the IRH category and among the lowest in the province

Churchill is the only RHA to contain only one Physician Service Area and just a single hospital. That hospital serves a population with a high need for hospital services and accounts for more than half of the hospitalisations of area residents. These residents are hospitalized less frequently than expected. Most beds are empty most of the time. The hospital is treating cases of high intensity and performing more efficiently with respect to discharge than any of the other hospitals in its category.

7 Dauphin Physician Service Area

7.1 Dauphin: Major Rural Hospital

Set-up beds: 85

Percentage of Inpatient Cases Involving Delivery or Surgery: 33
RHA: Parkland

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a high need for hospital services and the population uses these services at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 69% of area hospitalizations ranking 4th in the province
INTENSITY -treats cases of high intensity, only one hospital has a higher intensity rating
DISCHARGE EFFICIENCY -scores in the middle range of the discharge efficiency index but is above the provincial midpoint
OCCUPANCY RATE -Occupancy rate of 76% ranks it 3rd in province and 1st among MRH

7.2 Winnipegosis: Small Rural Hospital

Set-up beds: 15
Percentage of Inpatient Cases Involving Delivery or Surgery: 0.2
RHA: Parkland

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Dauphin
SHARE OF AREA HOSPITALIZATIONS -accounts for 6% of area hospitalizations ranking among lowest 10 for province
INTENSITY -treats cases of medium intensity, its score is well below the SRH mean
DISCHARGE EFFICIENCY -scores in low range of discharge efficiency index, finishing among the lowest 10, only 3 SRH recording lower scores
OCCUPANCY RATE -Occupancy rate of 61% places it just below the first tertile

Three-quarters of area hospitalizations take place in the two hospitals and Dauphin has one of the highest occupancy rates in the province. Dauphin stands out for the high intensity cases it handles, while Winnipegosis scores very low on the discharge efficiency index.

8 Piney District Physician Service Area

8.1 Vita: Small Rural Hospital

Set-up beds: 10
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: South Eastman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a high need for hospital services and the population which uses these services at the expected rate
SHARE OF AREA HOSPITALIZATIONS -accounts for 22% of area hospitalizations, almost at the average among SRH
INTENSITY -treats cases of medium intensity, ranking in the top provincial tertile and 7th among SRH
DISCHARGE EFFICIENCY -scores in the medium range of discharge efficiency index, ranking just above the provincial midpoint
OCCUPANCY RATE -Occupancy rate of 77% ranks it 2nd overall and 1st among SRH

Almost four-fifths of area hospitalizations occur elsewhere including almost all surgery and deliveries. However, Vita is nonetheless one of the busiest hospitals in Manitoba. For a small rural hospitals it treats cases of relatively high intensity and, despite its occupancy rate, scores well on the discharge efficiency scale.

9 Roblin Physician Service Area

9.1 Roblin: Small Rural Hospital

Set-up beds: 25
Percentage of Inpatient Cases Involving Delivery or Surgery: 0.1
RHA: Parkland

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a high need for hospital services and the population utilizes them at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 51% of area hospitalizations ranking 10th in province and first in its category
INTENSITY -treats cases of medium intensity
DISCHARGE EFFICIENCY -scores in medium range on discharge efficiency index
OCCUPANCY RATE -Occupancy rate of 68% makes it the 15th fullest hospital in province

The hospital captures more than half of area hospitalizations and ranks in the medium range for both intensity and discharge efficiency. Its occupancy rate ranks in the highest quintile.

10 Neepawa Physician Service Area

10.1 Neepawa: Intermediate Rural Hospital

Set-up beds: 38
Percentage of Inpatient Cases Involving Delivery or Surgery: 19
RHA: Marquette

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with high level needs for hospital services and is utilized at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 68% of area hospitalizations ranking 5th in the province (1st among IRH)
INTENSITY -treats cases of high intensity with the highest score among IRH
DISCHARGE EFFICIENCY -scores in medium range of discharge efficiency index (5th among IRH)
OCCUPANCY RATE -Occupancy rate of 66% places it in top third and 4th among IRH

A relatively busy hospital that meets the vast majority its area's hospitalization needs, treating high intensity cases with roughly average discharge efficiency.

11 Swan River Physician Service Area

11.1 Swan River: Major Rural Hospital

Set-up beds: 65

Percentage of Inpatient Cases Involving Delivery or Surgery: 10
RHA: Parkland

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a high need for hospital services and these are utilized at a slightly higher than expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 64% of area hospitalizations ranking 7th in province
INTENSITY -treats cases of medium intensity, however among major rural hospitals only Flin Flon has a lower intensity rating
DISCHARGE EFFICIENCY -scores in low range of discharge efficiency index, among MRH only Selkirk has a lower discharge efficiency ranking
OCCUPANCY RATE -Occupancy rate of 71% ranks it 7th in province and 2nd among MRH

11.2 Benito: Small Multi-Use Hospital

Set-up beds: 5
Percentage of Inpatient Cases Involving Delivery or Surgery: 0
RHA: Parkland

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Swan River
SHARE OF AREA HOSPITALIZATIONS -accounts for 3% of area hospitalizations. Only three hospitals contribute a smaller proportion
INTENSITY -treats cases of medium intensity, just above provincial midpoint
DISCHARGE EFFICIENCY -scores highest on discharge efficiency rating in province among SMU
OCCUPANCY RATE -Occupancy rate of 51% ranks 44th

Together the two hospitals in this area account for almost 70% of area hospitalizations. Swan River treats cases of relatively low intensity and its discharge efficiency score is very low in the major rural category. It is, however, among the busier of MRH. Benito is not very busy and is near the provincial average. Benito stands out on the discharge efficiency score, ranking fourth in the province and a full 40 places in front of Swan River. Benito's high discharge efficiency score may be related to its lower occupancy rate.

12 Minnedosa Physician Service Area

12.1 Minnedosa: Intermediate Rural Hospital

Set-up beds: 27
Percentage of Inpatient Cases Involving Delivery or Surgery: 20
RHA: Marquette

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with high level needs for hospital services and these services are utilized at expected levels
SHARE OF AREA HOSPITALIZATIONS -accounts for 23% of area hospitalizations, placing it in the middle third in the province but last among IRH
INTENSITY -treats cases of high intensity, ranks in top 10 and 2nd among IRH

DISCHARGE EFFICIENCY -scores in the high range of discharge efficiency index, ranking 3rd among IRH
OCCUPANCY RATE -Occupancy rate of 63% places it in the top 20 and well above the IRH mean

12.2 Hamiota: Small Rural Hospital

Set-up beds: 23
Percentage of Inpatient Cases Involving Delivery or Surgery: 9
RHA: Marquette

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Minnedosa
SHARE OF AREA HOSPITALIZATIONS -accounts for 17% of area hospitalizations placing it just below the middle third
INTENSITY -treats cases of medium intensity, ranking 3rd among SRH
DISCHARGE EFFICIENCY -scores in the low range of discharge efficiency index, ranking among lowest 10 in province, and 35th in its category
OCCUPANCY RATE -Occupancy rate of 58% places it just above the provincial midpoint and slightly above the SRH mean

12.3 Shoal Lake: Small Rural Hospital

Set-up beds: 19
Percentage of Inpatient Cases Involving Delivery or Surgery: 0
RHA: Marquette

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Minnedosa
SHARE OF AREA HOSPITALIZATIONS -accounts for 9% of area hospitalizations placing it in the lowest quartile
INTENSITY -treats cases of low intensity, falling into the lowest 10
DISCHARGE EFFICIENCY -scores in the low range of discharge efficiency index, ranking in lowest 10 in province (slightly below Hamiota)
OCCUPANCY RATE -Occupancy rate of 38% ranks it 60th in the province

12.4 Erickson: Small Rural Hospital

Set-up beds: 12
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: Marquette

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Minnedosa
SHARE OF AREA HOSPITALIZATIONS -accounts for 9% of area hospitalizations placing it in the lowest quartile
INTENSITY -treats cases of medium intensity, but ranks 8th among SRH
DISCHARGE EFFICIENCY -scores in the medium range of discharge efficiency index, ranking just below the top quartile
OCCUPANCY RATE -Occupancy rate of 75% ranks it 5th in Manitoba

The area is served by four hospitals. Shoal Lake treats the fewest patients, records the lowest intensity score and accounts for the smallest share of area hospitalizations. The small rural hospitals together treat a higher proportion of area patients than does Minnedosa. Minnedosa and Hamiota both treat cases of higher intensity. Erickson has one of the highest occupancy rates in the province but, along with Minnedosa, nonetheless scores relatively highly on discharge efficiency. None of the other area hospitals ranked among the top third on the discharge efficiency dimension.

13 Virden Physician Service Area

13.1 Virden: Intermediate Rural Hospital

Set-up beds: 25
Percentage of Inpatient Cases Involving Delivery or Surgery: 2
RHA: South Westman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a medium need for hospital services and the population uses services at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 41% of area hospitalizations placing it in top third
INTENSITY -treats cases of medium intensity, just below top third
DISCHARGE EFFICIENCY -scores in the high range of discharge efficiency index, 12th overall and 2nd among IRH
OCCUPANCY RATE -Occupancy rate of 68% places it in the top provincial quintile and second in category

13.2 Reston: Small Multi-Use Hospital

Set-up beds: 17
Percentage of Inpatient Cases Involving Delivery or Surgery: 0
RHA: South Westman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Virden
SHARE OF AREA HOSPITALIZATIONS -accounts for 5% of area hospitalization which places it third in its category
INTENSITY -treats cases of medium intensity, ranks 3 places ahead of Virden on this measure
DISCHARGE EFFICIENCY -scores in low range of discharge efficiency index, ranking 3rd lowest in the province
OCCUPANCY RATE -Occupancy rate of 41% places in bottom quintile and last among SMU

Virden has one of the highest occupancy rates and is also among the most efficient of the IRH with respect to discharges. The majority of area hospitalizations take place outside the two area hospitals. Reston's relatively low occupancy rate would likely be even lower if discharge efficiency improved.

14 Melita-Deloraine Physician Service Area

14.1 Deloraine: Small Rural Hospital

Set-up beds: 18
Percentage of Inpatient Cases Involving Delivery or Surgery: 3
RHA: South Westman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with medium level needs for hospital services and the population uses them at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 29% of area hospitalizations resulting in a mid range ranking
INTENSITY -treats cases of medium intensity, but is 9th among SRH on this measure
DISCHARGE EFFICIENCY -scores in medium range of discharge efficiency index
OCCUPANCY RATE -Occupancy rate of 47% places it 51st

14.2 Melita: Small Rural Hospital

Set-up beds: 11
Percentage of Inpatient Cases Involving Delivery or Surgery: 4
RHA: South Westman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Deloraine
SHARE OF AREA HOSPITALIZATIONS -accounts for 32% of area hospitalizations ranking above the provincial midpoint and Deloraine
INTENSITY -treats cases of medium intensity, ranking 5th among SRH on this dimension
DISCHARGE EFFICIENCY -scores in low range of discharge efficiency index ranking 2nd last provincially
OCCUPANCY RATE -Occupancy rate of 72% ranks it 6th in province

Melita has a much higher occupancy rate than Deloraine, but this must be considered in conjunction with Melita's low discharge efficiency score. If Melita's discharge efficiency score improved, its occupancy rate would likely decrease. Deloraine accounts for only a slightly lower share of area hospitalizations but although it has a much lower occupancy rate, it ranks almost 20 places higher with respect to discharge efficiency.

15 Coldwell Physician Service Area

15.1 Eriksdale: Small Rural Hospital

Set-up beds: 13
Percentage of Inpatient Cases Involving Delivery or Surgery: 0
RHA: Interlake

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with medium level needs and is used at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 33% of area hospitalizations ranking somewhat above the provincial midpoint
INTENSITY -treats cases of medium intensity

DISCHARGE EFFICIENCY -scores in medium range of discharge efficiency index
OCCUPANCY RATE -Occupancy rate of 61% places it just below the top third in the province

The hospital has a relatively high occupancy rate but is treating cases that are not of high intensity. It is the only hospital in its area and accounts for one-third of area hospitalizations, a proportion well above the mean for SRH.

16 Flin Flon Physician Service Area

16.1 Flin Flon: Major Rural Hospital

Set-up beds: 75
Percentage of Inpatient Cases Involving Delivery or Surgery: 15
RHA: Norman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a medium need for hospital services and the population utilizes these services at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 70% of area hospitalizations ranking it 2nd in the province
INTENSITY -treats cases of medium intensity, just below the top third but last in the major rural category
DISCHARGE EFFICIENCY -scores in the medium range of discharge efficiency index
OCCUPANCY RATE -Occupancy rate of 57% places it slightly above the provincial midpoint but 8th among MRH

16.2 Snow Lake: Northern Isolated Hospital

Set-up beds: 4
Percentage of Inpatient Cases Involving Delivery or Surgery: 0
RHA: Norman
Physician Service Area: Flin Flon

POPULATION NEED AND USE RELATIVE TO NEED RATIO - same as Flin Flon
SHARE OF AREA HOSPITALIZATIONS -accounts for 2% of area hospitalizations. Only two hospitals account for a smaller proportion
INTENSITY -treats cases of low intensity as one would expect in a hospital of this type. It ranks 2nd among NIH on this dimension.
DISCHARGE EFFICIENCY -scores on the discharge efficiency index rank this hospital first in the entire province
OCCUPANCY RATE -Occupancy rate of 15% ranks it 2nd last in the province

The Flin Flon area is served by two hospitals, which account for almost three-quarters of the area's hospitalizations. Neither of the hospitals has particularly high occupancy rates. Snow Lake's low occupancy rate may be related to its discharge efficiency, it records the highest discharge efficiency score in the province.

17 Sioux Valley Physician Service Area

17.1 Riverdale: Small Rural Hospital

Set-up beds: 16
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: Marquette

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a medium need for hospital services and these services are utilized at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 43% of area hospitalizations placing it in the top third and 3rd among SRH
INTENSITY -treats cases of medium intensity
DISCHARGE EFFICIENCY -scores in the medium range of discharge efficiency index
OCCUPANCY RATE -Occupancy rate of 69% places it just below the top 10 and well above the SRH mean.

The hospital has a relatively high occupancy rate and a very high capture rate. Its share of area hospitalizations is almost twice the SRH mean.

18 Russell Physician Service Area

18.1 Russell: Small Rural Hospital

Set-up beds: 38
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: Marquette

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a medium need for hospital services, area uses hospital services at a much greater than expected level, ranking 2nd in the province
SHARE OF AREA HOSPITALIZATIONS -accounts for 39% of area hospitalizations falling just below the top third, but well above SRH mean
INTENSITY -treats cases of low intensity with a score in the lowest quintile
DISCHARGE EFFICIENCY -scores in the high range of discharge efficiency index falling just below the top quintile
OCCUPANCY RATE -Occupancy rate of 52% places it in middle third, just below SRH mean

18.2 Birtle: Small Rural Hospital

Set-up beds: 19
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: Marquette

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Russell
SHARE OF AREA HOSPITALIZATIONS -accounts for 14% of area hospitalizations placing it in the bottom third
INTENSITY -treats cases of low intensity with a score in the lowest quartile

DISCHARGE EFFICIENCY -scores in the high range of discharge efficiency index ranking 6th in the province
OCCUPANCY RATE -Occupancy rate of 33% places it among the bottom 10 and 2nd last among SRH

18.3 Rossburn: Small Multi-Use Hospital

Set-up beds: 10
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: Marquette

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Russell
SHARE OF AREA HOSPITALIZATIONS -accounts for 10% of area hospitalizations placing it in the bottom third but 1st among SMU
INTENSITY -treats cases of low intensity with score in the lowest 10
DISCHARGE EFFICIENCY -scores in the high range of discharge efficiency index ranking in top 10
OCCUPANCY RATE -Occupancy rate of 42% places it in bottom third and 2nd last among SMU

The area is served by two small rural hospitals and one small multi-use hospital and the population uses hospital facilities at a much greater than expected level. All of the hospitals treat cases of low intensity and very few surgeries or deliveries are performed in area hospitals. Russell is the busiest of the area hospitals with more patients than the other hospitals combined, but it scores lowest on the discharge efficiency index. All of the hospitals rank among the top 15 in the province for discharge efficiency and none have above average occupancy rates. The greater than expected use of hospital services does not appear to be produced by inefficiencies among area hospitals but Russell is one of the areas in the province where the level of hospital use should be carefully analyzed, particularly given the low intensity services provided at each institution.

19 Lynn Lake Physician Service Area

19.1 Lynn Lake Hospital: Northern Isolated Hospital

Set-up beds: 23
Percentage of Inpatient Cases Involving Delivery or Surgery: 10
RHA: Burntwood

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a medium level need for hospital services and these services are used at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for about half of the hospitalizations in the area. Ranks 16th in province on this dimension.
INTENSITY -treats cases of moderate intensity ranking above the provincial midpoint and first among NIH
DISCHARGE EFFICIENCY -scores very low on the discharge efficiency index, lowest in the province
OCCUPANCY RATE -Occupancy rate of 12% ranks last in the province

Lynn Lake reflects the characteristics of an isolated unit providing care to a small population. It provides almost half of the hospitalizations to area residents and has a much higher intensity case mix than any of the other NIH. The proportion of cases involving surgery or delivery is also much higher than one would expect in a hospital of this type. This hospital records Manitoba's lowest score on the discharge efficiency index. Even with the low discharge efficiency score, its occupancy rate is the lowest in the province.

20 Lorne Physician Service Area

20.1 Swan Lake: Small Rural Hospital

Set-up beds: 20
Percentage of Inpatient Cases Involving Delivery or Surgery: 4
RHA: Central

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a medium need for hospital services but which uses services at a greater than expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 31% of area hospitalizations around provincial midpoint
INTENSITY -treats cases of medium intensity, well below the provincial midpoint
DISCHARGE EFFICIENCY -scores in high range of discharge efficiency index, ranking in the top quintile
OCCUPANCY RATE -Occupancy rate of 56% places it almost precisely at the SRH mean

20.2 Crystal City: Small Rural Hospital

Set-up beds: 16
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: Central

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Swan Lake
SHARE OF AREA HOSPITALIZATIONS -accounts for 13% of area hospitalizations, in lowest third of province
INTENSITY -treats cases of medium intensity
DISCHARGE EFFICIENCY -scores in medium range of discharge efficiency index, ranking slightly above the lowest quartile
OCCUPANCY RATE -Occupancy rate of 50% is below the SRH mean

20.3 Manitou: Small Multi-Use Hospital

Set-up beds: 8
Percentage of Inpatient Cases Involving Delivery or Surgery: 0
RHA: Central

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Swan Lake and Crystal City
SHARE OF AREA HOSPITALIZATIONS -accounts for 6% of area hospitalization
INTENSITY -treats cases of low intensity, near provincial low point on this dimension

DISCHARGE EFFICIENCY -scores in low range of discharge efficiency index, ranks 62nd
OCCUPANCY RATE –Occupancy rate of 60% ranks 25th

Just about half of area hospitalizations take place in the three area hospitals and very few surgeries or deliveries are performed. Swan Lake is much the busier of the two SRH. Both hospitals are similar in the intensity level of cases treated, but Swan Lake records a much higher ranking on the discharge efficiency scale than Crystal City. Manitou is much less efficient than the area's larger hospitals and ranks last even among SMU hospitals in intensity.

21 Alonsa Physician Service Area

21.1 Ste. Rose: Intermediate Rural Hospital

Set-up beds: 37
Percentage of Inpatient Cases Involving Delivery or Surgery: 2.2
RHA: Parkland

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a medium need for hospital services but the use of these services exceeds expectations by the greatest amount in the province
SHARE OF AREA HOSPITALIZATIONS -accounts for 45% of area hospitalizations falling into the top quartile
INTENSITY -treats cases of medium intensity but ranks last among IRH on this dimension
DISCHARGE EFFICIENCY -scores in medium range of discharge efficiency index, ranking above provincial midpoint
OCCUPANCY RATE –Occupancy rate of 50% places it in bottom third and of the IRH only Churchill has a greater proportion of empty beds

21.2 McCreary/Alonsa: Small Rural Hospital

Set-up beds: 13
Percentage of Inpatient Cases Involving Delivery or Surgery: 0
RHA: Parkland

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Ste. Rose
SHARE OF AREA HOSPITALIZATIONS -accounts for 8% of area hospitalizations placing it in lowest quintile
INTENSITY -treats cases of medium intensity well below the provincial midpoint
DISCHARGE EFFICIENCY -scores in medium range on discharge efficiency index, ranking at midpoint for SRH
OCCUPANCY RATE –Occupancy rate of 55% places it below the provincial midpoint

Although the residents of this area are using hospital services at a much greater than expected rate, the two hospitals account for less than three-fifths of area hospitalizations and neither is above the provincial average occupancy rate. Neither hospital treats high intensity cases and neither is high on the discharge efficiency scale. Surgery and deliveries make up a very

small proportion of the cases at Ste. Rose with the percentage of such cases barely exceeding the average for SRH.

22 Boissevain Physician Service Area

22.1 Boissevain: Small Rural Hospital

Set-up beds: 12
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: South Westman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves PSA with a medium level need for hospital services but which utilizes services at a greater than expected level. Use of services ranks 6th in province
SHARE OF AREA HOSPITALIZATIONS -accounts for 49% of area hospitalizations ranking in top quintile and 2nd among SRH
INTENSITY -treats cases of low intensity with a ranking in the lowest quartile
DISCHARGE EFFICIENCY -scores in high range of discharge efficiency index, 1st among SRH and 2nd overall
OCCUPANCY RATE –Occupancy rate of 55% places it around the provincial midpoint and category mean

As the only hospital in the area, Boissevain accounts for a much higher share of area hospitalizations than most other SRH. It stands out for its high ranking on the discharge efficiency scale but treats cases that fall in the low range of our intensity measure.

23 Souris Physician Service Area

23.1 Souris: Intermediate Rural Hospital

Set-up beds: 30
Percentage of Inpatient Cases Involving Delivery or Surgery: 2
RHA: South Westman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a medium need for hospital services but which uses services at a slightly higher than expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 53% of area hospitalizations placing it in top 10 and second in category
INTENSITY -treats cases of medium intensity, above provincial midpoint, 8th among IRH
DISCHARGE EFFICIENCY -scores in the medium range of the discharge efficiency index, 8th among IRH
OCCUPANCY RATE –Occupancy rate of 52% places it, again, 8th among IRH

Souris's share of area hospitalizations is well above the average for IRH. On other dimensions, the hospital ranks generally among the lowest of the IRH.

24 Leaf Rapids Physician Service Area

24.1 Leaf Rapids: Northern Isolated Hospital

Set-up beds: 8
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: Burntwood

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a medium level need for hospital services and those services are utilized at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 44% of area hospitalizations. Ranks in top third in province
INTENSITY -treats cases of low intensity, ranks last in Manitoba on this dimension
DISCHARGE EFFICIENCY -scores in the high range on discharge efficiency index ranking in the top ten
OCCUPANCY RATE -one of lower occupancy rates in province at 32% but still the busiest of the NIH

Although Leaf Rapids has one of the lowest occupancy rates in the province, it ranks first among the NIH. Like most of the NIH, it does not deal with high intensity cases. The hospital ranks highly on the discharge efficiency index and, given its size, accounts for a large share of area hospitalizations.

25 Victoria-South Norfolk Physician Service Area

25.1 Tiger Hills: Small Rural Hospital

Set-up beds: 16
Percentage of Inpatient Cases Involving Delivery or Surgery: 5
RHA: South Westman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves PSA with medium level need for hospital services and which uses hospital facilities at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 39% of area hospitalizations, well above the SRH mean
INTENSITY -treats cases of medium intensity
DISCHARGE EFFICIENCY -scores in medium range of discharge efficiency index
OCCUPANCY RATE –Occupancy rate of 45% places it in lowest provincial quartile

More than 60% of area hospitalizations take place outside the area despite the above average performance of Tiger Hills on this dimension. The hospital has a relatively low occupancy rate and its rankings for intensity and discharge efficiency are both somewhat below the provincial midpoint and slightly above the midpoint for small rural hospitals.

26 Killarney Physician Service Area

26.1 Killarney: Small Rural Hospital

Set-up beds: 26

Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: South Westman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a medium need for hospital services but which uses these services at a level slightly below expectations
SHARE OF AREA HOSPITALIZATIONS -accounts for 24% of area hospitalizations ranking it below the provincial midpoint, but at almost the SRH mean
INTENSITY -treats cases of medium intensity
DISCHARGE EFFICIENCY -scores in medium range of discharge efficiency index
OCCUPANCY RATE –Occupancy rate of 58% places it above the provincial midpoint and the SRH mean

26.2 Baldur: Small Rural Hospital

Set-up beds: 14
Percentage of Inpatient Cases Involving Delivery or Surgery: 0
RHA: South Westman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Killarney
SHARE OF AREA HOSPITALIZATIONS -accounts for 5% of area hospitalizations ranking it among the lowest 5 in the province and last among SRH
INTENSITY -treats cases of medium intensity
DISCHARGE EFFICIENCY -scores in high range of discharge efficiency index
OCCUPANCY RATE –Occupancy rate of 41% places it among the lowest 10

26.3 Glenboro: Small Rural Hospital

Set-up beds: 14
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: South Westman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Killarney
SHARE OF AREA HOSPITALIZATIONS -accounts for 7% of area hospitalizations ranking it in lowest 10 for the province and among the lowest five in its category
INTENSITY -treats cases of medium intensity
DISCHARGE EFFICIENCY -scores in medium range of discharge efficiency index
OCCUPANCY RATE –Occupancy rate of 56% places it at the provincial midpoint

26.4 Wawanesa: Small Rural Hospital

Set-up beds: 9
Percentage of Inpatient Cases Involving Delivery or Surgery: 7
RHA: South Westman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Killarney
SHARE OF AREA HOSPITALIZATIONS -accounts for 9% of area hospitalizations ranking in the lowest quartile of province

INTENSITY -treats cases of medium intensity, well below the provincial midpoint and almost identical to Killarney
DISCHARGE EFFICIENCY -scores in low range of discharge efficiency index ranking in lowest quintile of province
OCCUPANCY RATE –Occupancy rate of 60%, places it well above the provincial and category midpoint

The Killarney area is served by four small rural hospitals, but more than half of area hospitalizations occur elsewhere. Killarney has a larger share of the area hospitalizations than the other three hospitals combined. Only Baldur ranks in the top third of the province with respect to intensity. Baldur similarly distinguishes itself on the discharge efficiency index, ranking in the top provincial quartile. Wawanesa has as high a proportion of cases involving surgery or delivery as most of the IRH and much higher than the other area hospitals. Despite being served by four hospitals, residents' use of hospitals is slightly lower than expected.

27 Grahamdale Physician Service Area

27.1 Ashern: Small Rural Hospital

Set-up beds: 15
Percentage of Inpatient Cases Involving Delivery or Surgery: 4
RHA: Interlake

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with medium level hospitalization needs and the population uses services as expected
SHARE OF AREA HOSPITALIZATIONS -accounts for 39% of area hospitalizations, just below top third and 4th among SRH
INTENSITY -treats cases of medium intensity ranking below the provincial midpoint and 12th among SRH
DISCHARGE EFFICIENCY -scores in high range of discharge efficiency index ranking 9th in the province and 4th among SRH
OCCUPANCY RATE -Occupancy rate of 60% places it in middle third overall, and top third of SRH

Ashern has a relatively high occupancy rate but has a case mix which falls in the medium range of our intensity measure. Although it is the only hospital in the area, it accounts for less than 40% of area hospitalizations, but that proportion is well above the mean for SRH. Ashern ranks highly on the discharge efficiency scale. It ranks among the top tertile of SRH on each of our measures.

28 The Pas Physician Service Area

28.1 The Pas: Major Rural Hospital

Set-up beds: 55
Percentage of Inpatient Cases Involving Delivery or Surgery: 20
RHA: Norman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a medium need for hospital services and these services are utilized at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 75% of area hospitalizations ranking it 1st in the province
INTENSITY -treats cases of high intensity, but ranks 8th in category
DISCHARGE EFFICIENCY -scores in the high range of discharge efficiency index and at 10th has the best discharge efficiency score among MRH
OCCUPANCY RATE –Occupancy rate of 49% places it below the provincial midpoint and last among MRH

The Pas hospital performs very well on our measures. Area residents use hospital services at the appropriate levels. Its lowest ranking is in occupancy rate, but that likely owes partially to its category leading performance on the discharge efficiency measure. It delivers services of high intensity and records the highest capture rate in rural Manitoba.

29 Seven Regions Physician Service Area

29.1 Gladstone: Small Rural Hospital

Set-up beds: 20
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: Central

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a medium need for hospital services, but with a much higher than expected rate of utilization. Only three areas had higher scores.
SHARE OF AREA HOSPITALIZATIONS -accounts for 18% of area hospitalizations, in lowest third of province
INTENSITY -treats cases of low intensity ranking 51st
DISCHARGE EFFICIENCY -scores in medium range of discharge efficiency index ranking 51st
OCCUPANCY RATE –Occupancy rate of 42% places it in the province's lowest quintile

Area residents use hospitals at a much greater than expected level, but the hospital itself accounts for only a small share of area hospitalizations (below the SRH mean), delivers mainly low intensity services, and has a relatively low occupancy rate.

30 North Cypress Physician Service Area

30.1 Carberry Plains: Small Rural Hospital

Set-up beds: 22
Percentage of Inpatient Cases Involving Delivery or Surgery: 3
RHA: Marquette

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a low need for hospital services and is these services are utilized at the expected level

SHARE OF AREA HOSPITALIZATIONS -accounts for 29% of area hospitalizations placing it in the middle third and somewhat above the SRH mean
INTENSITY -treats cases of medium intensity, just below the SRH midpoint
DISCHARGE EFFICIENCY -scores in the low range of discharge efficiency index, falling into the lowest 10
OCCUPANCY RATE –Occupancy rate of 46% places it in the lowest 15 of province

Less than a third of area residents received their hospital services in this the only local hospital. It ranked somewhat above the category mean on this measure. It falls below category and provincial means for intensity, discharge efficiency and occupancy rate.

31 Carman Physician Service Area

31.1 Carman: Intermediate Rural Hospital

Set-up beds: 30
Percentage of Inpatient Cases Involving Delivery or Surgery: 17
RHA: Central

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a low level of need for hospital services and those services are utilized at the expected rate
SHARE OF AREA HOSPITALIZATIONS -accounts for 44% of area hospitalizations falling into the top third
INTENSITY -treats cases of high intensity, ranks 10th overall on this dimension
DISCHARGE EFFICIENCY -scores in medium range on discharge efficiency index ranking 4th among IRH
OCCUPANCY RATE –Occupancy rate of 59% places it almost exactly at the IRH mean

31.2 Notre Dame: Small Rural Hospital

Set-up beds: 10
Percentage of Inpatient Cases Involving Delivery or Surgery: 8
RHA: Central

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Carman
SHARE OF AREA HOSPITALIZATIONS -accounts for 7% of area hospitalizations, almost last among SRH
INTENSITY -treats cases of low intensity, in lowest provincial quartile
DISCHARGE EFFICIENCY -scores in low range of discharge efficiency index, in lowest quintile
OCCUPANCY RATE –Occupancy rate of 44% places it in lowest quartile

31.3 St. Claude: Small Rural Hospital

Set-up beds: 10
Percentage of Inpatient Cases Involving Delivery or Surgery: 0
RHA: Central

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Carman

SHARE OF AREA HOSPITALIZATIONS -accounts for 7% of area hospitalizations – slightly more than Notre Dame
INTENSITY -treats cases of low intensity ranking among lowest 10
DISCHARGE EFFICIENCY -scores in medium range of discharge efficiency index, falling just short of top third
OCCUPANCY RATE –Occupancy rate of 33% places it last among SRH

Carman hospital provides very high intensity services even though almost 40% of the area's residents are hospitalized elsewhere. Despite treating cases of high intensity, it also scores well on the discharge efficiency measure. A relatively large proportion of cases involve surgery or delivery; indeed on this dimension, Carman's profile resembles a MRH. The rankings of Notre Dame and St. Claude on intensity and occupancy rate are well below the mean for SRH. While St. Claude scores reasonably well on the discharge efficiency index, Notre Dame scores very low, indicating hospital stays that are rather longer than expected given the hospital's case mix. Notre Dame and St. Claude are both well below average among SRH with respect to their shares of area hospitalizations.

32 Gillam Physician Service Area

32.1 Gillam Hospital: Northern Isolated Hospital

Set-up beds: 10
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: Burntwood

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a low need for hospital services but hospital services are used at a rate that is higher than predicted by PSA needs.
SHARE OF AREA HOSPITALIZATIONS -accounts for about 47% of the area's hospitalizations. Ranks in top third in province and 1st among NIH
INTENSITY -treats cases of low intensity as one would expect in a hospital of this type
DISCHARGE EFFICIENCY -scores in the medium range on the discharge efficiency index and is at the provincial midpoint
OCCUPANCY RATE -ranks 3rd last in province with an occupancy rate of just 26%

The hospital accounts for more area hospitalizations than any other NIH. Its very low occupancy rate and its medium discharge efficiency ranking suggest that there is little pressure on the hospital beds.

33 Portage Physician Service area

33.1 Portage: Major Rural Hospital

Set-up beds: 122
Percentage of Inpatient Cases Involving Delivery or Surgery: 18
RHA: Central

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a low level of need for hospital services and those services are utilized at the expected rate
SHARE OF AREA HOSPITALIZATIONS -accounts for 66% of area hospitalizations placing it 6th
INTENSITY -treats cases of high intensity, ranks 11th in province
DISCHARGE EFFICIENCY -scores in the medium range on discharge efficiency index, below the provincial midpoint
OCCUPANCY RATE –Occupancy rate of 63% slightly below the MRH mean and 21st overall

33.2 MacGregor: Small Multi-Use Hospital

Set-up beds: 6
Percentage of Inpatient Cases Involving Delivery or Surgery: 0
RHA: Central

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Portage
SHARE OF AREA HOSPITALIZATIONS -accounts for 0.4% of area hospitalizations. Last in province and below all Northern Isolated hospitals.
INTENSITY -treats cases of medium intensity, falls just below the top third and is 1st among SMU
DISCHARGE EFFICIENCY -scores in medium range of discharge efficiency index ranking in top third of province
OCCUPANCY RATE –Occupancy rate of 65% ranks in the top third of province and 2nd among SMU

Portage occupies the midpoint for MRH on most of the dimensions measured. Its highest ranking is in share of area hospitalizations while its lowest ranking is in discharge efficiency. MacGregor has only six beds and therefore does not admit many patients, but it has a higher occupancy rate than most rural hospitals and also functions more efficiently with respect to discharges than most hospitals. It ranks above Portage on the discharge efficiency scale.

34 Morris-Montcalm Physician Service Area

34.1 Morris: Small Rural Hospital

Set-up beds: 27
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: Central

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a low need for hospital services and those services are utilized at the expected rate
SHARE OF AREA HOSPITALIZATIONS -accounts for 29% of area hospitalizations, a share that places it below the provincial midpoint
INTENSITY -treats cases of low intensity, ranking in the lowest quartile
DISCHARGE EFFICIENCY -scores in the low range on discharge efficiency index, ranking in the lowest quartile

OCCUPANCY RATE –Occupancy rate of 48% places it in the lowest third and below the SRH mean

34.2 Emerson: Small Rural Hospital

Set-up beds: 8
Percentage of Inpatient Cases Involving Delivery or Surgery: 0
RHA: Central

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Morris
SHARE OF AREA HOSPITALIZATIONS -accounts for 7% of area hospitalizations, in the lowest quintile
INTENSITY -treats cases of medium intensity, placing it at the provincial midpoint
DISCHARGE EFFICIENCY -scores in the medium range on discharge efficiency index, but is only two places higher than Morris
OCCUPANCY RATE –Occupancy rate of 55% places it near the provincial midpoint

Although Morris has more than three times as many beds than Emerson and therefore accounts for a much larger share of area hospitalization, the two hospitals appear relatively similar on other dimensions. Neither scores above the provincial midpoint on any of the measures examined. More than 60% of area hospitalizations occur elsewhere.

35 Altona Physician Service Area

35.1 Altona: Intermediate Rural Hospital

Set-up beds: 22
Percentage of Inpatient Cases Involving Delivery or Surgery: 13
RHA: Central

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a low level of need for hospital services and those services are utilized at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 50% of area hospitalizations placing it 11th overall and 3rd among IRH
INTENSITY -treats cases of high intensity, ranking in the top ten on this dimension
DISCHARGE EFFICIENCY -scores in the medium range on discharge efficiency index placing just above the provincial midpoint and 7th among IRH
OCCUPANCY RATE –Occupancy rate of 67% places it in the top quartile

Altona's scores fall into the upper quartile on every dimension except discharge efficiency and even there its score is above average. Altona's population also uses hospital services at the expected level.

36 Morden-Winkler Physician Service Area

36.1 Morden: Major Rural Hospital

Set-up beds: 60
Percentage of Inpatient Cases Involving Delivery or Surgery: 14

RHA: Central

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a low need for services and those services are utilized at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 37% of area hospitalizations
INTENSITY -treats cases of high intensity, ranks 5th in province
DISCHARGE EFFICIENCY -scores in the medium range on discharge efficiency index, ranking 25th
OCCUPANCY RATE –Occupancy rate of 68% in top quartile of province

36.2 Winkler: Major Rural Hospital

Set-up beds: 48
Percentage of Inpatient Cases Involving Delivery or Surgery: 47
RHA: Central

POPULATION NEED AND USE RELATIVE TO NEED RATIO – same as Morden
SHARE OF AREA HOSPITALIZATIONS -accounts for 39% of area hospitalizations, a middle range score for the province
INTENSITY -treats cases of high intensity, indeed the highest intensity score in the province
DISCHARGE EFFICIENCY -scores in the medium range on discharge efficiency index slightly below Morden
OCCUPANCY RATE –Occupancy rate of 65% ranks it directly behind Morden among MRH.

These two hospitals provide services at the expected level given this population's relatively low need for hospital services. Between them they seem to be able to meet the needs of the population effectively accounting for more than ¾ of the area's hospitalizations and delivering high intensity services. Viewed separately, both are well below the mean for MRH on share of area hospitalizations, a result likely influenced by their close proximity. A much higher proportion of Winkler's cases involve surgery or delivery. The two hospitals report similar results with respect to the discharge efficiency index and occupancy rate.

37 De Salaberry Physician Service Area

37.1 St. Pierre: Small Rural Hospital

Set-up beds: 14
Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: South Eastman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a low need for hospital services and which utilizes those services at a lower than expected rate
SHARE OF AREA HOSPITALIZATIONS -accounts for 30% of area hospitalizations, slightly below the provincial midpoint, but above the category mean
INTENSITY -treats cases of low intensity, among lowest 10 of province
DISCHARGE EFFICIENCY -scores in the low range of the discharge efficiency index, falling into the bottom quartile

OCCUPANCY RATE –Occupancy rate of 52% leaves it slightly below the SRH mean

St. Pierre deals with low intensity cases, ranks in the lower range on the discharge efficiency scale and accounts for less than a third of area hospitalizations. Its occupancy rate is below average for both the province and for SRH.

38 Steinbach Physician Service Area

38.1 Steinbach: Major Rural Hospital

Set-up beds: 80
Percentage of Inpatient Cases Involving Delivery or Surgery: 23
RHA: South Eastman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a low need for hospital services and the population utilizes these services at the expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 62% of area hospitalizations ranking it in the highest provincial quintile
INTENSITY -treats cases of high intensity ranks 4th in province and among major rural hospitals
DISCHARGE EFFICIENCY -scores in the high range of discharge efficiency index with a ranking in the top quartile and second in its category
OCCUPANCY RATE –Occupancy rate of 63% places it upper third for province

This major hospital compares favourably with others in its category for discharge efficiency and case intensity and accounts for over three-fifths of area hospitalizations.

39 Thompson Physician Service Area

39.1 Thompson: Major Rural Hospital

Set-up beds: 66
Percentage of Inpatient Cases Involving Delivery or Surgery: 26
RHA: Burntwood

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a relatively low need for hospital services and population use is at the expected level.
SHARE OF AREA HOSPITALIZATIONS -accounts for 70% of the in area hospitalizations ranking it third in the province
INTENSITY -treats cases of very high intensity, among the top 10 in province but 6th among MRH
DISCHARGE EFFICIENCY -scores in the medium range of discharge efficiency index ranking 30th
OCCUPANCY RATE -Occupancy rate of 54% ranking 40 out of 68 and 2nd last among MRH.

Hospital serves population which uses services at the expected level. It accounts for the majority of the area's hospitalization needs and treats cases of high intensity. Its occupancy

rate is low for a MRH but this is not due to a particularly high score on the discharge efficiency index.

40 Selkirk Physician Service Area

40.1 Selkirk: Major Rural Hospital

Set-up beds: 64
Percentage of Inpatient Cases Involving Delivery or Surgery: 22
RHA: Interlake

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a low need for hospital services and these services are utilized at expected levels
SHARE OF AREA HOSPITALIZATIONS -accounts for 42% of area hospitalizations in top third of province but below MRH average
INTENSITY -treats cases of high intensity; only two hospitals have a higher intensity score
DISCHARGE EFFICIENCY -scores in low range of discharge efficiency index and is the only major rural hospital to rank among the lowest 10 on this dimension
OCCUPANCY RATE –Occupancy rate of 69% places it in top 15

This hospital has a relatively high occupancy rate and handles cases of very high intensity. In contrast, its score on the discharge efficiency index is quite low, ranking the hospital in the bottom 5 in Manitoba. The low discharge efficiency score suggests that the high occupancy rate may be somewhat misleading.

41 Springfield Physician Service Area

41.1 Beausejour: Intermediate Rural Hospital

Set-up beds: 30
Percentage of Inpatient Cases Involving Delivery or Surgery: 6
RHA: North Eastman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves PSA with low needs for hospital services, but the population uses services at a slightly higher than expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 24% of area hospitalizations falling into middle third of provincial rankings on these measures. Among IRH however, only one hospital has a lower share
INTENSITY -treats cases of high intensity ranking in top 15 of province
DISCHARGE EFFICIENCY -scores in the low range of discharge efficiency index, it ranks last among IRH and only three hospitals recorded lower scores
OCCUPANCY RATE –Occupancy rate of 81% ranks it first in the province

41.2 Pinawa: Small Rural Hospital

Set-up beds: 17

Percentage of Inpatient Cases Involving Delivery or Surgery: < 1
RHA: North Eastman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Beausejour
SHARE OF AREA HOSPITALIZATIONS -accounts for 9% of area hospitalizations, placing it in lowest quartile
INTENSITY -treats cases of low intensity, only five hospitals in the province had a lower score
DISCHARGE EFFICIENCY -scores in the medium range of discharge efficiency index, ranking 45th
OCCUPANCY RATE –Occupancy rate of 70% ranks it 9th in province

41.3 Whitemouth: Small Multi-Use Hospital

Set-up beds: 6
Percentage of Inpatient Cases Involving Delivery or Surgery: 0
RHA: North Eastman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -same as Beausejour
SHARE OF AREA HOSPITALIZATIONS -accounts for 2% of area hospitalizations placing it 2nd last in province
INTENSITY -treats cases of medium intensity, ranks 2nd among SMU and above provincial midpoint
DISCHARGE EFFICIENCY -scores in middle range of discharge efficiency index
OCCUPANCY RATE –Occupancy rate of 70% ranks it 8th in province and first among SMU

The area has a relatively low need for hospital services but the population uses hospital services at a slightly higher than expected level. All of the area hospitals have occupancy rates among the ten highest in rural Manitoba. These rates may be somewhat misleading since none of the hospitals reach the top level for discharge efficiency and Beausejour has a particularly low score on this dimension.

The greater than expected use of hospital services cannot be fully explained by looking at the high occupancy and low discharge efficiency rates as almost two-thirds of area hospitalizations occur elsewhere.

42 Rockwood Physician Service Area

42.1 Teulon: Small Rural Hospital

Set-up beds: 20
Percentage of Inpatient Cases Involving Delivery or Surgery: 4
RHA: Interlake

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a relatively low need for hospital services but which utilizes these services at a greater than expected level

SHARE OF AREA HOSPITALIZATIONS -accounts for 18% of area hospitalizations, in bottom half of SRH
INTENSITY -treats cases of medium intensity just above provincial midpoint
DISCHARGE EFFICIENCY -scores in medium range of discharge efficiency index below provincial midpoint
OCCUPANCY RATE –Occupancy rate of 59% places it slightly above the provincial and category midpoints

42.2 Stonewall: Small Rural Hospital

Set-up beds: 15
Percentage of Inpatient Cases Involving Delivery or Surgery: 3
RHA: Interlake

POPULATION NEED AND USE RELATIVE TO NEED RATIO - same as Teulon
SHARE OF AREA HOSPITALIZATIONS -accounts for 20% of area hospitalizations, in middle third of province
INTENSITY -treats cases of medium intensity and ranks 4th among SRH
DISCHARGE EFFICIENCY -scores in middle range of discharge efficiency index, just above provincial midpoint
OCCUPANCY RATE –Occupancy rate of 75% places it 4th in province and 2nd among SRH

Rockwood area residents receive 22% more hospitalizations than expected given the area's population characteristics. Although together these hospitals provide less than half of area residents' hospital services, their provision of services, and particularly the relatively high occupancy rates should be examined in light of the greater than expected use of hospitals. Neither hospital ranks in the top 30 on the discharge efficiency measure, but Stonewall treats higher intensity cases and has a higher score on the discharge efficiency index.

43 Tache Physician Service Area

43.1 Ste. Anne: Small Rural Hospital

Set-up beds: 20
Percentage of Inpatient Cases Involving Delivery or Surgery: 18
RHA: South Eastman

POPULATION NEED AND USE RELATIVE TO NEED RATIO -serves a PSA with a low need for hospital services but which is hospitalized at a much greater than expected level
SHARE OF AREA HOSPITALIZATIONS -accounts for 30% of area hospitalizations placing it at the provincial midpoint, and above the SRH mean
INTENSITY -treats cases of high intensity, ranking overall in the top quintile and with the highest score among SRH
DISCHARGE EFFICIENCY -scores in the medium range of discharge efficiency index
OCCUPANCY RATE –Occupancy rate of 69% ranks it 10th

Although this hospital is only responsible for 30% of area hospitalizations, this population is hospitalized much more frequently (26%) than expected, given their health age, and other

characteristics known to influence need for hospitals. Its relatively high occupancy rate combined with a relatively low score on the discharge efficiency index thus suggests some excess capacity. On the other hand, the proportion of its cases involving surgery or delivery is higher than most of the IRH and three of the MRH and it has the highest intensity score of any SRH.

APPENDIX IV

Non-Devolved Hospitals

CENTRAL:

Rock Lake Hospital (Crystal City)

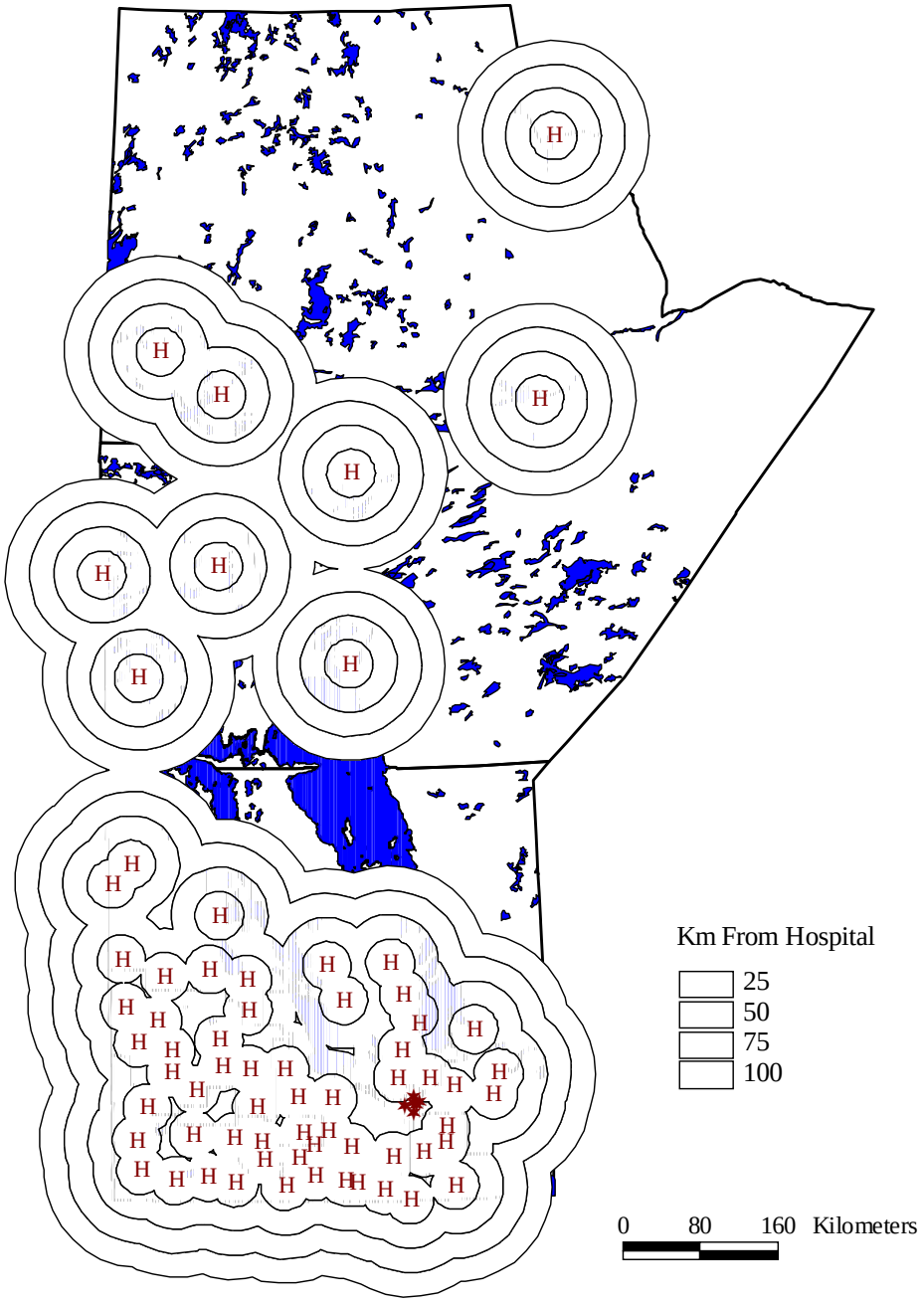
PARKLAND:

Swan River Valley Hospital
Benito Health Centre
McCreary/Alonsa Health Centre - Hospital
Ste. Rose General Hospital
Winnipegosis General Hospital

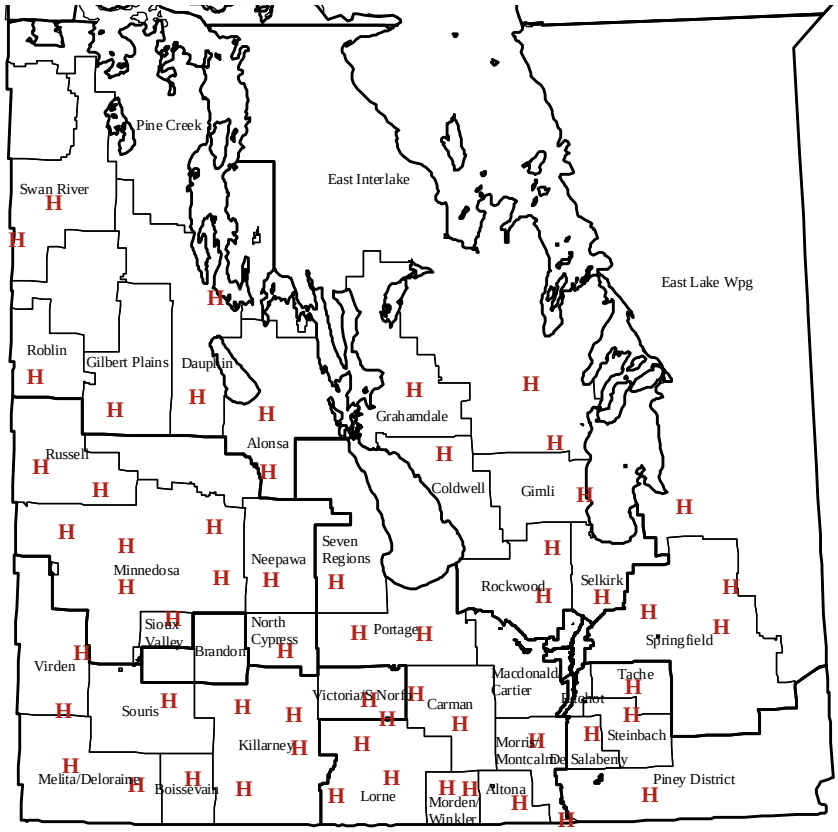
APPENDIX V

Distance and Regional Maps

Distance Between Hospitals



Hospitals and PSAs in Southern Manitoba



Hospitals and PSAs in Northern Manitoba