

**EXAMINATION OF THE BEAUSEJOUR HEALTH CENTER  
EMERGENCY ROOM DEMOGRAPHICS AND SCOPE OF  
TRIAGE STATUS RECEIVED.**

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Home for the Summer – June to July, 2017  
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## Introduction

The town of Beausejour is located 50 minutes northeast of central Winnipeg, with the 2016 Canadian census reporting a population of 3,219 over 5.42 square kilometers.<sup>1</sup> From 2011 to 2016 Beausejourn's population has grown by 3%, in comparison to Winnipeg, which has seen a population increase of 6.3% over 464.33 square kilometers.<sup>1</sup> While the population of Beausejour is relatively small, it serves as an entrance point between Winnipeg and the Whiteshell area, including towns like Lac Du Bonnet, River Hills, Seven Sisters Falls and Pinawa.<sup>2</sup> The town is a central grain handling facility for the region and enjoys year round tourism, including hosting several festivals throughout the year.<sup>2</sup> Thus, Beausejour serves a much larger population than only those that reside as permanent residents.

Different age groups suffer from different health conditions, making the composition of a population important for understanding the skills required of an emergency room physician. Table 1 outlines the top 3 reasons in 2014-2015 for visiting the emergency department (ED) in Canada based on age groups, as collected by the National Ambulatory Care Reporting System for the Canadian Institute for Health Information. This is paramount to health care because in the rural emergency departments often there is only one physician on call and thus they must be capable of dealing with all ages and a wide scope of presenting symptoms. Understanding the specific composition of the population serviced by the Beausejour health care team, would help ensure that the essential skills are in place and would identify any further training that would be an asset.

**Table 1: Top 3 reasons for presenting to an emergency room 2014-2015**

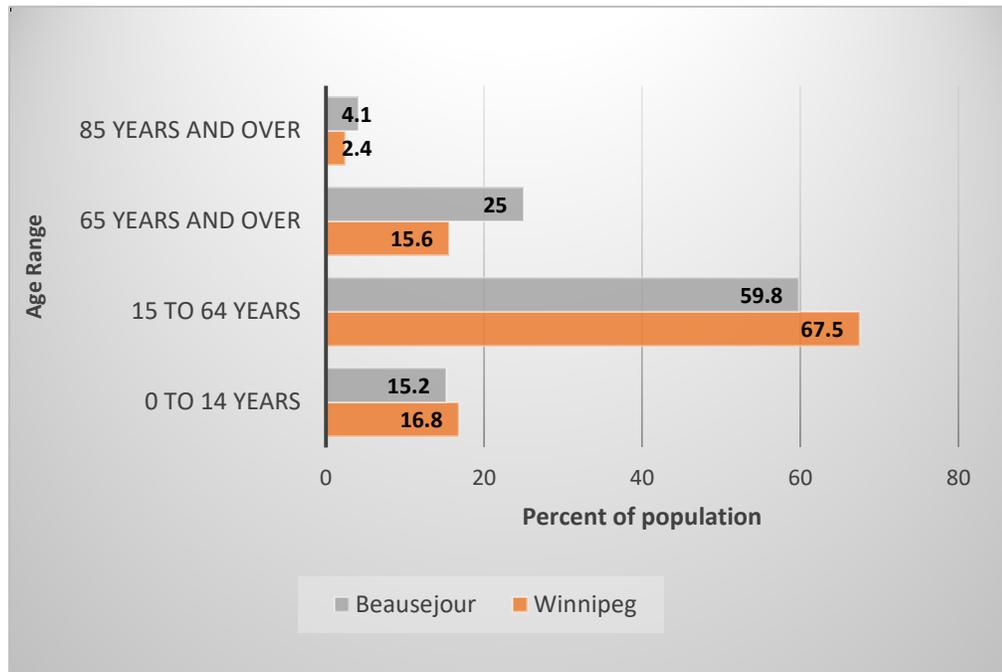
Age Range	Reasons for Visit
<b>0 – 4 years</b>	<ol style="list-style-type: none"><li>1. Acute upper respiratory infection</li><li>2. Ear infection</li><li>3. Fever</li></ol>
<b>5 – 19 years</b>	<ol style="list-style-type: none"><li>1. Abdominal/pelvic pain</li><li>2. Acute upper respiratory infection</li><li>3. Throat infection</li></ol>
<b>20 – 64 years</b>	<ol style="list-style-type: none"><li>1. Abdominal/pelvic pain</li><li>2. Pain in throat/chest</li><li>3. Dorsalgia (back pain)</li></ol>
<b>65+ years</b>	<ol style="list-style-type: none"><li>1. Pain in throat/chest</li><li>2. Urinary system disorders</li><li>3. Abdominal pelvic pain</li></ol>

Source: Data from National Ambulatory Care Reporting System, Canadian Institute for Health Information

The current age distribution of Beausejour gives an idea of what types of presenting symptoms would be seen in the emergency department. Figure 1 displays how the age distribution of Beausejourn's population has a similar division of ages to that of Winnipeg. The largest age group encompasses the 15-65 years olds. Beausejourn's population trends towards

an older population than Winnipeg, with the over 85 age group almost doubling Winnipeg's. This similar make up of the population allows for perspective.

**Figure 1:** Age Distribution of Beausejour Population compared to Winnipeg based on Statistics Canada's 2016 Census. <sup>1,3</sup>



Currently, the Beausejour emergency department is not open 24 hours a day, 7 days a week. At this time Beausejour has several physicians that have weekly emergency department shifts; with one physician on call at a time, with some locum physicians covering other days. The time that it is open is variable and often at the discretion of the physician and their capacity to take on more patients. With a single physician on call at a time the nurses play a large role in the delivery of fast and effective health care, as almost every patient that visits the emergency room is triaged by a nurse. Triage allows for an objective level of urgency to be assessed and often dictates the length of time before being assessed by a physician<sup>4</sup>. Triage of a patient typically is based on the patient vital signs, chief complaint and presence of any red flags during the initially assessment.<sup>4</sup> There are numerous approaches to triaging a patient, with Canada using the Canadian Emergency Department Triage and Acuity Scale (CTAS).

A systematic review done by Farrohknia et al., showed that mortality frequency per triage level has the highest risk when triaged as level 1, which is expected, but also underwrites the importance of proper triaging. This paper focuses on examining at the demographics of the population utilizing the Beausejour ED and the severity of those visits.

## Methods

Data was collected from 309 patients at the Beausejour Health Center emergency department between June 12 and July 12 2017. The data was collected from the patients hard copy chart, usually the day after a physician had been on call in the emergency room and before the chart was sent to the filing department to be scanned into the electronic medical records. The schedule for an ED physician tended to be variable and ranged from having a physician there only one day a week, to having ED coverage 5 days a week. Thus the 309 patients do not represent a full month of having a physician present at the ER.

Each chart was assessed for the following information; date of visit, year of birth, sex, place of residence, whether they had a primary care provider, the time they presented to the ED, the time they were triaged, their triage status, and their discharge time from the ED. If a chart was lacking one of the aforementioned information, all the other data was still collected. An attempt was made to gather more data than would be potentially analyzed due to the difficulty of attempting to look back and gather more data. This data was recorded in Excel.

Out patient treatment done by emergency room nurses was not included in the assessment of ED visits, due to the focus solely on emergency room visits and not all services provided by the emergency room.

Simple analysis was done using Excel to generate both pie, and bar graphs to demonstrate the spread of the sample collected. Specifically, the composition of age, sex, place of residence, primary care physician status and triage status of the patients was assessed. Due to the increased complexity of analyzing the triage and discharge times, those data points collected were unable to be evaluated at this time, due to the analysis being beyond the scope of expertise.

The entrance complaints as recorded by the triaging nurse were categorized into the common groups to allow for general patterns to be visualized.

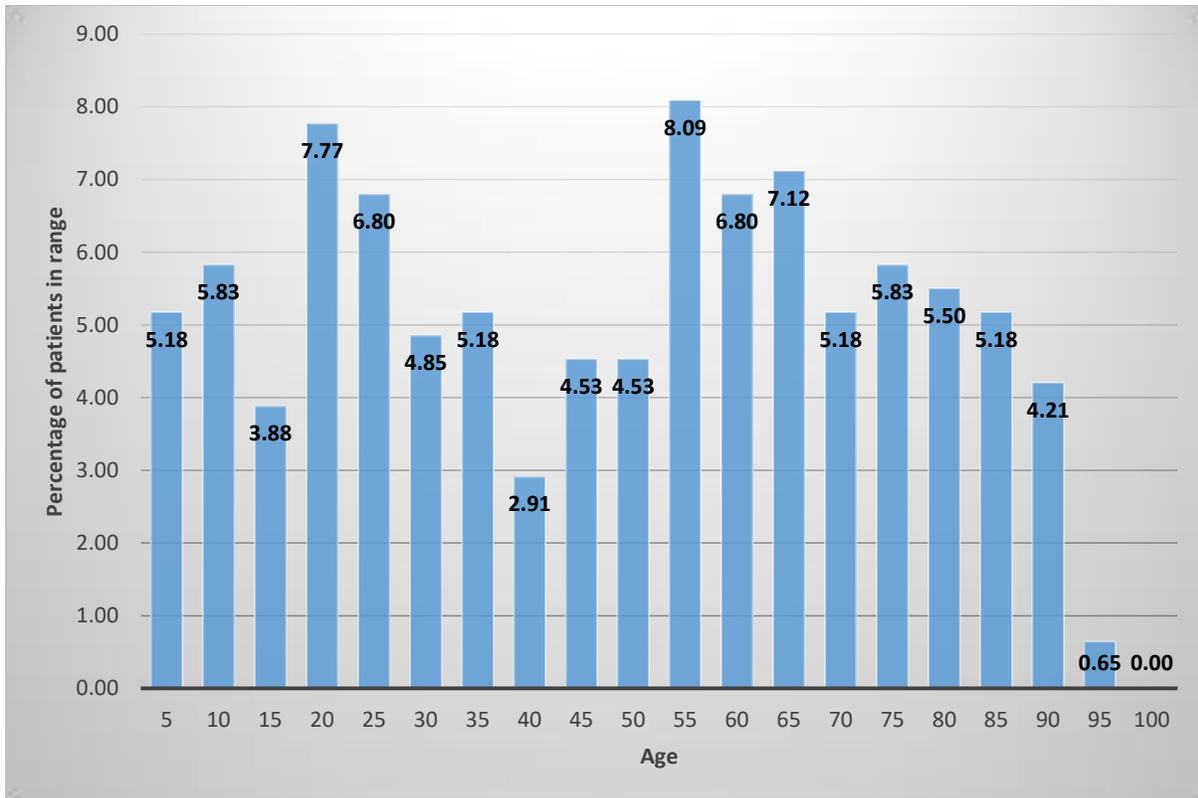
## Results

### *Age, and Sex*

Of the 309 patient presenting to the ED, 165 (53%) were female and 144 (47%) were male. The ages of patients presenting to the emergency department show a bimodal distribution in Figure 2, where the most common age range was between 50-55 with 25 (8.09%) out of 309 patients. The second most common 5-year range was from 15-20 years old, with 24/308 (7.77%).

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**Figure 2:** Distribution of the age of patients presented to the Beausejour emergency department arranged in groupings of 5 years and expressed as percentage for each range.



*Presence of primary care provider*

266 (86%) of the 309 patients reported having a primary care provider, while 43 (14%) did not have one. No information was gathered regarding if the patient had contacted their provider before coming to the emergency department.

*Place of Residence*

The Beausejour Health Center recorded 34 different towns/cities as patients' primary place of residence. The top 3 places are as follows; 175 (59%) of patients presenting to the emergency department were from Beausejour, 23 (8%) from Winnipeg and 17 (6%) from Tyndall MB. See Appendix A for the full list of towns/cities.

*Triaged CTAS levels*

The most frequently assigned triage level was CTAS level 4 with 80 (26%) out of 309 triaged patients. The two next most frequent were CTAS level 5 with 70 (22%) and CTAS level 3 with 65 (21%). CTAS level 1 only made up 2% or 6 of the 309 patients and CTAS level 2 had 22 (18%) patients. There were 33 (11%) untriaged patients, which does not allow any inferences into the severity of the presenting condition. Table 2 shows this distribution.

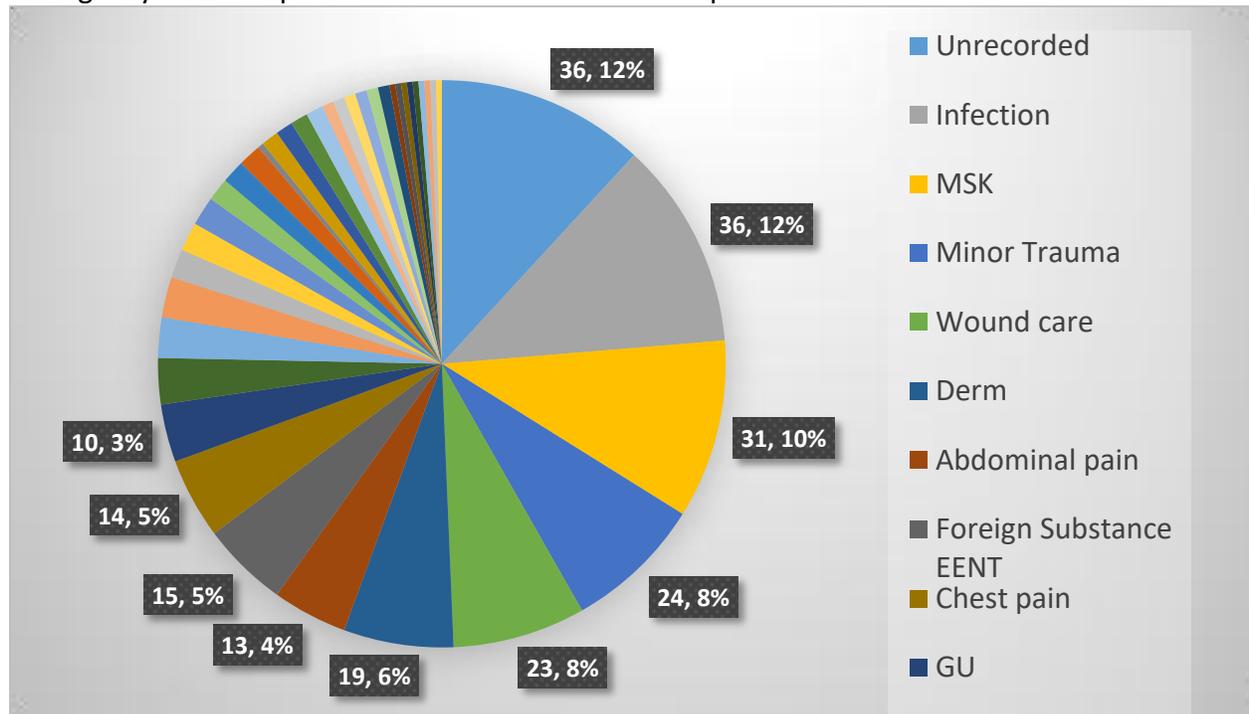
**Table 2:** Triage level percentages done by nurses at the Beausejour Health Center Emergency department using the Canadian Triage Assessment Score (CTAS).

CTAS	Number of Patients	Percentage
1	6	2%
2	22	18%
3	65	21%
4	80	26%
5	70	22%
8 – not triaged	33	11%

### Common Entrance Complaints

There were 32 different categories of entrance complaints from the 309 patients. Figure 3 shows the most common entrance complaints to the health center in which an infection was a primary cause for 36 of the 309 (12%) patients. Infection included anyone that presented with the complaint of an upper respiratory tract infection, pharyngitis, sinus, dental or ear infection. Musculoskeletal (MSK) pain was second with 31/309 (10%) and this included all muscle strains or an entrance complaint that was consistent with joint problems (gout) or muscular involvement. Minor trauma came in third with 24 (8%) which included; bites, fractures, lacerations, or fish hook incidents.

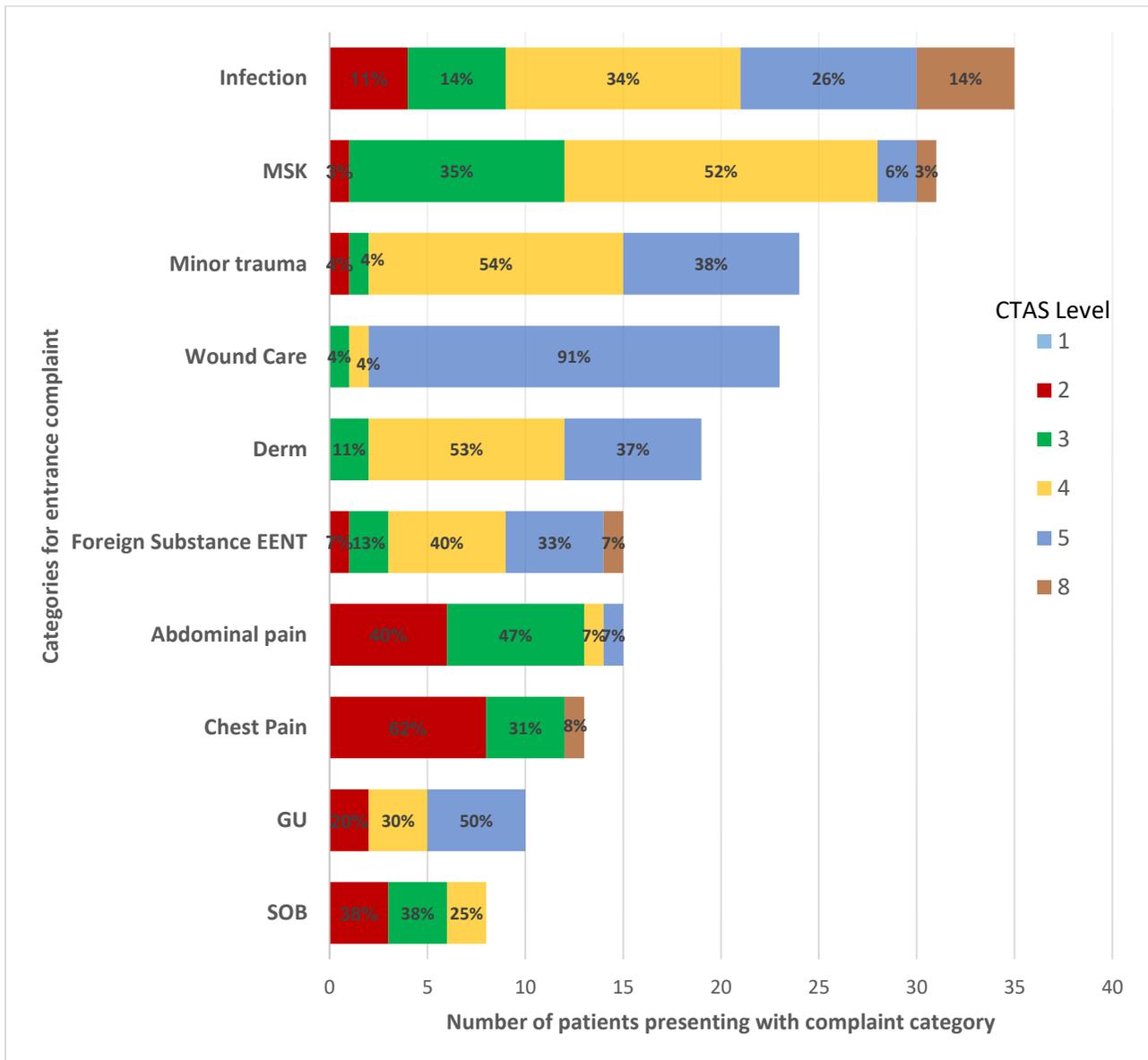
**Figure 3:** Top 10 most common presenting complaints to the Beausejour Health Care Emergency Room Department out of all entrance complaints collected.



For the top 10 most common categories, excluding the unrecorded entrance complaints, each category was broken down to show the CTAS distribution of that category as shown in figure 4. Entrance complaints of abdominal pain and chest pain had the highest proportion of

CTAS 2 and 3, respectively 87% and 93%. Patients presenting to the department for wound care had the highest proportion of CTAS level 5 with 91%. None of the most common entrance complaints were triaged as CTAS level 1.

**Figure 4:** Top 10 most common categories of presenting complaints to Beausejour Health Center Emergency Department. Complaints are divided into proportion of CTAS levels received within the category.



## Discussion

Beausejour is a town increasing in population size and thus requiring a high demand for local health services.<sup>1</sup> The breakdown of the people utilizing the emergency department supports increasing the hours and staff available to provide support for the growing area.

The proportion of sex is consistent with the population demographics of Beausejour where there are 1690 (52.5%) females and 1525 (47.4%) males.<sup>1</sup> This supports the assertion that the people of Beausejour are utilizing the Health services when they are available. The most common presenting ages to the ED are also consistent with the population spread of Beausejour, with both peaks of the bimodal distribution (15-20 and 50-55 years old) falling within the most common age range for the population of Beausejour (15-64 years old); as shown in Figure 2 and 1 respectively.

Overwhelmingly, the patrons of the ED were from Beausejour, which supports the fact that this community utilizes their health care facility. To further increase the hours when the ER is non functional or on diversion would offload these patients elsewhere. Rather it would stand to reason that further staffing would be valuable and not wasted on the community. With the wide spread of towns and cities, as show in Appendix A, many other places are utilizing this health care facility. It would be interesting to cross reference the locations where people come from and the diversions of other rural emergency rooms. It would also be of interest to conduct a longer study as it is not known how seasons affect this proportion. The brief period of data collection is one of the limitations of this study.

Most patients presenting to the ER had a primary care provider, however 14% did not and thus there is still room for some improvement. There also seems to be a need for better education regarding prior contact with their family physician before coming to the emergency room. It would be valuable to collect information regarding how many patients did attempt to call or visit their primary care provider prior to going to the emergency room. This would help investigate if more primary care providers are necessary and if any modifications are required.

Triaged CTAS levels 1-3 total 41%, which is a significant portion and supports the need for an emergency room in Beausejour. 48% of patients were triaged as CTAS levels 4-5 which could be managed by patient education about the function of the emergency room, or by expanding the primary care services. Perhaps if Beausejour continues to increase in population size it might be valuable to consider adding an urgent care center to the community. These proportions seem to be consistent with another rural emergency department study looking at CTAS levels in an Ontario hospital, where the dominant patients presenting were triaged as CTAS level 4 or 5.<sup>5</sup> Further comparison with other Manitoba rural departments would be ideal to assess consistency.

Chest pain and abdominal pain had the highest proportion of being triaged as CTAS levels 1-3, while wound care is had the highest proportion of emergency department visits with low severity (91% level 5). Assessing the most common complaints as well as the how the breakdown of CTAS levels allows for prediction of the severity of an entrance complaint.

It gives a better understanding as to what types of presenting symptoms are common to a population and the degrees of severity that the health care team can expect to handle. Having an understanding what your health care team is expected to deal with identifies areas of skill required and ensures the hospital is equipped to handle most of its patients concerns. For Beausejour it is clear that physicians require a wide variety of skill.

## Conclusion

Beausejour is a diverse and vibrant community whose health services are utilized predominantly by the people that live there, but commonly used by neighbouring communities. The health care team can expect to treat patients of all ages, with a wide variety of presenting conditions; particularly infections, musculoskeletal or minor traumas. While most patients are triaged as CTAS level 4 or 5, physicians working there can expect to see CTAS level 1-3 regularly. This is a town that utilizes its health care system and would benefit from increased staffing.

## Bibliography

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## Appendix A

Beausejour	175
Winnipeg	23
Tyndall	17
Anola	14
Unknown	13
Seddons Corner	8
Hazelridge	7
Lac du Bonnet	6
Garson	6
Selkirk	4
Seven Sisters Falls	3
Whitemouth	3
Ste Anne	3
Fort Alexander	2
Oakbank	2
Elma	2
Labroquerie	2
Dugald	2
St. Malo	1
West Pine Ridge	1
Pine Falls	1
Rennie	1
Oshawa	1
Melita	1
Red Oak US	1
River Hills	1
Pinawa	1
Great Falls	1
Edmonton AB	1
St Thomas	1
Thompson	1
Hadashville	1
Stead	1
Garson Quarry	1
St Adolf	1
Total	309