



**ARTHRITIS COMMUNITY RESEARCH &  
EVALUATION UNIT (ACREU)**  
University Health Network

## **SETTING THE STAGE FOR SERVICE PLANNING:**

**A profile of arthritis and  
bone and joint conditions**

**HAMILTON NIAGARA  
HALDIMAND BRANT LHIN**

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**Working Report 09-01-4**

## Acknowledgements

The following members of the Arthritis Community Research & Evaluation Unit (ACREU) contributed to the development of this report:

Hina Ansari  
Mayilee Canizares  
Morgan Slater  
Crystal MacKay  
Dr. Aileen Davis  
Dr. Elizabeth Badley

The authors of this report also like to acknowledge all staff at ACREU who assisted with this project.

This study was supported by the Ontario Ministry of Health and Long-Term Care through their Health System-Linked Research Unit Grant Scheme: Grant No. 04166. It was also supported by the Institute for Clinical Evaluative Sciences (ICES), which is funded by an annual grant from the Ontario Ministry of Health and Long-Term Care (MOHLTC). The opinions, results and conclusions reported here are those of the authors and are independent from the funding sources. No endorsement by ICES or the Ontario MOHLTC is intended or should be inferred.

## Executive Summary

This report provides an overview of the Hamilton Niagara Haldimand Brant LHIN using data available on prevalence of musculoskeletal conditions, utilization of health services and availability of health human resources for the population with musculoskeletal conditions. These findings can be set in the context of the burden of musculoskeletal conditions in each LHIN and can be used for further development of care delivery systems for chronic disease management.

Relative to the province, Hamilton Niagara Haldimand Brant has higher

- Prevalence of arthritis/rheumatism
- Rates of day surgery for musculoskeletal conditions
- Rates of inpatient hospitalizations for musculoskeletal conditions, particularly for trauma and related conditions
- Rate of orthopaedic surgery for musculoskeletal conditions, particularly closed repairs and reductions with or without fixation
- Proportion of individuals having orthopaedic surgery for spine conditions and sprains and strains following an initial consult with an orthopaedic surgeon.

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## Overview

This profile provides an overview of the burden of musculoskeletal (MSK) conditions, health care utilization as well as availability of health human resources for individuals with musculoskeletal conditions in the Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN). It integrates existing data sources for health services in Ontario to provide a comprehensive overview of current service need, utilization and availability of musculoskeletal care. The profile is intended to assist health planners make informed decisions about health services for individuals with MSK conditions and can be used for further development of care delivery systems for chronic disease management.

For the purposes of this profile, the term ‘musculoskeletal conditions’ will refer to a broad group of numerous conditions including arthritis and related conditions, trauma (fractures, dislocations, strains and sprains) and bone and joint conditions. The information presented in this document is meant to assist in decision making and health services planning and is not intended to be used in isolation of other data sources. The specific data sources used are described throughout the profile and a [glossary](#) of all terminology is provided at the end of the report.

The profile is divided into three sections according to the following aspects:

- 1. Burden:** The burden of MSK conditions was measured by the self-reported prevalence of arthritis or rheumatism, back problems, repetitive strain injury, injuries and activity limitation.
- 2. Health care utilization:** Rates and proportions of individuals with visits to physicians for various musculoskeletal conditions are reported by age, gender, service setting and physician type.
- 3. Health care availability:** Data are presented on the availability of health human resources for musculoskeletal conditions, focusing on primary care physicians, rheumatologists, orthopaedic surgeons, physiotherapists and occupational therapists. Reported indicators include the number of health care providers per population, a detailed description of their working hours and details regarding public versus privately funded occupational therapy and physiotherapy clinics.

Crude rates and proportions for each LHIN are presented in this profile. For direct comparison between LHINs, age and sex standardized rates to the Ontario population are presented in the Ontario profile ([Working Report 09-01](#)).

## Burden of Musculoskeletal Conditions

This section uses data from the 2005 Canadian Community Health Survey (CCHS) Cycle 3.1 to estimate the prevalence of selected types of MSK conditions in the population.

The CCHS has information on three types of musculoskeletal conditions: arthritis, back problems and repetitive strain injuries. It also captures data on injuries that could potentially require the services of rehabilitation professionals; these injuries may be undiagnosed or unreported musculoskeletal conditions.

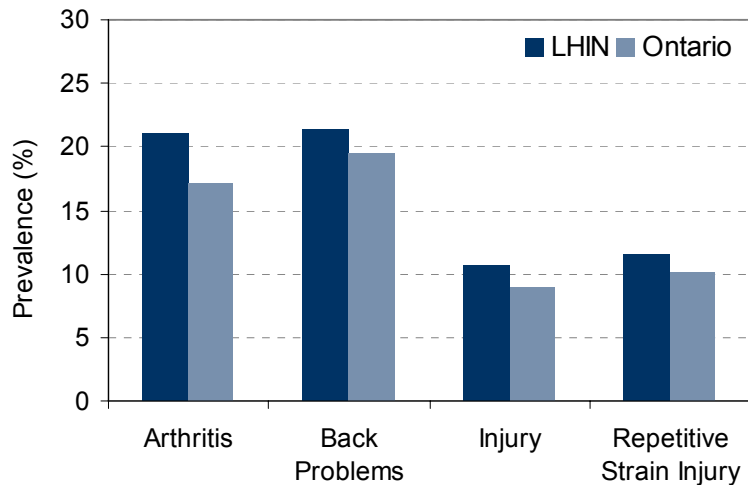
### Data Source

The Canadian Community Health Survey (CCHS) is a cross-sectional general population health survey that collects information related to health status, health care utilization and health determinants for the Canadian population. Statistics Canada performs the survey every two years. The CCHS has a large sample and was designed to provide reliable estimates at the health region level. The target population of the CCHS was persons aged 12 years or older who were living in private dwellings in the ten provinces and the three territories. Persons living on Indian Reserves or Crown lands, clientele of institutions, full-time members of the Canadian Armed Forces and residents of certain remote regions were excluded. The overall response rate was 84.7%, and 130,827 individuals participated. All analyses performed on the CCHS data were weighted in order to ensure that derived estimates were meaningful or representative of the entire targeted Canadian population 15 years of age and older.

## Prevalence of musculoskeletal conditions

**Figure 1: Prevalence of self-reported musculoskeletal conditions (population 15 years or older), Hamilton Niagara Haldimand Brant LHIN and Ontario, 2005**

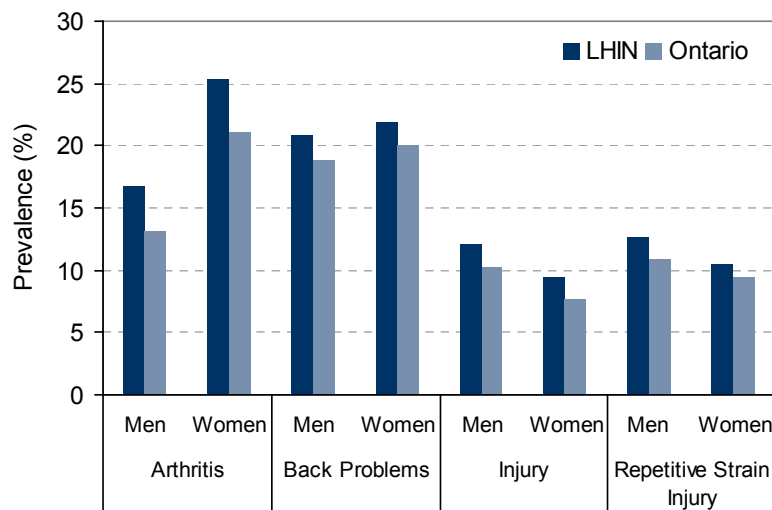
- ✦ Over 21% of Hamilton Niagara Haldimand Brant LHIN residents reported having arthritis or rheumatism and 21% reported having back problems as long-term chronic health problems (17% reported arthritis and 19% reported back problems in Ontario).
- ✦ About 11% of Hamilton Niagara Haldimand Brant LHIN residents reported they had an injury and 12% reported a repetitive strain injury (9% and 10% in Ontario, respectively).



Data Source: Canadian Community Health Survey Cycle 3.1

**Figure 2: Prevalence of self-reported musculoskeletal conditions (population 15 years or older) by gender, Hamilton Niagara Haldimand Brant LHIN and Ontario, 2005**

- ✦ The prevalence of arthritis and back problems was higher in women than men.

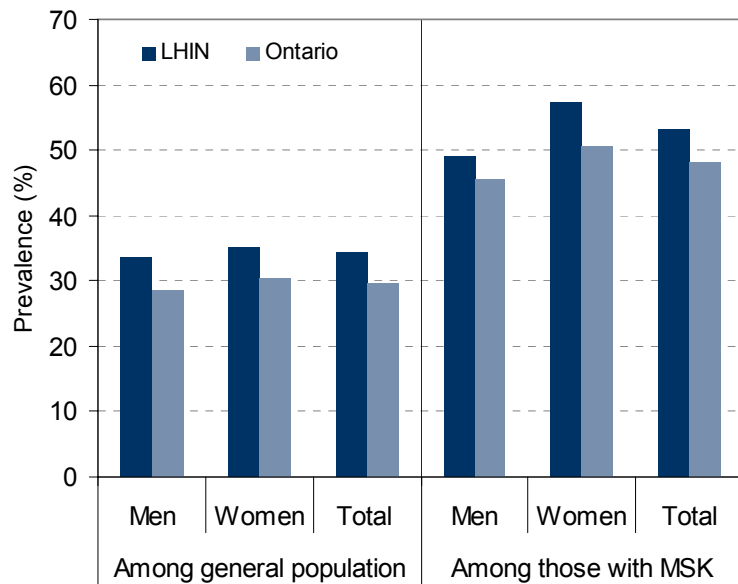


Data Source: Canadian Community Health Survey Cycle 3.1

## Prevalence of self-reported activity limitations associated with musculoskeletal conditions

**Figure 3: Prevalence of self-reported activity limitations among the general population and among people with musculoskeletal conditions (population 15 years or older), Hamilton Niagara Haldimand Brant LHIN and Ontario, 2005**

- ✦ 34% of residents of the Hamilton Niagara Haldimand Brant LHIN have activity limitations compared to 29% in Ontario.
- ✦ Among those with MSK conditions, 53% reported activity limitations compared to 48% in Ontario.
- ✦ The prevalence of self-reported activity limitations was higher for women than men.



Data Source: Canadian Community Health Survey Cycle 3.1

# Health Care Utilization by Individuals with Musculoskeletal Conditions

This section uses data from several databases on health care utilization for the 2006/07 fiscal year (April 1<sup>st</sup>, 2006 to March 31<sup>st</sup>, 2007). The databases are described in the table below (for more detailed methodology, please see ACREU [Working Paper 08-05](#)).

Individuals who had encounters with all physicians for musculoskeletal conditions in ambulatory as well as hospital settings (inpatient, emergency department visits and day surgery) during the 2006/07 fiscal year (April 1<sup>st</sup>, 2006 to March 31<sup>st</sup>, 2007) were used for the analysis presented here. It must be noted that not everyone with a musculoskeletal condition will visit a physician every year.

## Data Sources

### OHIP Databases

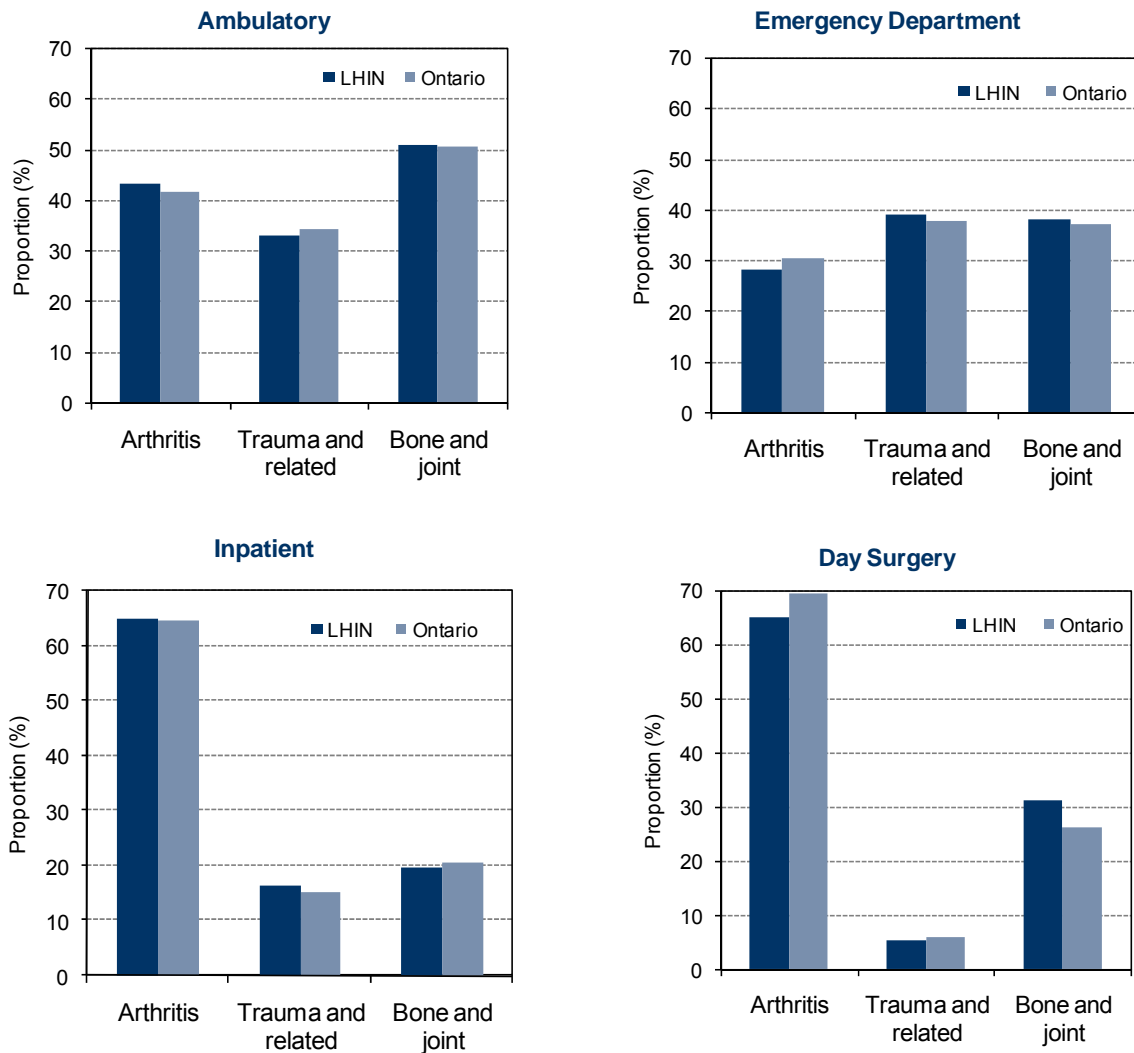
- *Ontario Health Insurance Plan (OHIP)*. Physicians bill OHIP for each patient they treat. This database captures information on every claim, including date of service, type of services or procedures provided, associated diagnosis, patient and physician identification numbers, and physician specialty type. This was used to identify service encounters (visits).
- *Corporate Provider Database*. Contains data about health care providers and organizations in Ontario.
- *Registered Persons Database (RPDB)*. Used to collect and maintain information about individuals who are registered with OHIP. Contains demographic information such as age, sex and residential postal code.

### Canadian Institute for Health Information (CIHI) Databases

- *Discharge Abstract Database (DAD)*. Contains clinical, demographic and administrative data for any patient discharged from a hospital. The information recorded includes: physician specialty, procedures received, diagnostic codes, residential postal code, age and sex.
- *National Ambulatory Care Reporting System (NACRS)*. Contains demographic characteristics, diagnostic and procedure codes for patients visiting emergency departments or having day surgery in Ontario hospitals.

## Physician care for musculoskeletal conditions

**Figure 4: Proportion of persons with visits to all physicians for musculoskeletal conditions by service setting and condition groups, Hamilton Niagara Haldimand Brant LHIN and Ontario, 2006/07**



- ✦ 43% of ambulatory visits for a musculoskeletal condition by Hamilton Niagara Haldimand Brant LHIN residents were made for arthritis and related conditions, compared to 41% in Ontario.
- ✦ The majority of inpatient and day surgeries for Hamilton Niagara Haldimand Brant LHIN residents were for arthritis and related conditions (65%). Similar values are seen for Ontario residents.

Data Sources: OHIP, DAD, NACRS

**Table 1: Number and percent distribution of persons with visits for musculoskeletal conditions to all physicians by service setting, Hamilton Niagara Haldimand Brant LHIN, 2006/07**

	Ambulatory		Emergency Department		Inpatient Hospitalizations		Day Surgeries	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
<b>Arthritis and related</b>	<b>153,109</b>	<b>43.0</b>	<b>12,865</b>	<b>28.1</b>	<b>5,385</b>	<b>65.1</b>	<b>6,134</b>	<b>64.9</b>
Rheumatoid arthritis	9,209	2.6	98	0.2	134	1.6	59	0.6
Osteoarthritis	68,268	19.2	902	2.0	4,060	49.1	923	9.8
Joint derangement	17,102	4.8	318	0.7	203	2.5	3,203	33.9
Other arthritis	81,848	23.0	11,699	25.5	1,024	12.4	1,998	21.1
<b>Trauma and related</b>	<b>116,778</b>	<b>32.8</b>	<b>17,915</b>	<b>39.1</b>	<b>1,364</b>	<b>16.5</b>	<b>494</b>	<b>5.2</b>
Fractures/dislocations	28,919	8.1	7,570	16.5	1,294	15.6	323	3.4
Strains/sprains	100,734	28.3	10,452	22.8	71	0.9	171	1.8
<b>Bone and joint</b>	<b>180,386</b>	<b>50.7</b>	<b>17,376</b>	<b>37.9</b>	<b>1,624</b>	<b>19.6</b>	<b>2,952</b>	<b>31.2</b>
Spine	66,348	18.7	11,369	24.8	813	9.8	1,511	16.0
Bone	42,294	11.9	761	1.7	593	7.2	843	8.9
Unspecified bone & joint	91,805	25.8	5,663	12.4	223	2.7	609	6.4
<b>Musculoskeletal conditions</b>	<b>355,669</b>	<b>100.0</b>	<b>45,818</b>	<b>100.0</b>	<b>8,276</b>	<b>100.0</b>	<b>9,458</b>	<b>100.0</b>

Numbers in columns and/or rows do not add up to total since persons may visit for more than one condition and more than one setting.

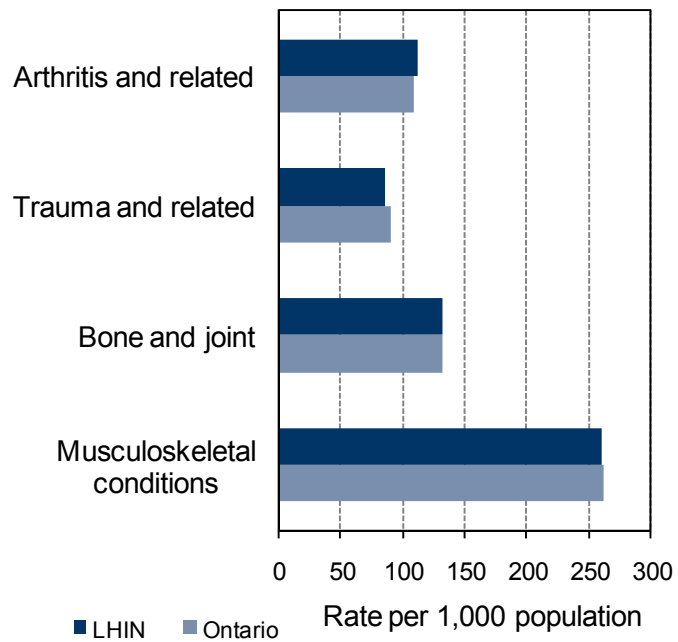
- ✦ There is variation in the most common type of musculoskeletal diagnosis across service setting. Of all Hamilton Niagara Haldimand Brant LHIN residents who received inpatient care or day surgery, the most common musculoskeletal conditions group was arthritis and related conditions (65.1% and 64.9% respectively). Bone and joint conditions were more common in ambulatory care settings (50.7%) and trauma and related conditions were most common in emergency departments (39.1%).
- ✦ For comparable Ontario data, please refer to [Table 17](#).

Data Sources: OHIP, DAD, NACRS

## Ambulatory care for musculoskeletal conditions

**Figure 5: Ambulatory person-visit rate per 1,000 population by condition groups, Hamilton Niagara Haldimand Brant LHIN and Ontario, 2006/07**

- ✦ Out of every 1,000 Hamilton Niagara Haldimand Brant LHIN residents, 259.4 made at least one visit to a physician for a musculoskeletal condition in 2006/07. The Ontario visit-rate was 261.3.
- ✦ The person-visit rate varied by condition groups: 111.7 per 1,000 population for arthritis and related conditions, 85.2 per 1,000 population for trauma and related conditions and 131.5 per 1,000 population for bone and joint conditions.



Data Sources: OHIP

**Table 2: Ambulatory visits to all physicians for musculoskeletal conditions, Hamilton Niagara Haldimand Brant LHIN, 2006/07**

	Persons visiting per 1,000 population							Ratio: Women /Men	# of visits ('000)	Mean # visits per person
	Age Groups					Sex				
	All	0-14	15-44	45-64	65+	Women	Men			
<b>Arthritis and related</b>	<b>111.7</b>	<b>20.7</b>	<b>66.4</b>	<b>167.0</b>	<b>242.4</b>	<b>126.3</b>	<b>93.7</b>	<b>1.3</b>	<b>339</b>	<b>2.2</b>
Rheumatoid arthritis	6.7	0.7	2.5	10.9	17.7	9.5	3.7	2.6	25	2.7
Osteoarthritis	49.8	1.4	13.6	75.3	159.6	60.7	37.4	1.6	138	2.0
Joint derangement	12.5	2.2	11.1	19.0	16.5	12.2	12.4	1.0	66	3.8
Other arthritis	59.7	16.8	45.5	90.1	94.2	64.8	52.8	1.2	140	1.7
<b>Trauma and related</b>	<b>85.2</b>	<b>53.4</b>	<b>86.0</b>	<b>109.1</b>	<b>77.2</b>	<b>83.0</b>	<b>84.7</b>	<b>1.0</b>	<b>233</b>	<b>2.0</b>
Fractures/dislocations	21.1	22.9	17.4	19.6	31.8	20.1	21.4	0.9	65	2.2
Strains/sprains	73.5	34.1	72.9	94.5	83.1	76.9	67.9	1.1	168	1.7
<b>Bone and joint</b>	<b>131.5</b>	<b>44.8</b>	<b>105.7</b>	<b>178.4</b>	<b>219.5</b>	<b>149.7</b>	<b>109.5</b>	<b>1.4</b>	<b>370</b>	<b>2.1</b>
Spine	48.4	5.9	43.3	70.6	72.0	51.8	43.5	1.2	132	2.0
Bone	30.8	15.7	14.3	39.0	79.1	42.2	18.6	2.3	78	1.8
Unspecified bone & joint	66.9	24.5	57.4	91.4	98.7	73.8	58.1	1.3	161	1.8
<b>Musculoskeletal</b>	<b>259.4</b>	<b>106.6</b>	<b>209.6</b>	<b>342.9</b>	<b>423.8</b>	<b>283.5</b>	<b>227.5</b>	<b>1.2</b>	<b>942</b>	<b>2.6</b>

- ✦ Among specific arthritis and related conditions, the person-visit rate for Hamilton Niagara Haldimand Brant LHIN residents was highest for osteoarthritis (49.8 per 1,000 population). Among trauma and related conditions, the most common reason for making at least one visit to a physician was strains and sprains (73.5 per 1,000 population). Generally, person-visit rates increased with age for all condition groups.
- ✦ Rates were higher for women than men for arthritis and related conditions (1.3 times as many women making visits as men) and bone and joint conditions (1.4 times as many women making visits as men). Person-visit rates were similar for women than men for trauma and related conditions.
- ✦ The mean number of visits was 2.2 for all arthritis and related conditions, 2.0 for trauma and 2.1 for bone and joint conditions.
- ✦ For comparable Ontario data, please refer to [Table 18](#).

Data Sources: OHIP, RPDB

**Table 3: Persons with ambulatory visits for musculoskeletal conditions by type of physician consulted, Hamilton Niagara Haldimand Brant LHIN, 2006/07**

	All physicians (Number)	Primary Care (%)	All specialists (%)	Medical Specialists			Surgical Specialists	
				All (%)	Rheumatologists (%)	Internists (%)	All (%)	Orthopaedics (%)
<b>Arthritis and related</b>	<b>153,109</b>	<b>73.0</b>	<b>42.0</b>	<b>18.1</b>	<b>11.0</b>	<b>1.0</b>	<b>27.5</b>	<b>22.4</b>
Rheumatoid arthritis	9,209	51.9	64.3	60.9	56.9	1.7	7.5	3.9
Osteoarthritis	68,268	77.9	33.2	12.6	8.3	1.3	23.4	23.0
Joint derangement	17,102	37.2	65.8	5.3	2.6	0.1	60.8	54.2
Other arthritis	81,848	69.8	37.6	17.6	8.0	0.7	21.8	13.7
<b>Trauma and related</b>	<b>116,778</b>	<b>80.6</b>	<b>33.5</b>	<b>6.5</b>	<b>1.2</b>	<b>0.5</b>	<b>27.7</b>	<b>24.0</b>
Fractures/dislocations	28,919	35.4	74.3	2.7	-	0.2	72.4	62.8
Strains/sprains	100,734	85.4	19.9	6.8	1.3	0.5	14.8	10.7
<b>Bone and joint</b>	<b>180,386</b>	<b>86.2</b>	<b>21.9</b>	<b>14.9</b>	<b>4.8</b>	<b>1.9</b>	<b>8.4</b>	<b>5.5</b>
Spine	66,348	88.6	18.5	10.7	1.8	0.4	8.9	6.2
Bone	42,294	70.8	35.2	26.0	10.8	6.4	11.8	4.6
Unspecified bone and joint	91,805	87.4	15.7	11.0	3.3	0.5	4.8	4.2
<b>Musculoskeletal</b>	<b>355,669</b>	<b>84.6</b>	<b>35.4</b>	<b>16.1</b>	<b>7.2</b>	<b>1.5</b>	<b>23.2</b>	<b>18.7</b>

Row proportions do not add to 100% because an individual may visit more than one type of physician in a year

- Data unavailable/insufficient cell size

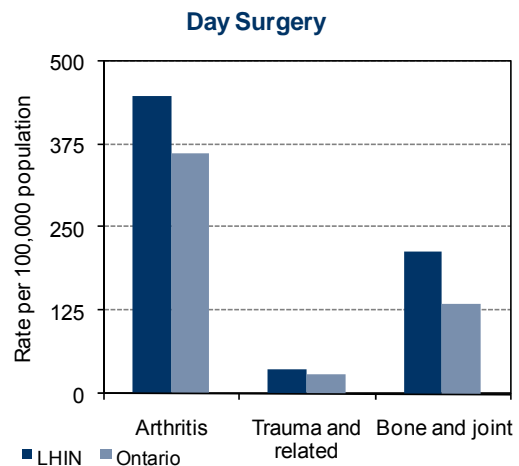
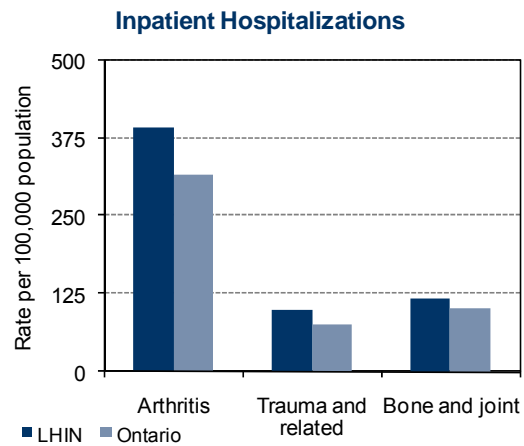
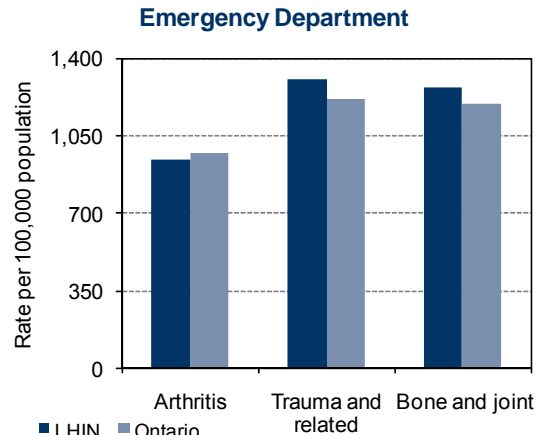
- ✦ 73.0% of Hamilton Niagara Haldimand Brant LHIN residents with visits for arthritis and related conditions saw a primary care physician at least once; the proportion was higher for trauma and related conditions (80.6%) and bone and joint conditions (86.2%).
- ✦ A higher proportion of persons with a visit for arthritis and related conditions saw a specialist (42.0%) compared to the other condition groups. Persons with bone and joint conditions were least likely to consult a specialist (21.9%). A higher proportion of persons with arthritis and related conditions saw a surgical specialist (27.5%) compared to a medical specialist (18.1%). As might be expected, a greater proportion of persons seeing physicians with trauma and related conditions saw more surgical specialists than medical specialists (27.7% and 6.5% respectively). For comparable Ontario data, please refer to the [Table 19](#).

Data Sources: OHIP, RPDB

## Hospital care for musculoskeletal conditions

**Figure 6: Person-visit rate per 100,000 population by hospital setting, Hamilton Niagara Haldimand Brant LHIN and Ontario, 2006/07**

- ✦ Overall, the person-visit rate for Hamilton Niagara Haldimand Brant LHIN residents to emergency departments was higher than that for hospitalizations or day surgeries.
- ✦ In the emergency department, person-visit rates were highest for trauma and related conditions (1,306.4 per 100,000 population).
- ✦ Rates for inpatient hospitalizations and day surgeries were highest for arthritis and related conditions (392.7 and 447.3 per 100,000 population, respectively).
- ✦ Rates in Ontario were comparable.



NOTE: Person-visit rate is interpreted as either: number of LHIN residents with at least one visit to emergency departments; the number of LHIN residents with at least one inpatient hospitalization; or the number of LHIN residents with at least one day surgery.

Data Sources: DAD, NACRS

**Table 4: Rate per 100,000 population of persons visiting emergency departments, with inpatient hospitalizations and day surgeries, Hamilton Niagara Haldimand Brant LHIN, 2006/07**

	Emergency Department	Inpatient	Day Surgery
<b>Arthritis and related</b>	<b>938.2</b>	<b>392.7</b>	<b>447.3</b>
Rheumatoid arthritis	7.1	9.8	4.3
Osteoarthritis	65.8	296.1	67.3
Joint derangement	23.2	14.8	233.6
Other arthritis	853.1	74.7	145.7
<b>Trauma and related</b>	<b>1,306.4</b>	<b>99.5</b>	<b>36.0</b>
Fractures/dislocations	552.0	94.4	23.6
Strains/sprains	762.2	5.2	12.5
<b>Bone and joint</b>	<b>1,267.1</b>	<b>118.4</b>	<b>215.3</b>
Spine	829.1	59.3	110.2
Bone	55.5	43.2	61.5
Unspecified bone & joint	413.0	16.3	44.4
<b>Musculoskeletal</b>	<b>3,341.3</b>	<b>603.5</b>	<b>689.7</b>

✦ In Hamilton Niagara Haldimand Brant LHIN, the highest person-visit rates for specific conditions in the emergency department were for treatment of spine conditions, strains/sprains and fractures/dislocations.  
 ✦ Inpatient hospitalization rates were highest for osteoarthritis and day surgery rates were highest for joint derangement.  
 ✦ For comparable Ontario data, please refer to [Table 20](#).

Data Sources: DAD, NACRS

**Table 5: Rate per 100,000 population of persons with visits to emergency departments for musculoskeletal conditions, Hamilton Niagara Haldimand Brant LHIN, 2006/07**

	Persons visiting per 100,000 population							Ratio: Women/ Men
	Age Groups					Sex		
	All ages	0-14	15-44	45-64	65+	Women	Men	
Arthritis and related	938.2	273.9	845.2	1,143.3	1,592.6	912.8	964.3	1.0
Trauma and related	1,306.4	1,666.7	1,463.9	938.4	1,109.0	1,270.7	1,343.3	1.0
Bone and joint	1,267.1	325.1	1,410.3	1,441.8	1,647.3	1,331.1	1,201.2	1.1
<b>Musculoskeletal</b>	<b>3,341.3</b>	<b>2,223.9</b>	<b>3,535.5</b>	<b>3,333.7</b>	<b>4,101.7</b>	<b>3,345.5</b>	<b>3,336.9</b>	<b>1.0</b>

- ✦ In emergency departments, the highest person-visit rates among 0-14 year olds are for trauma and related conditions (1,666.7 per 100,000 population) whereas the highest rates among the elderly are for arthritis and related conditions (65+; 1,592.6 per 100,000 population).
- ✦ For comparable Ontario data, please refer to [Table 21](#).

Data Sources: NACRS

**Table 6: Rate per 100,000 population of persons with inpatient hospitalizations for musculoskeletal conditions, Hamilton Niagara Haldimand Brant LHIN, 2006/07**

	Persons with hospitalizations per 100,000 population							Ratio: Women/ Men
	Age Groups					Sex		
	All ages	0-14	15-44	45-64	65+	Women	Men	
Arthritis and related	392.7	30.4	69.7	527.9	1,453.3	447.8	335.9	1.4
Trauma and related	99.5	104.0	59.2	79.2	239.9	102.7	96.1	1.1
Bone and joint	118.4	30.0	86.1	143.4	264.1	128.3	108.3	1.2
<b>Musculoskeletal</b>	<b>603.5</b>	<b>162.7</b>	<b>211.4</b>	<b>742.5</b>	<b>1,936.5</b>	<b>670.3</b>	<b>534.6</b>	<b>1.3</b>

- ✦ Arthritis and related conditions have the highest rate among the elderly (1,453.3 per 100,000 people).
- ✦ Rates were slightly higher for women than men in every condition group.
- ✦ For comparable Ontario data, please refer to [Table 22](#).

Data Sources: DAD

**Table 7: Rate per 100,000 population of persons with day surgeries for musculoskeletal conditions, Hamilton Niagara Haldimand Brant LHIN, 2006/07**

	Persons with day surgeries per 100,000 population							Ratio: Women/ Men
	Age Groups					Sex		
	All ages	0-14	15-44	45-64	65+	Women	Men	
Arthritis and related	447.3	30.0	377.4	828.6	447.4	408.7	487.1	0.9
Trauma and related	36.0	52.4	29.7	38.1	31.0	30.9	41.3	0.8
Bone and joint	215.3	16.1	136.4	368.2	390.8	236.2	193.7	1.3
<b>Musculoskeletal</b>	<b>689.7</b>	<b>96.8</b>	<b>537.3</b>	<b>1,218.3</b>	<b>858.0</b>	<b>666.9</b>	<b>713.3</b>	<b>1.0</b>

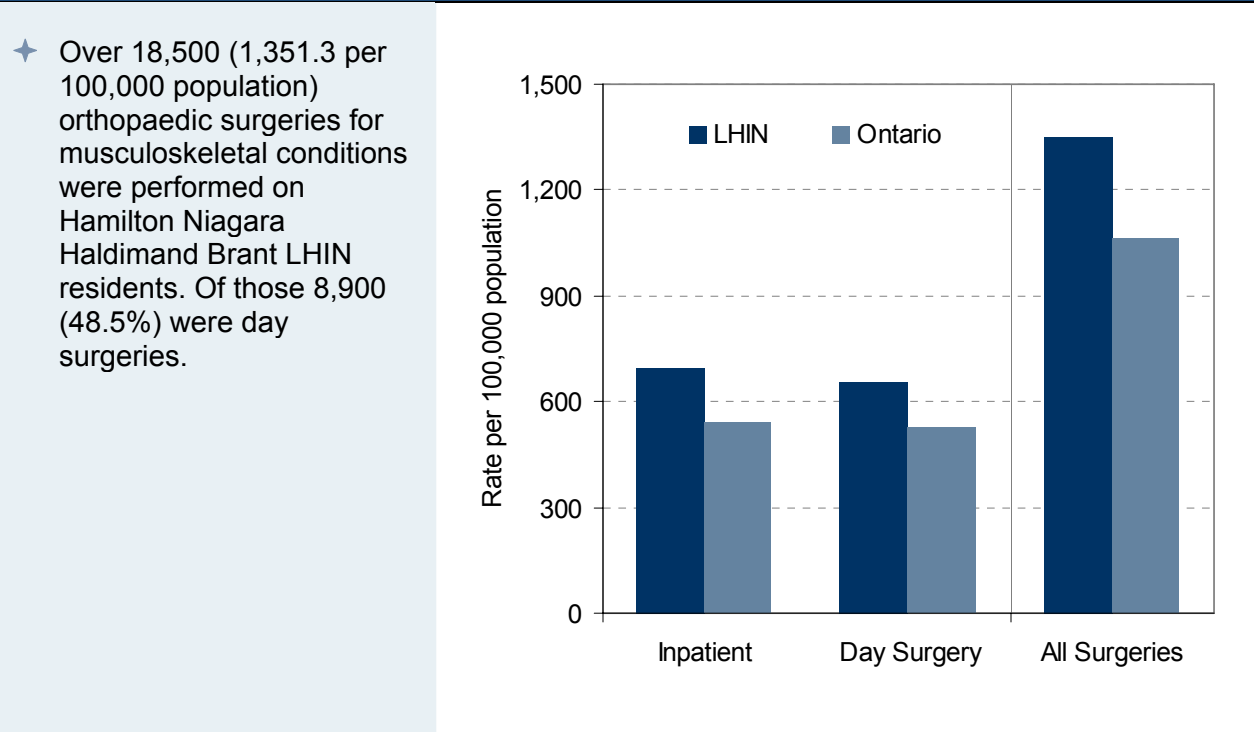
- ✦ Arthritis and related conditions have the highest rates for people aged 15 years and older.
- ✦ For comparable Ontario data, please refer to [Table 23](#).

Data Sources: NACRS

## Orthopaedic surgery for musculoskeletal conditions

### A. Surgery provided to LHIN residents<sup>‡</sup>

**Figure 7: Number of orthopaedic surgeries for musculoskeletal conditions per 100,000 population by service setting, Hamilton Niagara Haldimand Brant LHIN and Ontario, 2006/07**



Data Sources: DAD, NACRS

<sup>‡</sup> LHIN residents regardless of where the surgery took place

**Table 8: Number of selected types of orthopaedic surgeries for musculoskeletal conditions performed on residents of Hamilton Niagara Haldimand Brant LHIN and Ontario, 2006/07**

★ Similar to the province, in Hamilton Niagara Haldimand Brant LHIN, joint replacement was the most common orthopaedic surgery for people with MSK conditions, followed by closed repairs.

Numbers in columns do not add up to total since persons may have more than one type of surgery

	Number of Surgeries	Number per 100,000 population	
		LHIN	Ontario
<b>Joint Replacement</b>	<b>4,550</b>	<b>331.8</b>	<b>254.8</b>
Hip	1,453	106.0	86.1
Knee	2,778	202.6	154.3
Other	319	23.3	14.5
<b>Closed Repair</b>	<b>4,229</b>	<b>308.4</b>	<b>237.6</b>
<b>Reduction with or without fixation</b>	<b>1,837</b>	<b>134.0</b>	<b>98.4</b>
<b>All surgeries</b>	<b>18,530</b>	<b>1,351.3</b>	<b>1,065.1</b>

Data Sources: DAD, NACRS

**Table 9: Number of orthopaedic surgeries for musculoskeletal conditions by anatomic location performed on residents of Hamilton Niagara Haldimand Brant LHIN and Ontario, 2006/07**

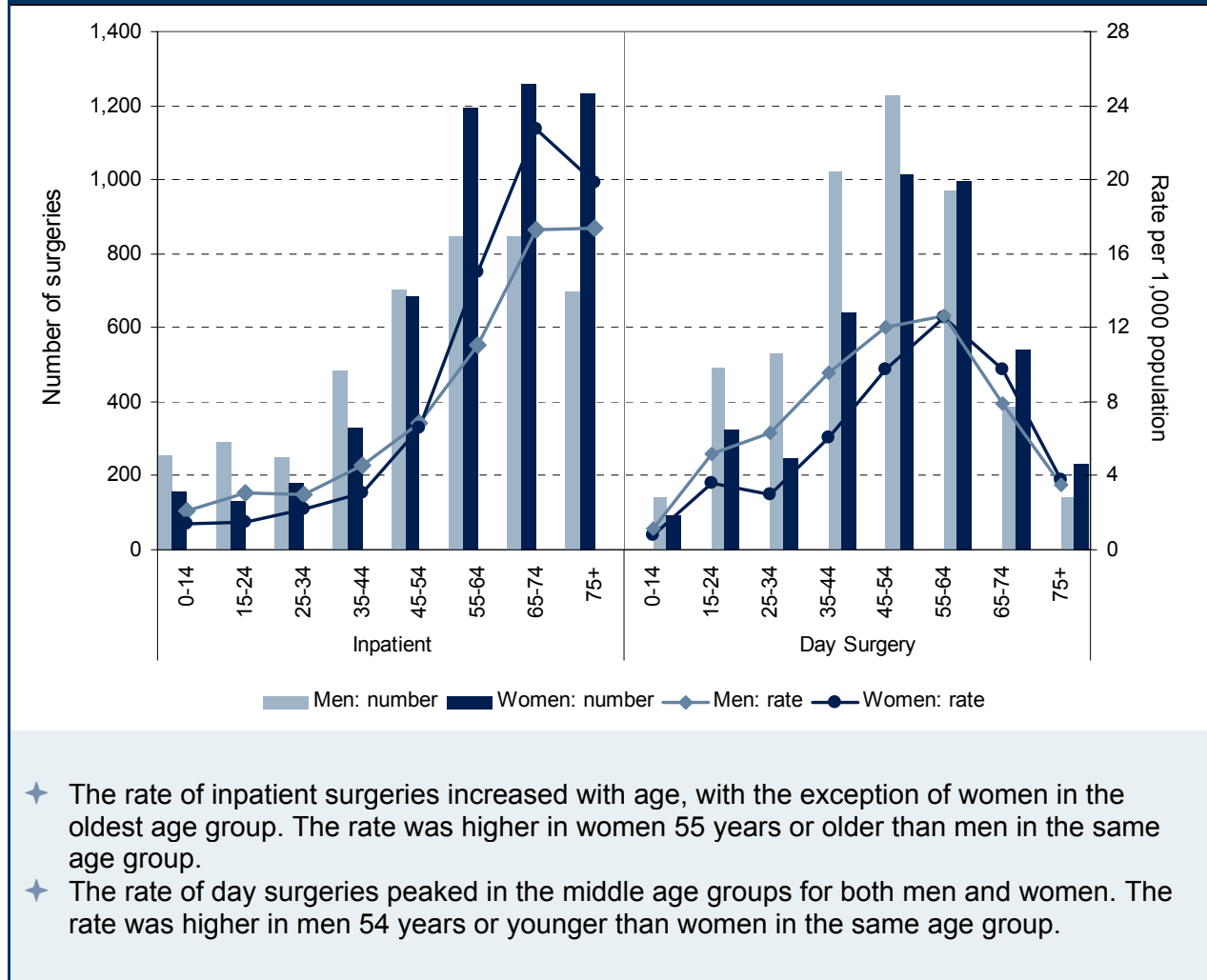
	<u>All surgeries</u>			<u>Inpatient Surgeries</u>			<u>Day Surgeries</u>		
	Number of Surgeries	Number per 100,000 population		Number of Surgeries	Number per 100,000 population		Number of Surgeries	Number per 100,000 population	
		LHIN	Ontario		LHIN	Ontario		LHIN	Ontario
Hip	1,786	130.2	109.3	1,740	126.9	106.0	46	3.4	3.3
Knee	8,610	627.9	498.5	3,645	265.8	219.5	4,965	362.1	279.0
Spine	1,172	85.5	58.0	1,105	80.6	53.7	67	4.9	4.3
Upper limb*	5,247	382.6	291.4	2,332	170.1	128.7	2,915	212.6	162.6
Foot and Ankle	1,715	125.1	108.0	715	52.1	33.0	1,000	72.9	75.0
<b>All surgeries</b>	<b>18,530</b>	<b>1,351.3</b>	<b>1,065.1</b>	<b>9,537</b>	<b>695.5</b>	<b>540.9</b>	<b>8,993</b>	<b>655.8</b>	<b>524.2</b>

\* Includes shoulder, elbow, hand and wrist.

- ✦ The most common joint operated on was the knee, followed by the upper limb (shoulder, hand and wrist), hip and foot and ankle.
- ✦ Surgeries of the knee, foot and ankle and upper limb were most common as day surgeries.

Data Sources: DAD, NACRS

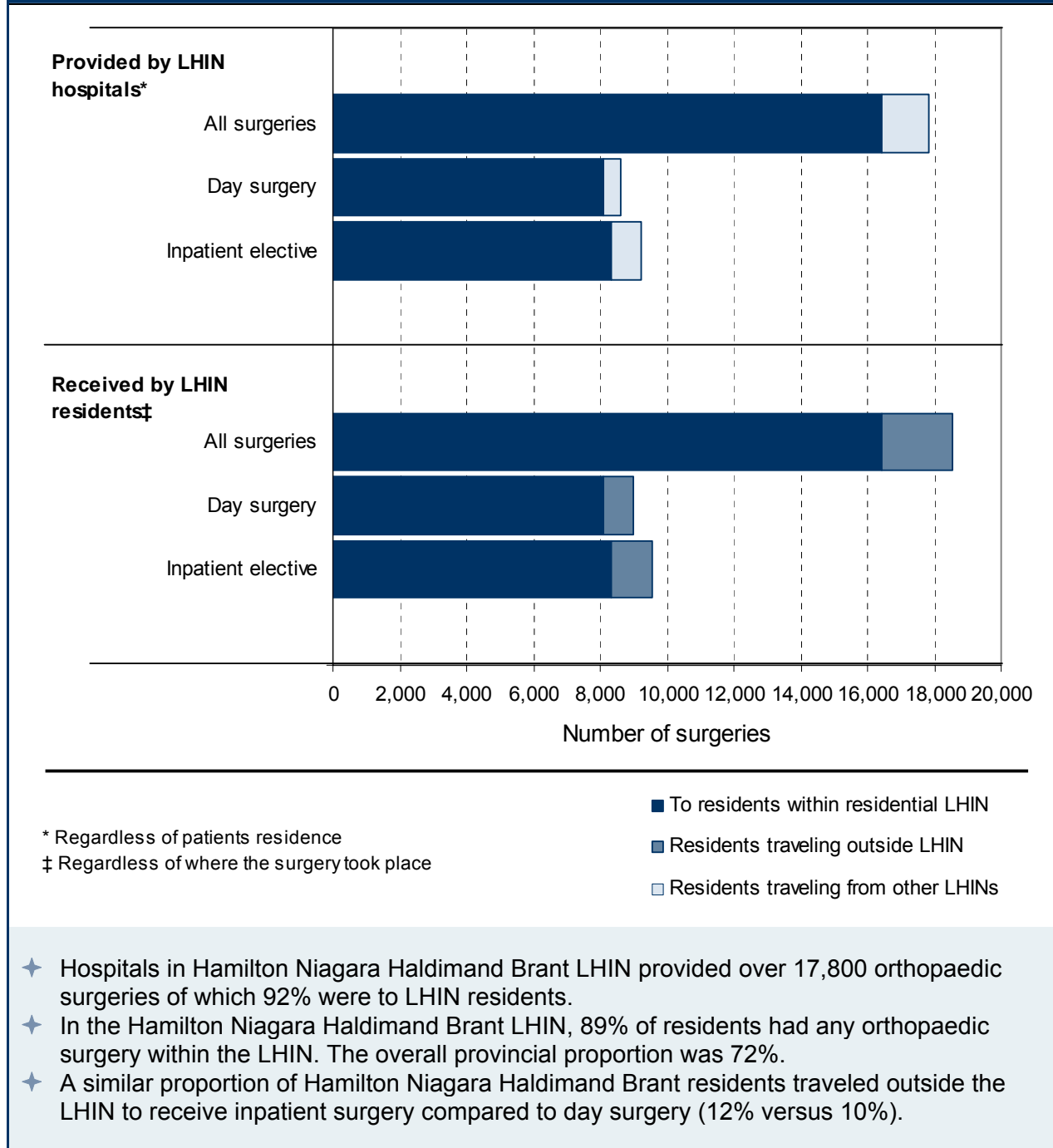
**Figure 8: Number of orthopaedic surgeries for musculoskeletal conditions per 100,000 residents by age groups, sex and service setting, Hamilton Niagara Haldimand Brant LHIN, 2006/07**



Data Sources: DAD, NACRS

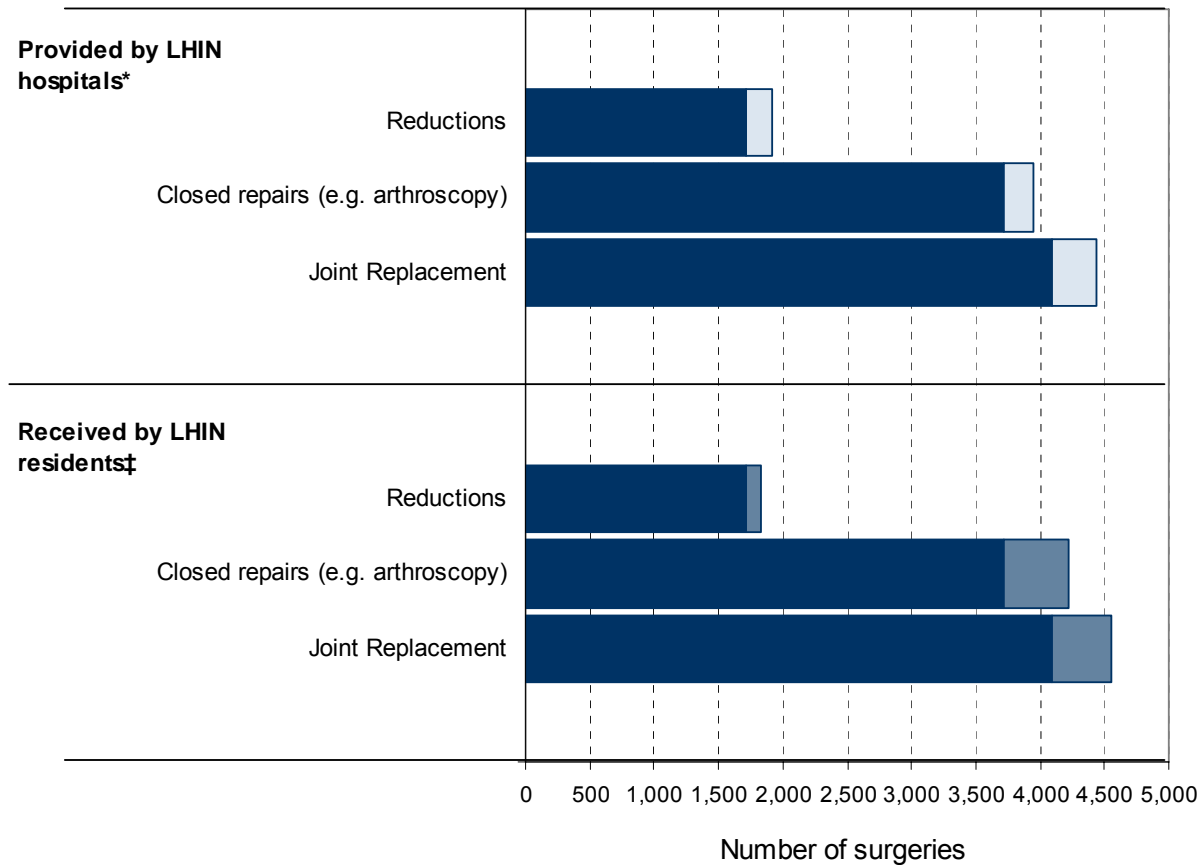
## B. Surgery provided by LHIN hospitals

**Figure 9: Number of orthopaedic surgeries for musculoskeletal conditions provided by LHIN hospitals\* and received by LHIN residents‡, Hamilton Niagara Haldimand Brant LHIN, 2006/07**



Data Sources: DAD, NACRS

**Figure 10: Number of selected types of orthopaedic surgeries for musculoskeletal conditions provided by LHIN hospitals\* and received by LHIN residents‡, Hamilton Niagara Haldimand Brant LHIN, 2006/07**



\* Regardless of patients residence  
‡ Regardless of where the surgery took place

■ To residents within residential LHIN  
■ Residents traveling outside LHIN  
□ Residents traveling from other LHINs

✦ The majority of the surgeries provided by Hamilton Niagara Haldimand Brant LHIN hospitals were to LHIN residents. This was true for the three types of surgeries examined.  
✦ A relatively larger proportion (20%) of residents traveled to another LHIN to receive closed repairs than joint replacement (10%).

Data Sources: DAD, NACRS

## Proportion of LHIN residents who receive surgery after consulting with an orthopaedic surgeon

Ambulatory and hospital discharge databases were linked to examine the proportion of a cohort of individuals consulting orthopaedic surgeons in ambulatory settings (presumed eligible for orthopaedic surgery) who have subsequent orthopaedic surgery.

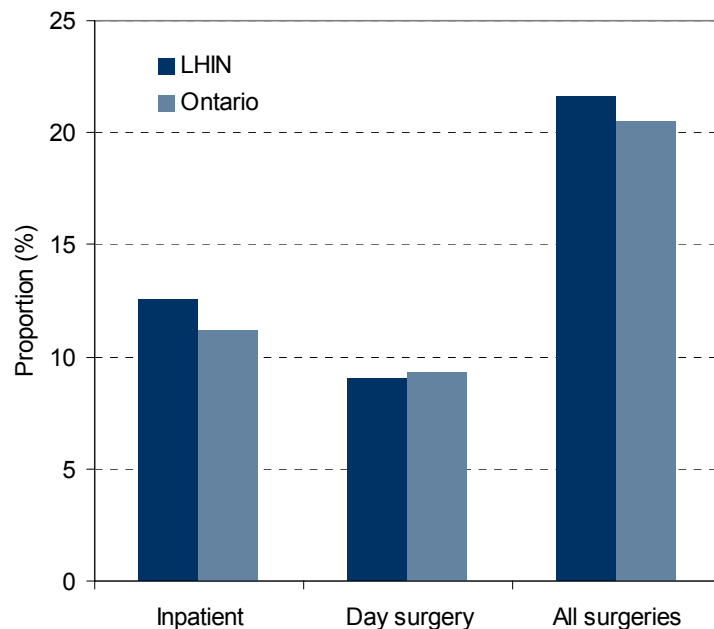
### Data Source

The study cohort was drawn from the 521,156 Ontarians who visited orthopaedic surgeons from October 1<sup>st</sup>, 2004 to September 30<sup>th</sup>, 2005. Individuals who had surgery without a prior ambulatory visit, and those who had orthopaedic surgery within six months prior to their initial ambulatory visit (where this was likely to be a post-surgical follow-up visit) were excluded. Methodological details are available in ACREU's [Working Paper 08-04](#).

**Figure 11: Proportion of individuals\* with orthopaedic surgery following ambulatory visits to orthopaedic surgeons by service setting, Hamilton Niagara Haldimand Brant LHIN and Ontario, 2004-2007**

✦ In Hamilton Niagara Haldimand Brant LHIN, 21.6% of individuals (presumed to be eligible for orthopaedic surgery) consulting with orthopaedic surgeons had surgery. The proportion in the province was 20.5%.

\* Presumed eligible for orthopaedic surgery. Surgery was within 18 months of initial ambulatory visit to orthopaedic surgeons.



Data Sources: DAD, NACRS

**Table 10: Proportion of individuals\* with orthopaedic surgery following initial ambulatory visit to orthopaedic surgeons by condition groupings, Hamilton Niagara Haldimand Brant LHIN and Ontario, 2004-2007**

	Number of LHIN residents with ambulatory visits to orthopaedic surgeons	Proportion (%) with orthopaedic surgery	
		LHIN	Ontario
<b>Arthritis and related</b>	<b>30,610</b>	<b>28.6</b>	<b>28.6</b>
Osteoarthritis	12,557	34.4	33.8
Joint Derangement	8,407	30.9	30.4
Other arthritis	11,394	17.8	17.0
<b>Trauma and related</b>	<b>25,517</b>	<b>12.9</b>	<b>13.2</b>
Fractures and dislocations	10,506	17.1	18.5
Sprains and Strains	14,806	9.9	7.7
<b>Bone and Joint</b>	<b>10,889</b>	<b>17.5</b>	<b>17.5</b>
Spine	3,842	16.4	12.7
Bone	2,032	21.1	25.0
Unspecified bone and joint	5,217	16.6	18.3
<b>Musculoskeletal conditions</b>	<b>60,571</b>	<b>21.6</b>	<b>20.5</b>

\* Presumed eligible for orthopaedic surgery. Surgery was within 18 months of initial ambulatory visit to orthopaedic surgeons.

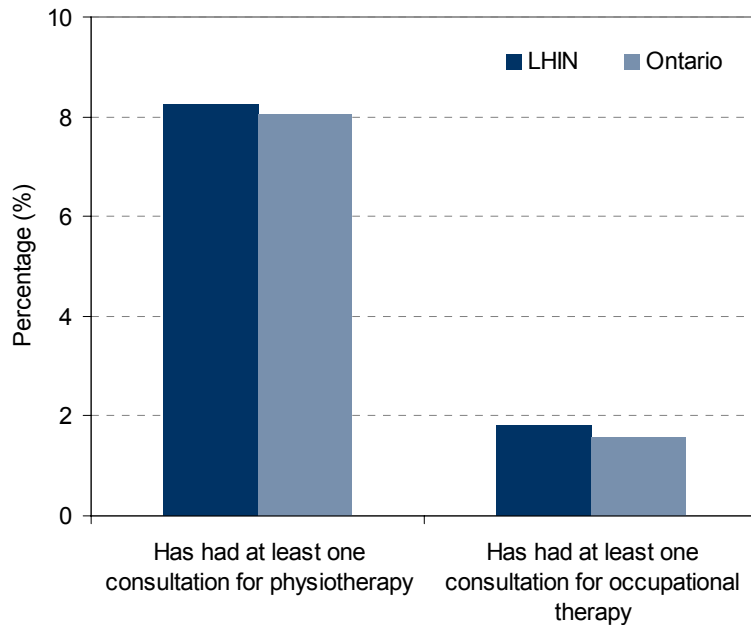
- ✦ The proportion varied according to the reason for the ambulatory visits: 34.4% of those with visits for osteoarthritis (predominantly total joint replacement surgery) and 30.9% of those with visits for joint derangement (mainly arthroscopic surgery).
- ✦ Similar pattern was seen in the province as a whole.

Data Sources: OHIP, DAD, NACRS

## Utilization of occupational therapy and physiotherapy

**Figure 12: Self-reported prevalence of consulting physiotherapists and occupational therapists, Hamilton Niagara Haldimand Brant LHIN and Ontario, 2005**

- ✦ 8.2% of the Hamilton Niagara Haldimand Brant LHIN population reported at least one consultation with a physiotherapist, compared to 8.1% in Ontario.
- ✦ 1.8% of Hamilton Niagara Haldimand Brant LHIN residents reported at least one consultation with an occupational therapist, speech language pathologist or audiologist compared to 1.6% in Ontario.



Data Source: Canadian Community Health Survey Cycle 3.1

# Health Human Resources for Musculoskeletal Conditions

This section provides information related to the availability of health human resources for musculoskeletal conditions. Details relating to the provision of rheumatology, orthopaedic, physiotherapy and occupational therapy services are provided. Data for chiropractors, dieticians and other health professionals are not reported here.

## Data Sources

- The ACREU survey of rheumatologists in Ontario ([Working Paper 08-03](#)). A total of 164 practicing rheumatologists were identified in Ontario in 2007: 152 responded to a two-part questionnaire (response rate 93%).
- The ACREU survey of orthopaedic surgeons in Ontario ([Working Paper 07-03](#)). A total of 396 practicing orthopaedic surgeons were identified in Ontario in 2006: 359 responded to a two-part survey relating to location and nature of practice (91% response rate).
- The ACREU working paper Community Rehabilitation Profiles in Ontario ([Working Paper 07-01](#)) conducted in 2006.
- Ontario Physician Human Resources Data Centre, 2007 (<http://www.ophrdc.org>).

## Availability of physician services

### A. Primary care physicians

**Table 11: Number of active primary care physicians in Hamilton Niagara Haldimand Brant LHIN and Ontario, 2007**

<p>✦ Hamilton Niagara Haldimand Brant LHIN had 88 active primary care physicians per 100,000 population.</p> <p>✦ In Ontario there are approximately 87 per 100,000 population active primary care physicians.</p> <p>NOTE: The number of primary care physicians is not representative of the number physicians involved in patient care full-time.</p>		
	LHIN	Ontario
	<b># of primary care physicians</b>	<b>1,050</b>
<b># of primary care physicians per 100,000 population</b>	<b>88.3</b>	<b>86.6</b>

Data Source: Ontario Physician Human Resources Data Centre, 2007

## B. Orthopaedic services

**Table 12: Number of practicing orthopaedic surgeons and work hours, Hamilton Niagara Haldimand Brant LHIN and Ontario, 2006**

	LHIN	Ontario
<b># of orthopaedic surgeons</b>	<b>44</b>	<b>359</b>
<b># of orthopaedic surgeons (per 100,000 population)</b>	<b>3.2</b>	<b>2.9</b>
<b>Hours of direct clinical care per week (per 100,000 population)</b>	<b>134.4</b>	<b>111.6</b>
Office hours	71.2	56.3
Surgery hours	32.1	33.2
Time working on call	31.1	22.1

- ✦ In the Hamilton Niagara Haldimand Brant LHIN there were 3 orthopaedic surgeons per 100,000 population, similar to Ontario.
- ✦ In the Hamilton Niagara Haldimand Brant LHIN, 134 hours per week of direct clinical time per 100,000 population was provided by orthopaedic surgeons, while across Ontario, 112 hours per week of direct clinical time per 100,000 population was provided.
- ✦ Direct clinical care in Hamilton Niagara Haldimand Brant was comprised of 71 hours of office time per week, 32 hours of surgery time and 31 hours per week of working on call per 100,000 population.

Data Source: 2006 Ontario Survey of Orthopaedic Surgeons, ACREU

### C. Rheumatology services

**Table 13: Number of practicing rheumatologists and work hours, Hamilton Niagara Haldimand Brant LHIN and Ontario, 2007**

- ✦ There were 17 rheumatologists with primary practices based in the Hamilton Niagara Haldimand Brant LHIN.
- ✦ The overall provincial per capita provision was 1.20 rheumatologists per 100,000 population.
- ✦ The overall amount of direct clinical care provided by rheumatologists was 44.4 hours per week per 100,000 population in this LHIN, while in Ontario it was 38.3 hours.

	LHIN	Ontario
<b># of practicing rheumatologists</b>	<b>17</b>	<b>152</b>
Rheumatologists based in this LHIN only	1.2	NA
All rheumatologists (including those coming from other LHINs)	1.8	1.2
<b>Office hours per week (per 100,000 population)</b>	<b>44.4</b>	<b>38.3</b>
<b>Mean waiting time, reported by rheumatologist (weeks)</b>		
Likely inflammatory	3.4	3.6
Non-Urgent	13.6	13.4

## Availability of community rehabilitation services

**Table 14: Number of physiotherapists and occupational therapists, Hamilton Niagara Haldimand Brant LHIN and Ontario, 2006**

- ✦ There were approximately 610 (45 per 100,000 population) and 5,300 (43 per 100,000 population) physiotherapists registered for independent practice and working in the Hamilton Niagara Haldimand Brant LHIN and the province of Ontario respectively.
- ✦ There were approximately 490 (36 per 100,000 population) and 3,900 (31 per 100,000 population) occupational therapists registered for independent practice in the Hamilton Niagara Haldimand Brant LHIN and Ontario respectively.

	LHIN	Ontario
<b># of physiotherapists</b>	<b>607</b>	<b>5,319</b>
# per 100,000 population	45.2	43.4
<b># of occupational therapists</b>	<b>489</b>	<b>3,861</b>
# per 100,000 population	36.4	31.2

Data Sources: The College of Occupational Therapists of Ontario and The College of Physiotherapists of Ontario

**Table 15: Availability of occupational therapy and physiotherapy services in different settings, Hamilton Niagara Haldimand Brant LHIN and Ontario, 2006**

Community Rehabilitation Settings	Occupational Therapy		Physiotherapy	
	# of clinics	Average # of FTE <sup>1</sup> s/clinic	# of clinics	Average # of FTEs/clinic
Arthritis Rehabilitation and Education Program Clinics (TAS AREP)†	4	0.9	***Primary therapist (OT or PT) model of service delivery. See values under occupational therapy ***	
Community Health Centres (CHC) ‡	1	0.5	1	2.0
Designated Physiotherapy Clinics (DPC)*	Not Applicable		17	2.4
Hospital Day Department (OPD)*	9	...	13	2.4
Private Clinics	50	...	97	...

1 FTE – Full-time equivalent  
 ... Data unavailable/insufficient cell size

✦ In the Hamilton Niagara Haldimand Brant LHIN, most publicly funded occupational therapy clinics are in hospital day departments which have long wait lists, while the most for physiotherapy are in designated physiotherapy clinics. Very few Community Health Centres offer community rehabilitation services.

Data Sources: †The Ontario Arthritis Society; ‡Association of Ontario Health Centres; \* Ontario Community Rehabilitation Wait Time Survey (ACREU)

**Table 16: Access to community rehabilitation services, Hamilton Niagara Haldimand Brant LHIN and Ontario, 2005**

- ✦ The majority of community rehabilitation settings are privately funded in the Hamilton Niagara Haldimand Brant LHIN as well as in Ontario.
- ✦ In Hamilton Niagara Haldimand Brant, there are about 4 times as many privately funded community occupational therapy clinics as publicly funded (3.6 to 1.0) and 3 times as many privately funded physiotherapy clinics as publicly funded settings (2.8 to 1.0).
- ✦ In 2005, the median wait time for publicly funded occupational and physiotherapy services in Ontario was 15 days.

...Data unavailable/insufficient cell size  
 †Normal business hours: Monday to Friday (7:00am to 5:00pm)  
<sup>1</sup>Ratio of private to public clinics = # of private clinics /  $\sum$  (TAS AREP+CHC+OPD)  
<sup>2</sup>Ratio of private to public clinics = # of private clinics /  $\sum$  (TAS AREP+CHC+DPC+OPD)

	LHIN	Ontario
Median wait time for publicly-funded OT or PT (in days)	...	15.0
Percent of publicly-funded OT or PT clinics with hours of operation outside normal business hours†	...	31.0
Ratio of private to public clinics providing OT services <sup>1</sup>	3.6	2.2
Ratio of private to public clinics providing PT services <sup>2</sup>	2.8	2.9

Data Sources: Ontario Community Rehabilitation Wait Time Survey (ACREU)

## Glossary of Terms

### Burden of musculoskeletal care

*Self-reported arthritis:* The presence of arthritis and other chronic conditions was determined using the lead-in statement: “We are interested in long-term conditions that have lasted or are expected to last six months or longer and that have been diagnosed by a health professional. Do you have...”.

*Back problems:* The presence of back problems was determined using the lead-in statement: “We are interested in long-term conditions that have lasted or are expected to last six months or longer and that have been diagnosed by a health professional. Do you have...”.

*Repetitive strain injury:* Respondents were told that a repetitive strain injury refers to “injuries caused by overuse or by repeating the same movement frequently”, and were then asked “In the past 12 months, that is, from [date one year ago] to yesterday, did you have any injuries due to repetitive strain which were serious enough to limit your normal activities?”

*Injury:* Respondents were asked about the type of injury they had, if any. Those respondents with broken or fractured bones, dislocation, sprain or strain, or concussion/other brain injury were classified as having an injury that may be attended to by a rehabilitation professional.

*Self-reported activity limitation:* Respondents were asked whether they had any difficulty with activities including walking, climbing stairs, bending or similar activities or had reduced their activities at home, work or school or other activities, such as leisure or transportation due to disease or illness. Each response is measured as an ordinal outcome: sometimes, often or never. Respondents were categorized as having an activity limitation if they responded positively (sometimes/often) to any of the above.

### Care for musculoskeletal conditions

*Service setting:* Ambulatory or hospital (inpatient, day surgery or emergency department).

*Encounter:* An encounter is a visit to an orthopaedic surgeon where medical care was provided.

*Hospital encounter:* A hospital encounter is a visit to an Emergency Department, an admission as inpatient (one hospital stay was considered one encounter) or a same day surgery.

*Ambulatory encounter:* An ambulatory encounter is a visit to a physician in his/her office.

*Condition groups:* Using OHIP and CIHI databases, the following condition groups were used:

Arthritis and related conditions: Includes osteoarthritis, rheumatoid arthritis, synovitis, ankylosing spondylitis, unspecified soft tissue disorders, connective tissue disorders, joint derangements and other arthritis. Disseminated lupus erythematosus, scleroderma, dermatomyositis and polyarteritis were joined to form a single group of connective tissue diseases. The other arthritis and related conditions group comprised a number of relatively infrequent conditions, the majority of which relate to deformity or malfunction of joints: recurrent dislocation, ankylosis, pyogenic arthritis, and traumatic arthritis.

Bone and joint conditions: Includes some disorders of the spine (e.g. lumbar strains, sciatica, scoliosis), conditions of the bone (e.g. osteomyelitis, osteoporosis, osteochondritis), conditions of the foot (e.g. corns and calluses, hallux valgus, hammer toe, ingrown nails and onychogryposis), and other musculoskeletal conditions.

Trauma and related conditions: Includes fractures and dislocations; strains and sprains.

*Orthopaedic surgery*: All orthopaedic surgical procedures recorded on the same patient, same date and the same body region. An orthopaedic surgeon has to be listed as one of the health care providers.

*Orthopaedic surgical procedure*: A surgical procedure code (Canadian Classification of Health Intervention (CCI)) in the musculoskeletal chapter recorded in the hospital databases. For more detailed information refer to the technical appendix in ACREU [Working Paper 07-02](#).

*Orthopaedic surgery groups*: Based on the admission category variable in the CIHI databases (DAD and NACRS): inpatient surgeries or day surgeries.

*Body region*: Using CIHI databases, body region was defined as follows:

Ankle and foot: Includes ankle joint, foot ligaments, tarsal bones, intertarsal joints, foot, tarsometatarsal joints, metatarsal bones, metatarsophalangeal joints, phalanx of foot, interphalangeal joints of toe, tendons of ankle and foot

Hand and wrist: Wrist joint, radioulnar and carpal joints, metacarpal bones, metacarpophalangeal joints, phalanx of hand, interphalangeal joint of hand, joints of finger and hand, tendons of finger and thumb, soft tissue wrist and hand

Shoulder and elbow: Shoulder joint, acromioclavicular and sternoclavicular joints, rotator cuff, arm muscles around shoulder, humerus, elbow joint, muscles of forearm, radius and ulna, clavicle, scapula

Hip: Hip joint, femur, muscles of hip and thigh

Knee: Knee joint, meniscus, cruciate ligaments, collateral ligaments, patella, tibia and fibula, muscles of lower leg, soft tissue of leg

Spine: Spinal vertebrae, intervertebral disc, sacrum and coccyx, atlas and axis, soft tissue of back, back

## Health human resources for musculoskeletal conditions

*Main practice location:* Respondents of the 2006 ACREU survey of orthopaedic surgeons ([Working Paper 07-03](#)) and 2007 survey of rheumatologists ([Working Paper 08-03](#)) were asked “Where is your major practice located?”. Responses included both the city name and postal code.

*Office hours:* Orthopaedic surgeons participating in the 2006 ACREU survey ([Working Paper 07-03](#)) were asked the “amount of office or clinic time devoted to treating patients”. Rheumatologists participating in the 2007 ACREU survey ([Working Paper 08-03](#)) were asked to “indicate the number of hours per week devoted to office time”.

*Surgical hours:* Orthopaedic surgeons participating in the 2006 ACREU survey ([Working Paper 07-03](#)) were asked the “amount of devoted elective OR time”.

*Working on call:* Orthopaedic surgeons participating in the 2006 ACREU survey ([Working Paper 07-03](#)) were asked the “amount of time ‘working’ on call”.

*Community-based rehabilitation:* Include publicly and privately funded settings where rehabilitation can be accessed by community dwelling individuals. Included are private clinics, Designated Physiotherapy Clinics (formerly known as Schedule 5 Physiotherapy Clinics), Community Care Access Centres, Community Health Centres, Hospital Day Rehabilitation Departments and The Arthritis Society Consultation and Rehabilitation Services.

*Community Health Centres (CHC):* Community Health Centres are delivered through publicly funded (MOH-LTC), community governed, not for profit organizations that provide primary health care, health promotion and community development services, using multi-disciplinary teams of health providers. These teams sometimes include occupational therapists and physiotherapists. Services are designed to meet the specific needs of the community surrounding the CHC. In many communities, CHCs provide their programs and services for people with difficulties accessing the full range of primary health-care services.

*Designated Physiotherapy Clinics (DPC):* Formerly known as Schedule 5 Ontario Health Insurance Plan (OHIP) Physiotherapy Clinics, these clinics are funded by the Ontario Ministry of Health and Long-Term Care through OHIP. In order to be eligible for this service, one must meet at least one of the following conditions: 1) be either under the age of 20 or age 65 and over; 2) a resident of a long-term care home at any age; 3) requiring physiotherapy services in home or after being hospitalized at any age, or, 4) a participant of the Ontario Disability Support Program, receiving Family Benefits and Ontario Works at any age.

*Hospital Day Rehabilitation Departments:* Many hospitals offer day occupational therapy and/or physiotherapy services. These services are usually funded through the hospital’s global budget. However a few clinics throughout Ontario hospitals exist as for-profit business entities or have contracted services to external providers.

*Occupational therapy (OT):* OTs are health professionals who help people or groups of people of all ages assume or reassume the skills they need for the job of living. OTs work with clients to

help identify barriers to meaningful occupations (self care, work and leisure). While enabling clients to change these barriers, occupational therapists fulfill the roles of therapist, educator, counselor, case manager, resource developer, policy analyst and advocate.

*Physiotherapy or physical therapy (PT):* PTs are first contact, autonomous, client-focused health professionals trained to: improve and maintain functional independence and physical performance; prevent and manage pain, physical impairments, disabilities and limits to participation; and promote fitness, health and wellness.

*The Arthritis Society Arthritis Rehabilitation and Education Program (TAS AREP):* This is a specialized program of The Arthritis Society where occupational therapists, physical therapists and social workers, who work throughout the province of Ontario and have advanced training in the assessment and management of arthritis. Patients may self-refer or be referred by a physician. Service is provided through clinics or if indicated, home visits can be arranged. This program is covered by the Ontario Health Insurance Plan.

## Appendix – Detailed Utilization Data for Ontario

**Table 17: Number and percent distribution of persons with visits for musculoskeletal conditions to all physicians by service setting, Ontario, 2006/07**

	Ambulatory		Emergency Department		Inpatient Hospitalizations		Day Surgeries	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)
<b>Arthritis and related</b>	<b>1,370,473</b>	<b>41.4</b>	<b>123,034</b>	<b>30.3</b>	<b>40,232</b>	<b>64.7</b>	<b>45,765</b>	<b>69.4</b>
Rheumatoid arthritis	82,504	2.5	881	0.2	831	1.3	381	0.6
Osteoarthritis	547,486	16.6	9,119	2.2	29,302	47.1	7,173	10.9
Joint derangement	138,544	4.2	3,155	0.8	1,863	3.0	22,753	34.5
Other arthritis	795,374	24.0	111,528	27.5	8,728	14.0	15,712	23.8
<b>Trauma and related</b>	<b>1,129,039</b>	<b>34.1</b>	<b>153,564</b>	<b>37.9</b>	<b>9,545</b>	<b>15.3</b>	<b>3,835</b>	<b>5.8</b>
Fractures/dislocations	219,095	6.6	65,163	16.1	9,010	14.5	2,663	4.0
Strains/sprains	964,521	29.2	89,324	22.0	541	0.9	1,135	1.7
<b>Bone and joint</b>	<b>1,673,443</b>	<b>50.6</b>	<b>150,785</b>	<b>37.2</b>	<b>12,867</b>	<b>20.7</b>	<b>17,175</b>	<b>26.1</b>
Spine	598,972	18.1	97,761	24.1	6,263	10.1	5,445	8.3
Bone	402,027	12.2	7,586	1.9	4,608	7.4	6,769	10.3
Unspecified bone & joint	902,528	27.3	48,855	12.0	2,149	3.5	5,105	7.7
<b>Musculoskeletal conditions</b>	<b>3,307,521</b>	<b>100.0</b>	<b>405,561</b>	<b>100.0</b>	<b>62,227</b>	<b>100.0</b>	<b>65,910</b>	<b>100.0</b>

Numbers in columns and/or rows do not add up to total since persons may visit for more than one condition and more than one setting.

★ There is variation in the most common type of musculoskeletal diagnosis across service setting. Of all Ontario residents who received inpatient care or same day surgery, the most common musculoskeletal conditions group was arthritis and related conditions (64.7% and 69.4% respectively). In ambulatory care, bone and joint conditions were more common (50.6%) whereas trauma was the most common diagnosis in emergency departments (37.9%).

Data Sources: OHIP, DAD, NACRS

**Table 18: Ambulatory visits to all physicians for musculoskeletal conditions, Ontario, 2006/07**

	Persons visiting per 1,000 population							Ratio: Women /Men	# of visits ('000)	Mean # visits per person
	Age Groups					Sex				
	All	0-14	15-44	45-64	65+	Women	Men			
<b>Arthritis and related</b>	<b>108.3</b>	<b>22.4</b>	<b>68.2</b>	<b>167.9</b>	<b>241.1</b>	<b>123.0</b>	<b>90.7</b>	<b>1.4</b>	<b>2,965</b>	<b>2.2</b>
Rheumatoid arthritis	6.5	0.8	2.7	10.8	18.4	9.0	3.9	2.3	225	2.7
Osteoarthritis	43.3	1.1	11.7	68.8	155.6	52.7	32.7	1.6	1,076	2.0
Joint derangement	10.9	2.1	9.7	17.0	15.1	10.7	10.9	1.0	596	4.3
Other arthritis	62.8	18.9	49.7	98.3	96.3	69.3	54.7	1.3	1,144	1.4
<b>Trauma and related</b>	<b>89.2</b>	<b>53.4</b>	<b>85.9</b>	<b>111.1</b>	<b>105.4</b>	<b>90.9</b>	<b>85.1</b>	<b>1.1</b>	<b>2,076</b>	<b>1.8</b>
Fractures/dislocations	17.3	20.8	13.9	15.5	27.4	16.5	17.7	0.9	472	2.2
Strains/sprains	76.2	36.0	75.4	99.6	87.0	79.2	71.1	1.1	1,604	1.7
<b>Bone and joint</b>	<b>132.2</b>	<b>49.7</b>	<b>108.8</b>	<b>183.4</b>	<b>221.6</b>	<b>150.2</b>	<b>110.7</b>	<b>1.4</b>	<b>3,473</b>	<b>2.1</b>
Spine	47.3	5.9	42.6	70.8	72.8	50.3	43.1	1.2	1,162	1.9
Bone	31.8	17.9	16.9	42.2	79.9	42.7	20.0	2.1	777	1.9
Unspecified bone & joint	71.3	28.4	62.1	98.8	106.0	79.0	61.7	1.3	1,535	1.7
<b>Musculoskeletal</b>	<b>261.3</b>	<b>113.9</b>	<b>216.6</b>	<b>352.9</b>	<b>430.1</b>	<b>285.4</b>	<b>230.2</b>	<b>1.2</b>	<b>8,515</b>	<b>2.6</b>

- ✦ Among specific arthritis and related conditions, the person-visit rate for Ontario residents was highest for osteoarthritis (43.3 per 1,000 population). Among trauma and related conditions, the most common reason for making at least one visit to a physician was strains and sprains (76.2 per 1,000 population). Generally, person-visit rates increased with age for all conditions groups.
- ✦ Rates were higher in women than men for arthritis and related conditions (1.4 times as many women making visits as men) and bone and joint conditions (1.4 times as many women making visits as men). Person-visit rates were slightly higher for women than men for trauma and related conditions (1.1 times as many women making visits as men).

Data Sources: OHIP, RPDB

**Table 19: Persons with ambulatory visits for musculoskeletal conditions by type of physician consulted, Ontario, 2006/07**

	All physicians (Number)	Primary Care (%)	All specialists (%)	Medical Specialists			Surgical Specialists	
				All (%)	Rheumatologists (%)	Internists (%)	All (%)	Orthopaedics (%)
<b>Arthritis and related</b>	<b>1,370,473</b>	<b>78.1</b>	<b>35.1</b>	<b>17.1</b>	<b>9.93</b>	<b>1.7</b>	<b>20.5</b>	<b>16.2</b>
Rheumatoid arthritis	82,504	58.5	57.5	53.8	47.14	4.3	6.6	3.8
Osteoarthritis	547,486	80.1	30.1	11.3	7.22	1.5	20.9	20.0
Joint derangement	138,544	50.4	55.6	3.6	1.09	0.3	52.1	45.8
Other arthritis	795,374	76.9	29.6	17.2	8.24	1.6	13.5	7.5
<b>Trauma and related</b>	<b>1,129,039</b>	<b>78.6</b>	<b>28.9</b>	<b>4.9</b>	<b>0.27</b>	<b>0.7</b>	<b>24.6</b>	<b>20.7</b>
Fractures/dislocations	219,095	37.4	72.2	2.8	0.07	0.5	70.2	58.3
Strains/sprains	964,521	85.3	20.9	5.1	0.31	0.7	15.6	11.7
<b>Bone and joint</b>	<b>1,673,443</b>	<b>89.9</b>	<b>19.7</b>	<b>13.1</b>	<b>2.34</b>	<b>3.0</b>	<b>8.0</b>	<b>4.7</b>
Spine	598,972	89.9	15.9	9.0	1.32	1.0	7.7	5.5
Bone	402,027	74.2	31.1	22.6	3.10	9.0	11.2	3.9
Unspecified bone & joint	902,528	88.9	13.9	9.1	2.18	1.0	5.0	3.7
<b>Musculoskeletal</b>	<b>3,307,521</b>	<b>86.7</b>	<b>30.6</b>	<b>14.2</b>	<b>5.1</b>	<b>2.4</b>	<b>19.4</b>	<b>15.0</b>

Row proportions do not add to 100% because an individual may visit more than one type of physician in a year

- ✦ 78.1% of Ontario residents with visits for arthritis and related conditions saw a primary care physician at least once; the proportion was similar for trauma and related conditions (78.6%). A higher proportion of residents visited for bone and joint conditions (89.9%).
- ✦ A higher proportion of persons with a visit for arthritis and related conditions saw a specialist (35.1%) compared to the other conditions groups. Persons with bone and joint conditions were least likely to consult a specialist (19.7%). A similar proportion of persons with arthritis and related conditions saw a medical specialist (17.1%) compared to a surgical specialist (20.5%). As might be expected, a greater proportion of persons seeing physicians with trauma and related conditions saw more surgical specialists than medical specialists (24.6% and 4.9% respectively).

Data Sources: OHIP, RPDB

**Table 20: Rates per 100,000 population of persons visiting emergency departments, inpatient hospitalizations and day surgeries, Ontario, 2006/07**

✦ In Ontario, the highest person-visit rates for specific conditions in the emergency department were for treatment of spine conditions, strains/sprains and fractures/dislocations.

✦ Inpatient hospitalization rates were highest for osteoarthritis and day surgery rates were highest for joint derangement.

	Emergency Department	Inpatient	Day Surgery
<b>Arthritis and related</b>	<b>972.1</b>	<b>317.9</b>	<b>361.6</b>
Rheumatoid arthritis	7.0	6.6	3.0
Osteoarthritis	72.0	231.5	56.7
Joint derangement	24.9	14.7	179.8
Other arthritis	881.2	69.0	124.1
<b>Trauma and related</b>	<b>1,213.3</b>	<b>75.4</b>	<b>30.3</b>
Fractures/dislocations	514.8	71.2	21.0
Strains/sprains	705.7	4.3	9.0
<b>Bone and joint</b>	<b>1,191.3</b>	<b>101.7</b>	<b>135.7</b>
Spine	772.4	49.5	43.0
Bone	59.9	36.4	53.5
Unspecified bone & joint	386.0	17.0	40.3
<b>Musculoskeletal</b>	<b>3,204.3</b>	<b>491.6</b>	<b>520.7</b>

Data Sources: DAD, NACRS

**Table 21: Rate per 100,000 population of persons visiting emergency departments for musculoskeletal conditions, Ontario, 2006/07**

	Persons visiting per 100,000 population							Ratio: Women/ Men
	Age Groups					Sex		
	All ages	0-14	15-44	45-64	65+	Women	Men	
Arthritis and related	972.1	305.5	811.3	1,244.4	1,878.9	978.4	965.6	1.0
Trauma and related	1,213.3	1,580.4	1,280.4	907.9	1,095.5	1,188.8	1,238.4	1.0
Bone and joint	1,191.3	321.5	1,252.5	1,417.0	1,725.0	1,247.3	1,133.8	1.1
<b>Musculoskeletal</b>	<b>3,204.3</b>	<b>2,156.6</b>	<b>3,176.1</b>	<b>3,360.5</b>	<b>4,418.6</b>	<b>3,236.5</b>	<b>3,171.1</b>	<b>1.0</b>

✦ In emergency departments, the highest person-visit rates among 0-14 year olds are for trauma and related conditions (1,580.4 per 100,000 population) whereas the highest rates among the elderly are for arthritis and related conditions (65+; 1,878.9 per 100,000 population).

Data Source: NACRS

**Table 22: Rate per 100,000 population of persons with inpatient hospitalizations for musculoskeletal conditions, Ontario, 2006/07**

	Persons with inpatient hospitalizations per 100,000 population							Ratio: Women/ Men
	Age Groups					Sex		
	All ages	0-14	15-44	45-64	65+	Women	Men	
Arthritis and related	317.9	27.5	62.1	421.4	1,365.6	357.7	276.9	1.3
Trauma and related	75.4	76.1	43.4	64.4	203.8	79.0	71.7	1.1
Bone and joint	101.7	25.6	67.7	129.3	264.2	107.6	95.5	1.2
<b>Musculoskeletal</b>	<b>491.6</b>	<b>128.0</b>	<b>171.4</b>	<b>616.2</b>	<b>1,813.6</b>	<b>538.6</b>	<b>443.4</b>	<b>1.2</b>

✦ Arthritis and related conditions have the highest rate among the elderly (1,365.6 per 100,000 people).

Data Source: DAD

**Table 23: Rate per 100,000 population of persons with day surgeries for musculoskeletal conditions, Ontario, 2006/07**

	Persons with day surgeries per 100,000 population							Ratio: Women/ Men
	Age Groups					Sex		
	All ages	0-14	15-44	45-64	65+	Women	Men	
Arthritis and related	361.6	27.6	288.1	679.4	430.8	334.7	389.2	0.9
Trauma and related	30.3	35.0	27.7	33.0	27.3	27.6	33.1	0.9
Bone and joint	135.7	12.8	91.7	225.0	273.4	148.7	122.3	1.2
<b>Musculoskeletal</b>	<b>520.7</b>	<b>70.7</b>	<b>403.2</b>	<b>926.8</b>	<b>720.2</b>	<b>502.5</b>	<b>539.5</b>	<b>1.0</b>

✦ Arthritis and related conditions have the highest rates for people aged 15 years and older.

Data Source: NACRS