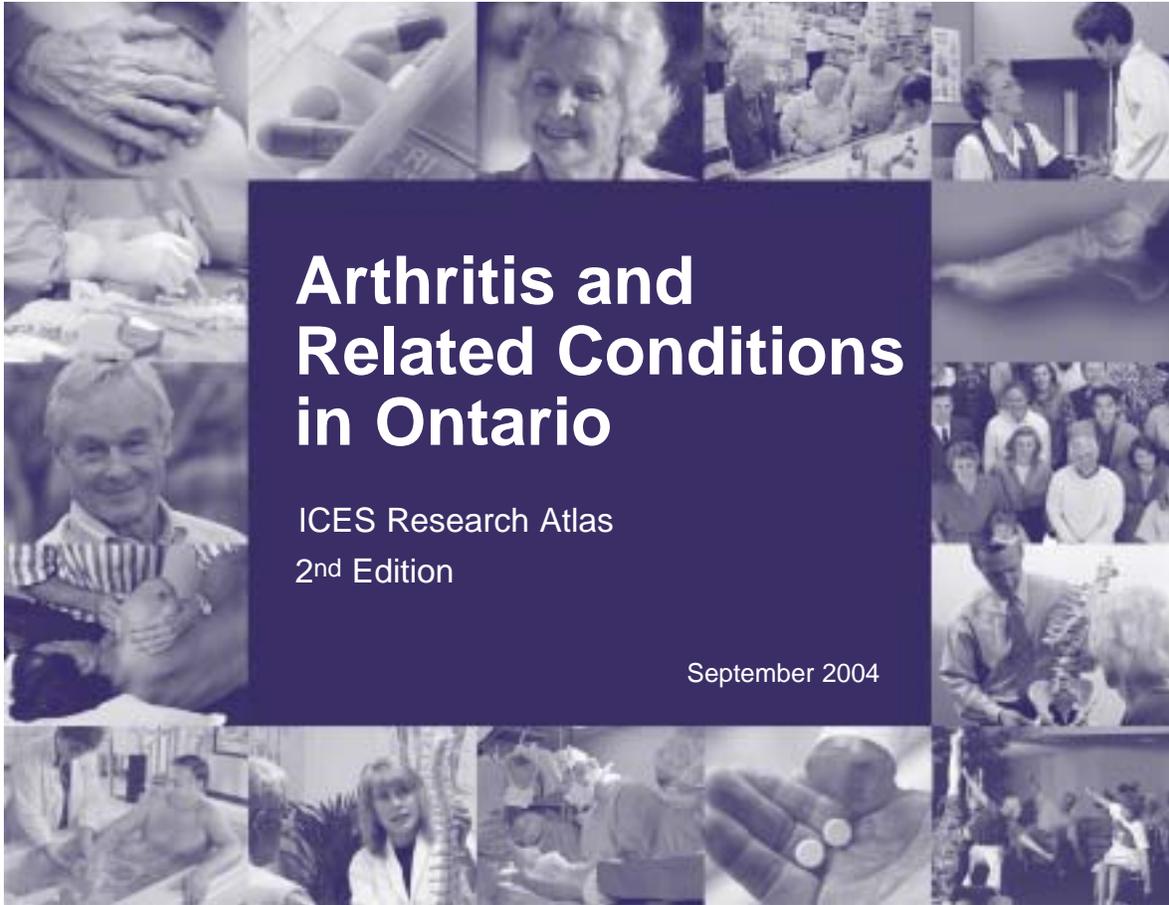


# Arthritis and related conditions in Ontario

ICES Research Atlas

September 2004



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2<sup>nd</sup> Edition

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Published by the Institute for Clinical Evaluative Sciences (ICES)

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### **Canadian cataloguing in publication data**

Arthritis and Related Conditions in Ontario: ICES Research Atlas.

Includes bibliographical references.

ISBN 0-9730491-8-9

i. Badley, Elizabeth M. 1946

ii. Glazier, Richard H. 1956

### **How to cite the publication:**

The production of Arthritis and Related Conditions in Ontario: ICES Research Atlas was a collaborative venture. Accordingly, to give credit to individual authors, please cite individual chapters using chapter authors and title, in addition to editors and book title. For example, for Chapter 2: Perruccio AV, Badley EM, Guan J. Burden of disease. In: Badley EM, Glazier RH, editors. Arthritis and related conditions in Ontario: ICES research atlas. 2<sup>nd</sup> ed. Toronto: Institute for Clinical Evaluative Sciences; 2004.

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**Authors' affiliations**...page i

**Acknowledgments**...page ii

**About the organizations involved**...page iii

**Exhibits & appendices directory**...page v

**Map guide—Population geography and mapping boundaries** ...page xi

**Overview**...page xv

**Key findings & policy options**...page xvii

**Chapter 1: Emerging Issues**...page 1  
EM Badley

**Chapter 2: Burden of Disease**...page 15  
AV Perruccio, EM Badley and J Guan

**Chapter 3: Availability of Services**...page 41  
D Shipton and EM Badley

**Chapter 4: Primary and Specialist Care**...page 67  
JD Power, RH Glazier, E Boyle and EM Badley

**Chapter 5: Use of Medication**...page 87  
NM Kasman, JD Power, MM Mamdani and EM Badley

**Chapter 6: Surgical Services**...page 105  
J Williams, D Shipton, EM Badley, G Hawker, H Kreder, D DeBoer, J Guan and N Mahomed

**Chapter 7: Rehabilitation for Total Joint Replacement**...page 133  
SB Jaglal, C MacKay and L Corrigan

# Contents



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The authors and editors sought to produce work that is relevant to a wide range of stakeholders, from research to policy, public health to clinical nursing, rehabilitation and medicine. Accordingly, a number of leaders in these fields reviewed the atlas from the perspective of their professional expertise. We thank them for their contribution to the success of this project. We apologize in advance for any unintentional omissions.

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# Acknowledgments

## About the organizations involved in the study

### Institute for Clinical Evaluative Sciences (ICES)

#### Ontario's resource for informed health care decision-making

ICES is an independent, non-profit organization that conducts research on a broad range of topical issues to enhance the effectiveness of health care for Ontarians. Internationally recognized for its innovative use of population-based health information, ICES knowledge provides evidence to support health policy development and changes to the organization and delivery of health care services.

Unbiased ICES evidence provides fact-based measures of health system performance; a clearer understanding of the shifting health care needs of Ontarians; and a stimulus for discussion of practical solutions to optimize scarce resources.

Key to ICES' research is our ability to link anonymous population-based health information on an individual patient basis, using unique encrypted identifiers that ensure privacy and confidentiality. This allows scientists to obtain a more comprehensive view of specific health care issues than would otherwise be possible. Linked databases reflecting 12 million of 30 million Canadians allow researchers to follow patient populations through diagnosis and treatment, and to evaluate outcomes.

ICES brings together the best and the brightest talent under one roof. Many of our faculty are not only internationally recognized leaders in their fields, but are also practising clinicians who understand the grassroots of health care delivery, making ICES knowledge clinically-focused and useful in changing practice. Other team members have statistical training, epidemiological backgrounds, project management or communications expertise. The variety of skill sets and

educational backgrounds ensures a multi-disciplinary approach to issues management and creates a real-world mosaic of perspectives that is vital to shaping Ontario's future health care.

ICES collaborates with experts from a diverse network of institutions, government agencies, professional organizations and patient groups to ensure research and policy relevance.

### Arthritis Community Research and Evaluation Unit (ACREU)

The Arthritis Community Research and Evaluation Unit (ACREU) was founded in 1991 as an interdisciplinary research unit. Our mission is to explore the impact of arthritis on individuals, their families, communities, and on the population at large, in order to further the development of targeted policies and effective interventions. ACREU is the primary source for reliable data on arthritis in Canada. Research includes arthritis and employment, primary care management, access to specialists, joint replacement surgery and rehabilitation service delivery.

ACREU investigators were major contributors to the first-ever, federally funded national study, Arthritis in Canada (2003) as well as the first edition of the ICES research atlas, *Patterns of Health Care in Ontario: Arthritis and Related Conditions* (1998).

Rehabilitation was one of the original research themes at ACREU and it continues to be an important research focus. Among the recent achievements in ACREU-associated rehabilitation research are the *Hospital Report 2003: Rehabilitation*, and the development of the Client Centred Rehabilitation Questionnaire (CCRQ), which is being used throughout Ontario for clients discharged from Inpatient Rehabilitation Services.

### The Arthritis Society

The mission of The Arthritis Society is to search for the underlying causes and subsequent cures for arthritis, and to promote the best possible care and treatment for people with arthritis. The Arthritis Society is Canada's not-for-profit organization devoted solely to funding and promoting arthritis research, programs and patient care. It has a national administrative office in Toronto, division offices in each province and nearly 1,000 community branches throughout Canada.

The Arthritis Society provides hope through education, community support and research-based solutions to the over 4 million Canadians living with arthritis, for a better life—today and tomorrow. The Society is able to provide this due to the widespread support it receives from the tens of thousands of volunteers and donors across the country.

An 21-member national board is responsible for managing and controlling the activities of The Society. The voluntary board includes representatives from each division, as well as other members recruited from across Canada. National staff provide administrative support for the board and facilitate cross-country initiatives such as research and corporate partnerships. Each division operates within this structure, navigating with local operating procedures established by their respective board of directors. Divisions are responsible primarily for fundraising, promoting and/or providing patient or client care, delivering education programs and providing advocacy at the local level.



# Exhibits & appendices

## Chapter 1 Emerging Issues

**Figure 1.1** (page 3)  
Components of comprehensive care approach for the management of arthritis and related conditions

**Figure 1.2** (page 5)  
Health care utilization of people with arthritis and related disorders

**Figure 1.3** (page 6)  
Economic cost of arthritis and rheumatism for Canadians

### Appendix

1.A Major types of arthritis (page 9)

## Chapter 2 Burden of Disease

### Prevalence of arthritis/rheumatism

**Exhibit 2.1** (page 17)  
Prevalence of chronic conditions, by sex, in Ontario, 2000/01

**Exhibit 2.2** (page 17)  
Prevalence of, and number of people with, arthritis, by age group and sex, in Ontario, 2000/01

**Exhibit 2.3** (page 18)  
Age distribution of people with arthritis, other chronic conditions, and no chronic condition, by sex, in Ontario, 2000/01

**Exhibit 2.4** (page 18)  
Projected number of people with arthritis and prevalence of arthritis, overall, by sex, year, and age group, in Ontario, to 2026

### Prevalence of selected characteristics among people with arthritis

**Exhibit 2.5** (page 19)  
Proportion of people with secondary school education or less, by age group, in Ontario, 2000/01

**Exhibit 2.6** (page 19)  
Proportion of people in the low to lower-middle income category, by age group, in Ontario, 2000/01

**Exhibit 2.7** (page 20)  
Proportion of overweight/obese people, by age group and sex, in Ontario, 2000/01

### Geographic prevalence of arthritis

**Exhibit 2.8** (page 20)  
Number of people with arthritis and crude and age-sex standardized prevalence of arthritis, by District Health Council, in Ontario, 2000/01

**Exhibit 2.9** (page 21)  
Age-sex standardized prevalence of arthritis, by District Health Council, in Ontario, 2000/01

**Exhibit 2.10** (page 22)  
Logistic regression analyses examining the significance of predictor variables on a positive response to having arthritis/rheumatism, in Ontario, 2000/01

### Health outcomes and quality of life

**Exhibit 2.11** (page 23)  
Proportion of people reporting pain that limits activities, by age group, in Ontario, 2000/01

**Exhibit 2.12** (page 23)  
Proportion of people reporting long-term disability, by age group, in Ontario, 2000/01

**Exhibit 2.13** (page 24)  
Proportion of people needing help with daily activities, by age group and sex, in Ontario, 2000/01

**Exhibit 2.14** (page 24)  
Proportion of people reporting difficulty sleeping most of the time, by age group and sex, in Ontario, 2000/01

**Exhibit 2.15** (page 25)  
Proportion of people reporting life to be extremely stressful, by age group, in Ontario, 2000/01

**Exhibit 2.16** (page 25)  
Proportion of people with predicted probability of at least 80% of having experienced a major depressive episode (MDE) in the past year, by age group and sex, in Ontario, 2000/01

**Exhibit 2.17** (page 26)  
Proportion of people reporting fair/poor self-rated health, by age group and sex, in Ontario, 2000/01

**Exhibit 2.18** (page 26)  
Proportion of people reporting worse self-perceived health compared to one year before, by age group, in Ontario, 2000/01

**Exhibit 2.19** (page 27)  
Proportion of people without a job throughout, or during part of, the previous year, by age group and sex, in Ontario, 2000/01

**Exhibit 2.20** (page 27)  
Proportion of people reporting self-perceived unmet health care needs, by age group, in Ontario, 2000/01

### Use of medications

**Exhibit 2.21** (page 28)  
Proportion of people reporting use of pain relievers in the previous month, by age group and sex, in Ontario, 2000/01

**Exhibit 2.22** (page 28)  
Proportion of people reporting use of narcotic medications in the previous month, by age group and sex, in Ontario, 2000/01

**Exhibit 2.23** (page 29)  
Proportion of people reporting use of stomach remedies in the previous month, by age group, in Ontario, 2000/01

**Exhibit 2.24** (page 29)  
Proportion of people reporting use of anti-depressants in the previous month, by age group and sex, in Ontario, 2000/01

**Exhibit 2.25** (page 30)  
Mean number of ODB claims per person age 65 years and older, in the two years following the OHS survey, by sex, in Ontario, 2000/01

## Chapter 2 Burden of Disease Cont'd

### Use of health care services

**Exhibit 2.26** (page 30)

Proportion of people visiting a family physician/general practitioner at least 4 times in the previous 12 months, by age group and sex, in Ontario, 2000/01

**Exhibit 2.27** (page 31)

Proportion of people consulting a specialist at least twice in the previous 12 months, by age group and sex, in Ontario, 2000/01

**Exhibit 2.28** (page 31)

Logistic regression analyses examining the significance of predictor variables in reporting 4 or more visits to a family physician/general practitioner and 2 or more visits to a specialist in the previous year, in Ontario, 2000/01

**Exhibit 2.29** (page 32)

Proportion of people consulting a physiotherapist at least once in the previous 12 months, by age group, in Ontario, 2000/01

**Exhibit 2.30** (page 32)

Proportion of people consulting a chiropractor at least once in the previous 12 months, by age group, in Ontario, 2000/01

**Exhibit 2.31** (page 33)

Number of OHIP claims per person for professional and laboratory services, in the two years following the OHS survey, by age group and sex, in Ontario, 2000/01

**Exhibit 2.32** (page 34)

Same-day surgery admissions/discharges per 1,000 population, by age group and sex, in Ontario, 2000/01

**Exhibit 2.33** (page 34)

Inpatient admissions per 1,000 population, by age group and sex, in Ontario, 2000/01

### Appendices

2.A How the research was done (page 37)

2.B Detailed analytic methods (page 39)

## Chapter 3 Availability of Services

### Geographic variation—rheumatology services

**Exhibit 3.1** (page 44)

Availability of rheumatology services per 100,000 population by District Health Council, in Ontario, 2000

**Exhibit 3.2** (page 45)

Availability of rheumatology services half-days/week per 100,000 population by District Health Council, in Ontario, 2000

**Exhibit 3.3** (page 46)

Average wait time (weeks) for rheumatology services for new non-urgent patients by District Health Council, in Ontario, 2000

**Exhibit 3.4** (page 47)

Average wait time (weeks) for rheumatology services for new likely inflammatory arthritis patients by District Health Council, in Ontario, 2000

**Exhibit 3.5** (page 48)

Relationship between rheumatology half-day clinics per week per 100,000 population and wait time for new non-urgent patients and likely inflammatory arthritis patients by Health Planning Region, in Ontario, 2000

### Geographic variation—orthopaedic services

**Exhibit 3.6** (page 49)

Availability of orthopaedic services per 100,000 population by District Health Council, in Ontario, 2000

**Exhibit 3.7** (page 50)

Availability of orthopaedic services office half-days/week per 100,000 population by District Health Council, in Ontario, 2000

**Exhibit 3.8** (page 51)

Availability of orthopaedic services surgery half-days/week per 100,000 population by District Health Council, in Ontario, 2000

**Exhibit 3.9** (page 52)

Availability of orthopaedic services office and surgery half-days/week per 100,000 population by District Health Council, in Ontario, 2000

### Geographic variation—allied health services

**Exhibit 3.10** (page 53)

Availability of allied health professionals per 100,000 population by District Health Council, in Ontario, 2002

**Exhibit 3.11** (page 54)

A comparison of arthritis-related health care professionals and services per 100,000 population in the 1998 and 2004 ICES research atlases on arthritis and related conditions

**Exhibit 3.12** (page 55)

Availability of general practitioners per 100,000 population by District Health Council, in Ontario, 2002

**Exhibit 3.13** (page 56)

Availability of physiotherapists per 100,000 population by District Health Council, in Ontario, 2002

**Exhibit 3.14** (page 57)

Availability of occupational therapists per 100,000 population by District Health Council, in Ontario, 2002

**Exhibit 3.15** (page 58)

Availability of chiropractors per 100,000 population by District Health Council, in Ontario, 2002

### Service levels

**Exhibit 3.16** (page 59)

Ranking of service rates by Health Planning Region in Ontario, 2000 to 2002

**Exhibit 3.17** (page 60)

Percentage deviation from provincial average in provision of arthritis-related services by Health Planning Region, in Ontario, 2000

### Barriers to provision of adequate arthritis-related care

**Figure 3.1** (page 61)

Barriers that affect delivery of services to Ontario patients as reported by rheumatologists

### Appendix

3.A How the research was done (page 63)

**Table 3.1** (page 64)

Data sources for arthritis-related health care services in Ontario, 2000 to 2003

## Chapter 4 Primary and Specialist Care

### Physician visits for musculoskeletal conditions

#### Exhibit 4.1 (page 70)

Ambulatory visits to all physicians for musculoskeletal disorders in Ontario, 2000/01

#### Exhibit 4.2 (page 71)

Number of men and women per 1,000 population visiting all physicians for arthritis and related conditions, for osteoarthritis, and rheumatoid arthritis, in Ontario, 2000/01

#### Exhibit 4.3 (page 71)

Distribution of patients with visits for arthritis and related conditions by type of physician consulted, in Ontario, 2000/01

#### Exhibit 4.4 (page 72)

Percentage of men and women that consulted a specialist for arthritis and related conditions at least once, in Ontario, 2000/01

#### Exhibit 4.5 (page 72)

Percentage of men and women that consulted a specialist for osteoarthritis at least once, in Ontario, 2000/01

#### Exhibit 4.6 (page 73)

Percentage of men and women that consulted a specialist for rheumatoid arthritis at least once, in Ontario, 2000/01

#### Exhibit 4.7 (page 73)

Mean number of visits for arthritis and related conditions, osteoarthritis, and rheumatoid arthritis, by physician speciality, in Ontario, 2000/01

### Geographic variation

#### Exhibit 4.8 (page 74)

Distribution of patients with visits for arthritis and related conditions by type of physician consulted, by District Health Council, in Ontario, 2000/01

#### Exhibit 4.9 (page 74)

Percentage of patients with visits for arthritis and related conditions that consulted a primary care physician only, a specialist only, and a primary care physician plus specialist, by District Health Council, in Ontario, 2000/01

#### Exhibit 4.10 (page 75)

Distribution of patients with osteoarthritis visits, by type of physician consulted, by District Health Council, in Ontario, 2000/01

#### Exhibit 4.11 (page 75)

Percentage of patients with osteoarthritis visits that consulted a primary care physician only, a specialist only, and a primary care physician plus specialist, by District Health Council, in Ontario, 2000/01

#### Exhibit 4.12 (page 76)

Distribution of patients with visits for rheumatoid arthritis and related conditions by type of physician consulted, by District Health Council, in Ontario, 2000/01

#### Exhibit 4.13 (page 76)

Percentage of patients with rheumatoid arthritis visits that consulted a primary care physician only, a specialist only, and a primary care physician plus specialist, by District Health Council, in Ontario, 2000/01

#### Exhibit 4.14 (page 77)

Percentage of individuals with physician visits for rheumatoid arthritis that consulted a rheumatologist at least once, by District Health Council, in Ontario, 2000/01

#### Exhibit 4.15 (page 78)

Percentage of individuals that consulted a primary care physician only for rheumatoid arthritis, by District Health Council, in Ontario, 2000/01

### Time trends

#### Exhibit 4.16 (page 79)

Standardized person visit rates to all physicians for arthritis and related conditions, osteoarthritis and rheumatoid arthritis in Ontario, 1992/93 to 2000/01

#### Exhibit 4.17 (page 79)

Percentage of patients with visits for arthritis and related conditions that consulted a specialist at least once in Ontario, 1992/93 to 2000/01

#### Exhibit 4.18 (page 80)

Percentage of patients with osteoarthritis visits that consulted a specialist at least once in Ontario, 1992/93 to 2000/01

#### Exhibit 4.19 (page 80)

Percentage of patients with rheumatoid arthritis visits that consulted a specialist at least once in Ontario, 1992/93 to 2000/01

### Appendix

4.A How the research was done (page 83)

4.B OHIP diagnostic codes (page 85)

#### Table 4.1 (page 85)

OHIP diagnostic codes

## Chapter 5 Use of Medication

#### Table 5.1 (page 89)

Specific drugs used in analyses

### Numbers of prescriptions written

#### All category drugs

##### Exhibit 5.1 (page 90)

Number of prescriptions written for non-steroidal anti-inflammatory drugs, corticosteroids, and disease-modifying antirheumatic drugs, for Ontario residents aged 65 years and older, 1992 to 2001

#### Non-steroidal anti-inflammatory drugs

##### Exhibit 5.2 (page 90)

Number of prescriptions written for overall and conventional non-steroidal anti-inflammatory drugs and COX-2 inhibitors for Ontario residents aged 65 years and older, 1992 to 2001

#### Corticosteroids

##### Exhibit 5.3 (page 91)

Number of prescriptions written for oral, injectable, and overall corticosteroids, for Ontario residents aged 65 years and older, 1992 to 2001

#### Disease-modifying antirheumatic drugs

##### Exhibit 5.4a (page 91)

Number of prescriptions written for overall and individual disease-modifying antirheumatic drugs, for Ontario residents aged 65 years and older, 1992 to 2001

##### Exhibit 5.4b (page 92)

Number of prescriptions written for disease-modifying antirheumatic drugs with more than 3,000 prescriptions in any one annual quarter, for Ontario residents aged 65 years and older, 1992 to 2001

**Exhibit 5.4c** (page 92)

Number of prescriptions written for disease-modifying anti-rheumatic drugs with fewer than 3,000 prescriptions in any one annual quarter, for Ontario residents aged 65 years and older, 1992 to 2001

**Geographic variation**

**Exhibit 5.5** (page 93)

Number of people aged 65 years and older per 1,000 population with prescriptions for arthritis-related medications, by District Health Council, in Ontario, 2000/01

**Exhibit 5.6** (page 94)

Number of people aged 65 years and older per 1,000 population with a prescription for a conventional non-steroidal anti-inflammatory drug, by District Health Council, in Ontario, 2000/01

**Exhibit 5.7** (page 95)

Number of people aged 65 years and older per 1,000 population with a prescription for a COX-2 inhibitor, by District Health Council, in Ontario, 2000/01

**Exhibit 5.8** (page 96)

Number of people aged 65 years and older per 1,000 population with a prescription for a corticosteroid (oral or injectable), by District Health Council, in Ontario, 2000/01

**Exhibit 5.9** (page 97)

Number of people aged 65 years and older per 1,000 population with a prescription for a disease-modifying antirheumatic drug, by District Health Council, in Ontario, 2000/01

**Prescription costs**

**Exhibit 5.10** (page 98)

Cost to the Ontario government for arthritis-related prescriptions for people aged 65 years and older, 1998 to 2001

**Appendix**

5.A How the research was done (page 101)

**Chapter 6  
Surgical Services**

**Figure 6.1** (page 107)

Arthritis-relevant orthopaedic procedures in Ontario, 2000

**Arthroscopic knee procedures**

**Variation by age and sex**

**Exhibit 6.1** (page 108)

Age standardized rate of all arthroscopic procedures per 100,000 population aged 15 years and older, in Ontario, 1992/93 to 2001/02

**Exhibit 6.2** (page 108)

Age and sex standardized rate of arthroscopic procedures per 100,000 population aged 15 years and older, in Ontario, 1992/93 to 2001/02

**Exhibit 6.3** (page 109)

Age and sex specific rate of arthroscopic procedures per 100,000 population aged 15 years and older, in Ontario, 1992/93 to 2001/02

**Exhibit 6.4** (page 109)

Sex standardized rate of all arthroscopic procedures per 100,000 population aged 15 years and older, in Ontario, 1992/93 to 2001/02

**Exhibit 6.5** (page 110)

Age and sex specific rate of all arthroscopic procedures per 100,000 population aged 15 years and older, in Ontario, 1992/93 to 2001/02

**Geographic variation**

**Exhibit 6.6** (page 110)

Age and sex standardized rate of all arthritis and related arthroscopic procedures per 100,000 population aged 15 years and older, by District Health Council, in Ontario, 1992/93 to 2001/02

**Exhibit 6.7** (page 111)

Age standardized rates for arthroscopic knee procedures, by District Health Council, in Ontario, 2001/02

**Exhibit 6.8** (page 112)

Age and sex standardized rate of arthroscopic procedures per 100,000 population aged 15 years and older, by District Health Council, in Ontario, 2001/02

**Exhibit 6.9** (page 112)

Age and sex standardized rate of total knee replacement and knee arthroscopy, per 100,000 population aged 15 years and older, by District Health Council, in Ontario, 2001/02

**Exhibit 6.10** (page 113)

Relationship between age and sex standardized rates of all arthroscopic knee procedures and the orthopaedic surgeon density, per 100,000 population aged 15 years and older, by District Health Council, in Ontario, 2000/01

**Total hip and knee replacements**

**Variation by age and sex**

**Exhibit 6.11** (page 114)

Rates for total joint replacement by sex, per 100,000 population aged 15 years and older, in Ontario, 1981/82 to 2001/02

**Geographic variation**

**Exhibit 6.12** (page 114)

Rates for total hip replacement by sex and District Health Council, per 100,000 population aged 15 years and older, in Ontario, 2001/02

**Exhibit 6.13** (page 115)

Age standardized rates for total hip replacement per 100,000 population aged 15 years and older, by District Health Council, in Ontario, 2001/02

**Exhibit 6.14** (page 116)

Rates for total knee replacement by sex and District Health Council, per 100,000 population aged 15 years and older, in Ontario, 2001/02

**Exhibit 6.15** (page 117)

Age standardized rates for total knee replacement, per 100,000 population aged 15 years and older, by District Health Council, in Ontario, 2001/02

**Exhibit 6.16** (page 118)

Rates for primary and revision total joint replacement, per 100,000 population aged 15 years and older, in Ontario, 1981/82 to 2001/02

**Wait times**

**Exhibit 6.17** (page 118)

Wait times for primary total hip replacement, per 100,000 population aged 15 years and older, by year, in Ontario, 1993/94 to 2001/02

**Exhibit 6.18** (page 119)

Wait times for primary total knee replacement, per 100,000 population aged 15 years and older, by year, in Ontario, 1993/94 to 2001/02

**Exhibit 6.19** (page 119)

Wait times for primary total hip replacement, per 100,000 population aged 15 years and older, by District Health Council, in Ontario, 2001/02

**Exhibit 6.20** (page 120)

Wait times for primary total knee replacement, per 100,000 population aged 15 years and older, by District Health Council, in Ontario, 2001/02

**Conclusions**

**Total joint replacement**

**Exhibit 6.21** (page 122)

Provincial and national rates for total knee and total hip replacement, 1999/00

**Exhibit 6.22** (page 123)

Wait times for all joint replacements, per 100,000 population aged 15 years and older, GP referral to consult and consult to surgery, by province, 2003

**Appendices**

6.A How the research was done (page 127)

– Arthroscopic knee surgery

6.B Procedure and diagnosis codes (page 128)

– Arthroscopic knee surgery

**Table 6.2** (page 128)

Relevant OHIP fee codes

**Table 6.3** (page 128)

Procedure groupings

**Table 6.4** (page 128)

Arthritis and related ICD-9 based diagnosis codes

6.C How the research was done (page 129)

– Total joint replacement

**Chapter 7**

**Rehabilitation for Total Joint Replacement**

**Discharge destinations following total joint replacement**

**Exhibit 7.1** (page 136)

Patient discharge destinations by joint replacement procedure, in Ontario, 1995/96 and 2001/02

**Length of stay in acute care and inpatient rehabilitation following total joint replacement**

**Exhibit 7.2** (page 137)

Inpatient rehabilitation length of stay for patients with total joint replacement, in Ontario, 1995/96 to 2001/02

**Characteristics of joint replacement patients by discharge destination**

**Exhibit 7.3** (page 137)

Age and sex of patients by joint replacement procedure and discharge destination, in Ontario, 2001/02

**Exhibit 7.4** (page 138)

Percentage of patients with primary total joint replacement and at least one comorbidity discharged home and transferred to inpatient rehabilitation in Ontario, 1995/96 to 2001/02

**Geographical variation in utilization of rehabilitation services following total joint replacement**

**Exhibit 7.5** (page 138)

Percentage of patients with total joint replacements transferred to inpatient rehabilitation by District Health Council, in Ontario, 1996/97 to 1997/98 and 2000/01 to 2001/02

**Exhibit 7.6** (page 139)

Percentage of patients with total joint replacement that received inpatient rehabilitation in or outside their District Health Council of residence, in Ontario, 2000/01 to 2001/02

**Home care utilization following total joint replacement**

**Exhibit 7.7** (page 139)

Percentage of patients with total joint replacement that received home care services, by discharge destination, in Ontario, 1995/96 and 2001/02

**Exhibit 7.8** (page 140)

Standardized mean service intensity for patients with total joint replacement, in Ontario, 1996/97 to 1997/98 and 2000/01 to 2001/02

**Appendices**

7.A How the research was done (page 143)

**Table 7.1** (page 143)

V-codes used to determine rehabilitation activity

7.B Diagnostic codes (page 145)



## Population geography and mapping boundaries

Multiple levels of geography are used within Ontario to describe populations. The three main inter-related geographic coding systems are Statistics Canada's Standard Geographical Classification (SGC), the Residence Coding System from the Ontario Ministry of Health and Long-Term Care (MOHLTC), and Canada Post's mail delivery system using postal codes.

### Standard Geographical Classification

The Standard Geographical Classification (SGC) is a system of names and codes representing areas of Canada. It consists of a three-tiered hierarchy—province or territory, census division, and census subdivision. Lower levels of census geography such as Census Tracts (CTs), the former Enumeration Areas (EAs), and the latest grouping Dissemination Areas (DAs), are less commonly used for collection of health data but can be used for analysis based on recoding from the postal codes (see later discussion of postal code system). CTs, EAs and DAs are available for Census data and can be useful for regrouping into some level of geography lower than the CSD level for "community level" analysis. Most data produced by Statistics Canada uses this system including Census data, population estimates and projections.

### MOHLTC Residence Coding System

The Ontario MOHLTC bases all geography on its Residence Coding System. The lowest level (4 digits) represents municipalities, townships, named settlements, First Nations reserves, and unorganized areas. These geographic units are the basis of the Public Health Unit geography. Most data coming from Statistics Canada, including population estimates and projections and vital statistics must be regrouped into Residence Codes based on Census Sub Division (CSD). Because some CSDs map to more than one Residence Code, decisions regarding the assignment of CSDs to unique Residence Codes are made by the MOHLTC. Residence Codes reflect changes in the municipal boundaries that occur between Census years whereas Statistics Canada's data are based on CSDs from the most recent Census.

The next highest level of geography for MOHLTC is the county/district. Counties are created by grouping 4-digit Residence Codes together and therefore differ somewhat from Statistics Canada's Census Divisions (based on groupings of CSDs). In many cases these geographies match; most differences are related to where First Nations reserves are placed. Statistics Canada splits reserves across CDs whereas MOHLTC selects one county to place the entire reserve.

Residence codes are also the basis of the public health unit geography in Ontario. Many health units coincide with counties, however, in some cases, marked with an asterisk in the table below, a county will fall into more than one health unit area. For this reason, when aggregating data which is based on census geography it is preferable to group CSDs rather than CDs into health units.

The highest level of geography in the MOHLTC's system is the Health Planning Region, whose boundaries differ from those of other Ontario Ministries such as the Ministry of the Environment and the Ministry of Community, Family and Children's Services. The MOHLTC's seven current Health Planning Regions, which replaced the five regions depicted in the 1998 atlas, are outlined in the map (next page), in addition to District Health Councils (16) and Counties (49). These geographical boundaries are used for map exhibits in this atlas.



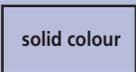
Ontario Health Planning Regions, District Health Councils and Counties

How to Read ICES Maps

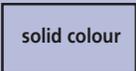


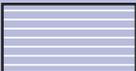
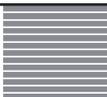
<b>North</b> 	Algoma-Cochrane-Manitoulin-Sudbury		Algoma (1), Cochrane (5), Greater Sudbury (11), Manitoulin (25), Sudbury (43)
	Northern Shores		Muskoka (27), Nipissing (29), Parry Sound (33), Timiskaming (45)
	Northwestern Ontario		Kenora (20), Rainy River (39), Thunder Bay (44)

<b>South West</b> 	Essex-Kent-Lambton		Chatham-Kent (4), Essex (9), Lambton (21)
	Grey-Bruce-Huron-Perth		Bruce (3), Grey (12), Huron (18), Perth (35)
	Thames Valley		Elgin (8), Middlesex (26), Oxford (32)

<b>Central West</b> 	Halton-Peel		Halton (15), Peel (34)
	Waterloo Region-Wellington-Dufferin		Dufferin (6), Waterloo (47), Wellington (48)

<b>Central South</b> 	Grand River		Brant (2), Haldimand-Norfolk (13)
	Hamilton		Hamilton (16)
	Niagara		Niagara (28)

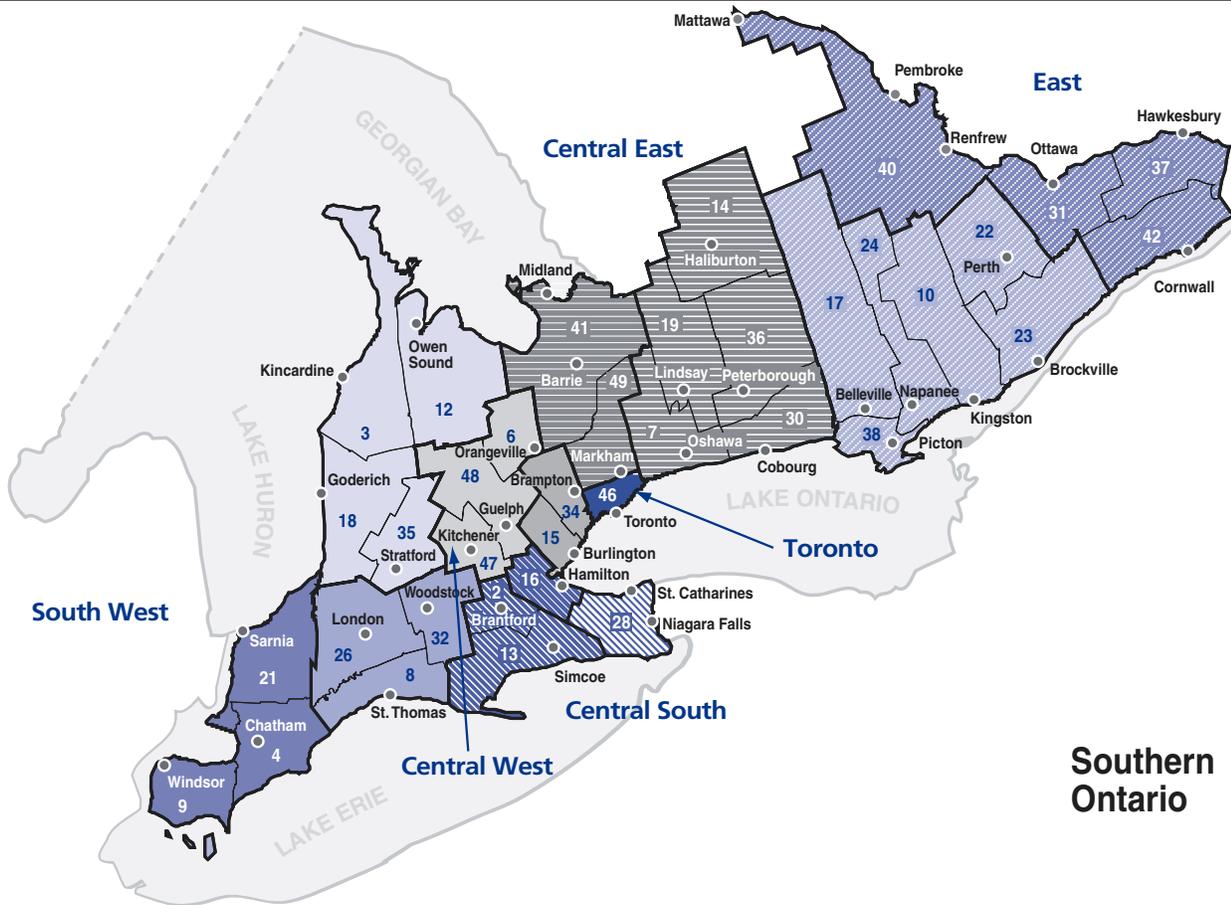
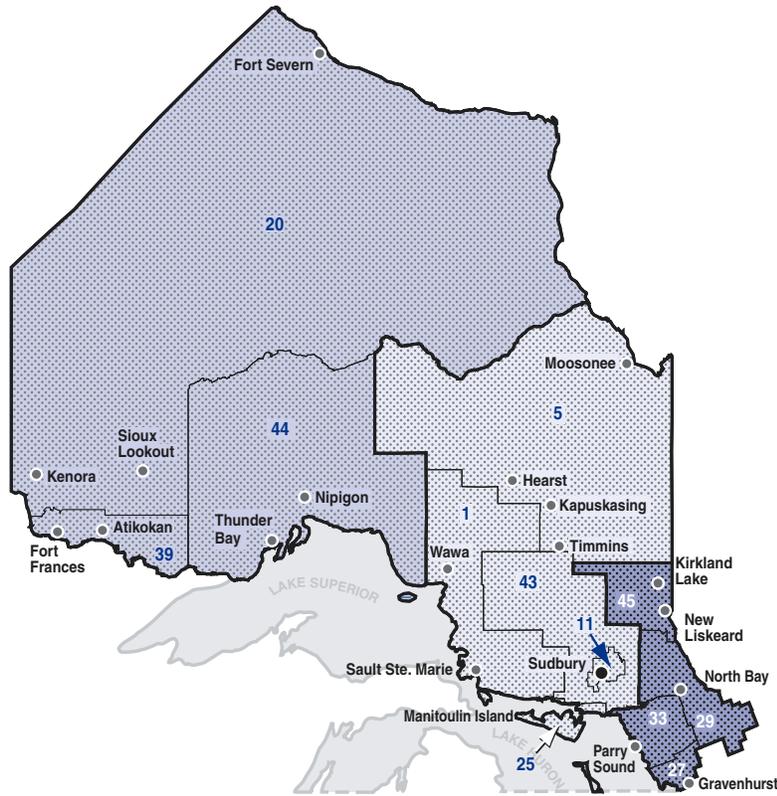
<b>Toronto</b> 	Toronto		Toronto (46)
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<b>Central East</b> 	Durham-Haliburton-Kawartha-Pine Ridge		Durham (7), Haliburton (14), Northumberland (30), Peterborough (36), Kawartha Lakes (19)
	Simcoe-York		Simcoe (41), York (49)

<b>East</b> 	Champlain		Ottawa (31), Prescott-Russell (37), Renfrew (40), Stormont-Dundas-Glengarry (42)
	Southeastern Ontario		Frontenac (10), Hastings (17), Lanark (22), Leeds-Grenville (23), Lennox-Addington (24), Prince Edward (38)

Northern Ontario

North





# Overview

**Arthritis** (inflammation of the joints), a leading cause of pain, physical disability and health care utilization in Ontario, is part of a larger family of musculoskeletal disorders that create a notable burden on population health. In addition to causing considerable morbidity and disability, arthritis and related conditions (A&R) stimulate a host of related costs ranging from reduced quality of life to significant expenditures in health care resources such as physician visits, specialist care, expensive prescription medication, surgery and rehabilitation. **With more than four million Canadians** living with arthritis and other musculoskeletal disease, the **annual cost** is a staggering **\$17.8 billion**.

While **osteoarthritis** is one of the **most common** forms of arthritis, **more than 100 different chronic conditions** exist, ranging from relatively mild forms of tendinitis (as in tennis elbow) and bursitis to illness in systemic forms, such as rheumatoid arthritis. Pain syndromes such as fibromyalgia, arthritis-related disorders such as systemic lupus erythematosus, which affects the entire body, and gout, are also included in the disease's many forms. There is **no known cure**, but therapies to manage arthritis are most effective when **started early** in the disease process.

Though **prevalence** of arthritic conditions increases with age, it is not confined solely to the elderly population and many are affected in the prime of their lives. About 9.8 million baby boomers (33 per cent of the population) are approaching the age of 50. It is estimated that between 1991 and 2031, the number of 45 to 54 year-olds diagnosed with arthritis *will double* from **418,000** to **738,000** and the number of 55 to 64 year-olds diagnosed *will more than double* to **1.4 million**, from **645,000**.

The first ICES research atlas *Patterns of Health Care in Ontario: Arthritis and Related Conditions* was published in 1998. The second edition, *Arthritis and Related Conditions in Ontario*, provides an overview of the current situation for policymakers, decision-makers, health care professionals and the public, particularly individuals with arthritis. Bringing together data from provincial population health

surveys, the Ontario Health Insurance Plan database, the Ontario Drug Benefits database, home care data, and databases on hospital admissions and day surgery procedures, this research atlas paints a **comprehensive picture** of the **impact of arthritis and related conditions** across the province and proposes strategies to better manage the challenge of meeting growing demand for arthritis care and treatment.

Produced in partnership with the **Arthritis Community Research and Evaluation Unit (ACREU)** and **The Arthritis Society, Ontario division**, the objectives of this report are to:

- **Provide an overview of the impact of arthritis** and related conditions among Ontarians including health and social outcomes and the use of health care services;
- **Identify strategies** that may reduce the adverse consequences associated with arthritis, and
- **Provide a basis for initiatives** to enhance access to care and services.

*Arthritis and Related Conditions in Ontario* covers the following topics:

- ▶ Emerging Issues
- ▶ Burden of Disease
- ▶ Availability of Services
- ▶ Primary and Specialist Care
- ▶ Use of Medication
- ▶ Surgical Services
- ▶ Rehabilitation for Total Joint Replacement



# Key findings & policy options

## Prevalence

### Findings

In 2000/01, arthritis and rheumatism affected **over 1.6 million** Ontarians aged 15 and older. By 2026, it is estimated that **2.8 million Ontarians** aged 15 years and older **will have arthritis or rheumatism**.

In 2000/01, **two-thirds** of people with arthritis were **women** and nearly **3 out of every 5 people** with arthritis were **younger than 65 years** of age. **The prevalence of arthritis** was **higher in northern Ontario**, though there were also areas of **high prevalence in southern Ontario**. Arthritis was more frequently reported in people with a lower level of education and in the Aboriginal population.

### Policy options

Target an **intensive public education program** to specific populations about prevention and management of osteoarthritis by **decreasing risk factors** such as obesity and injury.

Develop, implement and evaluate a **chronic disease model of care** that includes disease prevention, health promotion, self-management, and is grounded in best practices. The model should incorporate a **collaborative network of health professionals**, the **key principles of client-centredness**, and **timely and relevant interventions** in a variety of settings.

## Access to care

### Findings

Access to arthritis-related services, specialist care, surgical services and use of post-acute rehabilitation **varied across the province**.

The level of health professional services for people with arthritis and related conditions remained relatively static since 1997. As the **number of people with arthritis rises**, this will translate into **declining levels of service per individual**.

### Policy options

Step up **recruitment and training in specialist care** to address the shortage of orthopaedic surgeons, rheumatologists, and other health care providers and ensure access and equity in care throughout the province.

Provide **targeted training and education to allied health professionals** (physiotherapists, occupational therapists, and chiropractors) to **facilitate specialization and increase their role** in treatment of arthritis.

## Primary care

### Findings

The majority of **2.8 million physician visits** for arthritis and related conditions in 2000/01 were to **primary care physicians**, highlighting their key role in the management of these disorders.

### Policy options

**Improve the education and training** of primary care physicians with respect to musculoskeletal conditions to **increase appropriate referrals and encourage effective relationships with rheumatologists**.



# Key findings & recommendations

## Total joint replacement

### Findings

The rate of **total hip replacements (THR)** and **total knee replacements (TKR)** **increased** during the 1990s.

There is **unmet need** for total joint replacement (TJR), and with the aging of the population and associated increase of arthritis, **demand for surgery will grow**.

**Wait times** for THR and TKR **increased** between 1993/94 and 2001/02 with a **median wait of 29 weeks** for primary TKR and **20 weeks** for primary THR, in 2001.

**Ontario orthopaedic surgeons spent only 35%** of their time **dedicated to surgery**, while in the US, the recommended dedication of time is **62%**.

**Arthroscopy** comprises **almost half of orthopaedic surgery** for arthritis and related conditions, though its efficacy in the management of arthritis remains unclear.

The percentage of **patients discharged to inpatient rehabilitation** following primary and revision THR and TKR **increased from approximately 30% to 40%** between 1995/96 and 2001/02. Patients discharged to inpatient rehabilitation had a **shorter acute care length of stay** compared to patients discharged directly home.

### Policy options

In the short-term, **strategies to reduce wait times for surgery**, including methods to **prioritize patients waiting** for TJRs, are key. In the long-term, the **shortage of orthopaedic surgeons should be addressed** through more recruitment and training of specialists.

**More research** into the **efficacy of arthroscopic surgery** in the management of osteoarthritis is **key to determine appropriate indications for this surgery**.

**More research** into the **outcomes of different rehabilitation processes** for TJR is necessary to determine the best approach, and to ascertain its contribution to improving capacity for TJR surgery.

## Use of medication

### Findings

The total cost of **arthritis-related prescriptions** increased by **224%** between 1998 and 2001 due mainly to the **increased use and higher cost of COX-2 inhibitors**, a type of non-steroidal anti-inflammatory drug (NSAID), released in 1999.

**Treatment with disease-modifying antirheumatic drugs (DMARDs)** is **recommended** as soon as **rheumatoid arthritis is diagnosed**. In contrast, the proportion of **people receiving DMARDs** is **much less than the estimated number of people with rheumatoid arthritis** in Ontario.

### Policy options

Ensure that people with arthritis have **access to necessary drugs** on the **Ontario Drug Benefit Formulary** and that **drugs are prescribed appropriately**.

Ensure people with inflammatory arthritis have **access to drugs** such as **DMARDs and biologics**, (proven to help prevent joint damage) through specialist care, particularly **rheumatologists and internal medicine physicians**.

## Data collection

### Findings

**Lack of data** for some populations and services creates an **incomplete picture of the impact of arthritis and related conditions** on the population of Ontario. For example, there is little information for **rehabilitation services** (publicly and privately funded), **use of community services**, and **children with arthritis**.

### Policy options

Continue **rigorous surveillance of arthritis and related conditions** to **monitor trends** in disease prevalence, health status, health care utilization, and wait times for care.

**Collect reliable data** for **rehabilitation services** (publicly and privately funded), **use of community services**, and **children with arthritis**, to accurately describe the **impact of arthritis** in Ontario.