The Impact of Arthritis on the Women of Ontario

Supplementary figures and tables for men

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and produced with financial support from Searle Canada

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In partnership with
The Arthritis Society, Ontario Division
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THE IMPACT OF ARTHRITIS ON THE WOMEN OF ONTARIO

- Arthritis affects almost one in five women in Ontario and almost twice as many women as men.
- Three fifths of people with arthritis are younger than 65. Arthritis is the most frequent physical health condition affecting women age 45 and older and men age 65 and older.
- With the aging of the baby boomer population, the number of people with arthritis will almost double by 2020; this increase will be split between the 45-64 and 65+ age groups.
- Arthritis is associated with low education and low income. A quarter of women with arthritis live in households with children.
- People with arthritis are more likely to report that their health is only fair or poor, and report having pain that is severe enough to prevent activity compared with people without arthritis. Most people with arthritis report taking some type of pain medication.
- Forty percent of women with arthritis report long term disability compared to only 9% of those without arthritis. The proportion of men with arthritis reporting long term disability is similar to that of women. Disability associated with arthritis is the most frequent cause of physical disability. There are an estimated 200,000 women and 85,000 men in Ontario with disability specifically associated with arthritis.
- One third of women and one quarter of men with arthritis report needing at least some help with personal care, domestic or heavy household chores, compared to only 6% of women and 5% of men without arthritis. Help is most frequently needed for heavy household chores. Virtually all people with arthritis disability report at least some trouble with mobility, such as climbing stairs, walking 400 yards, or standing for more than 20 minutes.
- The impact of arthritis on women may be underestimated because studies typically focus on paid employment and not on unpaid work like household and care giving responsibilities. There is relatively little information available about the impact of arthritis disability on household and care giving roles from any population surveys.
- Arthritis associated disability has a large impact on the leisure activities affecting the ability to attend sporting events, concerts, plays or movies, to participate in arts, crafts, gardening or other hobbies or to visit family or friends.
- Almost half of working age women and 1/3 of men with arthritis report not working in the previous year, compared to only 29% of women and 17% of men without arthritis. More than half of working age women with arthritis associated disability report not being in the labour force because of their condition (men?), and they are 2 times more likely not to be in the labour force than men.
- The risk of being not being in the labour force for people of working age is associated with having disabling arthritis (versus no arthritis), pain that prevents activities (versus no pain, or pain that does not prevent activities), for women being 45-64 years old and for men being 55-64 years old (versus < 25 years), low education (versus not low) and for women living as a couple with dependent children (versus couple without children). Men living as a couple with dependent and independent children were more likely to be working compared to couples without children.
- A third of women and a half of men with arthritis disability who were employed and almost all of those who were not in the labour force report that they are limited in their work. A fifth of women and a third of men who were employed and two thirds of women and three fifths of men who were out of the labour force believe themselves to be disadvantaged by their employer. Most people with arthritis disability
who are not in the labour force and more of than a quarter of those employed require some type of workplace adaptation, with the most common requirements being modified hours, job redesign and transportation adaptations.

Information from scientific reports suggest that women with arthritis are more likely to report depression than men, however most individuals with arthritis are not depressed. High self-efficacy, coping strategies, higher levels of support, and quality of marital interaction have been attributed to better adjustment to arthritis.

More than half of women with arthritis make 4 or more visits to a general practitioner each year compared with less than a third of women without arthritis. Men with and without arthritis generally report less visits to a general practitioner than women, however the differences between men and women are less in the older age groups.

Arthritis ranks among the top three reasons for consulting a health professional in the previous 2 weeks, non-prescription drug use and prescription drug use.

Two fifths of community dwelling people over the age of 65 have at least one prescription for arthritis drugs, the most frequent being non-steroidal, anti-inflammatory drugs. The total costs of arthritis drugs is much higher for women than men, due to the much larger number of women with arthritis.

Slightly more people with arthritis have hospital stays each year than people without arthritis. Although a slightly higher proportion of women than men have joint replacements, it has been suggested that this procedure is under used by women with arthritis.

Only half of people with arthritis report receiving treatment. Most of the treatment received is medication, and few people report using other effective modes of treatment such as exercise and self-management strategies.

The average annual costs of health services delivered in hospital or paid for through OHIP is higher for women and men under age 65, and women over age 65 with arthritis as compared to those without arthritis.

Societal costs of arthritis in Canada are estimated at 0.8% of the GNP. Given the higher prevalence of arthritis in women, it is likely that a disproportionate share of the health care costs are for women. Indirect costs of arthritis are underestimated as many women with arthritis are over the age of retirement or are not in the labour force.

Further work is needed to more fully understand the impact of arthritis on individuals, particularly with respect to their family and personal lives.

A comprehensive health strategy for arthritis in Ontario is needed, including health education and health promotion, rehabilitation and community support services, primary care, specialist and hospital services, and health policy and planning. The overall premise of this strategy is that people with arthritis and their families need access to all these services in a timely and appropriate manner.

Most of the information in this report has been obtained by analysis of data from the recently released 1996 Ontario Health Survey, supplemented by data from other Canadian health surveys as well as from other scientific reports.

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The Impact of Arthritis on the Women of Ontario

INTRODUCTION

Arthritis is one of the most prevalent chronic conditions in Canada\(^1\,2\) and the leading cause of physical disability.\(^2\) Arthritis has a major impact on individuals. Large increases in the number of people with arthritis and arthritis disability are expected with the aging of the baby boomer population.\(^1\) This report collates information on the impact of arthritis on the women of Ontario, with supplementary information on the impact on men. It points to the urgency of implementing a comprehensive strategy to reduce this impact.

Arthritis has significant personal, economic, psychological and social costs. A Canadian study has shown that women rank arthritis among the top most bothersome health problems that they had experienced in the 6 months prior to the study, together with stress and excess weight.\(^7\) Despite this, arthritis does not feature highly in the public and political agenda of health concerns.

Commonly held misconceptions about arthritis are that it is associated with aging and that there is no treatment. This is not true. Although, at the current time, there is no known cure for any type of arthritis, appropriate treatment has been shown to prevent disability, maintain function and reduce pain.\(^8\,9\) There are many different types of arthritis. Information about the different types of arthritis is given in Appendix 1. The exact nature of medical treatment will vary according to each specific condition.\(^10\) However, general management and rehabilitation strategies are similar for all types of arthritis. Arthritis is typically life long and tends to follow a fluctuating course with exacerbations and remissions. Therefore, care needs to be accessible over the full span of the disease. Some types of arthritis, for example, rheumatoid arthritis, are best managed by specialists such as rheumatologists.\(^9\) For people with advanced hip or knee arthritis and in whom medical treatment has failed, joint replacement surgery done by an orthopaedic surgeon is an effective procedure which reduces pain and can improve the quality of life.\(^8,9,11-14\) Care directed to reducing pain and controlling and preventing disability is important, and often includes rehabilitation interventions such as physical and occupational therapy.\(^9,15\) Self-management, which comprises the use of exercise and education to control the consequences of arthritis, has been shown to reduce pain and disability.\(^9,16,17\) Finally, exercise programs for people with arthritis result in significant improvements in pain and disability as well as a decreased need for medication.\(^16,21\)

This report presents information on the impact of arthritis in Ontario, with a particular focus on women. It demonstrates that the number of women with arthritis is much higher than that for men, and that arthritis ranks as one of the most frequent health conditions in women. We review the impact of arthritis in terms of ill health, pain and disability. Comparable information for men is presented in Appendix 2 of this report. We highlight the way arthritis affects daily responsibilities such as home making, care giving, other unpaid work, leisure activities, psychological well-being and employment. We also review the use of health services by women with arthritis. The overall impact of arthritis is summarized in the societal costs of this condition. In the final section, we point to strategies for the control of arthritis and outline the beginnings of a comprehensive strategy for the control of arthritis in Ontario.

Most of the information we present on the impact of arthritis in Ontario has been obtained by our analysis of data from the recently released 1996 Ontario Health Survey. This is supplemented by data from the 1990 Ontario Health Survey and other Canadian health surveys together with information from the literature. Details of the surveys used are given in Appendix 3.
HOW COMMON IS ARTHRITIS?

Analysis of the 1996 Ontario Health Survey shows almost a million (860,000) women in Ontario report that they have arthritis or rheumatism as a long term health problem that has been diagnosed by a health professional. This represents almost one in five (19%) women aged 15 years and older living in the province. This compares with just over one in ten men (11%) who report arthritis or rheumatism. Consequently, arthritis affects almost twice as many women as men (Figure 1). Arthritis is not just a condition of old age: one fifth of women with arthritis are 15-44 years old and a further two fifths are aged 45-64. A similar age breakdown is found for men.

Arthritis is the second most frequent long term physical health problem reported by women in Ontario aged 15 years and older (Figure 2) and is the third most frequent for men (Figure A1, Appendix 2). The only category of conditions which are reported more frequently than arthritis by women in the 1996 Ontario Health Survey are non-food allergies, and by men are non-food allergies and back problems.

Figure 1: Number of women and men with arthritis in Ontario (1996)

![Number of women and men with arthritis in Ontario (1996)](image)

Arthritis is the sixth most frequent condition reported by both women and men younger than 45 (Figure 3a, Figure A2a, Appendix 2). It is the most frequently reported condition for women aged 45-64 and is the third most common condition for men aged 45-64, after back problems and allergies (Figure 3b, Figure A2b, Appendix 2). Arthritis is the most frequently reported condition for both women and men 65 years and older, reported by over half of all women and one third of all men in this age group (Figure 3c, Figure A2c, Appendix 2). The next most frequently reported condition in these older individuals was high blood pressure reported by 36% of women and 29% of men in this age group. Arthritis is one of the most frequent long term conditions affecting adults in other Canadian surveys, as well as in the United States and other parts of the world.\(^5\,22-27\)

Figure 2: Percentage of women aged 15 years and older reporting different long term physical health problems

![Percentage of women aged 15 years and older reporting different long term physical health problems](image)
Figure 3: Percentage of women reporting different long term physical health problems by age

a) 15-44 years

- Allergies (non food)
- Migraine
- Back Problems
- Asthma
- Food Allergies
- Arthritis/Rheumatism
- Sinusitis
- Other Chronic Condition
- Thyroid Condition
- Bronchitis/Emphysema

b) 45-64 years

- Arthritis/Rheumatism
- Allergies (non food)
- Back Problems
- High Blood Pressure
- Migraine
- Food Allergies
- Thyroid Condition
- Sinusitis
- Asthma
- Other Chronic Condition

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C) 65+ years

- High Blood Pressure
- Back Problems
- Allergies (non food)
- Heart Disease
- Thyroid Condition
- Other Chronic Condition
- Diabetes
- Sinusitis
- Food Allergies
WHO IS AFFECTED BY ARTHRITIS?

Arthritis affects people from all walks of life and of all ages.

The prevalence of arthritis (i.e., the proportion of people with arthritis) increases with age, and is higher for women than men in every age group (Figure 5). One in every 25 women aged 15-34 have arthritis, and almost 60% of women 75 years and older report arthritis. This compares to one in 50 men aged 15-34 and almost 40% in men 75 years and older.

Arthritis also affects women of all income and education levels (Figures 6 and 7). Although most women with arthritis have secondary education or higher, as do women in general, a larger proportion of women with arthritis have less than secondary education (35%) compared to women without arthritis (22%) (Figure 6). This is true in all age groups (not shown in the figure), and has also been found in other surveys.\textsuperscript{22,28} The situation is similar for men (Figure A3, Appendix 2).
Most women with arthritis report ‘high’ income ($30,000 per annum for households with 1 or 2 persons, or $40,000 or more for 3+ people) which is a reflection of the distribution of income in the population as a whole, where the majority of women have ‘high’ income. However, if we compare the income distribution of women with and without arthritis, a greater proportion of women with arthritis have only low or low middle income (Figure 7). Again, the situation of men is similar (Figure A4, Appendix 2). In other words, the prevalence of arthritis is higher among women and men with fewer resources.

Women with arthritis live in a variety of household arrangements, as shown in Figure 8. Almost one third of all women with arthritis live in households comprised of only a couple. Over a quarter of all women with arthritis live alone. Not surprisingly, the majority of the women who live alone are over the age of 65. Many women with arthritis live in circumstances where they are likely to have responsibilities for childcare. Just over 1 in 10 women live with dependent children 11 years old or younger, and a similar proportion live with children aged between 12 and 25. Overall, about a quarter of women with arthritis live with children and a spouse. A further 15% of women live in other household arrangements.
IMPACT OF ARTHRITIS ON HEALTH

Arthritis has a major impact in terms of ill health, pain and disability.

Both women and men with arthritis are more likely to report that their health is only fair or poor compared to those without arthritis (Figures A5a, A5b, Appendix 2). Almost a third of community dwelling women with arthritis report fair or poor health compared with less than 1 in 10 of women without arthritis. Similar proportions are found for men.

Arthritis is a painful condition. Over a third of women with arthritis report having pain that is severe enough to prevent activity compared to only 7% of women without arthritis. The percentage of individuals reporting pain is similar for women and men with arthritis and is similar in all age groups. (Figures A6a, A6b, Appendix 2) Other studies confirm the high proportion of people with arthritis reporting pain.24,29,30 Most women with arthritis (82%) report taking pain medication in the previous 2 weeks. This is higher than the proportion of women without arthritis (69%), and slightly higher than men with arthritis (76%) (Figures A7a, A7b, Appendix 2). Unfortunately no details are available about the type or amount of medication taken. Hence, people who report taking pain medication will include those who took daily medication to control pain, as well as those who took occasional medication, for example, to manage a headache.

The pain and ill health associated with arthritis is reflected in that almost double the percentage of women with arthritis (21%) compared to women without arthritis (11%) report that they had to cut down on their activities or spend at least one day in bed (restricted activity days) during the previous two weeks because of a health condition. Eighteen percent of men with arthritis reported restricted activity days compared to 11% of those without arthritis. The proportion of men that reported restricted activity days during the previous two weeks is slightly lower than women among the different age groups (Figures A8a, A8b, Appendix 2).

Long term disability (i.e., restriction of activity) can be a serious consequence of arthritis. Forty percent of women with arthritis report long term disability compared with only 9% of women without arthritis (Figure 9). The proportion of women with arthritis reporting long term disability is similar in all age groups, whereas the proportion of women without arthritis reporting disability increases with age. The proportion of men with arthritis reporting long term disability is similar to that of women (Figure A9, Appendix 2).
How does arthritis compare with other conditions as a reason for activity restriction and long term disability?

The earlier 1990 Ontario Health Survey asked specifically about which health condition was the reason for cutting down activities or long term disability. Arthritis was the number two ranked reason that both women and men gave for cutting down on activities or having to spend at least one day in bed during the previous 2 weeks, after conditions of the respiratory system (such as coughs and colds)\(^2\) (Table A1, Appendix 2). Looking at different age groups, it was the third ranked reason for restricted activity days for women under 44, but was the second most frequently reported reason for women aged 45 years and older after respiratory conditions. For men, it was the second ranked reason for cutting down on activities under age 64 (after respiratory conditions), and the third ranked reason over the age of 64 after respiratory and circulatory conditions (Table A2, Appendix 2).

Data from the 1990 Ontario Health Survey showed that long term disability specifically due to arthritis was the most common cause of physical disability (Table A1, Appendix 2).\(^23\) Arthritis also has been reported to be a major cause of long term disability in the U.S. and other countries.\(^{5,22,32-36}\) Data from the 1990 Ontario Health Survey indicated that 1 in 7 people with arthritis report having long term disability which they attribute specifically to their arthritis.\(^{23}\) Comparison with the estimates presented earlier from the 1996 survey suggests that this represents about half of all people with arthritis who report disability. For those people who do not report their arthritis to be the cause of their disability, it is not known to what extent the presence of arthritis might increase the disability or may exacerbate the difficulties experienced as a result of other conditions.

It is estimated that 3.8% of women and 1.6% of men 15 years and older have disability which they report to be caused by arthritis.\(^7\) When applying these percentages to the population included in the 1996 Ontario Health Survey, it is found that there are an estimated 200,000 women in Ontario with disability specifically associated with arthritis, and an estimated 85,000 men.

IMPACT OF ARTHRITIS ON DAILY LIFE

The impact of arthritis disability is felt in all areas of life including personal care, household and care giving activities, recreation and leisure activities and employment. There may also be psychological and emotional repercussions to having arthritis.

People with disabilities often have to rely on help from others. For example, according to the 1996 Ontario Health Survey, a third of women with arthritis report needing some dependence in personal care, domestic activities, or heavy household chores compared with 6% of women without arthritis. There is a gradient with increasing age, with two fifths over age of 65 having some type of dependence (Figure 10). One quarter of men with arthritis report needing at least some help compared with 5% of men without arthritis. A similar gradient by age exists for men with almost a third of men with arthritis over the age of 65 having some type of dependence (Figure A10, Appendix 2).
The most frequent type of dependence experienced by women and men with arthritis is needing help with heavy household chores, such as yard work. Help may also be needed with domestic tasks such as housework, grocery or other shopping, and preparing meals. Only 7% of women and men with arthritis are dependent in personal care.

The information presented so far comes from the 1996 Ontario Health Survey. Unfortunately, the survey provides only limited information about the nature of disabling impact of arthritis on women’s lives. However, data from the 1986 and 1991 Canadian Health and Activity Limitation Surveys (HALS) enables us to look more closely at the ways in which arthritis disability impacts on the daily lives of women.

Arthritis has a major impact on mobility and on personal care. In the HALS virtually all women and men with arthritis disability reported at least some trouble with mobility. Approximately two thirds of these women reported that they had trouble or were unable to climb stairs, walk 400 yards, or stand for more than 20 minutes. Over a quarter of women with arthritis disability reported that they could not leave their homes without help, and a quarter reported that they used a walking aid. About 20% of these women also reported they could not take long distance trips. Similar figures exist for mobility and personal care in men with arthritis disability.

**Household and care giving roles**

There is relatively little information available about the impact of arthritis disability on household and care giving roles from any of the Canadian population surveys. Some researchers have expressed concern that the impact of arthritis on women is underestimated because studies typically focus on paid employment and not on unpaid work like household and care giving responsibilities. These are more likely to be reported by women as roles for which they assume primary responsibility. If value is given only for income-producing activities like paid employment, the cost of disability may be assumed, erroneously, to be greater for men. However, one of the difficulties in examining domains like unpaid work are that few measures exist to assess them.
A study of women with rheumatoid arthritis examined instrumental household activities like cooking, cleaning, and shopping, as well as nurturant activities like childcare, teaching children, listening and comforting others and maintaining social ties. More than 90% of women with RA reported disability in at least one instrumental household task and two thirds reported disability in at least one nurturant task. In families with wives/mothers who had RA, other family members typically spent more time on household tasks than in control families. Statistical analyses to determine what predicted household work disability found that having young or school-aged children at home, having paid employment, lower functional status, and reporting depression combined to predict household work disability. Other research finds that household work disability is substantial only among women with moderate or severe RA.

Finally, some studies caution that it is difficult to compare men and women because their household activities often differ. Men are more likely to perform more yardwork and household maintenance activities and women are more likely to perform more housecleaning and meal preparation. The latter activities are usually performed more frequently, but the former may be more physically demanding.

**Impact of arthritis on recreation and leisure activities.**

Arthritis associated disability has a large impact on the leisure activities of women. The 1986 Canadian Health and Activity Limitation Survey revealed that 76% of women with arthritis associated disability reported never attending sporting events, concerts, plays or movies; 38% reported never participating in arts, crafts, gardening or other hobbies; and 15% reported never visiting family or friends (Figure 12). As expected, the proportion of women who reported that they never participated in these activities increased with severity of disability, with 84% of those with severe disability reporting never attending sporting events, concerts, plays or movies; more than half never participating in arts, crafts, gardening or other hobbies; and a quarter of women never visiting family or friends. Similar proportions are found for men with arthritis disability (see under Occupation, Table A3, Appendix 2).

**Figure 12:** Percentage of women with arthritis related disability reporting problems with leisure activities.
A further indication of the impact of arthritis is the 44% of women and 36% of men with disability who report extra out of pocket expenses because of their disability. These include expenses for medication, special aids or supplies, health and medical services not covered by insurance, modification to one's residence, transportation, and personal services (e.g., attendant, housekeeping services, etc.).

**Impact of arthritis on employment.**

According to the 1996 Ontario Health Survey, 12% of working age women and 7% of working age men report having arthritis. Overall, 45% of women with arthritis report not working in the previous year compared with 29% of women without arthritis (Figure 13). The figures for men are somewhat lower, with 33% of men with arthritis report not working in the previous year compared with 17% of men without arthritis. The proportion of women not working increases with age, particularly for women with arthritis, whereas the proportion of men not working increases with age only for those with arthritis (Figure A12, Appendix 2) Yelin reports similar findings from the U.S. with labour force participation being 25% lower in women with arthritis than those without arthritis.

A study using data from the 1990 Ontario Health Survey looked at the contribution of a range of predictors of not being in the labour force for women of working age. Women with disabling arthritis were twice as likely to be out of the labour force as women without arthritis. However, there was no increased risk of not being in the labour force for women with non-disabling arthritis. Women with pain that prevented activities were slightly more likely to be out of the labour force compared to women with either no pain or pain that did not prevent activities. Other factors that were not related to arthritis were also associated with not being in the labour force. For example, the risk of being out of the labour force increased with age so that women aged 45-54 years had almost twice the risk and women 55-64 years old almost a ten times greater chance of being out of the labour force as compared to workers younger than 25 years. There is also almost twice as much risk of being out of the labour force with low education. Single women were more likely to be working, whereas women living as a couple with dependent children had almost twice as much risk of being out of the labour force when compared to a couple without children. Similar risks are present for men, except that for men the risk of being out of the labour force with disabling arthritis is greater than for women and is almost 3 times those of men without arthritis. Age was only a factor for the 55-64 age group, which had an increased risk of being out of the labour force which was almost 3 times those of the under 25 age group. Finally, men living as a couple with dependent and independent children were more likely to be working compared to couples without children. Table A4 shows the results for both men and women (Appendix 2). These findings are comparable to other studies of work disability and labour force participation.

Data from the 1986 Canadian Health and Activity Limitation Survey indicated that more than half of working age women with arthritis associated disability reported that they were not in the labour force because of their condition. The proportion not in the labour force increased from a third of those with mild disability, to over three quarters of women with severe disability. Figures for men were slightly...
lower, with approximately 40% of men not in the labour force because of their condition, with the proportion increasing from a quarter of those with mild disability to 65% of those with severe disability. Women with arthritis disability were 2 1/4 times more likely to be not in the labour force compared to men, taking into account age, education, pain and severity of disability.\textsuperscript{45}

It is also noteworthy that almost a third of employed women with arthritis disability report that they are limited in their work, and almost a fifth believed themselves to be considered disadvantaged by their employer (Figure 14). These figures are higher for men with half reporting that they are limited in their work, and almost a third believed themselves to be considered disadvantaged by their employer (Figure A13, Appendix 2). Not surprisingly, the situation is worse for women with arthritis disability who are not currently in the labour force. Almost all (89%) reported that they were limited or completely unable to work due to arthritis, and two thirds believed that they would be considered disadvantaged by an employer.\textsuperscript{45} Again, the figures are higher for men with 93% reporting they were limited, and three fifths believing themselves to be considered disadvantaged by an employer (Figure A13, Appendix 2).

Nevertheless many women with arthritis disability, even those not in the labour force, were able to identify a variety of adaptations and accommodations at work that would facilitate employment. Figure 15 shows the percentage of women with arthritis disability, both employed women and those not in the labour force, who reported requiring different work adaptations and accommodations. As would be expected, those who were not in the labour force reported requiring more adaptations and accommodations at work. Almost half of those not in the labour force reported requiring some type of adaptation. Most of the employed women reported already having these adaptations.\textsuperscript{46} The most common requirements mentioned were modified hours, job redesign, and transportation.

Proportions for men are similar (Figure A14, Appendix 2).

Research has also examined the factors that predict work disability and/or exit from the labour force in

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individuals with RA. For example, the strongest predictors of work disability relate to structural aspects of the workplace, especially control over the pace, scheduling, and nature of the work performed.47,49-54 These studies sometimes reveal similar factors for women and men. However, Callahan36 has noted that autonomy over work pace and work disability has particular implications for women with arthritis, because women tend to work for lower pay and limited autonomy as compared to men. In a study of women with RA, Reisine51 found that women with little autonomy in terms of the pace and schedule of their jobs were 36 times more likely to be work disabled than women with the most autonomy. In another study of risk factors that predicted stopping work the authors found that individuals with functional limitations as a result of musculoskeletal disorders, including arthritis, were more likely to report work disability (72%) as compared to individuals with similar disability levels as a result of other chronic conditions (60%).47 Other factors that predict work disability among individuals with RA are disease severity, duration of disease, overall health status, functional limitations, type of occupation, and age.47,49-51

Yelin examined the long term consequences of RA in the U.S. He and his colleagues estimated that approximately half of all individuals who were working at the onset of their RA could expect to stop working sooner than if they were healthy.49 As a result, the cost of arthritis is substantial and includes the direct costs of medical care and the indirect cost of lost wages due to unemployment or underemployment. Among individuals who had been working, gender was not a significant predictor for work disability.55 However, other research reports that men who are disabled as a result of arthritis are more likely to be employed than women with arthritis disability26,44,56 and that individuals receiving disability payments are more likely to be younger, male, have RA, be non-white, and have lower incomes.57

Psychological well-being and social support

Studies of psychological well-being among individuals with arthritis have examined a variety of arthritic conditions including osteoarthritis, rheumatoid arthritis, systemic lupus erythematosus, and ankylosing spondylitis. By far the most frequently examined indicators of psychological well-being are anxiety, distress, and depression.26,42,58-62 Overall, women are more likely to report depression than men in the population, and people with chronic illnesses and disability are more likely to report depression than those with no chronic illnesses or disability.59 It is not surprising then that studies find more women with arthritis reporting depression than men.56,58,60 Although it is important to note that most individuals with arthritis are not depressed, research indicates that depression may be more prevalent among individuals with arthritis compared to other chronic conditions59, and that women with arthritis report lower self-esteem.57 Yet, the findings relating arthritis to depression are complex, with the arthritis-depression link being mediated by a variety of other factors such as pain, helplessness, coping, social support, marital status, medication side effects, disease activity and functional decline.56 Studies have shown that often the relationship between gender and depression disappears when factors such as these are taken into account.58-60

Some research has examined the effects of self-efficacy, coping, and social support on the psychological adjustment of people with arthritis. High self-efficacy and coping strategies like relaxation, low impact aerobics, and positive reappraisal have all been found to contribute to better adjustment.56,64 However, women have typically reported lower participation in exercise than men.64 Higher levels of instrumental, emotional, and informational support have also been linked to better adjustment among individuals with arthritis, although the findings are sometimes mixed.26,56,65,66 For example, some research finds that individuals with rheumatoid arthritis are more likely to divorce and less likely to remarry. Other studies find no differences in family relationships.28 Sexual relations can also be disrupted, although the research
on gender differences remains equivocal.\textsuperscript{26,67-70} Finally, a study of the coping, support, and psychological adjustment of women with RA and their husbands\textsuperscript{62,71} found that the quality of the couple's marital interaction played a key role in adaptation to rheumatoid arthritis and was related to both the wife's and the husband's mental health.\textsuperscript{62,71}

**USE OF HEALTHCARE SERVICES BY PEOPLE WITH ARTHRITIS IN ONTARIO**

An important aspect of the impact of arthritis is on the use of health care services. There are a number of health care interventions which have been shown to be effective in managing arthritis. These include the use of prescription medications, surgery, and rehabilitation services. Consultation with health care professionals can also be vital in facilitating the use of other types of intervention such as exercise, coping skills training, and community support programs. Appropriate and timely use of health care services are an essential part of the management of arthritis. The next section looks at what we know about the use of health care services by people with arthritis in Ontario.

**Visits to Health Care Professionals**

Estimates from the 1996 Ontario Health Survey suggest that over half of women with arthritis made four or more visits to a general practitioner (GP) in the previous year compared with less than a third of women without arthritis (Figure 16). Although we do not know about the specific nature of these visits (i.e., they might be for any reason), the finding suggests that women with arthritis make greater demands on primary care physicians than women without arthritis. This was true for all age groups, although the overall proportions of women making multiple visits to a GP was higher for older women. Similarly, greater proportions of men with arthritis report four or more GP visits in a year compared to those without arthritis. Men with and without arthritis generally report less visits to a GP than women, however the differences between men and women are less in the older age groups (Figure A15, Appendix 2).

Ten percent of women with arthritis also made visits to other doctors, including specialists, in the previous year (Figure 17). This is only slightly higher than the 7% of women without arthritis visiting other doctors. The proportion of women visiting other doctors decreased with increasing age, presumably a reflection of

**Figure 16:** Percentage of women with and without arthritis with four or more GP visits in a year

**Figure 17:** Percentage of women with and without arthritis with visits to other doctors in previous year

![Figure 16: Percentage of women with and without arthritis with four or more GP visits in a year](image1)

![Figure 17: Percentage of women with and without arthritis with visits to other doctors in previous year](image2)
the decreased need for consultations related to reproductive issues. Greater proportions of men on the other hand, report visits to other doctors in the older age groups (Figure A16, Appendix 2).

Overall only 13% of women with arthritis visited a physiotherapist in the previous year compared with 5% of women without arthritis (Figure 18). The proportion of women with arthritis visiting a physiotherapist was much lower for women 65 years and older. However, many physiotherapy services are not covered by OHIP. The lesser proportion of older women visiting physiotherapists could be a reflection of lack of insurance or income to cover these services. Similar trends are evident for men (Figure A17, Appendix 2).

In the 1990 Ontario Health Survey, people with arthritis were also asked when they had last visited a health professional for their arthritis. Two thirds of women and men had visited with a health professional within the last year (Table A5, Appendix 2). Less than 10% of women and men reported never seeing a health professional. The proportion visiting was higher for arthritis of recent onset and declined with the increasing duration of the arthritis. For people who had arthritis for 10 years or longer, half had visited a health professional for their arthritis within the previous year. These findings show that, although the use of health professional services may be lower for people with long standing arthritis, nevertheless a substantial proportion of people continue to consult health professionals over long periods of time.

**How arthritis compares with other conditions as a reason for health care use**

Further information about the impact of arthritis and related conditions is shown from an analysis of Ontario Health Insurance Plan (OHIP) claims for primary care visits. Visits for diseases of the musculoskeletal system and connective tissue (which includes arthritis) were made by an estimated 21% of adults. The number of people visiting for these conditions were only exceeded by diseases of the respiratory system. Overall there were more than 3 million visits to general and primary care practitioners for arthritis and related conditions. Just over half of these visits (1.6 million) were made by women. The 1990 Ontario Health Survey asked specifically about which medical condition was the reason for the consultation with a health professional, as well as which condition resulted in the use of medications within the two weeks prior to the survey. Arthritis and rheumatism was the second most frequent reason given by women for consulting with a health professional in the previous 2 weeks (after respiratory conditions). It was reported by 2.2% of women. Similar results were found in another Ontario study, which found that among groups of primary care users in a two week period, approximately 2% of complaints were related to arthritis and rheumatism, with no sex differences evident. In the Ontario Health Survey, arthritis was the third most frequent reason for prescription drug use (after circulatory disorders including hypertension, and metabolic disorders such as diabetes and thyroid troubles), and was reported by 5.1% of women. Finally, arthritis was the second most frequent reason for non-prescription drug use, reported by 2.7% of women (Table A6, Appendix 2). The rankings were the same for men, although the prevalences were lower than
for women. The rankings for women across different age groups varied and are shown in Table 1. They suggest that arthritis remains a frequent cause of health care utilization, ranking among the top three reasons, with the exception of prescription drug use in women aged 16-44, where it ranked fifth. In men, arthritis ranked among the top three reasons for health care utilization, except for prescription and non-prescription drug use in men aged 16-44, where it ranked fifth (Table A7, Appendix 2).

Table 1: Ranking of top three most frequent health conditions by age group, resulting in health care utilization in previous 2 weeks. The percentage of women aged 16+ with utilization is shown in parentheses.

<table>
<thead>
<tr>
<th>Type of Health Care Utilization</th>
<th>Age group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16-44</td>
</tr>
<tr>
<td>Consulting health professional</td>
<td>1. Respiratory (3.2)</td>
</tr>
<tr>
<td></td>
<td>2. Digestive (1.6)</td>
</tr>
<tr>
<td></td>
<td>3. Arthritis (1.3)</td>
</tr>
<tr>
<td>Prescription drug use</td>
<td>5. Arthritis (1.4)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-prescription drug use</td>
<td>1. Respiratory (7.7)</td>
</tr>
<tr>
<td></td>
<td>2. Allergy (2.20)</td>
</tr>
<tr>
<td></td>
<td>3. Arthritis (0.8)</td>
</tr>
</tbody>
</table>

*Source: Additional analysis based on Badley EM, Rasooly I, Webster GK.*

Use of treatment services

Prescription of drugs for arthritis

In 1995/96, 41% of community dwelling women over the age of 65 had a least one prescription for arthritis drugs. The most frequently prescribed types of drug were non-steroidal, anti-inflammatory drugs, prescribed for 38% of older women. The proportion of older men receiving arthritis drugs was slightly higher (43%). However, the total costs of these drugs for women, was reported to be much higher than for men ($23.7 million versus $14.0 million) because of the much larger number of women with arthritis.

Use of hospital services

According to the 1996 Ontario Health Survey slightly more women with arthritis (13%) had hospital stays during the previous year compared to women without arthritis (8%) (Figure 19). The proportion of women with arthritis who had an overnight hospital stay was higher in all age groups. There were similar findings for men (Figure A18, Appendix 2). A study done in 1997 in the United States also found that arthritis and other rheumatic conditions resulted in large numbers of persons receiving care in hospital (accounting for 2.4% of all hospital discharges and of days of care), and care in ambulatory and home health settings (accounting for 4.6% of all ambulatory care visits and 4.8% of all discharges from home health care), and that women accounted for much of this health care utilization.
One of most important and successful reasons for hospital stays among people with arthritis is for joint replacement surgery, most commonly of the hip or knee. For individuals with advanced knee/hip arthritis in whom medical treatment has failed, total joint replacement has become the accepted treatment. Studies have shown long term improvement in joint pain, physical functioning, and quality of life following total joint replacement. This procedure has also been shown to be cost effective, and it has been suggested that hip replacement may even be cost saving. Of all joint replacement recipients, approximately 80% have osteoarthritis, up to 10% have rheumatoid arthritis, and 10% have other disorders.

In 1996/97, 83.4 per 100000 people in Ontario had hip replacement surgery and 91.5 had knee replacement surgery. The majority of people receiving joint replacements were 65 years and older. The rates were slightly higher in women than in men at most ages, and the gender difference in rates increased with age. Figure 20 shows how the rate for hip replacement surgery increases with age. Findings are similar for knee replacement.

It is of concern that although the rates of joint replacement surgery in Ontario are slightly higher in women than in men, studies have shown that, after adjusting for arthritis disability, age, socioeconomic and other factors, women tend to receive fewer joint replacements. The lower rate of joint replacement surgery for women is also of concern in view of the higher prevalence of arthritis and arthritis disability in women. Women with OA undergoing elective total joint replacement have also been found to be more disabled prior to surgery after adjusting for these factors, which may indicate that women are receiving treatment later in the course of their disease. The specific reasons for the gender discrepancy in joint replacements is currently being investigated in order to determine to what extent these differences reflect systemic differences in the overall care offered to women and to men.

**Adequacy and appropriate use of health care services in Ontario**
The question of whether all people with arthritis get the health care services they need and whether they use health care services appropriately is difficult to answer. Data from the 1996 Ontario Health Survey shows that only half of people with arthritis report receiving treatment for their arthritis (Figure 21). Overall the percentage reporting receiving treatment was only slightly higher for women than men despite the sex differences in prevalence of arthritis, and this increased with age. Most often the treatment received was medication. Very few people report using other types of treatment such as diet modifications. These findings are of concern when the cost of medication and health care consultations are considered, and in light of ample evidence that exercise and education about coping and self-management strategies can reduce pain and improve functioning.

Although not all people with arthritis necessarily need treatment all the time, there is cause for concern that not all people are getting the treatment that they need or that is most appropriate. A report titled Patterns of Health Care in Ontario: Arthritis and Related Conditions suggests that there are variations throughout Ontario in the availability and access to services for people with arthritis. For example, there are variations in the availability of rheumatologists, orthopaedic surgeons, primary care physicians, physical and occupational therapists, and chiropractors across the province. There are also Ontario-wide variations in the provision of hip and knee replacement surgery, and of home care. Large discrepancies have also been found in the availability of community programs for exercise, education, and support for people with arthritis. Moreover, a study of Ontario family physicians suggested that there may exist deficiencies in primary care management of arthritis which include the lack of referral of early rheumatoid arthritis to specialists, inappropriate prescribing of arthritis drugs (both too much and too little), and lack of recommendations for exercise and education about coping strategies.

**COSTS OF ARTHRITIS**

**Annual costs of health services**

In a special analysis of data from the Ontario portion of the 1994 National Population Health Survey, it was possible to calculate the average annual cost of health services for people with and without arthritis as respondents gave permission for their data to be linked to their health records. Table 2 and Table A8 (Appendix 2) shows that the average annual costs of health services are higher for women and men with arthritis in all categories. These costs only include the costs of medical services delivered in hospital or paid for through OHIP. These do not include the costs of chronic care, long term care, outpatient rehabilitation services, or health costs for services covered by private insurers and out-of-pocket expenses paid by respondents. Costs related to pregnancy and childbirth have also been omitted from this comparison, so that the costs relate to health conditions and ill-health.
Table 2: Age adjusted average annual cost for health services in Ontario 1994

<table>
<thead>
<tr>
<th></th>
<th>Ontario Health Insurance Plan</th>
<th>Canadian Institute for Health Information</th>
<th>Ontario Drug Benefit Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Women with arthritis</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>age &lt;65</td>
<td>$717</td>
<td>$665</td>
<td>N/A</td>
</tr>
<tr>
<td>age 65+</td>
<td>$890</td>
<td>$1875</td>
<td>$614</td>
</tr>
<tr>
<td><strong>Women without arthritis</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>age &lt;65</td>
<td>$456</td>
<td>$228</td>
<td>N/A</td>
</tr>
<tr>
<td>age 65+</td>
<td>$640</td>
<td>$995</td>
<td>$413</td>
</tr>
</tbody>
</table>


**Societal costs**

Societal costs of arthritis in Canada were calculated to be $5.8 billion with the estimates ranging from $4.3 to $7.3 billion (in 1994 dollars). This represents 0.8% of the GNP. The majority of the costs are estimated to be indirect costs associated with disability like the loss of production from persons with arthritis who are unable to work. One third of the total cost is associated with the direct cost of health care. However, these studies have not examined costs for women and men separately. Given the higher prevalence in women it is likely that a disproportionate share of the health care costs are for women. Two thirds of the total costs are indirect costs associated with disability and loss of productivity from people with arthritis who are unable to work. Again, the fact that a preponderance of those affected by arthritis are women, many of whom are over the age of retirement or are not in the labour force makes the attribution of costs difficult. In addition, wages for women in the work force have traditionally been about 70% of those for men. Taken together these factors imply that the true indirect costs of arthritis are underestimated. Also, any costing study cannot account for the intangible costs of pain and suffering and the benefits of good health.

Estimates of the costs of arthritis from the United States are similarly high. One estimate suggests that the economic cost of arthritis and rheumatism are 1.1% of the U.S. Gross Domestic Product. A recent Canadian study showed that musculoskeletal disorders were the second most costly category of health condition, representing 2.5% of the GNP. This study showed that the economic burden of musculoskeletal conditions accounted for 13.8% of the total economic burden of all illnesses but only 2.9% of all health science research.

**DISCUSSION**

Arthritis is a major cause of ill health, pain, disability and health care utilization for the people of Ontario. The burden of arthritis in society in general will increase with the aging of the population. It is, therefore, important to understand the impact of arthritis in the population in order to improve the situation of people with arthritis and their families. This paper presents a synthesis of information regarding arthritis with a focus on women and gender differences, and provides some directions for future strategies for arthritis care in Ontario.
Our analyses found that the proportion of women with arthritis is higher than that of men at all ages, and there are almost twice as many women as men with arthritis. Although the impact of arthritis on men and women is similar, in absolute numbers more women have arthritis and arthritis disability than do men.

Arthritis affects people of all ages and from all walks of life. Nevertheless people who are older, poorer and less educated are more likely to have arthritis. These may be people who have fewer resources to deal with the impact of arthritis in their daily lives. Special initiatives may be needed to reach these individuals.

Women with arthritis are likely to face some particular challenges. Women often have other family responsibilities, such as care giving for children, elderly or sick family members. Indeed, about a quarter of women with arthritis have children in their households. However, the impact of arthritis on daily life in terms of role tasks of women has not been well studied. This is an area where further work is needed to more fully understand the impact of arthritis on the lives of women.

Although one study has demonstrated that women have higher total costs for medical services delivered in hospital or paid for through OHIP, cost studies have generally not looked at gender separately. It may be assumed that the total costs of health care will be higher for women than men, due to the greater number of women with arthritis. On the other hand, it appears that some aspects of health care for arthritis may be under-utilized by women. Further studies are needed to both study the use of health care services by women, and to document the direct economic costs of health services for women. A major proportion of the overall economic costs of arthritis are indirect costs associated with disability and reduction of economic productivity. As indicated earlier, estimates of these costs may be systematically low for women, as they do not fully take into account the way arthritis might affect household, childcare and other responsibilities of women.

The view of arthritis as an inevitable part of growing old for which nothing can be done is far from the truth. Although there is at present no known cure for any type of arthritis, appropriate treatment helps to prevent disability, maintain function, and reduce pain. Proven treatments include medication, specialist care, rehabilitation, exercise and education (self-management). Joint replacement, particularly of the hip and knee has been shown to be a very efficacious and cost effective procedure for severe arthritis, relieving pain and improving function. In addition, it is becoming increasingly recognized that there may be opportunities for the prevention of some arthritis.

**Improving the daily life of people with arthritis**

People with arthritis may walk slowly and/or with difficulty and have problems standing for long periods. They may also have difficulty gripping, holding and carrying items. A range of accommodations at the societal level relating to the physical and social environment could make life easier. There are a range of assistive devices and strategies that can facilitate personal care and activities in the home. As already indicated, greater autonomy and other efforts to provide accommodations in the workplace enable people with arthritis to remain employed. Many of the needed accommodations are relatively simple and relate to greater flexibility, and can help to ensure the continued participation of women with arthritis in the work force, as well as other people with disabilities.
Health care strategy for arthritis

A comprehensive health strategy to reduce the impact of arthritis is required in Ontario, to reduce the burden of arthritis on the people affected and on society in general. An overall strategy has been proposed in Arthritis and Related Conditions: An ICES Practice Atlas, directed to people with arthritis and their families. The components include: primary care services, rehabilitation and community support services, health education and health promotion, specialist and hospital services, and health policy and planning. The overall premise of this strategy is that people with arthritis and their families need access to all these services in a timely and appropriate manner. The ultimate goal of care is to improve the situation of people with arthritis and their families.

Figure 22: A comprehensive strategy for the control of arthritis and related conditions in Ontario

Health promotion and health education

Health promotion targeted to the prevention of arthritis is needed. Evidence is mounting that some osteoarthritis can be prevented by the control of obesity and prevention of musculoskeletal injury. People with arthritis are more likely to be overweight than those without arthritis, and this holds true across all ages. Over a third of women reporting arthritis in the 1996 Ontario Health Survey were severely overweight compared with only 19% of women without arthritis. Half of men with arthritis report being overweight, compared to a third without arthritis. Studies suggest that risk factor modification such as weight reduction and avoidance of occupational and other injuries may prevent the development of osteoarthritis of the knee. It has also been shown that weight reduction can contribute to relief of the pain associated with arthritis.

Many of the arthritis-related conditions are minor and self-limiting, and do not require medical intervention. Education about how to deal with these disorders is needed, such as the adequate dosage of pain-relievers, simple physical remedies, and when it is important to seek medical care.

Currently health promotion and health education initiatives related to arthritis are not well coordinated and not universally available.
People with arthritis and their families

For people with established or serious arthritis there is a need for education about ‘self-management’ strategies. Self-management includes teaching techniques for controlling pain and other symptoms, the benefits of exercise, use of assistive devices and adaptations, as well as information about medication, surgery, and appropriate consultation with health professionals. There are a range of medications for arthritis, some of which are available on prescription and some over the counter, which have been shown to be effective in reducing the pain of arthritis. The evidence shows that the use of so-called ‘self-management’ strategies can lead to significant decreases in pain and medical consultation as well as increases in self-efficacy among participants. In has been shown that patient education interventions provide benefits that are 20-30% as effective in reducing pain as treatment by medication, and 40% as effective in improving disability, leading to fewer physician consultations. Exercise programs for people with arthritis have been shown to result in significant improvements in pain and disability, as well as a decreased need for medication.

Rehabilitation and community support services

A range of community support and rehabilitation services need to be in place both for formal treatment and to facilitate ‘self-management’. Both physical and occupational therapy have important and complementary roles in the maintenance of function and the control of disability for people with rheumatic disorders. People with arthritis may also need orthotics and perhaps special shoes. Services to facilitate ‘self-management’ range from structured community based programs to support groups. With the changes in health care, rehabilitation health professionals are increasingly working in community-based settings, and rehabilitation services are becoming less available through the hospital sector. An important community-level provision is the availability of appropriate classes or other facilities that offer exercise programs appropriate for people with rheumatic disorders, including exercise in water. In Ontario, the Arthritis Society Consultation and Rehabilitation Service provides a model of service for people with arthritis, as well as providing expert consultation to other community-based health and rehabilitation care providers. The Arthritis Society also runs the Arthritis Self-Management Program which is available in selected locations throughout Ontario.

Primary care

Most people with arthritis consult primary care physicians. It is important that these professionals have the training and experience to carry out appropriate investigations, to make a correct diagnosis and to prescribe appropriate treatment. The latter might include advice about self-management techniques. The primary care practitioner can be viewed as a gate-keeper. The practitioner may manage the problem or a referral may be made.

Unfortunately, the literature suggests that primary-care training in musculoskeletal conditions is deficient, and this is supported by evidence that there may be problems with the primary-care diagnosis, treatment, and referral of patients with musculoskeletal conditions in some cases. Enhanced education of physicians is an important component in improving the care available to women with arthritis.

Specialist and hospital services

Patients with severe, unusual, or long-standing conditions may be referred to specialist care, particularly to rheumatologists and orthopaedic surgeons. Some forms of arthritis need to be managed by a rheumatologist with access to full hospital services, including inpatient beds, a full range of diagnostic and supporting services, and referral to rehabilitation and community services. Orthopaedic surgery is an essential part of care for corrective and pain relieving surgery to joints. Most notably joint replacement surgery is one of the most cost-effective surgical procedures. It is a major component of the treatment of advanced osteoarthritis (the most common form of arthritis in the population), and restores function and
decreases pain.8

Currently there are variations in the availability of rheumatology and orthopaedic services within the province, as well as barriers to referral to specialists.15,84 These are issues which merit further investigation and discussion.

Health policy and planning
All these services need to be viewed within the framework of health policy and planning. This means that there is a need for information to support the development, provision, and funding of appropriate services. The findings from research, particularly applied health services research and evaluation studies, are also critical to the policy and planning aspects of the overall strategy for rheumatic disorders. Arthritis has not typically been high on the agenda of health policy makers, and this is a situation that needs to be remedied.

It is hoped that this report will contribute to both enhancing the services available to and improving the lives of people with arthritis in Ontario.
REFERENCES


APPENDIX 1

TYPES OF ARTHRITIS AND THEIR TREATMENT OPTIONS

The term arthritis means "inflammation of the joints", and the name is commonly used to describe a variety of conditions. The most common symptoms of arthritis include joint pain, stiffness, swelling and muscle weakness. These can lead to joint damage, that may limit the range of movement and/or deform the joint. There are more than 100 different kinds of arthritis, of which the major types are osteoarthritis and rheumatoid arthritis.

Osteoarthritis (OA) is the most common form of arthritis. Ten percent of Canadians have this chronic disease that causes the deterioration of the cartilage in one or more joints, resulting in damage to the joint, pain and stiffness. OA typically affects the hips, knees, or joints of the hands or feet. Risk factors for the development of OA include old age, heredity, obesity, trauma or injury to the joints and being female. An estimated 85% of the population will develop OA by age 70, with the majority being women.

There is no cure for osteoarthritis, but it can be treated. In addition to medication (such as acetaminophen, ASA and non-steroidal anti-inflammatories), the symptoms of osteoarthritis can be lessened through exercise, physiotherapy, weight reduction and muscle strengthening. In more severe cases, the entire joint, such as a hip or knee, may be replaced through surgery.

Rheumatoid arthritis (RA) is a “systemic autoimmune disease” and affects 1 in every 100 people in Canada. In RA, the body's immune system begins to attack the body itself, resulting in chronic destructive inflammation of the joints. RA can cause disability, deformity of the joints and damage to other organ systems. The cause of RA is unknown, but we do know that women are two to three times more likely to be affected by rheumatoid arthritis than men.

Treatment can keep the disease under control and forestall some of the disabilities that RA can cause. Like OA, RA can be treated through exercise, physiotherapy and prescription anti-inflammatory drugs; most people with RA also require disease modifying antirheumatic drugs, which have been shown to alter the course of the disease. Reconstructive surgery can be used in the most extreme cases.

There are a number of other types of arthritis or related conditions that are significant for women:

Fibromyalgia syndrome or fibrositis is a form of rheumatism characterised by widespread muscular aching, tenderness, chronic fatigue, and sleep disruption. Very little is known about the cause of fibromyalgia, but about 3% of Canadians have fibromyalgia and the majority are women. The pain of fibromyalgia can be treated with medication, exercise can strengthen muscles, and physiotherapy can increase flexibility; however, most people with fibromyalgia also find it necessary to change their lifestyle due to their lack of energy.

Some of the rarer forms of arthritis and rheumatism may not affect a large number of people, but affect many more women than they do men. Systemic lupus erythematosus is a chronic rheumatic disease that causes inflammation of the body's tissues; it affects 8 to 10 times as many women as men. Scleroderma, a rheumatic disease that causes scarring of the skin and sometimes of the internal organs, is three times more prevalent among women than among men. Juvenile arthritis affects about 6000
children in Canada, and like rheumatoid arthritis among adults, it is three times more likely to affect girls than boys.

These conditions can be treated through a multi-disciplinary approach, including medication as well as lifestyle changes (to accommodate the fatigue and sensitivity to the sun caused by lupus), functional splints for support (scleroderma) or physiotherapy, splints and education (JA).

Some forms of arthritis and rheumatism, notably gout, ankylosing spondylitis and Reiter's syndrome, are more likely to affect men than women.

For more information regarding these and other related conditions, please contact The Arthritis Society at 1-800-321-1433.
APPENDIX 2
SUPPLEMENTARY FIGURES AND TABLES

The figures and tables in this appendix complement and complete those included in the main body of the report entitled *The Impact of Arthritis on the Women in Ontario*.

The main content of this appendix are figures and tables which relate to the experience of arthritis in men. Comparison figures and tables for women are in the main report. Some figures and tables are included for both men and women to supplement the information in the main report, which, in the interest of brevity, provided only an overall description.

Appendix 2: Table of Contents

Figure A1: Proportion of men aged 15 years and older reporting different long term physical health problems

Figure A2: Proportion of men reporting long term physical health problems by age

Figure A3: Distribution of percentage of men with and without arthritis over different educational levels in Ontario, 1996

Figure A4: Distribution of percentage of men with and without arthritis over different income levels in Ontario, 1996

Figure A5a: Proportion of women with and without arthritis reporting fair or poor self reported health by age

A5b: Proportion of men with and without arthritis reporting fair or poor self reported health by age

Figure A6a: Proportion of women with and without arthritis reporting pain that prevents activity by age

A6b: Proportion of men with and without arthritis reporting pain that prevents activity by age

Figure A7a: Use of pain medication in previous 2 weeks by women with and without arthritis

A7B: Use of pain medication in previous 2 weeks by men with and without arthritis

Figure A8a: Proportion of women with and without arthritis who report having to cut down on activities or stay in bed because of health problem in the previous 2 weeks

A8b: Proportion of men with and without arthritis who report having to cut down on activities or stay in bed because of health problem in the previous 2 weeks

Figure A9: Proportion of men with and without arthritis reporting long term disability
Figure A10: Proportion of men with and without arthritis who report at least some dependence

Figure A11: Type of dependence experienced by men with arthritis

Figure A12: Proportion of men with and without arthritis who are not in the labour force

Figure A13: Proportion of working age men with arthritis disability reporting limitation in work, and believing themselves to be considered disadvantaged by an employer

Figure A14: Proportion of men with arthritis disability (employed and not in the labour force) requiring adaptations at work

Figure A15: Proportion of men with and without arthritis with four or more GP visits in a year

Figure A16: Proportion of men with and without arthritis with visits to other doctors in previous years

Figure A17: Proportion of men with and without arthritis with visits to physiotherapists within a year

Figure A18: Proportion of men with and without arthritis with an overnight hospital stay in previous year

Table A1: Ranking of top three most frequent health conditions for long term and two-week impact of arthritis in women and men

Table A2: Ranking of top three most frequent health conditions by age group for long term and two-week impact of arthritis in women and men

Table A3: Indicators of impact of arthritis on the lives of people with arthritis associated disability

Table A4: Characteristics that increase the chances of women and men with arthritis being out of the labour force

Table A5: Consultations with health professionals due to arthritis for women and men

Table A6: Ranking of top three most frequent health conditions for women and men, resulting in health care utilization in previous 2 weeks

Table A7: Ranking of top three most frequent health conditions for men by age groups, resulting in health care utilization in previous 2 weeks. The percentage of men aged 16+ with utilization is shown in parentheses.

Table A8: Age adjusted average annual cost for health services in Ontario, 1994
Figure A1: Proportion of men aged 15 years and older reporting different long term physical health problems.
Figure A2: Proportion of men reporting different long term physical health problems by age

a) 15-44 years

- Allergies (non food)
- Back Problems
- Asthma
- Food Allergies
- Migraine
- Arthritis/Rheumatism
- Other Chronic Condition
- Sinusitis
- High Blood Pressure
- Stomach/Intestinal Ulcers

b) 45-64 years

- Back Problems
- Allergies (non food)
- Arthritis/Rheumatism
- High Blood Pressure
- Other Chronic Condition
- Heart Disease
- Diabetes
- Food Allergies
- Sinusitis
- Migraine

c) 65+ years

- Arthritis/Rheumatism
- High Blood Pressure
- Heart Disease
- Back Problems
- Allergies (non food)
- Diabetes
- Other Chronic Conditions
- Cancer
- Asthma
- Bronchitis/Empysema
Figure A3: Distribution of percentage of men with and without arthritis over different educational levels in Ontario, 1996

Figure A4: Distribution of percentage of men with and without arthritis over different income levels in Ontario, 1996
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Figure A5b: Proportion of men with and without arthritis reporting fair or poor self reported health by age

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- With arthritis
- No arthritis

Figure A7b: Use of pain medication in previous 2 weeks by men with and without arthritis

- With arthritis
- No arthritis

Figure A8a: Proportion of women with and without arthritis who report having to cut down on activities or stay in bed because of health problem in the previous 2 weeks

Figure A8b: Proportion of men with and without arthritis who report having to cut down on activities or stay in bed because of health problem in the previous 2 weeks
Figure A9: Proportion of men with and without arthritis reporting long term disability

- With arthritis
- No arthritis

Figure A10: Proportion of men with and without arthritis who report at least some dependence

- With arthritis
- No arthritis

Figure A11: Type of dependence experienced by men with arthritis

- Personal Care
- Domestic
- Heavy household chores
Figure A12: Proportion of men with and without arthritis who are not in the labour force

![Bar chart showing the proportion of men with and without arthritis who are not in the labour force.]

Figure A13: Proportion of working age men with arthritis disability reporting limitation in work, and believing themselves to be considered disadvantaged by an employer

![Bar chart showing the proportion of working age men with arthritis disability reporting limitation in work and believing themselves to be considered disadvantaged by an employer.]

Figure A14: Proportion of men with arthritis disability (employed and not in labour force) requiring adaptations at work

![Bar chart showing the proportion of men with arthritis disability requiring adaptations at work by type of adaptation and employment status.]

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ACREU Working Paper 99-5, October 1999
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Figure A16: Proportion of men with and without arthritis with visits to other doctors in previous year

Figure A17: Proportion of men with and without arthritis with visits to physiotherapists within a year

Figure A18: Proportion of men with and without arthritis with an overnight hospital stay in previous year
Table A1: Ranking of top three most frequent health conditions for long term and two-week impact of arthritis in women and men

<table>
<thead>
<tr>
<th>Morbidity Indicator</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longterm:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic condition</td>
<td>1. Allergy (22.1)</td>
<td>1. Allergy (17.2)</td>
</tr>
<tr>
<td></td>
<td>2. Arthritis (18.1)</td>
<td>2. Circulatory (12.4)</td>
</tr>
<tr>
<td></td>
<td>3. Circulatory (14.4)</td>
<td>3. Arthritis (12.2)</td>
</tr>
<tr>
<td>Longterm disability</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Arthritis (2.8)</td>
<td>1. Arthritis (1.9)</td>
</tr>
<tr>
<td></td>
<td>2. Circulatory (1.1)</td>
<td>2. Circulatory (1.6)</td>
</tr>
<tr>
<td></td>
<td>3. Respiratory (0.7)</td>
<td>3. Respiratory (0.6)</td>
</tr>
<tr>
<td>2-week window:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restricted activity days</td>
<td>1. Respiratory (5.5)</td>
<td>1. Respiratory (4.1)</td>
</tr>
<tr>
<td></td>
<td>2. Arthritis (1.5)</td>
<td>2. Arthritis (1.2)</td>
</tr>
<tr>
<td></td>
<td>3. Digestive (1.0)</td>
<td>3. Circulatory (0.7)</td>
</tr>
</tbody>
</table>

*Source: Additional analysis based on Badley EM, Rasooly I, Webster GK.23

Table A2: Ranking of top three most frequent health conditions by age group for long term and two-week impact of arthritis in women and men

<table>
<thead>
<tr>
<th>Morbidity Indicator</th>
<th>Age group</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16-44</td>
<td>45-64</td>
<td>65+</td>
<td></td>
</tr>
<tr>
<td>Longterm:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic condition</td>
<td>1. Allergies (26.3)</td>
<td>1. Allergies (20.1)</td>
<td>1. Allergies (25.0)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Arthritis (7.7)</td>
<td>2. Arthritis (5.3)</td>
<td>2. Arthritis (18.6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Respiratory (5.7)</td>
<td>3. Digestive (4.9)</td>
<td>3. Circulatory (19.6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long term disability</td>
<td>1. Arthritis (1.2)</td>
<td>1. Arthritis (0.9)</td>
<td>1. Arthritis (3.9)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Respiratory (0.7)</td>
<td>2. Circulatory (0.3)</td>
<td>2. Circulatory (1.4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Circulatory (0.2)</td>
<td>3. Respiratory (0.3)</td>
<td>3. Respiratory (0.8)</td>
<td></td>
</tr>
<tr>
<td>2-week window:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restricted activity days</td>
<td>1. Respiratory (6.4)</td>
<td>1. Respiratory (4.6)</td>
<td>1. Respiratory (4.9)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Digestive (1.0)</td>
<td>2. Arthritis (0.9)</td>
<td>2. Arthritis (2.0)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Arthritis (0.8)</td>
<td>3. Digestive (0.4)</td>
<td>3. Circulatory (1.0)</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Additional analysis based on Badley EM, Rasooly I, Webster GK.23
Table A3: Indicators of impact of arthritis on the lives of people with arthritis associated disability

<table>
<thead>
<tr>
<th>INDICATOR OF IMPACT ON DAILY LIFE</th>
<th>PERCENT WITH DISABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
</tr>
<tr>
<td><strong>Mobility</strong></td>
<td></td>
</tr>
<tr>
<td>At least some trouble with mobility (1)</td>
<td>91.2</td>
</tr>
<tr>
<td>Trouble or unable to climb stairs</td>
<td>67.5</td>
</tr>
<tr>
<td>Trouble or unable to walk 400 yards</td>
<td>63.3</td>
</tr>
<tr>
<td>Trouble or unable to stand &gt;20 mins</td>
<td>65.0</td>
</tr>
<tr>
<td>Trouble or unable to move from room to room</td>
<td>16.0</td>
</tr>
<tr>
<td>Cannot leave residence or only with attendant</td>
<td>28.1</td>
</tr>
<tr>
<td>Has special features to enter home</td>
<td></td>
</tr>
<tr>
<td>-does not have, but needs</td>
<td>6.0</td>
</tr>
<tr>
<td>Has special features within the home</td>
<td></td>
</tr>
<tr>
<td>- does not have, but needs</td>
<td>13.3</td>
</tr>
<tr>
<td>Uses any walking aid</td>
<td></td>
</tr>
<tr>
<td>- needs a waking aid</td>
<td>23.6</td>
</tr>
<tr>
<td>Cannot take long distance trips</td>
<td>22.2</td>
</tr>
<tr>
<td><strong>Physical independence</strong></td>
<td></td>
</tr>
<tr>
<td>Some dependence because of disability (2)</td>
<td>72.1</td>
</tr>
<tr>
<td>Dependent on help weekly or more often (2)</td>
<td>48.6</td>
</tr>
<tr>
<td>Trouble or unable to pick up object</td>
<td>51.9</td>
</tr>
<tr>
<td>Trouble or unable to cut toe/finger nails</td>
<td>44.3</td>
</tr>
<tr>
<td>Trouble or unable to get in/out bed</td>
<td>22.8</td>
</tr>
<tr>
<td>Trouble or unable to dress</td>
<td>17.7</td>
</tr>
<tr>
<td>Difficulties using the bath</td>
<td></td>
</tr>
<tr>
<td>- modifications to bath</td>
<td>32.9</td>
</tr>
<tr>
<td>Difficulties using the toilet</td>
<td></td>
</tr>
<tr>
<td>- modifications to toilet</td>
<td>7.6</td>
</tr>
<tr>
<td><strong>Social integration</strong></td>
<td></td>
</tr>
<tr>
<td>Lives alone (c.f. 8.5% in non-disabled population)</td>
<td>30.0</td>
</tr>
<tr>
<td>Never participates in social activities with family or friends</td>
<td>17.1</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
</tr>
<tr>
<td>Employed (All ages, c.f. 63.8% in non-disabled population)</td>
<td>9.9</td>
</tr>
<tr>
<td>Not in labour force because of condition (3) (population aged &lt;65 yrs)</td>
<td>54.6</td>
</tr>
<tr>
<td>Never attends sporting events, concerts, plays or movies</td>
<td>76.0</td>
</tr>
<tr>
<td>Never participates in arts, crafts, gardening or other hobbies</td>
<td>38.0</td>
</tr>
<tr>
<td>Never visits family or friends</td>
<td>15.0</td>
</tr>
<tr>
<td><strong>Economic self-sufficiency</strong></td>
<td></td>
</tr>
<tr>
<td>Income &lt;$20,000 (in 1986, c.f. 24% in non-disabled population)</td>
<td>58.8</td>
</tr>
<tr>
<td>Out of pocket expenses because of disability (4)</td>
<td>43.5</td>
</tr>
<tr>
<td><strong>Base population (thousands)</strong></td>
<td>356.9</td>
</tr>
</tbody>
</table>
Footnotes to Table A3:
The overall prevalence of arthritis-related disability in adults (age 15+) in households is 2.5%.37
1. Has trouble or is unable to do one or more of the following: walk 400 yards without resting, walk up or down a flight of stairs, carry an object of 10 pounds for 30 feet, move from one room to another, stand for more than 20 minutes.
2. Dependence, help because of health problem. Occasional: heavy household chores; looking after personal finances (e.g. banking, paying bills). Weekly or more frequent: shopping for groceries or other necessities; everyday housework. Daily: personal care (e.g. washing, grooming, dressing, feeding); moving about within own residence; preparing meals.
3. Not in labour force and health problem completely prevents working at a job or business.
4. Out-of-pocket expenses: includes for medication, special aids or supplies, health and medical services not covered by insurance, modifications to residence, transportation, personal services (e.g. attendant, housekeeping services etc).

Source: Additional analysis based on Badley EM. 38
### Table A4: Characteristics that increase the chances of women and men with arthritis being out of the labour force

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Risk (Odds Ratio)*</td>
<td></td>
</tr>
<tr>
<td>Arthritis</td>
<td>Disabling (versus no arthritis)</td>
<td>1.92 (versus no arthritis) 2.68</td>
</tr>
<tr>
<td>Pain</td>
<td>Pain that prevents activities (versus none, or pain that does not prevent activities)</td>
<td>1.23 (versus none, or pain that does not prevent activities) 1.32</td>
</tr>
<tr>
<td>Age in years</td>
<td>25-34</td>
<td>1.45</td>
</tr>
<tr>
<td></td>
<td>35-44</td>
<td>1.30</td>
</tr>
<tr>
<td></td>
<td>45-54</td>
<td>1.87</td>
</tr>
<tr>
<td></td>
<td>55-64</td>
<td>9.60</td>
</tr>
<tr>
<td></td>
<td>(versus 16-24)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>Low (versus not low)</td>
<td>1.98</td>
</tr>
<tr>
<td>Family Status</td>
<td>Live alone</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td>Couple with dependent children</td>
<td>1.79</td>
</tr>
<tr>
<td></td>
<td>(versus couple without children)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Couple with independent children</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(versus couple without children)</td>
<td></td>
</tr>
</tbody>
</table>

*holding all other predictors constant

odds ratio >1 = increased risk
odds ratio < 1 = decreased risk


### Table A5: Consultations with health professionals due to arthritis for women and men

<table>
<thead>
<tr>
<th>Health Problem Related Behavior</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last consultation* . % distribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within last 12 months</td>
<td>67.2</td>
<td>65.5</td>
</tr>
<tr>
<td>1 to 2 years ago</td>
<td>8.6</td>
<td>7.5</td>
</tr>
<tr>
<td>3 to 5 years ago</td>
<td>6.6</td>
<td>6.5</td>
</tr>
<tr>
<td>More than 5 years ago</td>
<td>7.7</td>
<td>7.8</td>
</tr>
<tr>
<td>Never</td>
<td>8.6</td>
<td>11.7</td>
</tr>
</tbody>
</table>

*Source: Badley EM, Webster GK, Rasooly I, 1990
Table A6: Ranking of top three most frequent health conditions for women and men, resulting in health care utilization in previous 2 weeks

<table>
<thead>
<tr>
<th>Morbidity Indicator</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consulting health professional</td>
<td>1. Respiratory (2.7)</td>
<td>1. Circulatory (2.1)</td>
</tr>
<tr>
<td></td>
<td>2. Arthritis (2.2)</td>
<td>1. Respiratory (2.1)</td>
</tr>
<tr>
<td></td>
<td>3. Circulatory (2.1)</td>
<td>2. Arthritis (1.8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Digestive (1.6)</td>
</tr>
<tr>
<td>Prescription drug use</td>
<td>1. Circulatory (10.1)</td>
<td>1. Circulatory (9.1)</td>
</tr>
<tr>
<td></td>
<td>2. Metabolic (6.3)</td>
<td>2. Respiratory (3.9)</td>
</tr>
<tr>
<td></td>
<td>3. Arthritis (5.1)</td>
<td>3. Arthritis (3.3)</td>
</tr>
<tr>
<td>Nonprescription drug use</td>
<td>1. Respiratory (6.4)</td>
<td>1. Respiratory (5.6)</td>
</tr>
<tr>
<td></td>
<td>2. Arthritis (2.7)</td>
<td>2. Arthritis (1.5)</td>
</tr>
<tr>
<td></td>
<td>3. Allergies (1.7)</td>
<td>2. Allergies (1.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Digestive (1.0)</td>
</tr>
</tbody>
</table>

*Source: Additional analysis based on Badley EM, Rasooly I, Webster GK.23

Table A7: Ranking of top three most frequent health conditions for men by age group, resulting in health care utilization in previous 2 weeks. The percentage of men aged 16+ with utilization is shown in parentheses.

<table>
<thead>
<tr>
<th>Type of Health Care Utilization</th>
<th>Age group</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16-44</td>
<td>45-64</td>
<td>65+</td>
</tr>
<tr>
<td>Consulting health professional</td>
<td>1. Respiratory (1.9)</td>
<td>1. Circulatory (3.6)</td>
<td>1. Circulatory (6.9)</td>
</tr>
<tr>
<td></td>
<td>2. Digestive (1.6)</td>
<td>2. Arthritis (2.5)</td>
<td>2. Respiratory(2.9)</td>
</tr>
<tr>
<td></td>
<td>3. Arthritis (1.4)</td>
<td>3. Respiratory (2.4)</td>
<td>3. Arthritis (2.5)</td>
</tr>
<tr>
<td>Prescription drug use</td>
<td>5. Arthritis (1.2)</td>
<td>1. Circulatory (15.1)</td>
<td>1. Circulatory (34.1)</td>
</tr>
<tr>
<td></td>
<td>2. Arthritis (5.0)</td>
<td>2. Arthritis (10.4)</td>
<td>3. Metabolic (9.4)</td>
</tr>
<tr>
<td></td>
<td>3. Metabolic (4.6)</td>
<td>3. Metabolic (9.4)</td>
<td>3. Metabolic (9.4)</td>
</tr>
<tr>
<td>Non-prescription drug use</td>
<td>5. Arthritis (0.6)</td>
<td>1. Respiratory (5.3)</td>
<td>1. Metabolic (9.4)</td>
</tr>
<tr>
<td></td>
<td>2. Arthritis (2.4)</td>
<td>2. Arthritis (3.7)</td>
<td>3. Respiratory (2.5)</td>
</tr>
<tr>
<td></td>
<td>3. Metabolic (4.6)</td>
<td>3. Respiratory (2.5)</td>
<td>3. Respiratory (2.5)</td>
</tr>
</tbody>
</table>

*Source: Additional analysis based on Badley EM, Rasooly I, Webster GK.23
Table A8: Age adjusted average annual cost for health services in Ontario, 1994

<table>
<thead>
<tr>
<th></th>
<th>Ontario Health Insurance Plan</th>
<th>Canadian Institute for Health Information</th>
<th>Ontario Drug Benefit Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men with arthritis</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>age &lt;65</td>
<td>$514</td>
<td>$301</td>
<td>N/A</td>
</tr>
<tr>
<td>age 65+</td>
<td>$824</td>
<td>$1572</td>
<td>$526</td>
</tr>
<tr>
<td><strong>Men without arthritis</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>age &lt;65</td>
<td>$283</td>
<td>$220</td>
<td>N/A</td>
</tr>
<tr>
<td>age 65+</td>
<td>$887</td>
<td>$2,004</td>
<td>$525</td>
</tr>
</tbody>
</table>

APPENDIX 3

DATA SOURCES

1996 Ontario Health Survey (OHS 1996)

The 1996 Ontario Health Survey (OHS) is a part of the National Population Health Survey 1996/97 (NPHS) conducted by Statistics Canada in 1996/97.

The target population of the NPHS was all household residents living in each of the 10 provinces at the time of the survey. The sample design for the NPHS household survey was a multi-stage stratified cluster sample design. In the first stage, homogeneous strata were formed and independent samples of clusters were drawn from each stratum. In the second stage, dwelling lists were prepared for each cluster and dwellings, or households, were selected from the lists. Residents of Indian Reserves, Canadian Forces Bases, and some remote areas in Ontario were not included in the survey. The survey consisted of a personal interview with one knowledgeable person providing general socio-demographic and health information of all household members. One person per household was randomly selected to provide in-depth health information. Responses were obtained primarily by telephone rather than personal interview. The Ontario provincial government provided extra funding to permit a larger sample of dwellings than was available from the national survey. The purpose of this buy-in was to increase the sample size to allow for reliable cross-sectional estimates at the sub-provincial health area level. In Ontario 1,200 respondents for each of 23 health areas were required with the exception of Toronto and Ottawa where 3,000 and 2,000 respondents respectively were required. In all 110,845 household respondents in Ontario were included in the survey.

Reference:

1986 and 1991 Health and Activity Limitation Surveys (HALS)

The Health and Activity Limitation Surveys (HALS) were conducted by Statistics Canada in the fall of 1986 and 1991. The HALS survey focused on persons with disabilities. The target population was all persons with physical or psychological disabilities aged 15 years and older who were living in private households in Canada at the time of the 1986 and 1991 Canadian Censuses. A 2-stage methodology was employed. The first stage was comprised of a question in the Census to identify individuals with activity limitation. In the second stage a sample of individuals indicating “yes” to the activity limitation census question were given a telephone interview. Of these individuals, 5% converted from a no to a yes, and were added to the sample of disabled persons. Those with no confirmed activity restriction comprised the non-disabled subjects in this study. In all 132,337 adults residing in households throughout Canada were included in the 1986 survey, 54% of whom had activity restriction. The overall response rate was 90% with 12% of the responses being obtained via proxy. The 1991 comprised 25,942 disabled and 65,413 non-disabled adults residing in households throughout Canada. The overall response rate was 86% with 12% of the responses being obtained via proxy. Residents of all 10 provinces and 2 territories, and persons living on Indian reserves were included. Permanent residents of collective dwellings and health related institutions, penal institutions and correctional facilities were excluded from the household survey.
Reference:


1990 Ontario Health Survey (OHS 1990)

The Ontario Health Survey (OHS) was conducted by the Ontario Ministry of Health in 1990. The target population was all persons aged 12 years and older who were living in private households in Ontario at the time of the survey. The study was based on a complex stratified cluster sample of the household dwelling population. A two stage methodology was employed. The first stage consisted of an interview with one responsible household member concerning the health of all household members. The second stage was a self-completed questionnaire given to household members 12 years and older. In all 45,650 adults residing in households throughout Ontario were included in the survey. The overall response rate was 87% for the household interview and 77% for the self-completed questionnaire. Inmates of institutions, foreign service personnel and residents of remote areas were excluded.

Reference: