



Arthritis: A Health and Economic Challenge in Canada

Executive Summary

Today, 4.6 million Canadians are living with arthritis, two-thirds of whom are women, and the numbers are rising. By 2021, it is predicted that 21-26% of Canadians will have arthritis or one of its 100 related autoimmune disorders like lupus, rheumatoid arthritis, psoriatic arthritis, scleroderma and vasculitis. These diseases are inflammatory, not only affecting joints but major organs (e.g. lungs, heart, kidneys and skin).

For Canadians of all ages living with the disease, arthritis has an enormous impact on quality of life. A prolonged course of arthritis may result in extended periods of pain and suffering, reduced sleep, depression and unemployment. One in three people living with arthritis who were surveyed reported they were forced to quit their job because of their arthritis; within 10 years of contracting rheumatoid arthritis, 50% of people can't work. 55% of people affected reported going to work, despite great pain and discomfort.

Arthritis and the related autoimmune disorders are the leading cause of illness and disability in Canada. As noted in '2010 Life with Arthritis, A personal and public health challenge', published by the Public Health Agency of Canada, the annual economic burden of arthritis in Canada is \$6.4 billion. It needs to be noted that arthritis is NOT an old person's affliction. It affects people from 2 to 82 and nearly two thirds (65%) of all arthritis-related costs were incurred by individuals aged 35–64 (\$4.1 billion), which emphasizes the important economic burden of arthritis in Canadians of working age.

Reducing arthritis-related disability has the potential to significantly reduce costs for both the health-care system and for employers, and increase life expectancy for Canadians. Arthritis and autoimmune conditions account for over 10% of the total economic burden of illness in Canada, yet only 1.3% of attributed health science research is dedicated to this area. If the health and economic burden of arthritis is to be mitigated, we must invest much more in arthritis research to help develop new treatments and therapies and, eventually, a cure.

The Arthritis Research Foundation is poised to make significant investments in arthritis research and asks the federal government to invest \$15 million, which will allow the Foundation to leverage private sector funds and significantly advance arthritis research in Canada.

Arthritis Research Foundation

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The Foundation intends to focus the \$30-million dollar investment (\$15-million federal investment and \$15-million matching private-sector investment) in the following priority research areas:

1. Women and Arthritis
2. Imaging Inflammation
3. Precision (Personalized) Medicine
4. Innovative Research

Given the costs and burden of arthritis to the health of millions of Canadians, the impact and cost to the Canadian economy, and the relative under-funding of arthritis research in Canada, we must make arthritis research a higher priority in Canada. The Arthritis Research Foundation has the opportunity to make great strides in the fight against arthritis, and welcomes the federal government as a partner in our goal to find a cure for this disease.

Arthritis: A Health and Economic Challenge

Arthritis is the leading cause of illness and disability in Canada. “Arthritis” describes more than 100 autoimmune diseases like rheumatoid arthritis, lupus and osteoarthritis, which affect a joint or joints causing pain, swelling and stiffness which often lead to disability. It is one of the most prevalent chronic health conditions in Canada and a major cause of disability and health-care utilization.

Arthritis can have a major impact on individuals and families, with many people reporting fair or poor general and mental health, needing help with daily activities in addition to limitations in work, community, social and civic life. On average, over a quarter of men and women with arthritis aged 25-44 were not in the labour force because of their arthritis.

As noted in ‘2010 Life with Arthritis, A personal and public health challenge’, published by the Public Health Agency of Canada, the economic burden of arthritis in Canada was estimated to be \$6.4 billion in 2000 — over one-quarter (29%) of the total cost of musculoskeletal diseases. Of the total arthritis-related costs, the greatest impact is due to the indirect costs (\$4.3 billion), which consist of lost production attributable to long-term disability and premature death, versus direct costs (\$2.1 billion), which include hospital, drug, physician and additional health-care expenditures. This indirect cost is underestimated, as short-term disability costs were not available at the time of the study. Nearly two-thirds (65%) of the total arthritis-related costs were incurred by individuals aged 35–64 (\$4.1 billion), which emphasizes the important economic burden of arthritis in Canadians of working age.

For Canadians of all ages living with the disease, arthritis has an enormous impact on quality of life. A prolonged course of arthritis may result in extended periods of pain and suffering, reduced sleep, depression and unemployment. Reducing arthritis-related disability has the

potential to significantly reduce costs for both the health care system and employers, and increase life expectancy for Canadians.

Facts About Arthritis and Autoimmune Conditions

- 4.6 million Canadians are directly affected, two-thirds of whom are women, and the numbers are rising
- Arthritis is not confined to older adults; the majority of Canadians with arthritis are of working age (less than 65 years)
- An estimated 1 in 1,000 Canadian children below the age of 16 lives with juvenile arthritis
- By 2021, it is predicted that 21-26% of Canadians will have arthritis or one of its 100 related autoimmune disorders
- It is estimated that by 2031, 6.7 million Canadians aged 15 and older will have arthritis, with the largest increases in the older age groups, particularly among those aged 65 and older, due to an increasing number of older people. An increase is also noted in the working-age population (35-64 years of age), particularly among those aged 55-64 years.
- One in three people affected who were surveyed reported they were forced to quit their job because of their arthritis; within 10 years of contracting rheumatoid arthritis, 50% of people can't work. 55% of people affected reported going to work, despite great pain and discomfort.
- Arthritis is the second-most chronic condition reported by women and the most frequently reported disability among women
- Arthritis and related autoimmune disorders are a more common cause of death than melanoma, asthma or HIV.

Arthritis Research: The Challenge We Face

While the prevalence and economic burden of arthritis are growing, arthritis research is underfunded compared to other disease research. Arthritis and autoimmune conditions account for over 10% of the total economic burden of illness in Canada, yet only 1.3% of attributed health science research is dedicated to this area.

As illustrated by recent data from the Public Health Agency of Canada, musculoskeletal disease is the disease category with the highest cost due to illness, with particularly high indirect costs to society. A recent report points out that, despite this, the Canadian Institutes of Health Research (CIHR) spent \$19 million on arthritis-related research in 2005-2006, representing just \$4.30 for every person with arthritis. For comparison, diabetes research received three times as much funding (about \$12.83 per person with diabetes); cancer research received 32 times as much funding (about \$138.60 per person with cancer.)¹ The study also notes that, although it is difficult to directly compare the burden and costs of diverse diseases, these findings warrant greater attention in funding and policy decisions.

If the health and economic burden of arthritis is to be mitigated, Canada must invest much more in arthritis research to help develop new treatments and therapies, and eventually a cure. The Arthritis Research Foundation (the Foundation) is a major funder of arthritis research in Canada and over the past 16 years has raised over \$30 million from the private sector for arthritis research. The Foundation has the opportunity to secure millions more in private sector funding for arthritis research but requires a federal investment to convert this opportunity.

The Foundation is best positioned to find a cure for arthritis and related autoimmune disorders. We pride ourselves on our consistent levels of excellence in terms of our research and published papers. In fact, our research has led to higher rates of scientific recognition than other research facilities including Johns Hopkins, University of Alabama and UCSF.

The Arthritis Research Foundation is poised to make significant investments in arthritis research and asks the federal government to invest \$15 million, which will allow the Foundation to leverage private-sector funds and significantly advance arthritis research in Canada.

The Foundation intends to focus the \$30-million dollar investment (\$15-million federal investment and \$15-million matching private sector investment) in the following priority research areas:

1. Women and Arthritis

Foundation researchers will work to understand why arthritis affects many more women than men, and how we can improve health-care treatment and self-management of these chronic conditions for women, leading to better therapeutics and, ultimately, a cure. This research will be carried out by a team of highly trained specialists with diverse expertise; from the basic scientist who tests a hypothesis that may lead to the discovery of a new drug, to clinicians in multiple diseases who work directly with patients and test new therapies to realize their efficacy, to the epidemiologist who studies the outcomes and impact.

2. Imaging Inflammation

This innovative research will focus on studying pain and inflammation using the most sophisticated imaging equipment available, in the state of the art STARR (*Spatio-Temporal Targeting and Amplification of Radiation Response*) Innovation Centre at the University Health Network. Scientists will be able to identify cells that cause the debilitating inflammation and pain in people suffering from arthritis and arthritis-related conditions. Early identification of these cells can lead to early diagnosis and ultimately to tailored treatments, perhaps even stopping the disease before there is irreversible damage.

3. Personalized Medicine

The Foundation and University Health Network will create a *Research Centre in Personalized Medicine*, in collaboration with Mount Sinai Hospital. The Centre's mission will be to lead an unprecedented global effort to advance research in the area of Rheumatoid Arthritis (RA). RA

afflicts 1% of the population - which translates to approximately 400,000 Canadians, including 7,000 children. RA alone currently costs the Canadian economy \$5.7 billion per year.

4. Innovative Research

With adequate financial support for scientific thought leaders, emerging research pioneers and students who aspire to be tomorrow's scientific innovators, we will improve care and find a cure. In addition, investment allows for the recruitment of new talent, supports some of the most promising scientists at a critical early stage of their careers, provides the ability to pursue new ideas, helps create new therapies and regenerative approaches, and enables the experiments that deepen our understanding of the genetics behind the diseases.

Conclusion

Given the costs and burden of arthritis to millions of Canadians, the impact and cost to the Canadian economy, and the relative under-funding of arthritis research in Canada, we must make arthritis research a higher priority in Canada. The Arthritis Research Foundation has the opportunity to make great strides in the fight against arthritis, and welcomes the federal government as a leading partner in our goal to find a cure for this disease.

About the Arthritis Research Foundation

The Arthritis Research Foundation is one of the four foundations at University Health Network (UHN) in Toronto, which is comprised of the Toronto General, Toronto Western, Toronto Rehab and Princess Margaret Hospitals. The Foundation raises, manages and invests funds for arthritis and related autoimmune disease research taking place in labs and clinics across UHN. Our goal is to provide the incredible team of over 45 researchers with the financial resources to accelerate research and ultimately find the cure. This research team includes internationally recognized leaders in genomic medicine, health services research, immunology, medical imaging, orthopaedics and rheumatology.

Through leading-edge research and a greater awareness of the realities of arthritis-related diseases, we hope for a brighter future for those suffering from these debilitating conditions, and for better musculoskeletal health in Canada.

ⁱ Alliance for the Canadian Arthritis Program, Canadian Arthritis Funding Landscape Review, August 2011.