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MS PROGRESS Report

Advancements in quality of life for Canadians with MS

Which emerging therapies have the potential to effectively lessen the severity of multiple sclerosis? Does mind-body wellness play a role? How can we learn more about the progression of the disease over time … and ultimately change the way we diagnose and treat MS?

These are just a few of the questions that your generous support is helping to answer in an effort to improve the quality of life for the 100,000 Canadians who live with MS.

Targeting progressive MS through translational research

Last June, the MS Society of Canada and Centre for Drug Research and Development (CDRD) announced a collaboration to support a translational research project that could lead to the development of new disease-modifying therapies for people living with progressive MS. Following a peer review process by experts in MS and translational research, Dr. Philippe Séguéla, from the Montreal Neurological Institute, was selected to work with CDRD to further develop his progressive MS translational project focused on blocking specific ion channels in the brain. The MS Society has committed over $120,000 for this work.

Cells in the brain called neurons communicate with each other through electrical or chemical signals. Some of these signals occur through the movement of small molecules (ions) between neurons. On the surfaces of the neurons are channels that transport the ions in and out of the cell. A group of the channels called the acid-sensing ion channels (ASICs) have been shown to contribute to neurodegeneration in MS. Researchers have identified an increased presence of ASICs in brain lesions, and have shown that blocking their function is neuroprotective in animals that mimic MS disease. With the help of experts at CDRD, Dr. Séguéla's research team propose to identify compounds that inhibit ASICs and, hence, can limit neurodegeneration in progressive MS. And your generosity is making this important work possible.

$7+ million-dollar study investigates MS progression

Why do certain people with MS progress in their disease while some do not? And why is the rate of progression faster for some than others? Those are some of the questions that the groundbreaking Canadian MS Progression Cohort study seeks to answer.

The MS Society of Canada, along with Biogen Canada and Brain Canada, are partnering together to contribute to this multi-million dollar initiative. Led by a multidisciplinary team of scientific experts and health professionals across Canada, this study will investigate biological changes that occur during progression, the effects of treatments on disease progression, real-world health outcomes, socioeconomic impacts, and many other factors.

"Being diagnosed with multiple sclerosis can be daunting. Symptoms are inconsistent and finding ways to manage the disease can be tricky. A study like this could mean an end to the guessing game," says Chantal Milne, who was diagnosed with MS in 2012.

The study is the first of its kind in the country, and is only made possible through the donations of people like you. On behalf of the 100,000 people across Canada whose lives can be significantly improved through research of this caliber, we are deeply grateful for your generosity.

Chantal Milne, mother living with MS, pictured here with her daughter.

A Message from the President

Dr. Pamela Valentine

As the recently appointed President and Chief Executive Officer of the MS Society of Canada, I am humbled, honoured and proud to help lead this organization into the future.

In this issue of Progress Report, you'll read about how the MS Society is on the forefront of research innovation and collaboration, as evidenced by such groundbreaking work as the Canadian MS Progression Cohort study and Dr. Philippe Séguéla's research into the underlying electrochemical causes of progression. Our willingness to think outside of the box and challenge conventional thinking is leading us to support research that is truly groundbreaking and offers enormous possibility for advancement.

It's natural that we would want to take a leadership role in treating and curing this disease, as it impacts us so deeply: Canada has one of the highest rates of multiple sclerosis in the world. At the same time, we know that any research advancements here in Canada will be shared around the world, to lessen the burden of MS globally as well as locally.

With your help, we are getting closer to uncovering new avenues to fight back against this disease and improve quality of life for all those who live with it. Together, let us continue to work toward the end of MS.

Sincerely,

Pamela Valentine

Dr. Pamela Valentine
President and Chief Executive Officer
Multiple Sclerosis Society of Canada

MS in the NEWS

Drug treatment Ocrevus™ now available in Canada for relapsing-remitting MS

We're pleased to tell you that Health Canada has approved the use of a new drug therapy known as Ocrevus™ (ocrelizumab) for relapsing-remitting multiple sclerosis. The drug is administered via intravenous infusion and targets white blood cells called B cells, which are believed to be involved in the abnormal immune response in MS. With its approval, this promising new treatment became the 14th disease-modifying therapy available for Canadians diagnosed with relapsing forms of MS, and is also currently under review by Health Canada for the treatment of progressive MS.

MS Society-funded researcher uncovers genetic make-up of immune cells implicated in MS

Microglia are cells that protect the central nervous system from harmful infectious agents by releasing pro-inflammatory and anti-inflammatory signals. But are these cells "good" or "bad" when it comes to MS?

Researchers, including MS Society postdoctoral fellowship recipient Dr. David Gosselin, recently uncovered new information about the genetic make-up of microglia. Findings published in the June 2017 issue of *Science* indicate that certain genes associated with neurodegenerative disorders are present in higher quantities in microglia compared to other cells in the brain. In addition, they discovered that 42 of the genes that are linked to MS are also found in microglia.

These results may provide a window into many neurological ailments such as MS. More research is needed to determine how the beneficial role of microglia can be targeted and enhanced while preventing their harmful roles. But this research represents an incredible beginning.

Health Canada approves Mavenclad™ for relapsing-remitting MS

Health Canada has approved EMD Serono's disease-modifying therapy, Mavenclad™ (oral cladribine), bringing the total number of approved drug therapies for relapsing-remitting MS to 15. Mavenclad™ targets certain types of white blood cells (lymphocytes), such as disease-causing T cells, and interferes with their ability to process DNA — leading to the depletion of these disease-causing lymphocytes and a reduction in inflammation. Mavenclad™ was previously approved by Health Canada in an injectable form for the treatment of hairy cell leukemia and is the only second-line, short-course oral treatment indicated for MS that does not cause continuous immunosuppression.

RESEARCH SPOTLIGHT:

Dr. Marcia Finlayson

Nearly two-thirds of all people with MS experience fatigue, making it one of the most commonly experienced symptoms of MS — and a difficult one to control. Dr. Marcia Finlayson wants to help people with MS cope more successfully with the physical and mental challenges they face every day.

Vice-Dean of Health Sciences and Director of the School of Rehabilitation Therapy, Dr. Finlayson is using a resource known as MS-INFoRm to help control fatigue in MS. MS-INFoRm is an innovative tool that helps participants establish personal goals and then utilize resources that help them manage fatigue. Topics include sleep, exercise, mental exertion, depression, and others. She is leading a 200-person study to compare changes in fatigue in those who've used the resource with those who have not.

> *"We hope that the use of MS-INFoRM will enable people to take a more active approach … so that fatigue has less impact on their daily lives."*
>
> — Dr. Finlayson

Meet Jennifer Charters: A community representative making her voice heard

More than five years ago, the MS Society of Canada launched an important initiative to engage members of the community in the review process for new and current research funding. These "Community Representatives," as they are known, are people who have a personal connection to MS. They provide us with critical insights into how research can impact their lives and the lives of their loved ones.

Jennifer Charters, diagnosed with MS in 2015, is one of them. We asked her a few questions to learn what being a Community Representative means to her.

Q. What inspires you to be involved with the MS Community?

A. Thanks to the advances in research and the commitment of those who have come before me, the treatment and support opportunities available provide me the opportunity to live my life the way I want to. I'm inspired to give back to keep pushing forward to end the disease.

Q. What do you hope to contribute as the voice of the MS Community in the research review process?

A. I'm excited to have the opportunity to share the personal impact of the work being proposed on someone who lives with MS every day. I think I will balance my personal connection to the disease with objectivity and contribute to well-informed decisions.

Q. Is there any area of MS Scientific research that you're especially passionate about?

A. There are several areas I'm interested in: remyelination, genetics, new technologies and methods for diagnosis, diet and exercise… Knowing what was going on in my health allowed me to dive into research, and make changes to my diet, sleep, and exercise routine while waiting to start on a DMT. While living with a chronic condition is challenging and can be unpredictable, overall I feel healthier now than before the diagnosis, I'm supported in my care, and proud to be taking positive steps towards living a productive and fulfilling life as a person with MS.

The future of MS in Canada:

by the numbers

2011 VS 2031

Canada has one of the highest rates of MS in the world – 1 in every 340 Canadians are currently living with MS. But what will the landscape of MS in Canada look like 20 years from now? Using modelling software, MS Society-funded researchers were able to make some startling predictions.

2011

Incidence of MS
4,051
cases per 100,000

Total out-of-pocket costs
$125 million

Canadians living with MS in 2011
98,000

2031

Incidence of MS
4,794
cases per 100,000

Total out-of-pocket costs
$170 million

Canadians living with MS by 2031
133,000

Statistics like these are the reason that your support is so important.

With your help, we can continue our relentless search for new treatments that will improve the quality of life for Canadians living with MS – and reduce the cost both for people living with MS and the health care system as a whole.

Leave a legacy of hope for Canadians with MS

For all those who are living with MS today – and for those who will be diagnosed tomorrow – we hope you will leave a legacy with a bequest to the MS Society of Canada. Your legacy gift will support quality of life for people living with MS and research searching for new treatments.

For more information about legacy giving, please call us at 1-800-268-7582.

World MS Day is May 30

This special time of year brings together people from around the globe in solidarity and commitment to everyone affected by MS. This year's campaign theme is research, and you can post online using #bringinguscloser to show your support. Join us on World MS Day to honour all those in your life who have been impacted by MS and to accelerate the search for new treatments and a cure.

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See you online!