

# MS<sup>®</sup> PROGRESS Report

## You've funded a vital study on children with MS. Here's what we've learned so far.

In 2004, when Dr. Brenda Banwell and her team launched the Canadian Pediatric Demyelinating Disease study, most Canadians didn't even know that multiple sclerosis (MS) could affect children at that time. But through our research, the MS Society of Canada was able to determine that many Canadian children are diagnosed with MS every year.

Over the last 15 years, the researchers have enrolled and monitored children across 23 sites, including every Children's Hospital in Canada. The children were first seen at the time of their acute illness, with additional follow-ups annually and at the time of any further demyelinating attacks. Detailed information about their symptoms, family history, and physical and cognitive health are collected at every visit. Blood samples and brain MRI studies are also obtained.

Of the 585 children participating to date, there are 133 healthy controls and 96 children who have been diagnosed with MS. The study has demonstrated **that around 1 in every 100,000 Canadian children experiences a first attack of what might be MS each year.** Over 90% of children recover well from this first attack, but approximately 20% of these children will ultimately be diagnosed with MS.

One of the study's primary goals is to understand why some children develop MS, while others have only one demyelinating attack. Understanding why some children have only a single attack — and not the lifelong disease, MS — may teach us valuable strategies for MS treatment and help to inform similar research with adults.

To date, researchers have shown that **children who were ultimately diagnosed with MS are more likely to have been infected with Epstein Barr virus, and have lower vitamin D levels** than children who experience only a single demyelinating attack. The immune cells of children with MS also show an imbalance between the “good” immune cells (those that effectively control immune reactions) and “aggressive” immune cells that attack the brain.



*Dr. Banwell's research is uncovering critical information about childhood MS, and is moving us closer to understanding MS genetics.*

At least 30% of children living with MS have trouble with learning and memory, and MRI studies have shown that children with MS have smaller brains that do not grow as expected. These critical findings emphasize the urgent need to find ways to protect the brain and to improve its ability to repair.

The MS Society of Canada has expanded our work to include The Children's Hospital of Philadelphia, one of the top-ranked pediatric hospitals in the USA. We are partnering with the US Pediatric Network of MS Centers in a study of the gut microbiome. And in an effort to better understand MS genetics, we are working with other international sites as well.

Your contributions make all our important work — and vital collaboration — possible. On behalf of every Canadian living with MS, we thank you for your loyal support.



## A Message from the President

Dr. Pamela Valentine

As president of the Multiple Sclerosis Society of Canada, I am continually humbled by the great work that's being done in every corner of our country. It's because of this amazing and dedicated group of researchers, volunteers, and donors like you that we're able to make such important progress.

Creating a world free from MS is a cause that's especially close to us as Canadians. With approximately 1 in every 385 Canadians living with MS, most of us have some sort of connection to this mysterious disease – whether it be our sister, spouse, friend or neighbour. And in order to achieve our vision of ending MS, we must continue to show our commitment and work together as one.

This spirit of unity is perfectly captured in our Acts of Greatness campaign. When we all come together, no matter how small our individual contributions may be, our collective impact has the potential to truly achieve great things. I'm so thankful that you're committing your own acts of greatness with your support of the MS Society.

When I look at what's in the pipeline for MS research, I see boundless potential for progress. But we must keep accelerating the pace at which we bring new therapies and better treatments to people diagnosed with MS. And to do so, we need your help to invest in more high-quality research and support collaborative efforts that are making real clinical impact. As you'll see in this issue of Progress Report, your efforts are truly making a profound difference for the tens of thousands of Canadians living with MS.

With your help, we are changing the future of MS research and improving the lives of all those affected by MS. Thank you for your generosity, and for making such incredible progress possible.

Sincerely,

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



## Dr. Gommerman

While there are many therapeutic options for individuals with relapsing-remitting MS (RRMS), very few effective treatments are available for individuals who have transitioned to a secondary progressive phase of MS (SPMS). With her new MS Society-funded study, Dr. Jennifer Gommerman of the University of Toronto hopes to change that.

Currently, RRMS is treated with medication that targets the immune system. While research is still unravelling the mechanisms that control the transition from RRMS to SPMS, recent results suggests that the transition may be controlled through the central nervous system.

Dr. Gommerman and her team will examine how the immune system and central nervous system interact on



a molecular level, and confirm whether this interaction is what ultimately drives MS progression. They'll do so by comparing brain tissue samples of people with SPMS with those of other forms of inflammation. They will also identify and explore different cell types and molecular signals produced by the MS brain.

Through each of these experiments, Dr. Gommerman hopes to provide a comprehensive understanding of how RRMS transitions to SPMS – and in turn, provide vital insight for the future development of SPMS treatments.

Because of this study's tremendous potential to influence the future of MS treatment, The MS Society has recently invested \$1 million in additional funding to Dr. Gommerman and her team. We thank our generous donors for making such high-quality research possible, and for bringing hope to countless Canadians living with MS.

Learn more at [mssociety.ca/research](https://mssociety.ca/research)



## How Heidi, a woman with MS, is bridging the gap between scientists and patients

Diagnosed with MS at just 12 years old, the disease affected almost every aspect of Heidi Pylypjuk's life. Many of her medications had negative side

effects; and over the years, she faced countless challenging symptoms like vertigo, vision loss and even partial paralysis.

After years of trying to stop her progression, Heidi had begun to lose hope that she would ever improve. Until one day, her avid involvement with the MS Society helped her discover holistic approaches to bettering her health. By staying active, eating well and changing her medication, Heidi slowly began to improve. And this led her to want to help other Canadians access this life-changing information about MS.

Today, Heidi leads a support group for young adults with MS and their families called YAS. Both online and throughout Winnipeg and neighboring cities, members get together monthly to discuss challenges they're facing, share information and seek support.

In addition to her work with YAS, Heidi is a Community Representative for the MS Society, where she reviews research applications and comments on how the research will influence the lives of Canadians living with MS. She hopes to use her firsthand experience to bring specialists and people living with MS together, so the MS community can find value in research as soon as possible.

"When research is more relatable and easy to understand, it increases the likelihood for people living with MS to implement new findings into their day-to-day lives," says Heidi. "The value of the research will ultimately become stronger because of this patient-engagement component."

Generous supporters like you make this collaborative effort possible. Please help us continue to fund promising research and accelerate the pace at which life-changing results are accessible to Canadians like Heidi.

## Roche Canada invests over \$2 million in MS Society research study

We're excited to announce that Hoffmann-La Roche Limited (Roche Canada) has invested more than \$2 million in our CANadian PROspective COhort Study to Understand Progression in MS (CanProCo). The first large-scale Canadian study of its kind, CanProCo will follow thousands of Canadians with MS over a period of years so we can learn more about the progression of the disease.

Roche Canada's investment will go towards furthering our understanding of the triggers leading to MS progression, and be critical in our efforts to establish methods of managing progression. This exciting update would not be possible without dedicated supporters like you, who have supported the CanProCo study since its launch last fall.

Along with this investment, CanProCo is also seeking new participants. **If you or someone you know is interested in participating in this groundbreaking research study, visit [msresearch.ca/studies](https://msresearch.ca/studies).**



MS research is an act of greatness, and so is each donation that makes it happen.

Perform your own act of greatness by supporting the MS Society of Canada today.

Give now at [mssociety.ca/actsofgreatness](https://mssociety.ca/actsofgreatness)

# Investing in high-quality MS research

The MS Society of Canada is dedicated to investing in MS research that has real-world benefits for Canadians living with MS and show real potential to end it one day. With help from supporters like you, we fund promising researchers each year through our Annual Research Competition. This year, we are pleased to award over \$4.5 million in grants to 15 research projects, including:

## “Comorbid cancer in multiple sclerosis (CCIMS): Diagnosis and outcomes”



Dr. Ruth Ann Marrie, *University of Manitoba*

Cancer is the most common cause of death in people with MS after MS itself. In order to address this, Dr. Marrie’s study will attempt to determine if people with MS have a higher risk of cancer, and if they are more or less likely to have their cancer identified through screening. Dr. Marrie and her team will then analyze the path of cancer care in people with MS, and see whether their survival after diagnosis differs. This three-year study represents an important opportunity to change the way cancer screening, prevention and care are managed in people with MS.



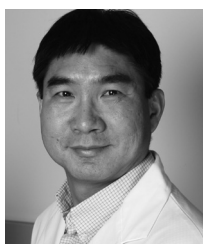
## “Intensive training to improve walking and enhance remyelination and neuroplasticity in MS”

Dr. Michelle Ploughman, *Memorial University of Newfoundland*



Studies show that aerobic exercise helps preserve brain and spinal cord tissue. In this research study, Dr. Ploughman is creating a new intervention for MS that combines aerobic exercise with walking practice, in the hope that the combination helps boost the brain’s ability to repair itself. By developing this specialized aerobic exercise and walking practice, the team hopes to discover which aspects of brain repair are connected to walking recovery and provide a new therapy option for people with MS.

## “Hierarchy of inhibitors in the lesion microenvironment for remyelination: combining a novel CNS-targeting therapeutic with exercise to promote repair”



Dr. Wee Yong, *University of Calgary*

Remyelination, or the repair of myelin, is critical to avoid the exhaustion of nerve cells and further damage to tissue. In order to discover how people with MS can boost their myelin repair, Dr. Yong’s research team is investigating different factors that may hinder myelin repair, and testing whether certain factors are stronger than others. They’ll also test a compound that targets the central nervous system (CNS) to reduce the production of these factors. Then, the team will combine the CNS-targeted compound treatment with exercise in order to determine if the combination results in more substantial myelin repair. Dr. Yong’s findings will be crucial to finding new remyelination strategies and ways to overcome impediments to myelin regeneration.

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In the years to come, these and other researchers will continue to further our understanding of MS so we can develop more effective treatments and therapies. And with you by our side, the MS Society of Canada will continue our efforts to improve the health and lives of Canadians living with MS. To learn more about the 2019-2020 research grant recipients and their research, visit us online at [mssociety.ca/information-for-researchers/funding-announcements](https://mssociety.ca/information-for-researchers/funding-announcements)