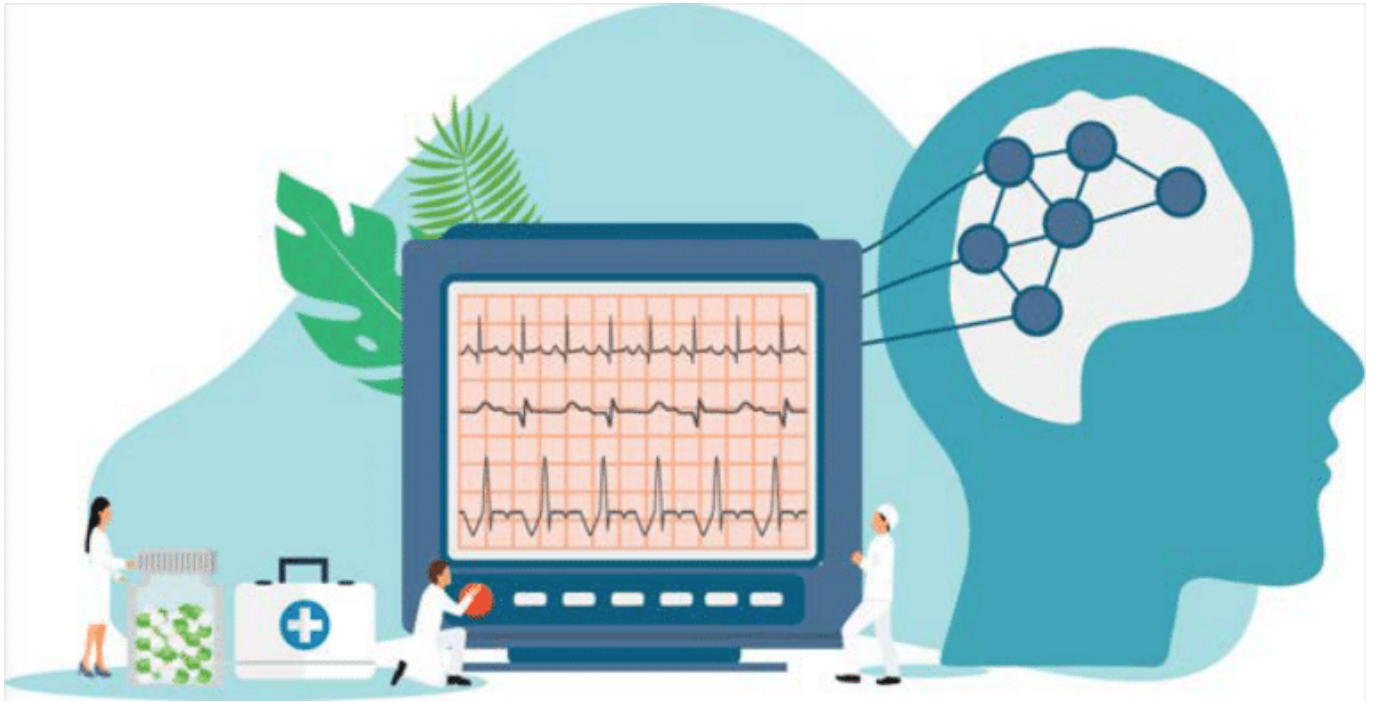


Connecting the dots



Barancik winner's work targets multiple diseases to improve treatment and outcomes of people with MS.

by Vicky Uhland



**Ruth Ann Marrie, MD,
PhD**

In 2004, Ruth Ann Marrie, MD, PhD, was nearing the end of her neuroimmunology/multiple sclerosis fellowship at the Cleveland Clinic in Ohio. She observed that one of her patients, who had both MS and lung disease, also had severe fatigue. Marrie realized that the patient's undertreated lung disease was likely a major contributor to their fatigue.

Marrie decided to review the scientific literature to see how comorbidities — or having two or more diseases at once — affect both the treatment and outcomes of people with MS. But she found very few studies on the subject.

Marrie isn't sure why researchers hadn't focused on the role of comorbidities in MS, but she's made it her life's work to remedy the situation. In the last two decades, she's published more than 400 peer-reviewed articles that have helped change the way clinicians and epidemiologists approach MS, including comorbidities — opening up new possibilities for MS prevention, treatment and even a cure.

"Her work in these areas directly addresses stopping MS disease activity and ending MS, both by preventing new cases and by reducing the impact of comorbidities through their optimal management, facilitating precision medicine," says Helen Tremlett, PhD, a professor at the University of British Columbia and a research collaborator with Marrie.

Marrie has been chosen for the prestigious 2023 Barancik Prize for Innovation in MS Research. The \$100,000 prize, which is administered by the National Multiple Sclerosis Society, recognizes scientists who show outstanding originality in MS research.

A pathway to MS research

Marrie earned her bachelor's and medical degrees from Dalhousie University in Halifax, Nova Scotia. After her five-year neurology residency at Montreal's McGill University ended in 2001, she began a National MS Society-supported Sylvia Lawry Physician Fellowship focused on MS at the Cleveland Clinic.

At the same time, she studied epidemiology at Case Western Reserve University in Cleveland, graduating in 2005 with a master's degree followed by a doctorate in 2007.

While Marrie was at McGill University, she worked on a research project on MS and the Epstein-Barr virus and spent time in an MS clinic. The experience inspired her to focus her career on epidemiology and MS care.

"I liked epidemiology because I could see a more direct and immediate connection to clinical care. I could ask a practical question and get an answer, unlike in a lab, which felt somewhat further away from clinical questions," she says. "And I was starting in MS research just when DMTs [disease-modifying therapies] were emerging, so it seemed like there was a lot of opportunity in the field. It allowed me to put my clinical and research experience together."

Marrie is currently a professor of internal medicine and community health sciences at the University of Manitoba in Winnipeg, Canada, and director of the Manitoba's provincial Multiple Sclerosis Clinic.

A holistic approach to MS

Marrie's research looks at the whole, individualized person when it comes to MS diagnosis and treatment. Her studies focus not only on comorbidities and MS, but also how adversity in

childhood, social circumstances, health behaviors and other life events affect MS outcomes.

“People with MS aren’t the disease — they’re living with the disease,” she says. “Age, gender, comorbid health, genetics — and their combinations — can come together to affect outcomes.”

In 2010, Marrie published a seminal study suggesting that vascular comorbidities — including diabetes, heart disease, peripheral vascular disease, high blood pressure and high cholesterol — can make disability progression worse in people with MS. Subsequent studies have shown that psychiatric comorbidities, including depression and anxiety, are also common in people with MS and can affect their quality of life and disease outcome.

“By evaluating the role of comorbidity throughout the course of MS, I have shown that comorbidity adversely affects relapse rates, progression of physical and cognitive impairments, mortality, healthcare use, pain, fatigue and quality of life,” she says.

In fact, research Marrie published in 2019, 2020 and 2021 showed that people with MS are less likely to receive appropriate care after an acute heart attack, or undergo screenings for breast or colorectal cancer, and are more likely to die from these diseases.

“One of the challenges with comorbidities is that they get missed or not managed because there’s a lot going on with the person’s MS,” she says. “This can be a particular challenge for primary-care providers who don’t have many patients with MS.”

Stopping MS before it starts

Marrie has also examined people’s lives before they’re diagnosed with MS. In 2012, she published a paper showing that people with MS had more doctors’ visits during the five years before their first MS symptoms occurred. This key finding led to the recognition that MS has a “prodrome,” or an early phase of unspecific symptoms that indicate a person has a high risk of being diagnosed with MS in the future.

“Other research shows that fatigue, depression, anxiety, pain and bladder-function issues seem to be prodromal for MS,” she says.

Understanding the MS prodrome opens the door for research into interventions that could prevent someone from developing MS.

Looking to the future

Today, Marrie’s influence spans the globe. She’s the vice chair of the Scientific Steering Committee of the International Progressive MS Alliance, Scientific Director of the NARCOMS Registry, and past chair of the International Advisory Committee on Clinical Trials in MS. Her findings have helped shape MS treatment guidelines by the American Academy of Neurology, the Canadian Network of MS Clinics and the international MS Brain Health group.

Marrie is a coauthor of the Pathways to MS Cures Roadmap, a global collaboration led by the

National MS Society that outlines the most promising research to stop the progression of MS, restore function in people with MS and eventually end the disease forever.

Marrie says her upcoming research will focus on MS prevention and treatment.

Vicky Uhland is a writer and editor in Lafayette, Colorado.

Learn more about [comorbidity research](#).