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Risk of MS higher in Prairies, East Coast *Canadians offer clues*

In a country that has one of the highest rates of multiple sclerosis in the world, a new study suggests residents of Atlantic Canada and the Prairies are far more likely to contract the degenerative disease than other Canadians. The University of Calgary research found sharp regional differences in the prevalence of MS, with rates almost twice as high in the Atlantic provinces as in Quebec.

The scientists say the findings are another clue environmental factors play a part in the debilitating illness, whose exact cause is an enduring medical mystery. One possible reason for the findings, they speculate, is the reliance in the Prairies and Atlantic provinces on coal-fired electrical generating plants. The plants emit mercury, a chemical linked to multiple sclerosis.

Should it be confirmed, the coal-plant connection could lead to important preventive measures, says neurologist Luanne Metz, one of the authors of the study. "If we find that coal-burning power is, indeed, one of the issues, then that would have huge public-health implications," she said. "Primary prevention is much better than trying to treat a disease when it appears."

MS attacks the protective myelin covering of the central nervous system, causing inflammation and often destroying patches of the covering. The result is a range of symptoms, which usually worsen over time, from balance and co-ordination problems to visual obstruction and slurred speech. With about 50,000 MS patients, Canada has a rate of 240 cases per 100,000 population, concludes the study in this month's issue of the journal *Multiple Sclerosis*. Rates are considered

high when they top 50 per 100,000, said Dr. Metz, adding that Finland is the only country with an incidence as steep as Canada's.

The prevalence appears to be greater in the northern hemisphere than the southern, with the numbers rising even between the southern United States and the northern states and Canada. Evidence has hinted previously that certain provinces are hotbeds of the illness but, with only locally generated figures available, it was virtually impossible to accurately compare provinces in the past, Dr. Metz said. The study by the Calgary group analyzed data from the federal government's Canadian Community Health Survey, which polled more than 130,000 people in 2000 and 2001. It found rates of 350 cases per 100,000 in the Atlantic region and 340 per 100,000 in the Prairies, compared with 180 in Quebec, 230 in Ontario and 240 in B.C.

While the regional differences are clear, the researchers admit the reasons are less obvious. Sources of data on Newfoundland suggest its rates are much lower than the rest of Atlantic Canada, said Dr. Metz. That could be related to the widespread consumption of cod with its high content of vitamin D, believed to possibly protect against MS.

It is also thought genetics can make people more susceptible to the disease, and that it might be triggered by a virus, perhaps even a sexually transmitted bug. Smokers are also more likely to get multiple sclerosis. But the coal-plant connection has researchers interested. The Eastern provinces and two of the three Prairie provinces rely extensively on coal-fired plants for electricity generation, while Ontario, Quebec and B.C. depend more on hydroelectric and nuclear plants. The link between mercury and MS -- with some suggestion that mercury from dental fillings could be a risk factor -- is fairly "nebulous" now, said Deanna Groetzinger, a spokeswoman for the Multiple Sclerosis Society of Canada. But the new study is the most comprehensive picture yet of how MS is distributed across the country, she said. "Because it is an across-Canada

snapshot, it might be able to tell us something about the underlying triggers of MS," said Ms. Groetzinger.

"It doesn't offer any answers. But it does open the door for more probing questions about why there are regional differences."