

Canadian stroke victims at higher risk of dying in rural hospitals

February 12 2018



A blood clot forming in the carotid artery. Credit: American Heart Association

Canadians who suffer a stroke have a higher risk of dying if they are treated in a rural hospital rather than an urban one. According to a new study published in *PLOS One* by Université Laval researchers, the

mortality rate in the months that follow a stroke is approximately 25% higher for patients treated in rural areas.

The team led by Dr. Richard Fleet, a professor at the Université Laval Faculty of Medicine and holder of the Université Laval-CISSS Chaudière-Appalaches Research Chair in Emergency Medicine, came to this conclusion after comparing the mortality rate of stroke victims admitted to 286 rural hospitals and 24 urban hospitals in Canada between 2007 and 2011. Rural hospitals were included in the study if they were located in a community of about 10,000 residents or less and provided 24/7 emergency physician coverage and inpatient beds for acute admissions.

Using data compiled by the Canadian Institute for Health Information, the researchers established that the mortality rate of [stroke victims](#) admitted to [urban hospitals](#) fluctuated between 14.1 and 16.8% in the five years covered by the study. In rural hospitals, this rate varied from 18.3 to 21%. The discrepancy between the two types of hospitals was observed every year and in every province surveyed.

According to the researchers, this divide could be due to a lack of resources in rural hospitals. Their study reports that only 21% of such hospitals have an [intensive care unit](#) and scarcely 11% have a CT scanner. "Not having this device on hand in the hospital deprives doctors of a tool that can help them quickly diagnose a stroke so they can immediately begin the recommended treatment," said Dr. Fleet.

Rural [hospital](#) emergency rooms log over 3 million visits every year in Canada, and strokes are one of the main causes of death in the country. "Some 20% of Canadians live in rural areas, and our study raises questions about the principles of our universal healthcare system, which stipulate that all Canadians, regardless of their place of residence, have an equal right to quality health care. It might be time to address the

iniquities in health care in [rural areas](#)."

It should be noted that Québec hospitals were not included in the analyses because the province did not provide data to the Canadian Institute for Health Information for the study period. However, a previous study by Professor Fleet's team showed that Québec's rural hospitals are well equipped compared to those in the rest of Canada: 74% of Québec's [rural hospitals](#) have an intensive care unit and 78% have a CT scanner.

More information: Richard Fleet et al, Rural versus urban academic hospital mortality following stroke in Canada, *PLOS ONE* (2018). [DOI: 10.1371/journal.pone.0191151](#)

Provided by Laval University

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