


Good news and bad news: Changing trends in cardiovascular disease in Canada

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New study: Analysis of hospital trends over 10 years provides starting point for post-pandemic healthcare planning.

Overview	Methodology
<p>A new Heart & Stroke-led analysis reveals hospitalization trends for heart conditions, stroke and vascular cognitive impairment over ten years, highlighting the importance of taking an integrated approach to care to better support people living with these conditions.</p>	<p>Examined more than 2.6 million hospital records in Canada between 2007 and 2016 before the COVID-19 pandemic.</p>
	<p>Some diseases are happening more often in younger people than ten years ago, often more so in women.</p> <p>Heart failure hospitalization rates <i>increased</i> by 56% for men and 25% for women age 20-39 years.</p> <p>Hospitalization rates for stroke <i>increased</i> 25% for women age 20-39 years.</p>
Key findings	
<p>Although prevalence has remained relatively constant, hospitalization rates <i>decreased</i> for coronary artery and vascular disease, heart failure, heart rhythm disorders, and stroke between 2007 and 2016.</p> <p>Hospitalization rates <i>increased</i> for congenital heart disease, acquired valvular heart disease, and vascular cognitive impairment between 2007 and 2016.</p> <p>There was notable provincial/territorial variation in hospitalization rates.</p>	
Importance	
<p>COVID-19 has disrupted the healthcare system and will have lasting implications.</p> <p>This new Heart & Stroke analysis provides a valuable starting point for post-COVID-19 health systems planning and policy development.</p> <p>This study is more important than ever as provinces and territories start re-opening health and community support services while still treating existing and new patients with COVID-19.</p>	

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New analysis of hospital trends over 10 years provides a starting point for post-pandemic healthcare planning. The study also reveals concerning increases in

some heart conditions and stroke in younger people. This one-page summary and research study were made possible with the support from Heart & Stroke partners, volunteers, and donors. Credit: Heart & Stroke, Canada

An analysis of patient records in Canada provides important new insights into changing patterns of inpatient healthcare utilization. Between 2007 and 2016, standardized hospitalization rates declined for coronary artery and vascular disease, heart rhythm disorders, stroke, and heart failure but increased for some important conditions: acquired valvular heart disease; vascular cognitive impairment; and congenital heart disease. The study appears in the *Canadian Journal of Cardiology*.

"Recent data on hospitalizations in Canada for a comprehensive set of cardiovascular diseases, stroke, and vascular cognitive impairment were lacking," explained lead investigator Cindy Y.Y. Yip, Ph.D., Heart and Stroke Foundation of Canada, Toronto, ONT, Canada. "This is a unique study that reports recent Canadian hospitalization data for a comprehensive set of heart and stroke diseases and also reports how hospitalization trends differ between provinces/territories, age groups, and males and females."

Investigators tracked more than 2.6 million [hospital](#) records from 2007 to 2016 from the Canadian Institute for Health Information (CIHI) Discharge Abstract Database for patients up to 105 years old. They analyzed the records for diseases that align with the Heart and Stroke Foundation of Canada's six focus areas. These are the six [disease](#) groups that together represent the greatest burden on the health of people in Canada, on the economy, and on society: coronary artery and vascular disease; heart failure; [heart rhythm disorders](#); structural heart disease (including congenital heart disease and acquired valvular heart disease); stroke; and vascular cognitive impairment. Data were available for all

provinces and territories except Quebec.

Between 2007 and 2016, standardized [hospitalization rates](#) in Canada declined for [coronary artery](#) and vascular disease (27.4 percent) and heart rhythm disorders (16.8 percent), with relatively small decreases for stroke and heart failure. Contributing factors included increased multidisciplinary outpatient management such as specialized outpatient clinics for heart failure and atrial fibrillation and stroke prevention clinics; improvements in treatment and reductions in some medical risk factors such as hypertension and cholesterol levels; and better management of lifestyle risk factors such as smoking, poor diet, and physical inactivity.

However, there were notable increases for acquired valvular heart disease (31.1 percent), congenital heart disease (7.2 percent), and vascular cognitive impairment (23.4 percent). Contributing factors to these increases included the impact of an aging population, increased prevalence of dementia, and increases in the survival of [congenital heart disease](#) patients to adulthood due to treatment advances.

"The decrease in standardized hospitalization rates for some conditions suggests increased adoption of multidisciplinary outpatient management of these conditions," noted first author Leigh C.P. Botly, Ph.D., Heart and Stroke Foundation of Canada, Toronto, ONT, Canada. "This highlights the importance of an integrated care approach to disease management and the need to assess how these conditions are being managed at the community level by primary healthcare providers and specialized clinics."

This study also reports how hospitalization trends differ between age groups and sex. Heart failure, acquired valvular [heart](#) disease, and stroke are impacting people in Canada at earlier life stages than 10 years ago, especially for women. For example, [heart failure](#) hospitalization rates

increased by 56 percent for men and 25 percent for women age 20-39 years. Hospitalization rates for stroke increased 25 percent for women aged 20-39 years, likely reflecting the increase in [stroke](#) risk during pregnancy. This was not true for males in the same age group. The increase in hospitalization rates for acquired [valvular heart disease](#) was much more pronounced for females (+65.7 percent) than males (+15.9 percent) aged 20-39 years.

"To improve the care for the people we serve, we must understand the pattern of change rather than static snapshots," commented Dr. Yip.

"Ultimately we want fewer people to be diagnosed with these conditions. For those who do experience them, we hope they can use their energy to focus more on their own recovery and experience a better quality of life rather than having to navigate a fragmented healthcare system."

"This report describes the pattern of change from the past decade and is a first step in developing baseline data to inform healthcare policy, prevention strategy, and system planning. In the current landscape, these trends may be essential to help us understand the impact of COVID-19 on our healthcare system," Dr. Yip continued.

"This study provides important insights on the changing epidemiology of cardiovascular disease in Canada," commented Daniel G. Hackam, MD, Ph.D., Division of Clinical Pharmacology, Departments of Medicine, Clinical Neurological Sciences and Epidemiology and Biostatistics, Western University, London, ONT, Canada, in an accompanying editorial. "A renewed emphasis on treating and preventing major risk factors in younger [age groups](#) is needed to reverse disturbing trends in cardiovascular disease hospitalizations in young and middle-aged adults. Similarly, increased rates of vascular cognitive impairment also suggest that more attention needs to be paid to midlife antecedent risk factors such as hypertension and diabetes, if the coming epidemic of dementia is to be prevented."

More information: Leigh C.P. Botly et al, Recent Trends in Hospitalizations for Cardiovascular Disease, Stroke, and Vascular Cognitive Impairment in Canada, *Canadian Journal of Cardiology* (2020). [DOI: 10.1016/j.cjca.2020.03.007](https://doi.org/10.1016/j.cjca.2020.03.007)

Daniel G. Hackam. The Changing Epidemiology of Cardiovascular Disease: Two Steps Forward, One Step Back, *Canadian Journal of Cardiology* (2020). [DOI: 10.1016/j.cjca.2020.03.010](https://doi.org/10.1016/j.cjca.2020.03.010)

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