Response to: "A comprehensive approach needed to address regional variation"

We agree with Dr. Gardner and colleagues[1] that public health policies and the social determinants of health are also important issues that need to be addressed if Canadians are to achieve ideal cardiovascular health and health outcomes.[2] The purpose of our recent *CMAJ* article was not to examine these issues, whose importance has been shown in previous studies, but rather to determine whether regional differences in access and quality of preventive health care are important contributors to disparities in the incidence of cardiovascular disease in Ontario, a topic that has not been rigorously studied in the past in a Canadian context.[3]

The lower prevalence of smoking, obesity and associated cardiovascular diseases in lower-risk Local Health Integration Networks (LHINs) in the Greater Toronto Area may reflect not only the factors highlighted in our article but also may partially reflect certain public health policies and community design. For example, the City of Toronto was a leader in passing aggressive antismoking legislation that may have contributed to lower myocardial infarction rates than in other regions of Ontario that did not pass such legislation.[4] Toronto has more walkable neigbourhoods than other health regions in Ontario, and we have previously shown that residents of these neighbourhoods have lower rates of obesity.[5]

Socioeconomic status (as measured by neighbourhood income quintiles) was an independent predictor of the incidence of cardiovascular disease in our multilevel regression models, but the socioeconomic differences across LHINs only explained about 3% of the regional disparity in disease incidence after cardiac risk factors were accounted for. It is possible that Canada's universal health care insurance system has helped to mitigate the impact of socioeconomic status that may be observed in other countries with larger socioeconomic status–disease gradients.

It has been estimated that about half of the substantial decline in mortality caused by ischemic heart disease in Ontario has been due to declines in prevalence of traditional risk factors, whereas advances in medical and surgical treatments for cardiovascular diseases have accounted for the other half.[6] As such, we believe that all Ontarians should have equitable access to both high-quality cardiovascular preventive care and public health policies that promote cardiovascular health.

Jack V. Tu MD PhD
Senior Core Scientist Cardivascular Program Lead, Institute for Clinical Evaluative Sciences; Staff Cardiologist, Schulich Heart Centre, Sunnybrook Hospital; Principal Investigator, CArdiovascular HEalth in Ambulatory Care Research Team (CANHEART), Toronto, Ont.

■ Cite as: *CMAJ* 2017 June 19;189:E841.
doi: 10.1503/cmaj.733086

References

1. Gardner C, Simon L, Sutcliffe P, et al. A comprehensive approach needed to address regional variation [letter]. *CMAJ* 2017;189:E840.
2. Maclagan LC, Park J, Sanmartin C, et al. The CANHEART health index: a tool for monitoring the cardiovascular health of the Canadian population. *CMAJ* 2014;186:180-7.
3. Tu JV, Chu A, Maclagan L, et al. Regional variations in ambulatory care and incidence of cardiovascular events. *CMAJ* 2017;189:E494-501.
4. Naiman A, Glazier RH, Moineddin R. Association of anti-smoking legislation with rates of hospital admission for cardiovascular and respiratory conditions. *CMAJ* 2010;182:761-7.
5. Chiu M, Shah BR, Maclagan LC, et al. Walk Score(R) and the prevalence of utilitarian walking and obesity among Ontario adults: a cross-sectional study. *Health Rep* 2015;26:3-10.
6. Wijeysundera HC, Machado M, Farahati F, et al. Association of temporal trends in risk factors and treatment uptake with coronary heart disease mortality, 1994–2005. *JAMA* 2010;303:1841-7.

Competing interests: None declared.