Trends in Stroke Prevention: How can we do better?

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How is our society affected by Stroke?

- Stroke rates in our population are on the rise.
- Every 5 minutes, someone in Canada suffers a stroke.
- Stroke is the third leading cause of death in Canada
- Stroke can occur at any age but risk increases with age.
  - 1/10 adults over the age of 65 have experienced a stroke.

- Women are disproportionately affected by stroke throughout their lives.

Some GOOD news……

- Progress in stroke care over the last two decades has been monumental.

- Just over thirty years ago when someone experienced a stroke, there was almost nothing that could be done for them. This has completely changed. Today there is so much that can be done to treat stroke and support recovery

Why the monumental change?

→ Improved **Public Awareness** and **Symptom Recognition**

→ Better **Prevention**

→ **Revolutionary New life-saving treatments**

→ Wider access to **Rehabilitation**

→ Increased **Community Supports**

STROKE Disparity

Stroke disparity is a reality.

STROKE Disparity

- Cerebrovascular disease disparities have long been recognized to exist.
  - Along racial, ethnic and socioeconomic lines
  - Observed in both low-and high-income countries, and across geographical regions.

- These disparities contribute to significant mortality and morbidity among vulnerable populations.

BMJ Global Health

Regional and socioeconomic disparities in cardiovascular disease in Canada during 2005–2016: evidence from repeated nationwide cross-sectional surveys

Haijiang Dai ,[1] Biao Tang,[1] Arwa Younis,[2] Jude Dzevela Kong,[1] Wen Zhong,[3] Nicola Luigi Bragazzi[1]

Dai H, *et al*. *BMJ Global Health* 2021;**6**:e006809. doi:10.1136/bmjgh-2021-006809

- A total of 670,000 adults aged ≥ 20 years who participated in the Canadian Community Health Surveys between 2005 and 2016 were enrolled for this study.

- Individuals who lived on Indian Reserves, Crown Lands, institutions, certain remote regions or were full- time members of the Canadian Forces were excluded from each survey.

- Statistics Canada estimated that the CCHS covers about approximately 98% of the Canadian population aged ≥12 years

Results:

1) 2015-2016- Overall crude prevalence of stroke was 1.29% (95% CI 1.18% to 1.41%) - 0.36million adults with stroke.
    - Adjusted prevalence among age > 80 is 6.43% (95% CI 5.44% to 7.42%)

2) Between 2005-2016, there is decline in prevalence in stroke
    - Reflects successful effort in prevention and treatment of stroke in Canada

3) But a total 20% increased number of stroke patients.
    - Mostly due to growth and ageing of the Canadian population.

4) Prevalence of stroke varied widely across all health regions, and both of them **tended be higher among those with lower income**

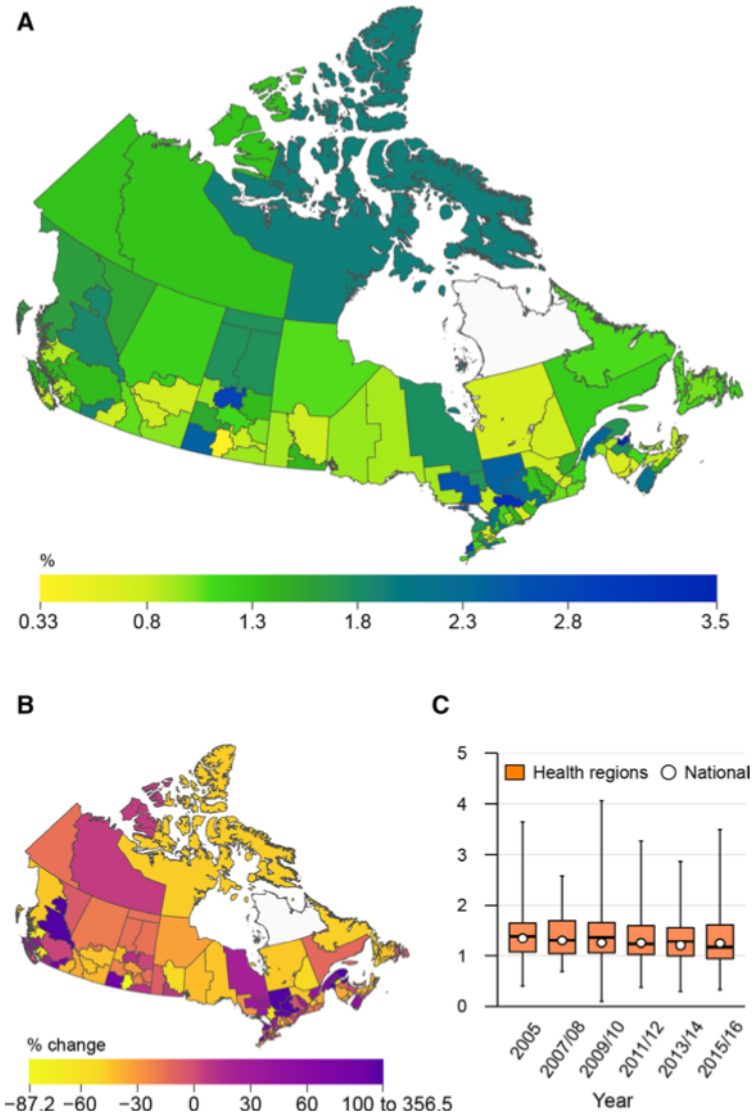


Figure 2 Health region-level age-adjusted and sex-adjusted prevalence of stroke. (A) Age-adjusted and sex-adjusted prevalence of stroke for both sexes combined in 2015/2016. (B) Percent change in the age-adjusted and sex-adjusted prevalence of stroke for both sexes combined from 2005 to 2016. In (A, B), two health regions (ie, Région Du Nunavik, and Région des Terres-Cries-de-la-Baie-James) were filled with blank because of missing data. (C) Age-adjusted and sex-adjusted prevalence of stroke in each survey cycle.

What does this mean?

- Effective evidence-based interventions for stroke prevention and treatment at both individual and population levels need to be **translated equally to specific contexts and communities**

- Current intervention strategies have not addressed the regional and socioeconomic disparities in stroke in Canada.

- Further efforts to strengthen preventive measures and optimise healthcare resources for stroke should take into account the geographical and socioeconomic disparities in Canada.

Improving Stroke Prevention and Stroke Disparity- How do we do it?

Primary Prevention of Stroke

Stroke Prevention: Primary Prevention

- Focuses include
  - **Lifestyle**- (healthy diet, physical activity, being smokefree, stress reduction and limiting alcohol, recreational drugs and cannabis use).
  - **Screening and Management of Risk Factors-** such as **hypertension** screening, dyslipidemia screening, diabetes management, and management of atrial fibrillation.

- Canada's current "Primary Care Crisis"

- Kudos to all the amazing family physicians currently working in this difficult system!

- In Ontario, twice as many family physicians stopped work in the first 6 months of the pandemic compared with trends from the previous decade Ann Fam Med 2022;**20**:460–3

- Almost 1 in 5 family physicians in Toronto were thinking of closing their practice in the next 5 years medRxiv 2021 Dec 21. doi: 10.1101/2021.12.20.21267918

- Fewer medical students are choosing family medicine and fewer family medicine physicians are choosing to work in comprehensive, longitudinal practice. *Science Table Covid-19 Advisory for Ontario*; 2022

- Newcomers to Canada and those living in low-income or marginalized neighbourhoods were less likely to have a regular family doctor even before the pandemic. *Science Table Covid-19 Advisory for Ontario*; 2022

Changes over time in patient visits and continuity of care among graduating cohorts of family physicians in 4 Canadian provinces

David Rudoler PhD, Sandra Peterson MSc, David Stock PhD, Carole Taylor MSc, Drew Wilton MSc, Doug Blackie MPA, Fred Burge MD, Richard H. Glazier MD MPH, Laurie Goldsmith PhD, Agnes Grudniewicz PhD, Lindsay Hedden PhD, Margaret Jamieson MSc, Alan Katz MBChB MSc, Adrian MacKenzie PhD, Emily Marshall PhD, Rita McCracken MD PhD, Kim McGrail PhD, Ian Scott MD MSc, Sabrina T. Wong RN PhD, M. Ruth Lavergne PhD

Cite as: *CMAJ* 2022 December 12;194:E1639-46. doi: 10.1503/cmaj.220439

- Explore the popular theory that newer family medicine graduates are contributing to the family doctor shortage by choosing to work less.
- The authors looked at data from 4 Canadian provinces and found no differences in median patient contacts by career stage
  - **median contacts per family physician over the 2-decade study period decreased for all physicians in all career stages, not just early-career physicians**.
- Hypothesis: increase in administrative workload, increase in patient complexity, changes in professional norms, different choices about work and different income requirements.

Improving Stroke Prevention: Primary Care Reform

- Overall, findings imply that a larger family physician workforce will be needed to serve even the current population, let alone a growing and aging one.

- Family physicians should work collaboratively in teams that include skilled office assistants and nurses, nurse practitioners, social workers and pharmacists. Team-based care is better for patients, clinicians and the system.

- Provincial governments should advance the creation of neighbourhood-based interprofessional family medicine practices, starting in areas of greatest need.

- Neighbourhood-based primary care could also facilitate better collaboration among primary care, community and social services, and public health, which can in turn improve health equity and optimize resource use.

Secondary Prevention of Stroke

- With TIA, the early risk of subsequent stroke within 90 days of 9%–17%. Arch Intern Med 2007;167:2417-22
- This risk is “frontloaded” in the first 48 hours. Neurology 2005;64:817-20
- Roughly 23% of strokes are preceded by a TIA
- Secondary stroke prevention is crucial to reduce the burden on the health care system and costs, and to improve patient outcomes.
- Stroke prevention services are specialized interdisciplinary clinics that perform detailed assessments following an index TIA/stroke, and provide timely diagnostic testing and interventions.
- Observational data suggest that postevent referral to organized outpatient stroke prevention services reduces mortality at 1 year. Stroke 2011;42:3176-82.

Secondary stroke prevention services in Canada: a cross-sectional survey and geospatial analysis of resources, capacity and geographic access

CMAJ Open 2018. DOI:10.9778/cmajo.20170130

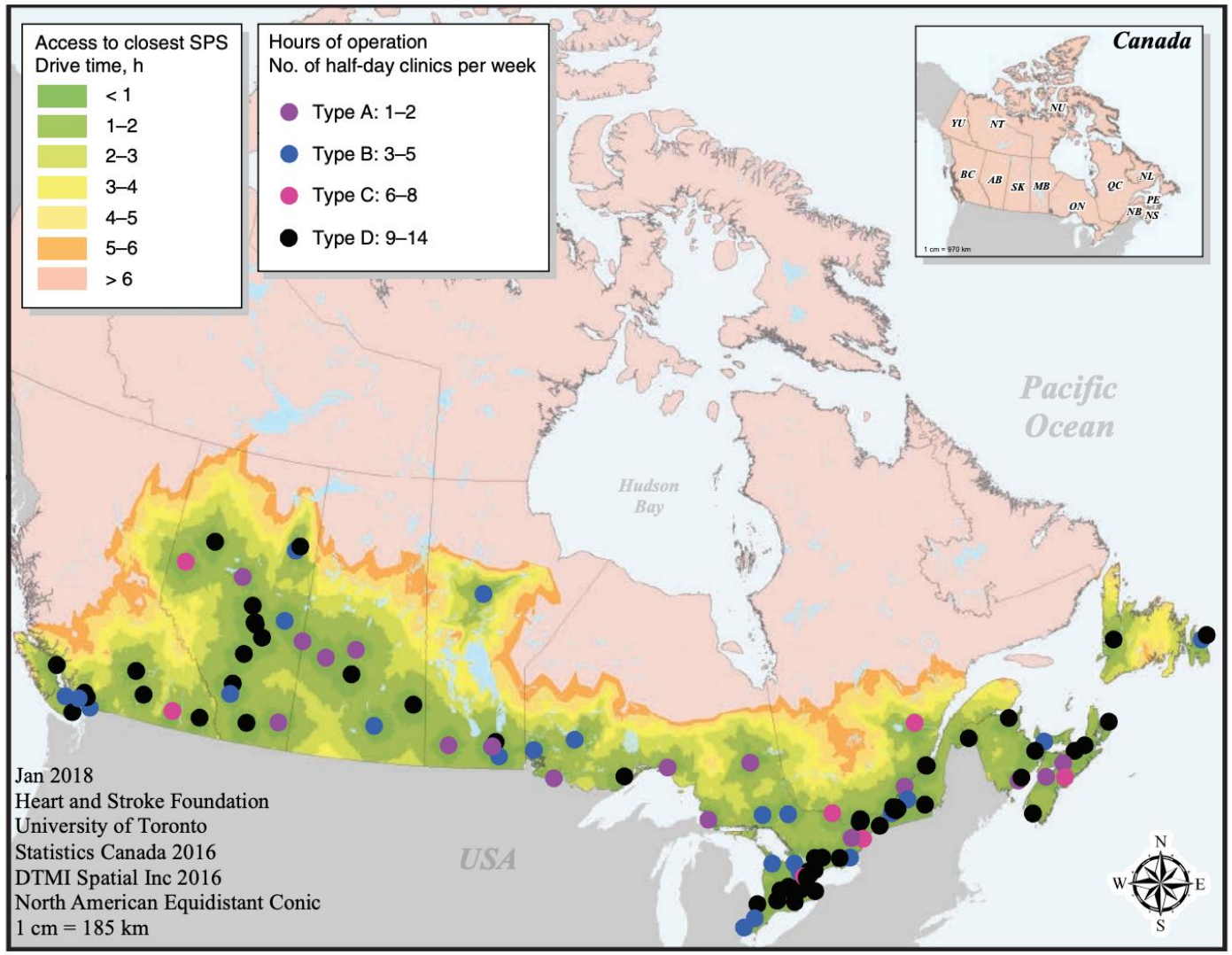


Figure 1: Access to stroke prevention sites across Canada, allowing patients to cross provincial borders to seek care. Note: SPS = stroke prevention site.

- 87.3% of the Canadian population (range 44.9% [Newfoundland and Labrador] to 97.0% [Ontario]) live within 1-hour drive to the nearest stroke prevention services.
- A total of 3.1% of Canadians do not have any access within a 6-hour drive
- Many sites did not meet best-practice recommendation target times for assessment and management.
- Carotid endarterectomy is done in timely fashion in only 51% of sites.

Disparities in Indigenous Healthcare in Canada

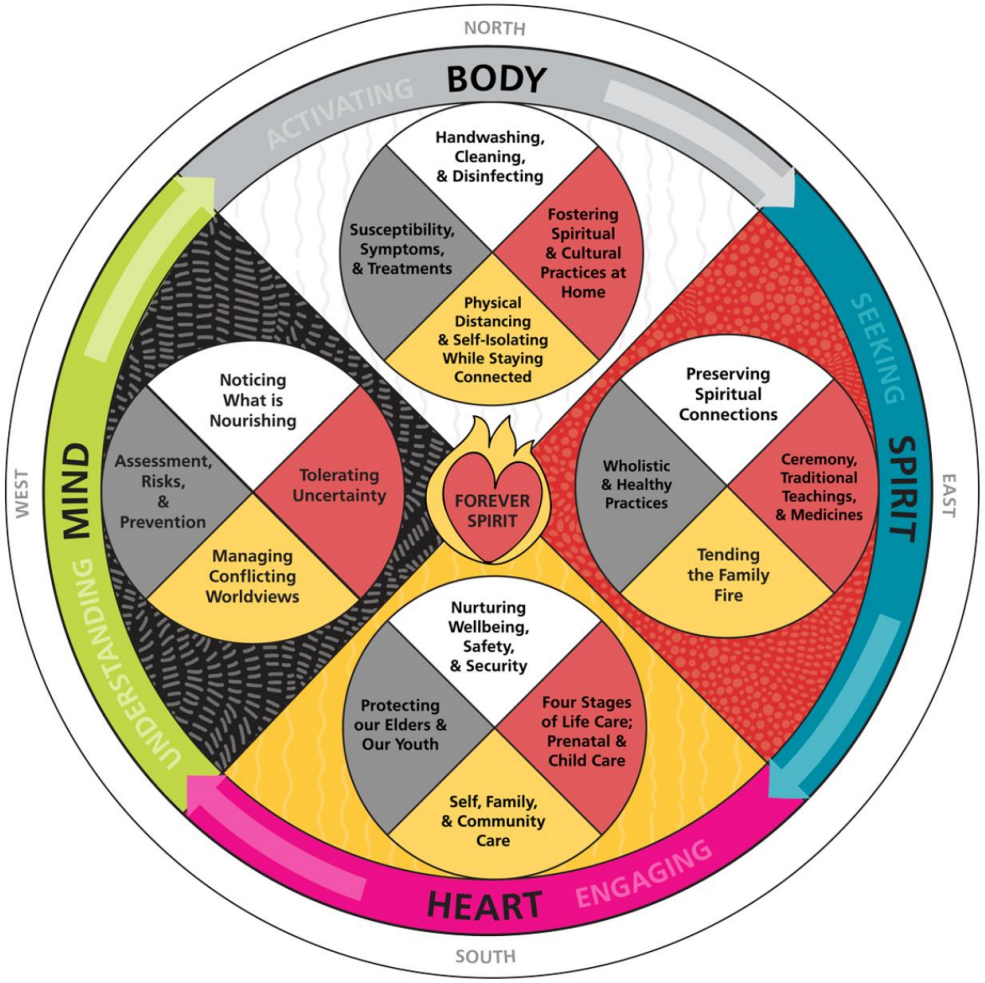
- Contributing factors include intergenerational effects of Residential Schools, government programs that remove autonomy from Indigenous communities, and policies that create and perpetuate social determinants of mental illness, including poverty, unemployment, housing, and food insecurity.

- Indigenous-led health partnerships improve holistic (inclusive of mind, body, emotion and spirit) health outcomes for Indigenous Peoples, as well as access to care, prevention uptake and adherence to care plans.
  - partnerships provide innovative models of interprofessional collaboration, be it in community-based healing lodges, remote clinics or urban hospitals
  - autonomously grounded in traditional Indigenous knowledge — maintained and upheld by local Elders, healers and Knowledge Keepers — rather than being grounded in Western medicine, structures and knowledge. partnerships bring in or are supported by biomedical knowledge and expertise as desired.

Improving Indigenous health

- Indigenous Physicians Association of Canada
  - placing value on Indigenous medicines equal to that placed on biomedicine
  - being open to patients' disclosures of use of traditional medicines
  - building relationships with Indigenous healing practitioners, Knowledge Keepers and Elders, supporting the work Elders and healers do in the community
  - consulting, making referrals, recognizing Indigenous holistic health definitions and indicators
  - learning local languages when working in Indigenous communities

"non-Indigenous healthcare workers need to examine how they benefit from colonialism, to see and understand colonialism as a determinant of health, and to challenge the pervasive paternalism, racism and power imbalances that colonialism and biomedicine have propagated"



Stroke Prevention in Women

- Women are disproportionally affected by stroke than men
- Unique stroke risk factors for women exist, such pregnancy, menopause, migraine with aura.

System failure: Women's heart and brain health are at risk

Heart & Stroke report reveals significant inequities persist

Feb 01, 2023

- There is a continued ***lack of awareness and understanding*** around women's heart and brain health

- Widespread Gaps in research and clinical care
  - Two-thirds of participants in clinical trials on stroke have been men and when women are included, an analysis based on sex and gender is not always done
  - Women are systemically underscreened and undertreated in modifying widely recognizable risk factors.

- Some Women that face greater health inequities than others
  - racialized women, Indigenous women, women in the LGBTQ2S+ community, women of lower socioeconomic status, women with disabilities, and women living in remote areas.

- Lack of education/ awareness regarding atypical symptoms of stroke in women, leading to failure to seek timely medical attention.

Closing in the Gender Gap in Stroke Prevention

- Aggressive screening and prevention of stroke risk factors in women.
- Recognize that spectrum of unique stroke risk factors in women is not just isolated to pregnancy and spanned across the lifespan.
- Federal/ provincial funding agencies should invest in women's health research, and mandate research to address age, sex, gender and race, including clinical trial enrollment.
- Ensure stroke best practice recommendations are written with a sex and gender lens and address evidence based women's brain health issues.

Conclusions

- Despite excellent advances in stroke prevention and treatment and their dissemination, stroke disparity continues to exist for many patients.

- Many systemic factors contribute to this inequality such as lack of easy and consistent access to healthcare and challenges in real-world translation and universal implementation of evidence-based recommendations.

- Optimism, thoughtfulness, action and persistence are key!

Thank you!