ONTARIO WOMEN’S HEALTH EQUITY REPORT

Prevention and treatment of cardiovascular disease (CVD) is an important women’s health issue. CVD is the leading cause of death and disability among Canadian women and men accounting for 32% of deaths in 2004. Among individuals with CVD, there are gender differences in epidemiology, prevalence of risk factors, clinical presentation, and quality and outcomes of care. Mortality from CVD in Canada has declined steadily since the 1950s. Between 1994 and 2004, mortality from CVD in Canada declined by 30%. At the same time the ratio of deaths due to CVD in men compared to women has declined sharply. In 1973, there were 23% fewer CVD deaths among women than men. By 2003, the number of CVD-related deaths among men had decreased while the number in women had increased, such that the number of CVD-related deaths among women equaled those among men. By 2004, just over half of CVD-related deaths occurred in women.

The number of people living with CVD is expected to rise over the next 25 years due to an aging population, changes in health behaviours, improved diagnostic testing and treatment options that extend the lives of people with CVD. However, rising rates of obesity and diabetes are likely to result in increasing CVD prevalence and threaten to reverse declining mortality rates.

This chapter has four sections: Health and Functional Status, Heart Failure, Ischemic Heart Disease, and Stroke

In the first section we report on the health and functional status of Ontario women and men with CVD including self-rated health, health transitions, activity limitations and disability, health behaviours and CVD risk factors. In the subsequent three sections, we examine the leading causes of CVD-related morbidity and mortality - heart failure (HF), ischemic heart disease (IHD) and cerebrovascular disease (including stroke and transient ischemic attack). We report on indicators that assess the types of physicians providing care, medication management in the acute setting and for secondary prevention, diagnostic testing and clinical interventions. In addition, we report on patient outcomes including health service use (emergency department visits and hospital readmissions) and mortality.

There is a substantial body of evidence that shows that primary and secondary prevention (at the patient and population levels), health system redesign aimed at chronic disease prevention and management and patient self-management interventions can reduce CVD-associated morbidity and mortality. Adherence to clinical practice guidelines for diagnosis and management of CVD can improve outcomes of care for women and men and narrow gender disparities in care. Gender-specific guidelines have been developed to help reduce gender gaps in CVD prevention and management. Social policy aimed at addressing the social determinants of health combined with community engagement can contribute to reducing the burden of illness in the population due to CVD.

Exhibit 1 | Age-standardized percentage of adults ≥ age 25 who have heart disease or a stroke reporting limitations in Instrumental Activities of Daily Living (IADL) and/or Activities of Daily Living (ADL), by sex and annual household income, in Ontario, 2005

<table>
<thead>
<tr>
<th></th>
<th>Lower Income</th>
<th>Higher Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>64%</td>
<td>58%</td>
</tr>
<tr>
<td>Men</td>
<td>46%</td>
<td>43%</td>
</tr>
<tr>
<td>Women</td>
<td>52%</td>
<td>58%</td>
</tr>
<tr>
<td>Men</td>
<td>36%</td>
<td>14%</td>
</tr>
<tr>
<td>Women</td>
<td>17%</td>
<td>35%</td>
</tr>
<tr>
<td>Men</td>
<td>16%</td>
<td>27%</td>
</tr>
</tbody>
</table>

Sex and Annual household income

- ADL +/- IADL
- IADL only

Data Source: Canadian Community Health Survey (CCHS), Cycle 3.1

Note: Bars may not add to overall numbers because of rounding.

* Interpret with caution due to high sampling variability (coefficient of variation 16.6-33.3)
KEY MESSAGES

We took a broad look at the burden of CVD and quality and outcomes of care for heart disease and stroke in the province, focusing on gender, socioeconomic and regional variations. While much progress has been made in improving quality and outcomes of care for CVD as well as narrowing gender gaps in care, much work remains to be done. Health inequities in health and functional status associated with gender and socioeconomic status were much greater than inequities in the provision of acute care services underscoring the need to address the social determinants of health to reduce the burden of CVD. Our findings point to a number of key areas for intervention and improvement. For many indicators, there were sizable variations across the Local Health Integration Networks (LHINs). The Cardiac Care Network (CCN) and the Ontario Stroke System (OSS), among others, are working to reduce regional variations in CVD care. The results of our analyses are available for the LHINs to use in their priority setting, planning and quality improvement activities. By implementing interventions at the policy, population health, and practice levels and coordinating these interventions for maximum impact, it will be possible to hasten progress.

The following six actions can help accelerate progress in reducing the burden of CVD, improve health outcomes among women and men with CVD and reduce health inequities related to CVD. For these actions to be truly successful, gender and socioeconomic differences in the prevalence of CVD and experiences with care will need to be addressed.

Reduce health inequities associated with CVD by focusing upstream

- Upstream causes such as poverty, low levels of educational attainment, access to healthy foods and neighbourhood and work place characteristics that increase CVD risk all contribute to increasing the population burden of CVD and CVD-related health inequities. Focusing efforts upstream through cross-sectoral collaboration can serve to address the root causes of these health inequities while reducing the burden of CVD in the population.
- Women are more likely to live in low-income households than men, contributing to their risk of developing CVD. To be most effective, upstream approaches will need to address the factors that lead to increased rates of poverty among women.

Prevention (primary and secondary) is key to reducing the burden of illness due to CVD.

- The prevalence of behavioural risk factors for CVD remains high in Ontario — smoking, physical inactivity, obesity, and poor diets (see the Burden of Illness chapter). Thus, primary prevention, or reducing risk among those who do not yet have CVD, is key to reducing illness burden. Prevention interventions need to address the social determinants of health, be gender sensitive and target those who are socioeconomically disadvantaged and therefore at greatest risk. Increased emphasis on prevention and integrated approaches at the population health, community and clinical levels is essential to reduce the burden of illness due to CVD in Ontario.
- The same risk factors—smoking, physical inactivity, obesity and poor diets—lead to worse health outcomes among women and men with CVD. Interventions to modify these risk factors among those with the disease (i.e. secondary prevention) will reduce CVD-related morbidity and mortality. The high prevalence of these risk factors among women and men with CVD underscores the need for increased emphasis on secondary prevention.

Close the gender gap in care for CVD.

- Gender gaps in care for CVD have narrowed for several reasons including an increased awareness of the importance of CVD to women’s health and recognition of gender disparities in care combined with activities to close these gaps including gender-specific guidelines. We found no gender differences in medication management with the exception of statin use. We found few gender differences in stroke care. Gender differences on other measures were modest. Nevertheless women were still less likely to receive care from a cardiologist, undergo or be referred for angiography after an AMI, to undergo diagnostic testing for IHD and HF, and were more likely to be readmitted to the hospital after an admission for HF. There is a need to develop and implement targeted interventions to eliminate gender gaps in care.
- Women with CVD consistently reported worse functional status and higher rates of disability than men. Women were more likely to report activity limitations, limitations in IADLs and/or limitations in ADLs, mobility problems, activities prevented by pain, and more disability days. Gender sensitive models of care that focus on disability prevention and improving functional status are needed to improve the quality of life of women with heart disease.
KEY MESSAGES (continued)

Comprehensive patient-centred chronic disease management can improve quality and outcomes of care for CVD.

- CVD is a chronic disease requiring coordination of primary and specialty care across settings of care. Individuals with CVD often have multiple chronic conditions because the risk factors for CVD are also risk factors for other chronic conditions such as diabetes and because CVD is more prevalent with increasing age. Therefore, implementation of a comprehensive and coordinated patient-centred, chronic disease prevention and management strategy—one that addresses the needs of at-risk populations—is key to improving quality and outcomes of care for CVD.

- Rates of emergency department (ED) use and hospital readmission were very high after a hospital admission for HF for both women and men. Additionally, women were more likely than men to be readmitted to the hospital after an AMI. An effective chronic disease management strategy could help prevent both ED use and hospital readmissions, thus reducing the burden on the hospital sector and freeing needed resources.

Province-wide, integrated, organized models of care delivery can improve health outcomes & reduce inequities in care.

- The OSS - which targets activities across the continuum of stroke care from prevention, prehospital care, acute care, rehabilitation and community reintegration - provides an example of such a model that could be applied to other types of CVD such as HF and IHD.

- We found sizeable regional variations in care likely due to differences in human resources and regional capacity, as well as regional difference in practice patterns. Interventions like those used by the OSS such as regionalization of care, use of telemedicine, performance measurement and improvement and training local practitioners are all approaches that can reduce regional variations in care.

Improve quality, availability and timeliness of data to assess CVD and CVD care in the province.

- While data quality and availability to assess CVD care in the province has improved, there is still much to be done to improve the quality, availability and timeliness of data. Specifically, medication data on those under age 65, data on management of CVD in ambulatory care settings, and datasets that capture clinical factors are needed.

- Data on ethnicity would allow us to assess disease burden as well as access, quality, and outcomes of care to Ontario’s diverse communities.

KEY FINDINGS

- We found gender differences in the health and functional status of adults who indicated they had heart disease or a stroke. Women consistently reported worse functional status and higher rates of disability than men. Women were more likely to report activity limitations, limitations in IADLs and/or limitations in ADLs (Exhibit 1, front page), mobility problems and activities prevented by pain. Women were also more likely than men to report disability days in the previous two weeks.

- The prevalence of CVD risk factors was high among both women and men and across income categories, underscoring the need for secondary prevention. Women were more likely to be physically inactive, but less likely than men to report being overweight or obese or to report inadequate fruit and vegetable intake. Smoking rates were similar among women and men (Exhibit 2). A larger percentage of women than men reported low socioeconomic status as measured by less education and lower annual household income, which is associated with higher risk for CVD and for...
KEY FINDINGS (continued)

- Income was associated with almost all quality of life indicators. Low-income and less educated adults were more likely to report fair or poor health, declining health status (Exhibit 3), activity limitations, IADL and/or ADL limitations, disability days, mobility limitations, limitations in their activities due to pain and risk factors than those with higher income or more education. Conversely, they were less likely to report having made lifestyle changes to improve their health.

Exhibit 3 | Age-standardized percentage of adults ≥ age 25 who have heart disease or a stroke, reporting that their current health was somewhat or much worse than their health one year prior, by sex and annual household income, in Ontario, 2005.

- Women with HF were less likely than men to have a cardiologist as their most responsible physician while in hospital and more likely to be under the sole care of a general practitioner/family physician (GP/FP). This pattern was also seen for outpatient care in newly diagnosed HF patients. Women were less likely than men to undergo cardiac testing for HF, including left ventricular function evaluation, cardiac stress testing, echocardiography and angiography. These differences were reduced, but not eliminated, after adjusting for age.

- Lower-income women and men with HF were less likely to have a cardiologist as their most responsible physician, and more likely to be under the sole care of a GP/FP while in hospital or while being cared for in the community for newly diagnosed HF. Lower income was also associated with lower rates of angiography and echocardiography among men.

- Among individuals aged 65 and older, who were discharged after an episode of HF, medication management for HF did not differ by sex and income. However, there were regional variations in use of these medications.

- ED use (Exhibit 4) and readmissions (Exhibit 5, next page) among HF patients were high. Within 30 days of discharge, 30% of patients hospitalized for HF visited an ED and 20% were readmitted to hospital. Within one year, 75% had visited an ED and 59% had been readmitted. About a third of hospital readmissions within 30 days and within one year among both women and men were for non-CVD related causes.

Exhibit 4 | Age-standardized percentage of heart failure (HF) patients ≥ age 45 seen in an emergency department (ED), by sex and reason for visit, in Ontario, 2005/06

Data Sources: Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD); National Ambulatory Care Reporting System (NACRS)

CVD = cardiovascular disease; HF = heart failure
Women who had an AMI were less likely than men to have a cardiologist as their most responsible physician while in hospital, undergo or be referred for angiography within the recommended period, or fill a prescription for a statin within the first 90 days post-discharge or at one year post-discharge. Women also had higher risk-adjusted 30-day and one-year non-elective readmission rates than men and higher crude but not risk-adjusted mortality during the same follow up intervals.

Women and men experienced similar rates of physician follow up within 30 days, beta blocker, ACE inhibitor and/or ARB and aspirin use post-AMI and wait times for coronary procedures.

Angiography rates varied significantly across LHINs (Exhibit 6) and ranged from 34% to 67% among women and from 41% to 68% among men.

Exhibit 6 | Age-standardized percentage of adults ≥ age 45 admitted to hospital with an AMI who underwent or were referred for coronary angiography within 3 months of discharge, by sex, neighbourhood income and LHIN, in Ontario, 2005/06

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Data Sources: Cardiac Care Network (CCN); Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD); Statistics Canada 2001 Census
KEY FINDINGS (continued)

• 8% of AMI patients were under the sole care of a GP/FP when hospitalized. Women, older patients and those from lower-income neighbourhoods were more likely to be under the care of a GP/FP, this also varied significantly by region from less than 1% to 36% (Exhibit 8).

Exhibit 7 | Percentage of adults ≥ age 45 hospitalized for an AMI, under the sole care of a GP/FP in hospital, by sex and LHIN, in Ontario, 2005/06

![Chart showing percentage of adults ≥ age 45 hospitalized for an AMI, under the sole care of a GP/FP in hospital, by sex and LHIN, in Ontario, 2005/06.]

Data Source: Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD)

GP/FP = general practitioner or family physician

• Low-income women and men who had an AMI were less likely to have a cardiologist as their most responsible physician, more likely to be under the sole care of a GP/FP (Exhibit 8) while in hospital and had lower rates of coronary angiography (Exhibit 9, next page).

Exhibit 8 | Type of physician providing in-hospital care to adults ≥ age 45 hospitalized for an AMI, by sex and neighbourhood income quintile, in Ontario, 2005/06

![Chart showing type of physician providing in-hospital care to adults ≥ age 45 hospitalized for an AMI, by sex and neighbourhood income quintile, in Ontario, 2005/06.]

Data Sources: Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD); Statistics Canada 2001 Census

GP/FP = general practitioner/family physician

^ Specialist consultation includes a consultation by a cardiologist or an internist/geriatrician
KEY FINDINGS

• We found no significant sex differences in the delivery of the majority of acute stroke care quality indicators.

• Women were less likely than men to be prescribed statins for hyperlipidemia at the time of discharge from hospital, within 90 days and at one year post-discharge. Women were less likely than men to undergo carotid imaging, and this appeared to be primarily driven by lower rates of imaging in patients aged 80 and older. Women were half as likely as men to undergo carotid endarterectomy within 6 months of their index stroke admission.

• There were no significant sex differences in risk-adjusted seven-day, thirty-day or one-year readmission or mortality rates after stroke although mortality rates varied by age, as would be expected.

• There was significant regional variation in stroke care including carotid imaging (Exhibit 10), access to stroke units, medication management, neurologist or neurosurgery consultation, dysphagia screening, access to rehabilitation and nutritional assessment and referral to stroke prevention clinics for patients discharged directly from an ED. While development and implementation of the OSS has improved stroke care, regional variations persist.

Exhibit 9 | Age-standardized percentage of adults ≥ age 45 admitted to hospital with an AMI who underwent coronary angiography^ within 3 months of discharge, by sex and neighbourhood income quintile, in Ontario, 2005/06

Exhibit 10 | Percentage of adults ≥ age 45 seen in an emergency department (ED) or hospitalized with an ischemic stroke or transient ischemic attack (TIA) who underwent / were scheduled to undergo carotid imaging, by sex and LHIN, in Ontario, 2005/06

Data Sources: Registry of the Canadian Stroke Network Ontario Stroke Audit (RCSN-OSA)
The indicators we report are the result of a systematic review of the literature and rigorous selection process (see Introduction to the POWER Study, chapter 1). The indicators that have been included have been identified through many sources including the Canadian Cardiovascular Society / the Canadian Cardiovascular Outcomes Research Team, the Canadian Stroke Quality of Care Study, the Canadian CABG Quality Indicators group, the Agency for Health Care Research and Quality in the US and the Danish National Indicators Project on Stroke. Many of these indicators are widely used to measure quality of care. We build on these reports by incorporating a gender and equity analysis (see The POWER Study Framework, chapter 2). This is important because women and men have different patterns of disease, disability, and mortality. Women and men also have different social contexts and different experiences with health care, which, together with differences in biology, contribute to observed gender differences in health.

Data from several sources were used to produce this section. These include: Statistics Canada’s 2001 Census; Canadian Community Health Survey, Cycles 1.1 and 3.1; Canadian Institute for Health Information Discharge Abstract Database; Canadian Institute for Health Information National Rehabilitation Reporting System; Ontario Drug Benefit Database; Ontario Health Insurance Plan, physician claims data; the National Ambulatory Care Reporting System; Registered Persons Database; Cardiac Care Network data (including wait times data and data on angiography); Registry of the Canadian Stroke Network Ontario Stroke Audit data; the Ontario Congestive Heart Failure Database; the Institute for Clinical Evaluative Sciences (ICES) Physician Database; the CABG dataset at ICES and data from the Enhanced Feedback for Effective Cardiac Treatment study. Data on health and functional status were first stratified by sex and then further stratified by socioeconomic variables including annual household income, educational attainment, age, years of immigration and LHIN and analysed as allowed by sample size. Data on clinical care and outcomes were also first stratified by sex and then further stratified by age, neighbourhood income and LHIN and analysed as allowed by sample size. Age-adjustment, where appropriate, was done using indirect standardization. Risk-adjustment, based on previously used adjustment models, was used to assess readmissions and mortality.

HOW TO CITE THIS PUBLICATION:
The production of Project for an Ontario Women’s Health Evidence-Based Report: Volume 1 was a collaborative venture. Accordingly, to give credit to individual authors, please cite individual chapters and titles, in addition to the editors and book title.

For this chapter:

For this volume:

The POWER Study is funded by Echo: Improving Women’s Health in Ontario, an agency of the Ministry of Health and Long-Term Care. This report does not necessarily reflect the views of Echo or the Ministry.

The POWER Study is a partnership between the Keenan Research Centre in the Li Ka Shing Knowledge Institute of St. Michael's Hospital and the Institute for Clinical Evaluative Sciences (ICES) in Toronto, Canada.