HER HEART MATTERS
WEAR RED CANADA • FEB 13

ATLAS CHAPTER 9:
Lessons Learned and Recommendations to Ensure Equitable Care for Women with Cardiovascular Disease in Canada

CWHHA ATLAS ON THE EPIDEMIOLOGY, DIAGNOSIS AND MANAGEMENT OF CARDIOVASCULAR DISEASES IN WOMEN

Tuesday, February 13, 2024
12:15pm - 1:30pm EST

Presenters:

Dr. Najah Adreak
Dr. Jill Bruneau
Dr. Tracey Colella
Dr. Martha Gulati
Kiera Liblik
Dr. Kerri Mullen
Dr. Christine Pacheco
Helen Robert

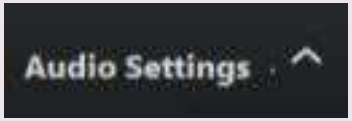
Moderators:

Dr. Sharon Mulvagh and Dr. Colleen Norris

CANADIAN WOMEN'S HEART HEALTH CENTRE | NATIONAL ALLIANCE

WELCOME & HOUSEKEEPING

To notify the presenters and moderators if you are having any technical difficulties and to ask questions through session

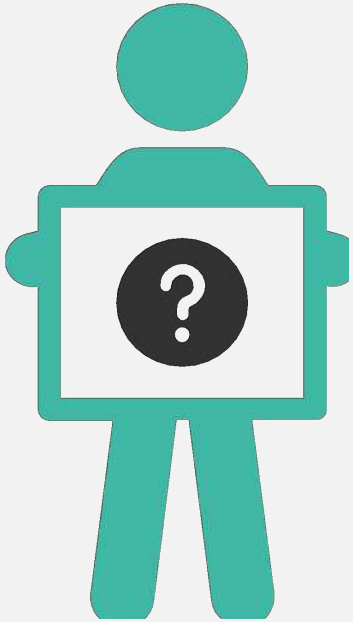


To check your audio settings by clicking “Test speaker and microphone”

DISCLOSURE STATEMENT

We do not have an affiliation (financial or otherwise) with a commercial organization that may have a direct or indirect connection to the content of this presentation.

Polling Question: Who is joining us today?



- Clinician
- Allied health
- Researcher
- Clinical Trainee
- Research trainee
- Person with Lived Experience
- Family/Friend or caregiver for someone with heart disease
- Other

Learning Objectives

At the end of this webinar, you will be able to:

- Describe the current status, challenges, and opportunities in cardiovascular care for women from the authors
- Explain the **12 specific recommendations for actionable next steps** to further the existing progress that has been made in addressing these knowledge gaps by tackling the remaining outstanding disparities in women's cardiovascular care.

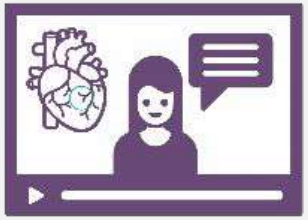
OUR GOAL:
To improve outcomes for women in Canada.

Canadian Women's Heart Health Alliance (CWHHA)

Our Vision: To improve women's cardiovascular health across the lifespan.
Our Mission: To support clinicians, scientists, patients, and decision-makers to implement evidence, transform clinical practices and impact public policy related to women's cardiovascular health.

PROJECTS AND ACTIVITIES

Advocacy



Training & Education

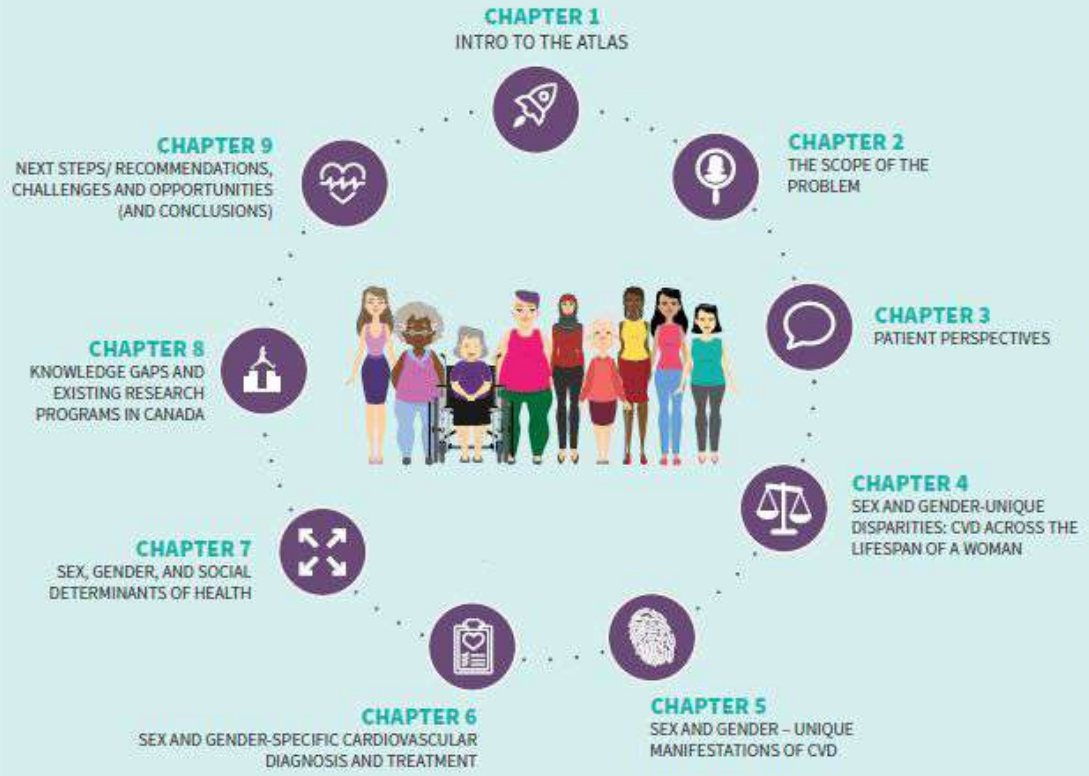
Knowledge Translation & Mobilization

Health Systems & Policy

Research & Knowledge Generation

CANADIAN WOMEN'S HEART HEALTH ALLIANCE ATLAS

Epidemiology, Diagnosis, and Management of Cardiovascular Diseases in Women



- 9 unique "chapters"
- CJC Open
- Editor: Dr. M. Graham
- 1st: published April 2020
- Annual chapter updates
- "Living document"

Norris CM ….. Mulvagh SL. CJC Open 2020

CJC Open

Access provided by University of Ottawa Heart Institute

REVIEW | ARTICLES IN PRESS

CWHHA ATLAS: EPIDEMIOLOGY, DIAGNOSIS AND MANAGEMENT OF CARDIOVASCULAR DISEASES IN WOMEN
Chapter 9: Summary of Current Status, Challenges, Opportunities, and Recommendations

Sharon L. Mulvagh, MD, FRCPC, FACC, FASE, FAHA • Tracey JF. Colella, RN, PhD • Martha Gulati, MD MS • Rebecca Crosier, MD • Saleema Allana, RN, PhD • Varinder Kaur Randhawa, MD PhD • Jill Bruneau, PhD, RN • Christine Pacheco, MD • Shahin Jaffer, MD, MHSc, FRCPC • Lisa Cotie, PhD • Emma Mensour • Marie-Annick Clavel, PhD • Braeden Hill • Amy A. Kirkham, PhD • Heather Foulds, PhD • Kiera Liblik • Andrea Van Damme, BN, MN • Sherry L. Grace, PhD • Karen Bouchard, PhD • Heather Tulloch, PhD • Helen Robert • April Pike, PhD, RN • Jamie L. Benham, MD PhD • Nicole Tegg • Nazli Parast, PhD, APN • Najah Adreak, MD • Laurie-Anne Boivin-Proulx, MD, MSc • Monica Parry, PhD, RN • Zoya Gomes • Hope Sarfi • Chinelo Iwegim, MD, MHPM • Harriette G.C. Van Spall, MD, MPH • Kara A. Nerenberg, MD, MSc • Stephen P. Wright, PhD • Jayneelkumar A. Limbachia, MSc • Kerri-Anne Mullen, PhD • Colleen M. Norris, PhD, MScN, BScN, RN • Show less

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HER HEART MATTERS

WEAR RED CANADA • FEB 13

#HerHeartMatters: Lessons Learned and Recommendations to Ensure Equitable Care for Women with Cardiovascular Disease in Canada

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PRESENTATION, DIAGNOSIS, TREATMENT & PROGNOSIS

Sex- and
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department have recently evolved to respond to this void. However, access is a particular problem in vulnerable populations, where cardiovascular-related morbidity and mortality are disproportionately higher and require health systems policy change.

high CVD risk groups, such as women of Indigenous heritage and ethnic/racial minorities is required to achieve relevant and essential CVD guideline recommendations.

CLINICAL CARE

Strategies to improve CVD care in women: 1) inclusion of sex, gender, race and
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Canada campaign, initiated by CWHHA in 2018, and the Go Red campaign, initiated by the American Heart Association in 2004.

PRESENTATION, DIAGNOSIS, TREATMENT & PROGNOSIS

Sex- and gender-unique differences present challenges in recognition of symptom presentation, pathophysiology, and treatment of CVD, which must be considered when evaluating CVD manifestations, and treatment plans as they impact management and prognosis of cardiovascular conditions in women; yet, inadequate data prevents consistent incorporation into guidelines. Refer to CWHHA Atlas Chapters 5 and 6 for further details.

Traditional CVD Risk Factors and their Impact on Women's Cardiovascular Health

Traditional Risk Factor	Implications for Women
Smoking	• Single-most modifiable risk factor for developing MI.[35] • Increases the risk of CVD in women aged <55 years by 7 times.[35]
Hypertension	• Prevalence and incidence higher in women than men aged >60 years.[36] • Poorer hypertension control in women than men aged >60 years.[37] • Women treated with antihypertensive medications have higher systolic blood pressures than men.[37] • Additive interaction between current smoking and hypertension on IHD incidence in women.[38]
Diabetes mellitus	• Women with diabetes mellitus are at a 2 to 4 times greater risk for IHD compared with men with diabetes mellitus.[39, 40]
Obesity	• More women than men in Canada are overweight and obese.[41] • Metabolic effects of obesity are associated with increased CVD risk.[41]
Physical inactivity	• Across all ages, women are less physically active[42] and spend more time in sedentary activities.[43]
Cholesterol	• Low HDL cholesterol is a stronger predictor of IHD mortality in women than in men, especially in women aged ≥65 years.[44] • Elevated LDL cholesterol, a strong predictor of IHD risk in women aged <65 years, is less predictive in older women.[44]
Stress	• Women may be more vulnerable to the adverse effects of psychosocial stress, occupational stress, and sleep disturbances, increasing their risk of CVD.[45] • Disproportionately more unpaid housework and family responsibilities may exacerbate and sustain high stress levels because of conflicting demands.[45] • Discrimination and gender roles may further increase the environmental psychosocial stress, as may sex and gender differences in stress responses.[40, 46]

Norris CM, Yip CYY, Nerenberg KA, Clavel MA, **Pacheco C**, Foulds HJA, et al. State of the Science in Women's Cardiovascular Disease: A Canadian Perspective on the Influence of Sex and Gender. *J Am Heart Assoc.* 2020;9:e015634.

Assessment of Cardiovascular Risk in Women: Considerations

Intersecting Risk Factors
Age, Ethnicity, Race, Gender

Traditional Risk Factors
- Hypertension
- Diabetes mellitus
- Obesity
- Smoking
- Physical inactivity
- Unhealthy diet
- Family history of premature cardiovascular disease

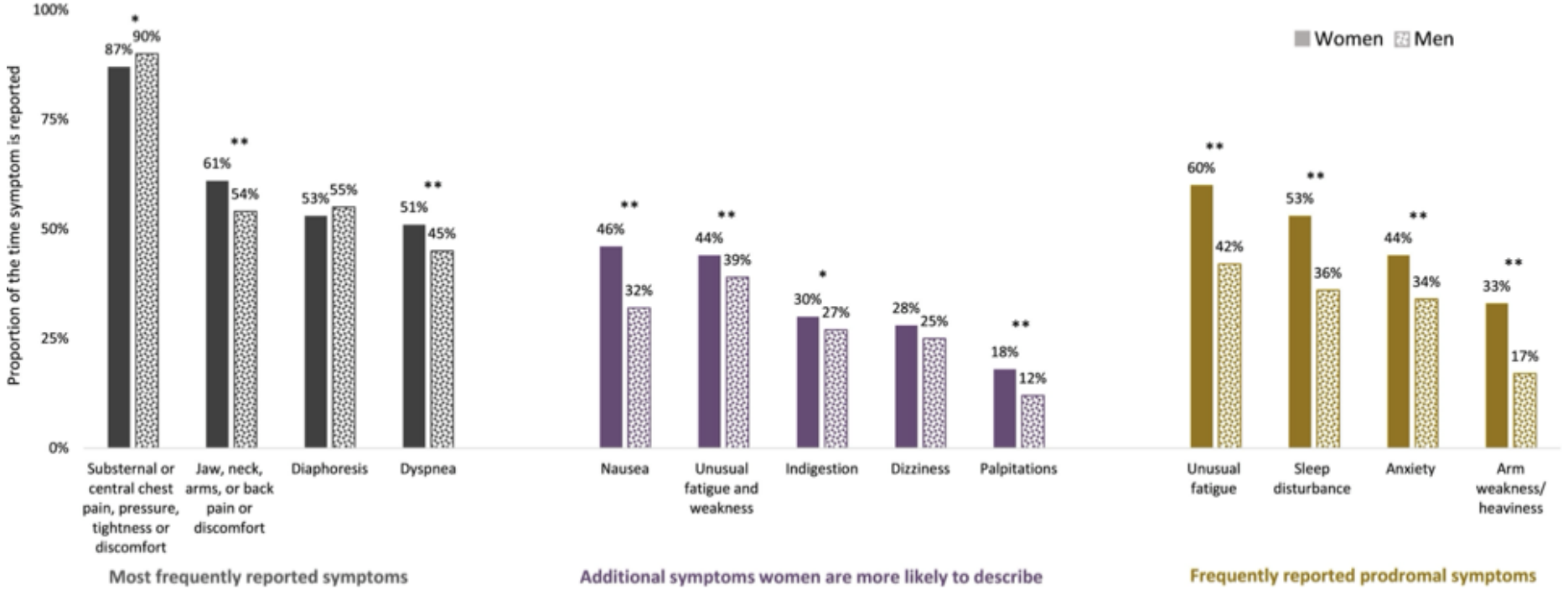
Female-Specific Risk Factors
- Early or late menarche
- Polycystic ovary syndrome
- Adverse pregnancy outcomes
- Hypertensive disorders of pregnancy (e.g., preeclampsia, eclampsia)
- Gestational diabetes
- Preterm delivery
- Pregnancy loss
- Increased parity
- Infertility and treatments
- Primary ovarian insufficiency
- Premature, or early menopause

Female Predominant Risk Factors
- Systemic Autoimmune Diseases
- Rheumatoid arthritis
- Systemic lupus erythematosus
- History of breast cancer treatments
- Migraines
- Depression

Possible Risk Factors
- Atopic dermatitis
- Iron deficiency anemia
- Lipoprotein(a) - increased in menopause

Table 2: Traditional, female-specific, female-predominant, and intersecting factors to consider in the assessment of cardiovascular risk in females.

Clinical Presentation of Cardiovascular Disease in Women

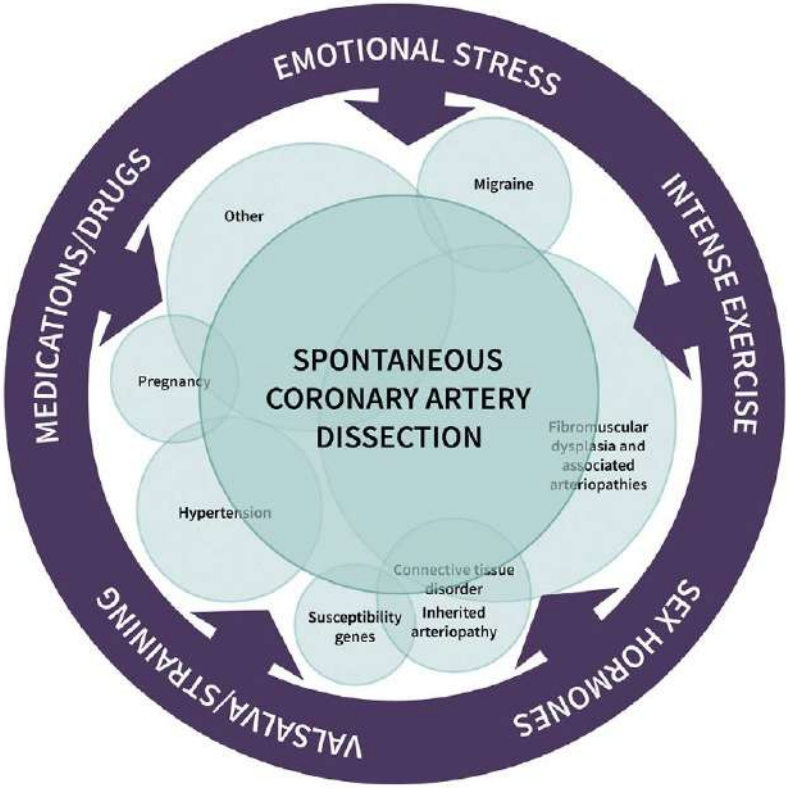


Pacheco C., Mullen KA, Coutinho T, Jaffer S, Parry M, Van Spall HCG, Clavel MA, et al. The Canadian Women's Heart Health Alliance Atlas On The Epidemiology, Diagnosis, And Management Of Cardiovascular Disease In Women -- Chapter 5: Sex- And Gender-Unique Manifestations Of Cardiovascular Disease. CJC Open. 2021. ISSN 2589-790X.

Diagnosis & Treatment

Myocardial Infarction

- Spontaneous Coronary Artery Dissection (SCAD)
- Myocardial Infarction with Nonobstructive Coronary Arteries (MINOCA)



Diagnosis & Treatment

Myocardial Infarction

- Spontaneous Coronary Artery Dissection (SCAD)
- Myocardial Infarction with Nonobstructive Coronary Arteries (MINOCA)

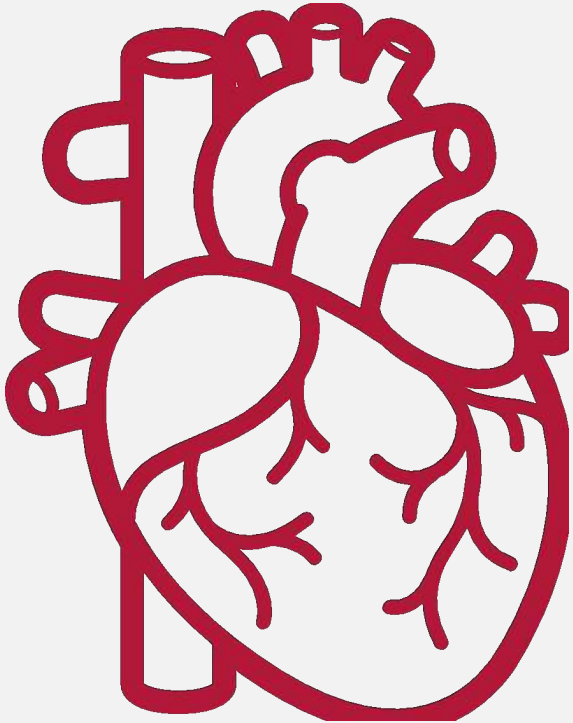
Table 1. Mechanisms and diagnosis of MINOCA

Potential underlying mechanisms of MINOCA*	Diagnostic testing
Coronary plaque disruption (eg, plaque rupture, or ulceration, erosion, calcific nodules)	Coronary angiogram IVUS OCT
Epicardial coronary vasospasm	Coronary vasoreactivity testing (acetylcholine, ergonovine)
Coronary microvascular dysfunction	Coronary function testing (CFR, IMR) Myocardial PET
Spontaneous coronary artery dissection	Coronary angiogram IVUS OCT
Hypercoagulable disorders	Hypercoaguable work-up
Coronary emboli	TTE, TEE, bubble contrast echocardiography
Paradoxical emboli	Cardiac MRI
Takotsubo or other cardiomyopathy†	TTE
Myocarditis†	Cardiac MRI TTE

Diagnosis & Treatment

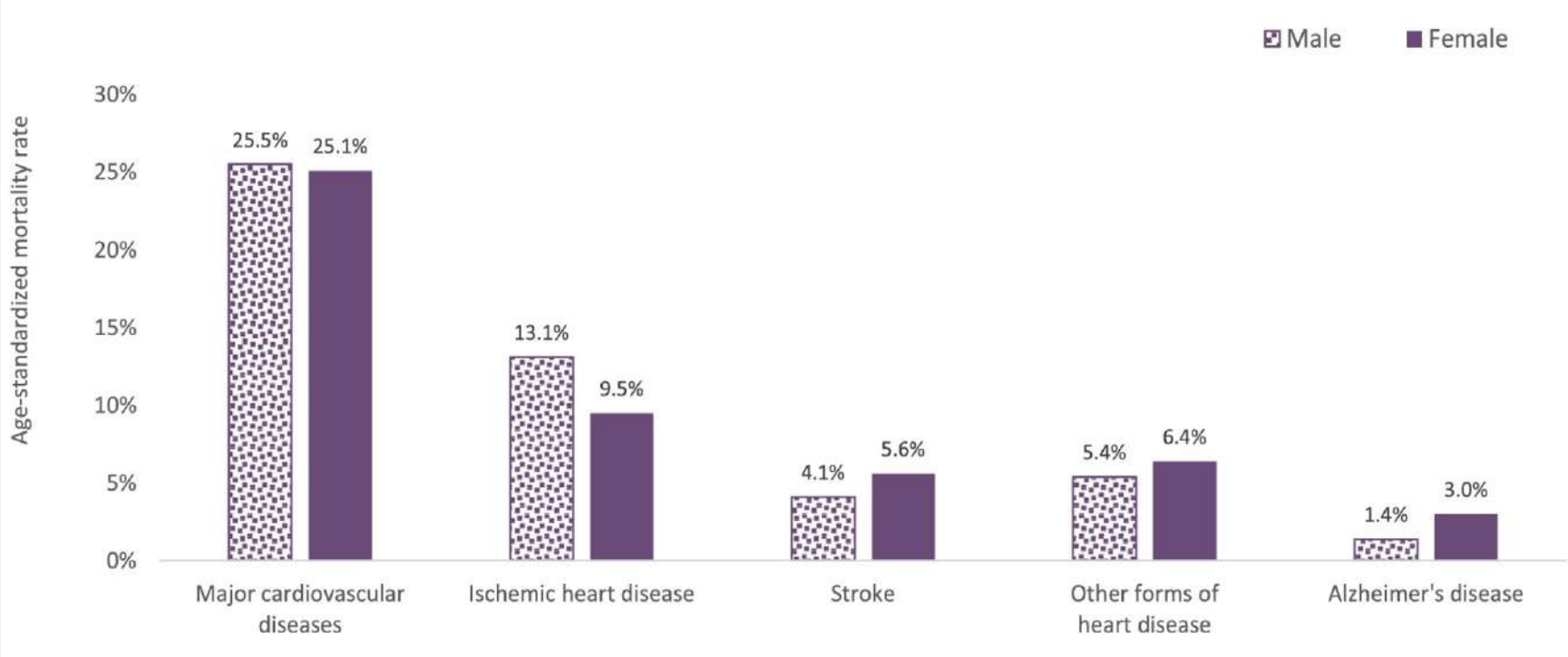
Heart Failure

- Heart Failure with Preserved Ejection Fraction (HFpEF)
- Heart Failure with Reduced Ejection Fraction (HFrEF)
- Takotsubo cardiomyopathy (“Broken heart syndrome”)



Valvular Disease

Prognosis of Cardiovascular Disease in Women



ACCESS TO CARE

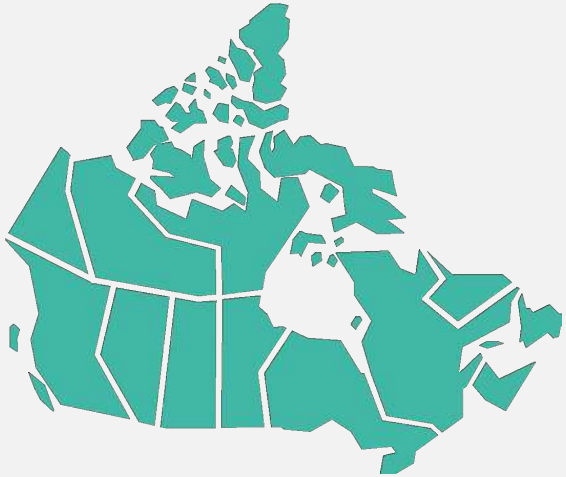
Best practices in CV care for women including risk assessment, diagnosis and management of acute and chronic CVD manifestations that are uniquely, or more commonly, seen in women are not universally accessible. Clinics dedicated to evaluating women with a history of pregnancy complications, Women's Heart Health Programs, and unique approaches to women with chest pain in the emergency department have recently evolved to respond to this void. However, access is a particular problem in vulnerable populations, where cardiovascular-related morbidity and mortality are disproportionately higher and require health systems policy change.

Access to Care

"National survey highlights worsening primary care access"

>20% (6.5 million) Canadians ***without*** regular primary care provider

- British Columbia (27%)
- Atlantic Canada (31%)
- Quebec (31%)
- Northwest Territories (50%)
- Nunavut (75%)

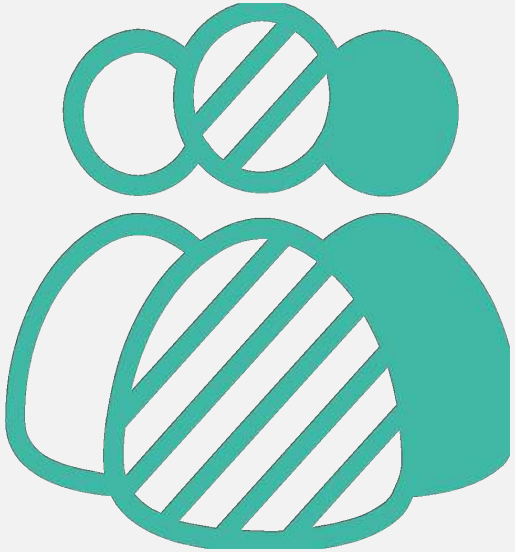


D. Duong & L. Vogel. CMAJ April 24, 2023 195 (16) E592-E593; DOI: https://doi.org/10.1503/cmaj.1096049

Statistics Canada. Custom tabulation based on 2019–2020 and 2021 Canadian Community Health Survey — Annual Component (CCHS). 2023.

Access to Care

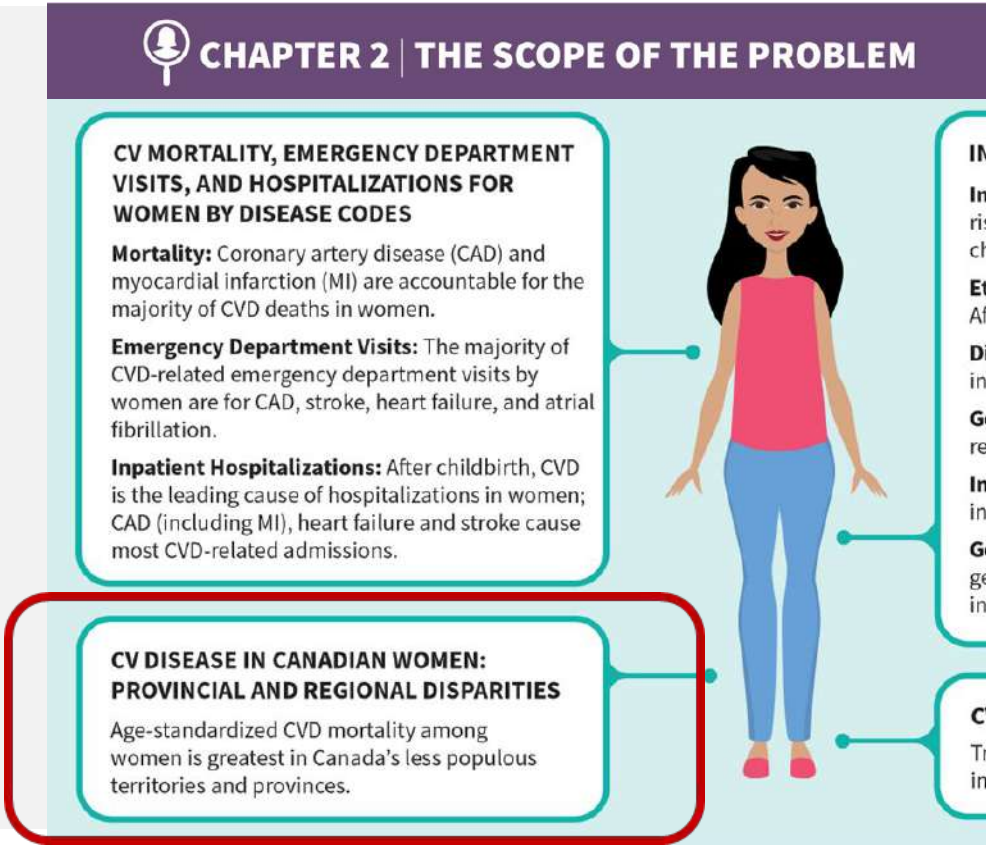
"Despite the emphasis on health equity of the Health Canada Act, research points to a disproportionate burden of difficulties in accessing health care services among vulnerable populations in Canada, such as women, rural residents, Indigenous people, African, Caribbean, and Black people and people with health problems."



Etowa et al. International Journal for Equity in Health; 2021, 20(255)

Age-Standardized CVD Mortality

- **Highest in:**
  - Nunavut
  - Northwest Territories
  - Newfoundland and Labrador
  - Prince Edward Island
- **Lowest in:**
  - British Columbia
  - Ontario
  - Quebec



Access to Care

Access to healthcare can be impacted by several factors:

- Geographic location
- Resources
- Structural biases
- Knowledge and awareness

Access to Care

"Women continue to experience disproportionate disparities regarding access to best practice healthcare when they present for assessment of CV risk, cardiac symptoms or established CVD due to sex-unique physiologic characteristics and gender-related social dynamics."

Adverse pregnancy conditions

- <50% of women identified to be at increased cardiovascular risk postpartum are referred for further assessment and follow up.

Acute Coronary Syndromes

- 90% of women report chest pain with documented ischemia
- Even when women, particularly younger women, articulate their symptoms as ‘heart-related’ they are more likely than men to be dismissed by medical professionals

Recommendations for Action

- Clinical guidelines and systematic algorithms for assessment of ACS
- Provincial and national health systems strategies for incorporating postpartum cardiovascular care into existing primary care and preventative care models
- Training, education, awareness

PRESENTATION, DIAGNOSIS, TREATMENT & PROGNOSIS

Sex- and gender-unique differences pr
symptom presentation, pathophysiol
be considered when evaluating CVD
they impact management and p
women; yet, inadequate data
guidelines. Refer to CWHHA At

GUID

Sex- and gender-based a
management have been consi
urgent need, there are no sex-s
or treatment, largely due to u
female patients in CVD researc
have been published regar

ACC

Best practices in CV care f
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that are uniquely, or mo
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higher and require

RESEARCH

Recognition of the importance of ensuring female participation in cardiovascular trials with requisite sex and gender-based analysis, coordinate with equitable representation of high CVD risk groups, such as women of Indigenous heritage and ethnic/racial minorities is required to achieve relevant and essential CVD guideline recommendations.

CLINICAL CARE

care in women: 1) inclusion of sex, gender, race and
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nadian population, 2) Specialized Heart
ngly recognized to improve outcomes for
across North America in both academic
ecent development; 3) A detailed and
toms, intersectional risk factors, and
the emergency department with chest
matic approach to cardiovascular
n should be implemented; moreover,
icial, particularly for SCAD patients.

UCATION & TRAINING

exists across all phases of
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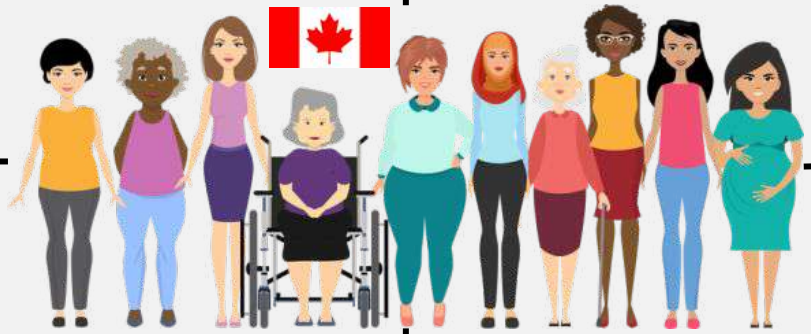
The CWHHA ATLAS: A living document on the current state of heart disease in women in Canada

Foundation for Knowledge & Leadership

Interdisciplinary & PWLE Collaboration



Future Research & Impactful Change

National & Global Opportunities

https://www.cwhha.ca/cwhha-atlas

Women and Research – The Reality

Women remain under-researched and under-represented in clinical trials

- Limits understanding of treatment impacts in women
- Barrier to knowledge generation and development of evidence-based guidelines

2/3 of heart disease clinical research focuses on men.

Heart&Stroke

Women and Research – The Reality

Lack of diversity of women in clinical research

- Indigenous heritage
- Ethnic & racial minorities

Prioritization of **women's heart health in research** is required to address these gaps and provide a foundation for systemic change.

Call to Action – Researchers, Public and Policy

The Future: Sex & Gender Considerations in all Aspects of Research Design, Execution and Reporting

Targeted Education & Support	• Training – concepts and methods • Sex & gender-based analysis & reporting
Mandate: A Culture of Inclusivity & Diversity	• Equitable representation of women, ethnic & racial minorities • Diversify clinical trial leadership
Advocate for Change	• Understand women's hesitancy to participate in trials & target mitigation strategies • Patient partners in research
Funding Agencies & Scientific Journals, Conferences	• Enforce sex & gender reporting guidelines • Requirements for funding, publication & scientific conferences

GUIDELINES

Sex- and gender-based analysis of CVD treatment and management have been consistently under-recognized. Despite urgent need, there are no sex-specific guidelines for CVD diagnosis or treatment, largely due to under-representation of women and female patients in CVD research trials. Recently, several documents have been published regarding pregnancy-related CVD risk.

PRESENTATION, DIAGNOSIS, TREATMENT & PROGNOSIS

Sex- and gender-unique differences present challenges in recognition of symptom presen… be considere… they impa… women… guideli…

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CLINICAL CARE

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indigenous heritage and ethnic/racial minorities is required to achieve relevant and essential CVD guideline recommendations.

campaign, initiated by the American Heart Association in 2004.

Women As the "Special Population"

11. SPECIAL POPULATIONS

11.1. Disparities and Vulnerable Populations*

Recommendations for Disparities and Vulnerable Populations

COR	LOE	Recommendations
1	C-LD	1. In vulnerable patient health disparities, H multidisciplinary mar target both known r determinants of hea elimination of dispar
1	C-LD	2. Evidence of health c tored and addresse and the health care

Table 27. Risk of HF and Outcomes in Special Populations (Table view)

Vulnerable Population	Risk of HF	HF Outcomes
Women	The lifetime risk of HF is equivalent between sexes, but HFpEF risk is higher in women—in FHS participants with new-onset HF, odds of HFpEF (EF >45%) are 2.8-fold higher in women than in men.[66] Sex-specific differences in the predictive value of cardiac biomarkers for incident HF.[67] Nontraditional cardiovascular risk factors, including anxiety, depression, caregiver stress, and low household income may contribute more toward incident heart disease in women than men.[68]	Overall, more favorable survival with HF than men. In the OPTIMIZE-HF registry, women with acute HF had a lower 1-y mortality (HR, 0.93; 95% CI, 0.89–0.97), although women are more likely not to receive optimal GDMT.[20,69–71] Lower patient-reported quality of life for women with HFrEF, compared with men.[10,71] Greater transplant waitlist mortality for women but equivalent survival after heart transplantation or LVAD implantation.[24,52]

Heidenreich PA, et al. J Card Fail 2022

Women are 52% of the Population
Guidelines Must Address Women

Journal of Cardiac Failure Vol. 28 No. 5 2022

CLINICAL PRACTICE GUIDELINE: FULL TEXT

2022 ACC/AHA/HFSA Guideline for the Management of Heart Failure

WRITING COMMITTEE MEMBERS*PAUL A. HEIDENREICH, MD, MS, FACC, FAHA, FHFSACHAIR,†
BIYKEM BOZKURT, MD, PhD, FACC, FAHA, FHFSAVICE CHAIR,† DAVID AGUILAR, MD, MSc, FAHA,†

Table 5. Other Potential Nonischemic Causes of HF (Table view)

Cause
Chemotherapy and other cardiotoxic medications
✓ Rheumatologic or autoimmune
Endocrine or metabolic (thyroid, acromegaly, pheochromocytoma, diabetes, obesity)
Familial cardiomyopathy or inherited and genetic heart disease
Heart rhythm–related (eg, tachycardia-mediated, PVCs, RV pacing)
Hypertension
Infiltrative cardiac disease (eg, amyloid, sarcoid, hemochromatosis)
Myocarditis (infectious, toxin or medication, immunological, hypersensitivity)
✓ Peripartum cardiomyopathy
✓ Stress cardiomyopathy (Takotsubo)
Substance abuse (eg, alcohol, cocaine, methamphetamine)

Health care system factors are a potential source of disparate HF care delivery and outcomes. Women are less likely to receive discharge instructions for HF, less likely to be referred to specialty care, and less likely to receive a heart transplantation, compared with men

Cedars Sinai
Smidt Heart Institute

Heidenreich PA, et al. J Card Fail 2022

Increase
Diversity in Trials

DIVERSITY

Continue to
Follow Metrics
Globally

METRICS

EQUITY

Apply Guidelines
Equally

SEX

BIAS

Sex Specific
Considerations

↓Gender Bias
in Care

Improving Cardiac
Care for Women

@drmarthagulati

www.drmarthagulati.com

PRESENTATION, DIAGNOSIS, TREATMENT & PROGNOSIS

Sex- and gender-unique differences present challenges in recognition of

CLINICAL CARE

Strategies to improve CVD care in women: 1) inclusion of sex, gender, race and

ADVOCACY

Numerous campaigns were launched in Canada and the U.S. in the early 2000's to increase women's awareness of their CVD risk and encourage them to take urgent action to lower their risk through health screening and lifestyle changes. These are currently exemplified by the Wear Red Canada campaign, initiated by CWHHA in 2018, and the Go Red campaign, initiated by the American Heart Association in 2004.

cardiovascular-related morbidity and mortality are disproportionately higher and require health systems policy change.

minorities is required to achieve relevant and essential CVD guideline recommendations.

campaign, initiated by the American Heart Association in 2004.

What Makes the ATLAS so Powerful?

Holistic, comprehensive information source

- Summarizes what we do know
- Highlights what we don't
- Offers tangible actionable recommendations

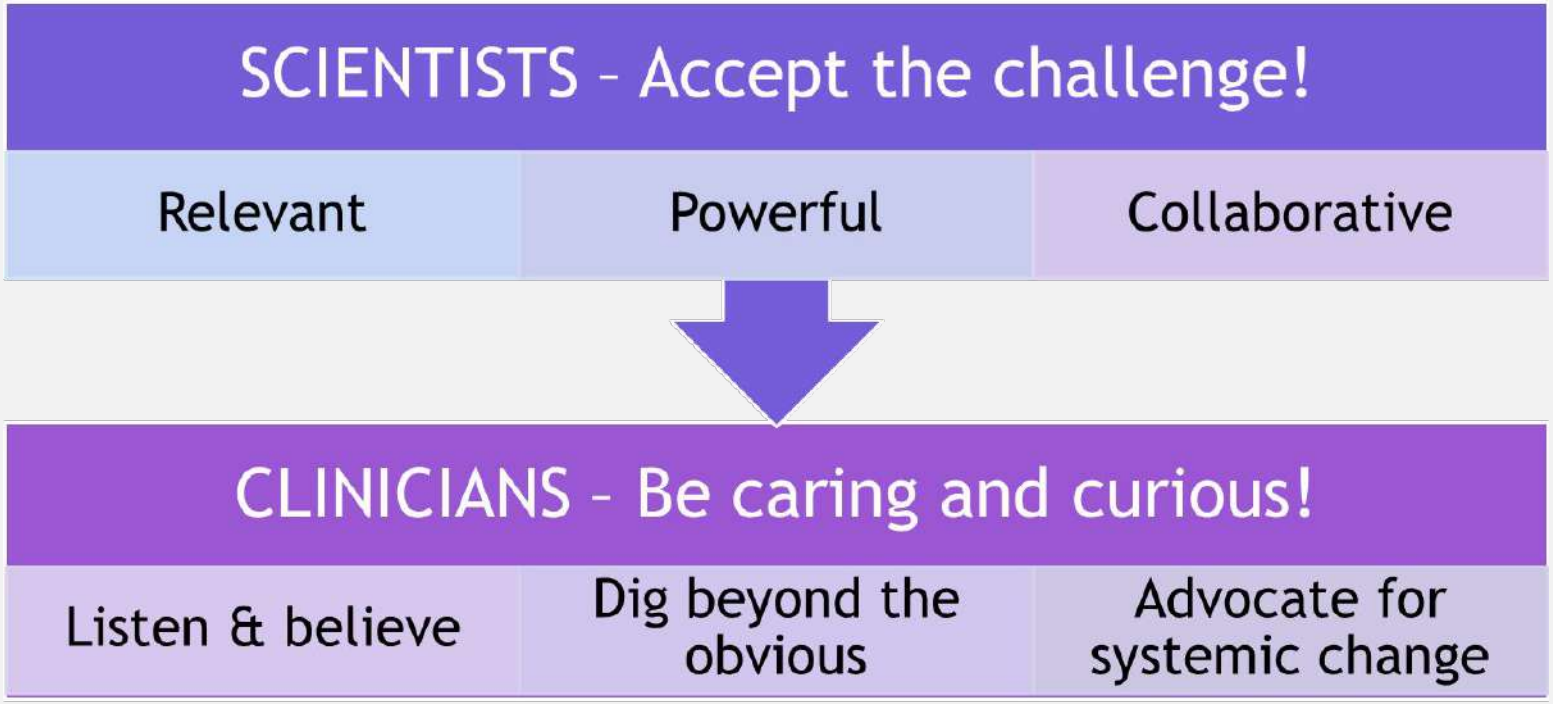
Model for collaboration

- Lifecycle approach
- Scientists, Clinicians, Patients and Advocates truly working together for stronger impact

Springboard for change

- Suggests opportunities for new, complex and powerful research
- Facilitates learning and encourages clinical change
- Gives everyone a basis from which to advocate

Women are Complicated



The Patient & Caregiver Voice

Take care of you!

- Believe your body
- Show up and participate
  - Keep good notes on symptoms and medications
  - Be honest with your doctors
  - Educate yourself on your condition and/or risk factors
  - Ask good questions
  - Ask for what you need
  - Do your part

Invite yourself to the table!

- Spread awareness in your community
- Help others learn from your experience
- Ask about and participate in research
- Participate on a research or clinical improvement team
- **Join the Canadian Women's Heart Health Alliance**

cwhha.ca

Click on Membership at the top

PRESENTATION, DIAGNOSIS, TREATMENT & PROGNOSIS

Sex- and gender-unique differences present challenges in recognition of symptom presentation, pathophysiology, and treatment of CVD, which must be considered when evaluating CVD manifestations, and treatment plans as they impact management and prognosis of cardiovascular conditions in women; yet, inadequate data prevents consistent incorporation into

CLINICAL CARE

Strategies to improve CVD care in women: 1) inclusion of sex, gender, race and ethnicity components could potentially improve CV risk prediction tools, but would require validation in the Canadian population, 2) Specialized Heart Centers for Women have been increasingly recognized to improve outcomes for women with CVD, and their emergence across North America in both academic

HEALTHCARE PROVIDER EDUCATION & TRAINING

Inconsistency and lack of education exists across all phases of medical education despite stated required core competencies on women's health; both didactic and clinical practice training specifically addressing cardiovascular disease in women is required.

department have recently evolved to respond to this void. However, access is a particular problem in vulnerable populations, where cardiovascular-related morbidity and mortality are disproportionately higher and require health systems policy change.

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Canada campaign, initiated by CWHHA in 2018, and the Go Red campaign, initiated by the American Heart Association in 2004.

Current State in Medical Schools, Residency and Nursing Programs

70% of surveyed medical schools lack a formal curriculum.

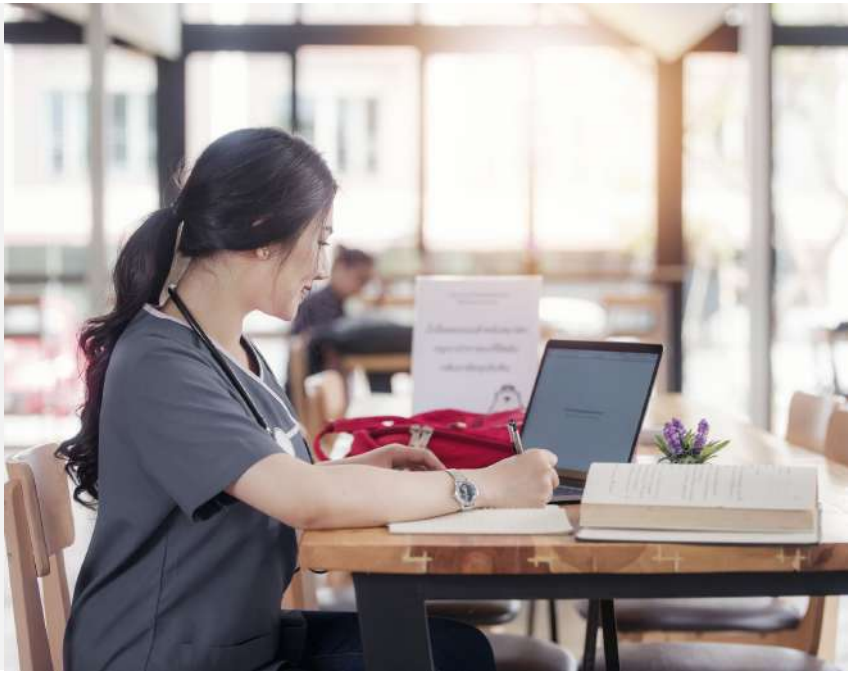
- Despite growing awareness of sex and gender-based differences in medicine, significant gaps persist in formal education.
- Less than half of medical students report appropriate training for clinical management.
- Less than one third of cardiologists received cardio-obstetrics training during residency.
- No specific education on women's heart health in Canadian nursing schools.

Jenkins, M.R., Biol Sex Differ 7 (Suppl 1), 45 (2016).
Hsieh E,. J Womens Health (Larchmt). 2013;22(8):667-672.

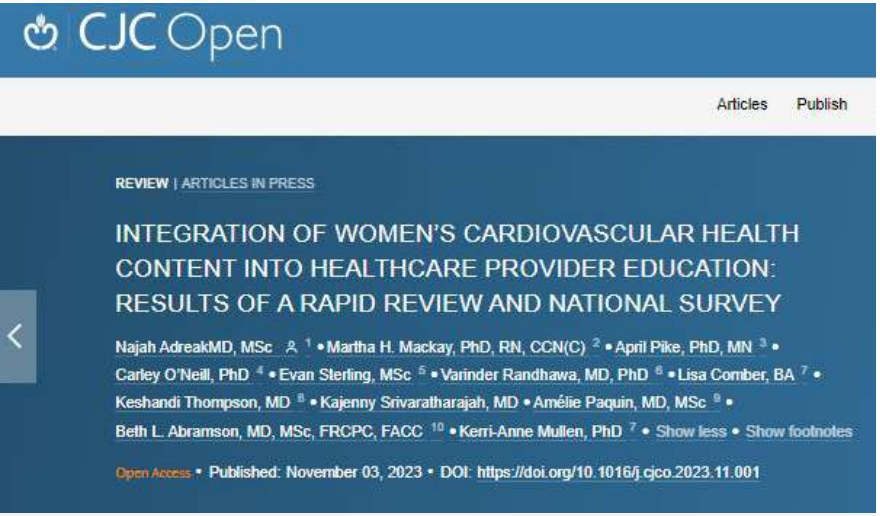
These are our future healthcare providers… without adequate education, we fail them and our patients

The Need for Core Cardiovascular Training

- Urgent need for a core cardiovascular component in comprehensive women's health curricula.
- Collaboration among specialties (obstetrics/gynecology, family medicine, internal medicine, cardiology).
- Joint core competency assessments, faculty development, and CME courses recommended.



Recommendations



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REVIEW | ARTICLES IN PRESS

INTEGRATION OF WOMEN'S CARDIOVASCULAR HEALTH CONTENT INTO HEALTHCARE PROVIDER EDUCATION: RESULTS OF A RAPID REVIEW AND NATIONAL SURVEY

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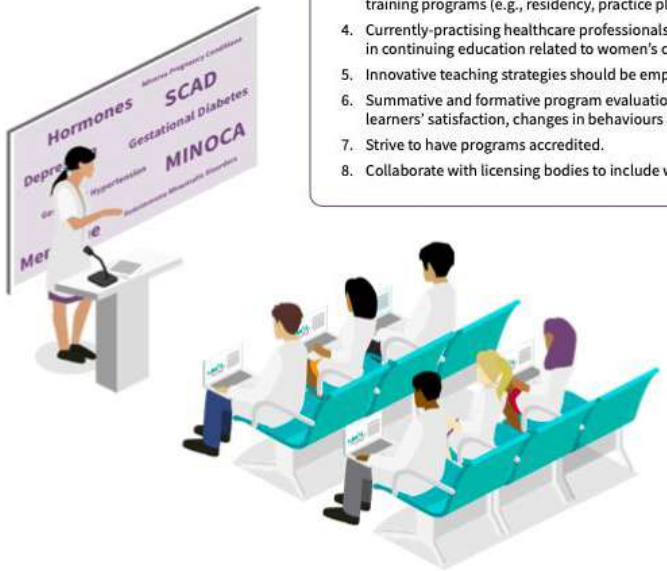
RECOMMENDATIONS FOR HEALTH PROFESSIONAL EDUCATION

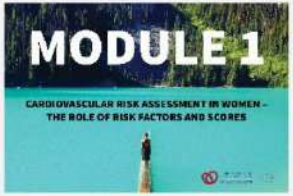
1. The development and broad implementation of evidence-based curricula in women's CVD is urgently needed.
2. Sex- and gender-related cardiovascular health content should be offered in physician, nursing, and allied health programs as part of their regular curriculum.
3. Delivery should be staged so that healthcare professionals receive foundational knowledge of sex, gender, and cardiovascular health followed by more advanced topics, and such that theory can be taught first in the classroom, then applied through practical training programs (e.g., residency, practice placements).
4. Currently-practising healthcare professionals should be encouraged or required to engage in continuing education related to women's cardiovascular health.
5. Innovative teaching strategies should be employed to engage adult learners.
6. Summative and formative program evaluation methods should be incorporated to monitor learners' satisfaction, changes in behaviours and attitudes, and patient outcomes.
7. Strive to have programs accredited.
8. Collaborate with licensing bodies to include women's CVD content in licensing exams.



- The gaps in sex and gender-based medical education are significant.
- Collaborative efforts and initiatives are underway, but comprehensive changes are needed

Current Efforts

Canadian Women's Heart Health Education Course + Teaching Toolkit



Available for free at CWHHA.ca

Target Audience: Healthcare professionals and trainees within emergency medicine, general internal medicine and cardiology

9 accredited modules:

1. Cardiovascular **Risk Assessment** in Women – The Role **of Risk Factors** and Scores
2. **Acute Coronary Syndromes** (ACS) in Women
3. Approaches to **Chest Pain** - A **Sex & Gender** Focus
4. MI with Non-Obstructive Coronary Arteries (**MINOCA**)
5. Spontaneous Coronary Artery Dissection (**SCAD**)
6. Stress-Induced Cardiomyopathy (**SIC**)
7. Contemporary Management of Women with **Heart Failure**
8. Cardiovascular Risk in Women With **Gestational Diabetes & Hypertensive Disorders** Of Pregnancy
9. Recovery **and Cardiac Rehabilitation** (CR) for Women

Women's Heart Health Curricula in Healthcare-Related Training Programs across Canada

Cardiovascular (CVD) disease continues to be the leading cause of preventable death in women in Canada.

Targeting future healthcare professionals at the beginning of their careers is one way we can improve women's cardiovascular health across the lifespan.

Be part of the solution by incorporating curriculum though a variety of formats (no cost):

- Access to accredited online course
- Invited talks
- Publications and resources
- Attendance at the Canadian Women's Heart Health Summit

Contact us to learn more: CWHHC@ottaweheart.ca

WOMEN'S HEART HEALTH CURRICULUM

Pilot project on the development and implementation of a formal WHH curriculum for Adult Cardiology Residency Training Programs in Canada

LAUNCHED JULY 2023

CLINICAL CARE

Strategies to improve CVD care in women: 1) inclusion of sex, gender, race and ethnicity components could potentially improve CV risk prediction tools, but would require validation in the Canadian population, 2) Specialized Heart Centers for Women have been increasingly recognized to improve outcomes for women with CVD, and their emergence across North America in both academic institutions and private practice is a recent development; 3) A detailed and unique algorithm inclusive of symptoms, intersectional risk factors, and management of women presenting to the emergency department with chest pain has been developed; 4) Systematic approach to cardiovascular rehabilitation (CR) referral for women should be implemented; moreover, women-focused CR appears beneficial, particularly for SCAD patients.

Clinical Care

- Inclusion of sex, gender, race, and ethnicity components could potentially improve CV risk prediction tools, but would require validation in the Canadian population

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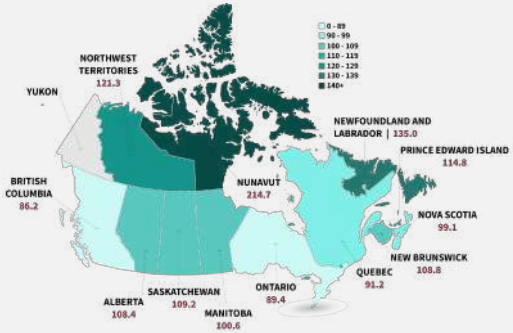
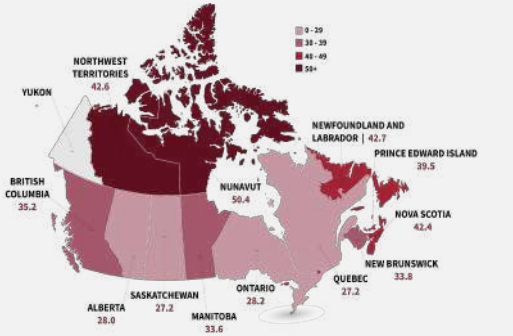
Disparities Exist in CVD Risk for Women Across Canada





Sex: females unique physiology: menarche, pregnancy, menopause

Geographical/Living Environment: rural, remote and on-reserve residences

Indigenous: linked to colonization, subsequent social, economic and political challenges

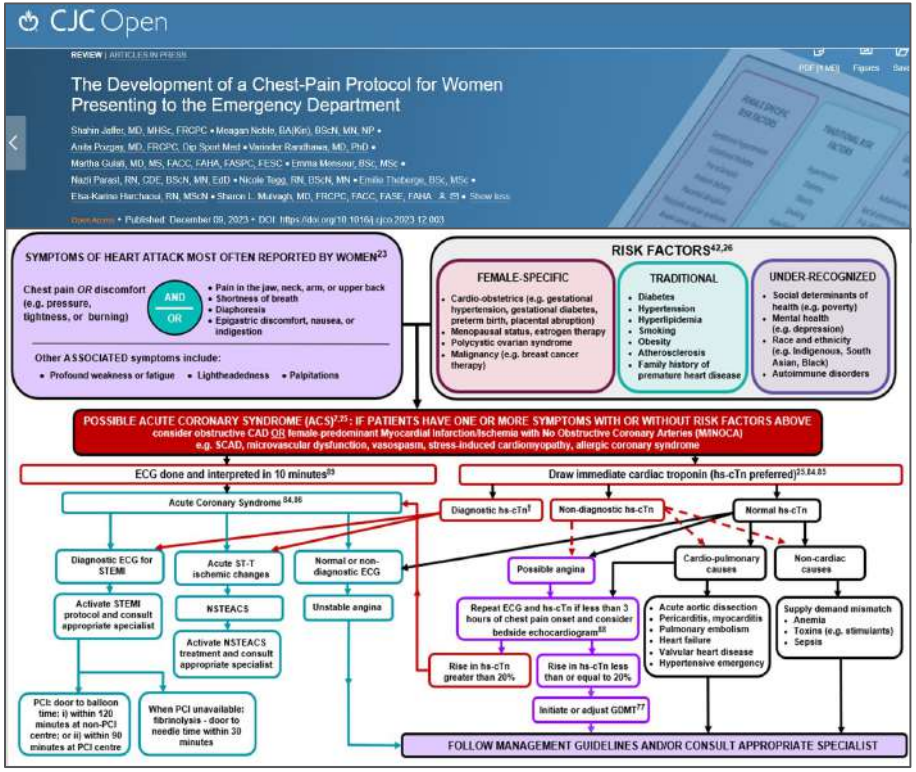
Ethnic and Racial Variations: Afro-Caribbean and South Asian

Disabilities: disadvantaged in access to care

Gender: *intersects with* ***race***, ***ethnicity***, ***Indigenous status***, ***sexuality, geography, age***, ***disability/ability***, ***migration status***, ***SES*** *and* ***religion****, impacting individual perceptions of health and healthcare*.

Including all of these CVD risk factors could improve risk prediction tools in women
(once validated in Canada)

Chest Pain Protocol for Women Presenting to the Emergency Department



Clinical Care

- **Specialized Heart Centers for Women have been increasingly recognized to improve outcomes for women with CVD, and their emergence across North America is only a recent development**

- Systematic approach to cardiovascular rehabilitation (CR) referral for women should be implemented; moreover, women-focused CR appears beneficial, particularly for SCAD patients

Women’s Heart Programs

Name	Location
Women’s Cardiovascular Health Initiative	Toronto, Ontario
Women’s Heart Health Clinic	Vancouver, British Columbia
Women’s Healthy Heart Initiative	Montreal, Quebec
Canadian Women’s Heart Health Centre	Ottawa, Ontario
The Maritime Heart Centre Women’s Heart Health Clinic	Halifax, Nova Scotia
Cardio F, le Centre hospitalier de l’Université de Montréal	Montreal, Quebec

Clinical Care

- Specialized Heart Centers for Women have been increasingly recognized to improve outcomes for women with CVD, and their emergence across North America is only a recent development

- **Systematic approach to cardiovascular rehabilitation (CR) referral for women should be implemented; moreover, women-focused CR appears beneficial, particularly for SCAD patients**

Improving Women's Participation in CR

- Systematic approaches to CR referral
- Advancing digital health technology
- Alternative programming options
- Systematic inclusion of women
- Standardized triage assessment/algorithms
- Education/awareness campaigns
- Research on optimizing women's exercise
- Woman-focused CR programs

Recommended Actions to Address Remaining Gaps in Cardiovascular Care for Women in Canada

1. Recognize and understand that there are sex-specific, and sex-“more common” cardiovascular risk factors and manifestations of CVD.
2. Include multidisciplinary, collaborative didactic and clinical practice training specifically addressing sex and gender within core curricula at the undergraduate and postgraduate levels, and continuous medical education, for all healthcare providers.
3. Develop and implement CVD risk prediction tools that include sex, gender, race and ethnicity-specific components.
4. Develop a national health systems strategy for incorporating postpartum cardiovascular care into existing prevention care models
5. Continue advocacy campaigns to increase awareness of CVD in women, but ensure that they utilize inclusive and culturally-sensitive materials to reach marginalized individuals in vulnerable communities.
6. Utilize sex-specific algorithms, including sex-specific thresholds for high-sensitivity troponin analysis to diagnose ACS in women presenting with acute chest pain symptoms.

Recommended Actions to Address Remaining Gaps in Cardiovascular Care for Women in Canada

7. Refer automatically, and encourage enrollment and participation in Cardiac Rehabilitation (CR) by women who have experienced ACS or HF; establish and utilize women-focused CR programs; provide peer-support opportunities.
8. Perform mental health screening during hospitalization for an acute cardiac event and provide appropriate treatment and resources.
9. Utilize resources of specialized Heart Centres for Women for higher level acuity cases, where available, and broaden their availability.
10. Require the inclusion of sex/gender AND racialization considerations in research protocol methodology, results analysis, and discussion, for all levels of research, including registries.
11. Increase the representation of female patients and female investigators in CVD clinical trials
12. Develop Canadian CVD guidelines with sex- and gender-specific recommendations, whenever possible.

Summary of Recommendations to Improve CVD Outcomes for Women: Clinical Practice, Research, Advocacy, and Education

- **Clinical practice** must consider and include sex and gender in the assessment, prevention, diagnosis, and management of CVD and CVD risk factors.
- **Research** must include greater inclusion of women in CV clinical trials, and sex- and gender-based analyses to build an evidence-base for guidelines that can be translated into healthcare protocols and policies.
- **Advocacy** efforts using principles of inclusivity and cultural-sensitivity amplify awareness of CVD as a leading threat to quality life for women in Canada.
- **Training and education** for all healthcare providers with inclusion of evidence-based sex and gender content in all phases of cardiovascular learning creates a **long term solution**.

CHAPTER 9 | NEXT STEPS/RECOMMENDATIONS, CHALLENGES AND OPPORTUNITIES AND CONCLUSIONS

THANK YOU!

PRESENTATION, DIAGNOSIS, TREATMENT & PROGNOSIS

Sex- and gender-unique differences present challenges in recognition of symptom presentation, pathophysiology, and treatment of CVD, which must be considered when evaluating CVD manifestations, and treatment plans as they impact management and prognosis of cardiovascular conditions in women; yet, inadequate data prevents consistent incorporation into guidelines. Refer to CWHHA Atlas Chapters 5 and 6 for further details.

GUIDELINES

Sex- and gender-based analysis of CVD treatment and management have been consistently under-recognized. Despite urgent need, there are no sex-specific guidelines for CVD diagnosis or treatment, largely due to under-representation of women and female patients in CVD research trials. Recently, several documents have been published regarding pregnancy-related CVD risk.

ACCESS TO CARE

Best practices in CV care for women including risk assessment, diagnosis and management of acute and chronic CVD manifestations that are uniquely, or more commonly, seen in women are not universally accessible. Clinics dedicated to evaluating women with a history of pregnancy complications, Women's Heart Health Programs, and unique approaches to women with chest pain in the emergency department have recently evolved to respond to this void. However, access is a particular problem in vulnerable populations, where cardiovascular-related morbidity and mortality are disproportionately higher and require health systems policy change.

RESEARCH

Recognition of the importance of ensuring female participation in cardiovascular trials with requisite sex and gender-based analysis, coordinate with equitable representation of high CVD risk groups, such as women of Indigenous heritage and ethnic/racial minorities is required to achieve relevant and essential CVD guideline recommendations.

CLINICAL CARE

Strategies to improve CVD care in women: 1) inclusion of sex, gender, race and ethnicity components could potentially improve CV risk prediction tools, but would require validation in the Canadian population, 2) Specialized Heart Centers for Women have been increasingly recognized to improve outcomes for women with CVD, and their emergence across North America in both academic institutions and private practice is a recent development; 3) A detailed and unique algorithm inclusive of symptoms, intersectional risk factors, and management of women presenting to the emergency department with chest pain has been developed; 4) Systematic approach to cardiovascular rehabilitation (CR) referral for women should be implemented; moreover, women-focused CR appears beneficial, particularly for SCAD patients.

HEALTHCARE PROVIDER EDUCATION & TRAINING

Inconsistency and lack of education exists across all phases of medical education despite stated required core competencies on women's health; both didactic and clinical practice training specifically addressing cardiovascular disease in women is required.

ADVOCACY

Numerous campaigns were launched in Canada and the U.S. in the early 2000's to increase women's awareness of their CVD risk and encourage them to take urgent action to lower their risk through health screening and lifestyle changes. These are currently exemplified by the Wear Red Canada campaign, initiated by CWHHA in 2018, and the Go Red campaign, initiated by the American Heart Association in 2004.

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Heather Tulloch
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Harriette G.C. Van Spall
Stephen P. Wright
Cindy Y.Y. Yip

Questions & Answers

WE WANT TO HEAR FROM YOU.

Questions, Comments...

THANK YOU!

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