ST. MICHAEL'S
UNITY HEALTH TORONTO

UHN Peter Munk Cardiac Centre

TED ROGERS CENTRE FOR HEART RESEARCH

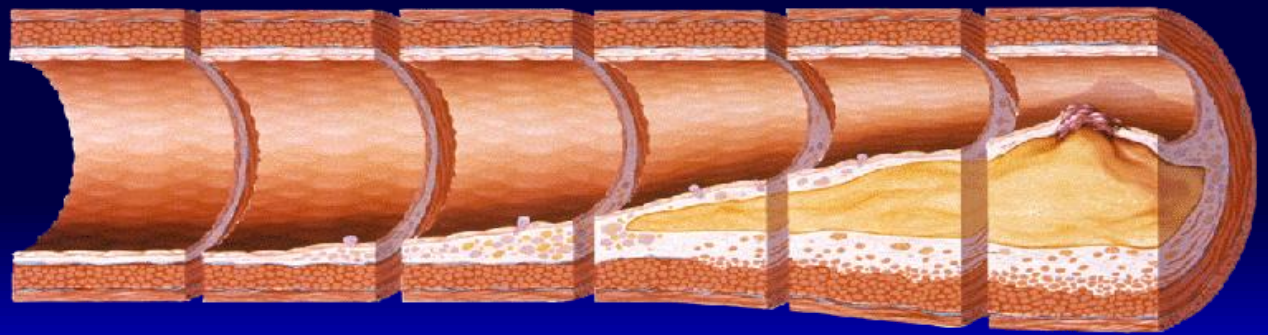
Medicine
UNIVERSITY OF TORONTO

CANADIAN HEART RESEARCH CENTRE

Canadian VIGOUR Centre
Bridging Hearts and Minds

UNIVERSITY OF ALBERTA

Pathways to Secondary Prevention of Atherosclerotic Cardiovascular Disease (ASCVD)



Shaun.Goodman@UnityHealth.To

ST. MICHAEL'S
UNITY HEALTH TORONTO

UHN Peter Munk Cardiac Centre

TED ROGERS CENTRE FOR HEART RESEARCH

Medicine
UNIVERSITY OF TORONTO

CANADIAN HEART RESEARCH CENTRE

Canadian VIGOUR Centre
Bridging Hearts and Minds

UNIVERSITY OF ALBERTA

Pathways to Secondary Prevention of Atherosclerotic Cardiovascular Disease (ASCVD)

Key Learning Objective

Review the evidence-based, guideline-recommended secondary prevention treatment of patients with ASCVD, focusing on the post-acute coronary syndrome (ACS) transition to chronic coronary syndrome (CCS) management

Disclosures:

Research Grant and Salary Support, Speaker/Consulting Honorarium

- Research grant support (e.g., executive/steering or data and safety monitoring committee) and/or speaker/consulting honoraria (e.g., advisory boards) from:
  - Alnylam
  - Amgen
  - Anthos
  - AstraZeneca
  - Bayer
  - Boehringer Ingelheim
  - Bristol Myers Squibb
  - CSL Behring
  - CYTE Ltd.
  - Eli Lilly
  - HLS Therapeutics
  - Merck
  - Novartis
  - Novo Nordisk
  - Pendopharm/ Pharmascience
  - Pfizer
  - Prolocor
  - Regeneron
  - Roche
  - Sanofi
  - Tolmar
  - Viatris
- Honoraria and/or Salary support from:
  - Canadian Heart Research Centre and MD Primer
  - Canadian VIGOUR Centre
  - Cleveland Clinic Coordinating Center for Clinical Research
  - Duke Clinical Research Institute
  - Jewish General Hospital\CIUSSS Centre-Ouest-de-l'Ile-de-Montreal
  - New York University Clinical Coordinating Centre
  - Peter Munk Cardiac Centre/Ted Rogers Centre for Heart Research
  - TIMI Study Group (Brigham Health)

https://thecvc.ca/about-us/bio/shaun-goodman - Relationships with industry

ABCDEFs in Secondary Prevention of Coronary Artery Disease

- **A**nti-thrombotic (antiplatelet[s] ± anticoagulant) therapy,
- **A**CE inhibitor (or **A**ngiotensin Receptor Blocker), and
- **A**nti-inflammatory therapy
- **B**eta-blocker and **B**lood Pressure-lowering
- **C**holesterol-modifying therapy
- **D**iet, **D**iabetes-control/vascular protection, and **D**on't smoke
- **E**xercise
- **F**ollow-up

Adapted from Cohen *Lancet* 2001;357:972-73

Closing the Practice Gap in Secondary Prevention After Acute Coronary Syndromes: a Provincial Implementation Pathway

Palki Bhatt, MD, MSc,[a] Meredith K. Wright, PhD,[b] Carolyn Gall-Casey, BASc,[b] Claudia Bucci, PharmD,[c] Noah Ivers, MD, PhD,[d] and J.D. Schwalm, MD, MSc;[a,e,f] on behalf of the Canadian Cardiovascular Society Secondary Prevention Pathway Working Group[†]

- Initiated in 2023 to support implementation of:
  - CCS Guidelines and Clinical Practice Updates (e.g., Dyslipidemia, Antiplatelet, Fitness to Drive, Smoking Cessation, etc.)
  - other relevant guidance documents (e.g., Canadian Association of Cardiovascular Prevention and Rehabilitation Guidelines, and other society guidelines)
- Led by a multidisciplinary working group of researchers, clinical experts, people with lived experience, and representatives from Ontario Health and industry to:
  - Refine and finalize the pathway
  - Support implementation of the pathway at two sites in Ontario

Canadian Cardiovascular Society / Société cardiovasculaire du Canada

Bhatt et al *Can J Cardiol* 2025;41:2644-48

CCS Post-ACS Secondary Prevention Pathway

Objectives

- Improve guideline-directed medical therapy post-acute coronary syndrome (ACS)
- Improve equitable access to care post-ACS
- Improve guideline recommended follow-up post-ACS by:
  - Collaborating with Ontario Health to increase cardiac rehab referral, attendance and completion
  - Optimizing transitional care from Hospital to Home
  - Considering the patient journey and fostering patient education

Canadian Cardiovascular Society | Société cardiovasculaire du Canada

Bhatt et al *Can J Cardiol* 2025;41:2644-48

Post-Acute Coronary Syndrome (ACS): Secondary Prevention Pathway

Canadian Cardiovascular Society

The CCS Secondary Prevention Pathway presents evidence-based guideline recommendations to support a patient's journey from discharge to outpatient follow-up after ACS. The pathway indicates when care goals should be implemented and the most responsible clinician. Links are provided to helpful resources.

Objective 2. Conduct necessary medical investigations to identify risk factors and optimize management

Foundational Practice	Goals			Most Responsible Clinician				
	At Discharge	1 Week to 1 Month After Discharge	>1 Month After Discharge	Discharging clinician*	PCC**	Nurse	Pharmacist	Dietitian
1. Identify risk factors by screening for/optimizing management of: 1.1. Diabetes 1.2. Dyslipidemia 1.3. Hypertension	• Screen for, or assess current management of, diabetes with HbA1c[ii] (Resource A) • Assess/reassess recent LDL-C, HDL-C, triglycerides, non-HDL-C, and total cholesterol[ii] (Resource B) • Assess Lp(a) if not yet done[iii] • Assess blood pressure[iv]	• Ensure discharge standards complete	• If patient has diabetes, follow Diabetes Canada monitoring guidelines (Resource A) • Repeat lipid panel (fasting to assess triglycerides) at 1 month and then (non-fasting) every 1 month if lipid lowering therapy intensification is required to achieve recommended thresholds[iii] (Resource B) • Assess HbA1c at 3 months	✓	✓		✓	

* Discharging physician, or cardiologist/internist at follow-up (also includes nurse practitioner working with a specialist)
** Primary care clinician (PCC) (family physician or nurse practitioner) or alternative clinician.
For patients without a PCC: Pathway care planning, interventions, and follow-up should be provided by an alternative clinician such as a cardiologist/internist OR hospital-based clinic (nurse practitioner, pharmacist or physician-led clinic), OR cardiac rehabilitation program. *Regional resources and center-specific practices will determine the approach.*

Bhatt et al *Can J Cardiol* 2025;41:2644-48 – *Supplementary Appendix*

Post-Acute Coronary Syndrome (ACS): Secondary Prevention Pathway

Canadian Cardiovascular Society

The CCS Secondary Prevention Pathway presents evidence-based guideline recommendations to support a patient's journey from discharge to outpatient follow-up after ACS. The pathway indicates when care goals should be implemented and the most responsible clinician. Links are provided to helpful resources.

Objective 3. Implement all appropriate and tolerated guideline-directed medical therapies

Foundational Practice	Goals			Most Responsible Clinician				
	At Discharge	1 Week to 1 Month After Discharge	>1 Month After Discharge	Discharging clinician*	PCC**	Nurse	Pharmacist	Dietitian
Guideline-directed initiation of the following medication classes: *Provider should include appropriate classes of tolerated medications (even at a low dose) for early optimization.*								
2. Lipid lowering therapy[iii] (Resource B)	• Start high intensity statin therapy or intensify pre-existing therapy with rosuvastatin 40mg or atorvastatin 80mg • Consider add-on therapy if already receiving maximally tolerated statin: +/- bempedoic acid o If LDL-C >1.8-2.2 mmol/L, ApoB >0.7 -0.8 g/L or non-HDL-C 2.4-2.9 consider ezetimibe +/- PCSK9 inhibitor o If LDL-C >2.2 mmol/L, ApoB>0.8 g/L or non-HDL-C >2.9 mmol/L consider PCSK9 inhibitor +/- ezetimibe o If triglygerides >1.5-5.6 mmol/L, consider icosapent ethyl 2000mg BID			✓	✓		✓	

* Discharging physician, or cardiologist/internist at follow-up (also includes nurse practitioner working with a specialist)
** Primary care clinician (PCC) (family physician or nurse practitioner) or alternative clinician.
For patients without a PCC: Pathway care planning, interventions, and follow-up should be provided by an alternative clinician such as a cardiologist/internist OR hospital-based clinic (nurse practitioner, pharmacist or physician-led clinic), OR cardiac rehabilitation program. *Regional resources and center-specific practices will determine the approach.*

Canadian Cardiovascular Society | Société cardiovasculaire du Canada

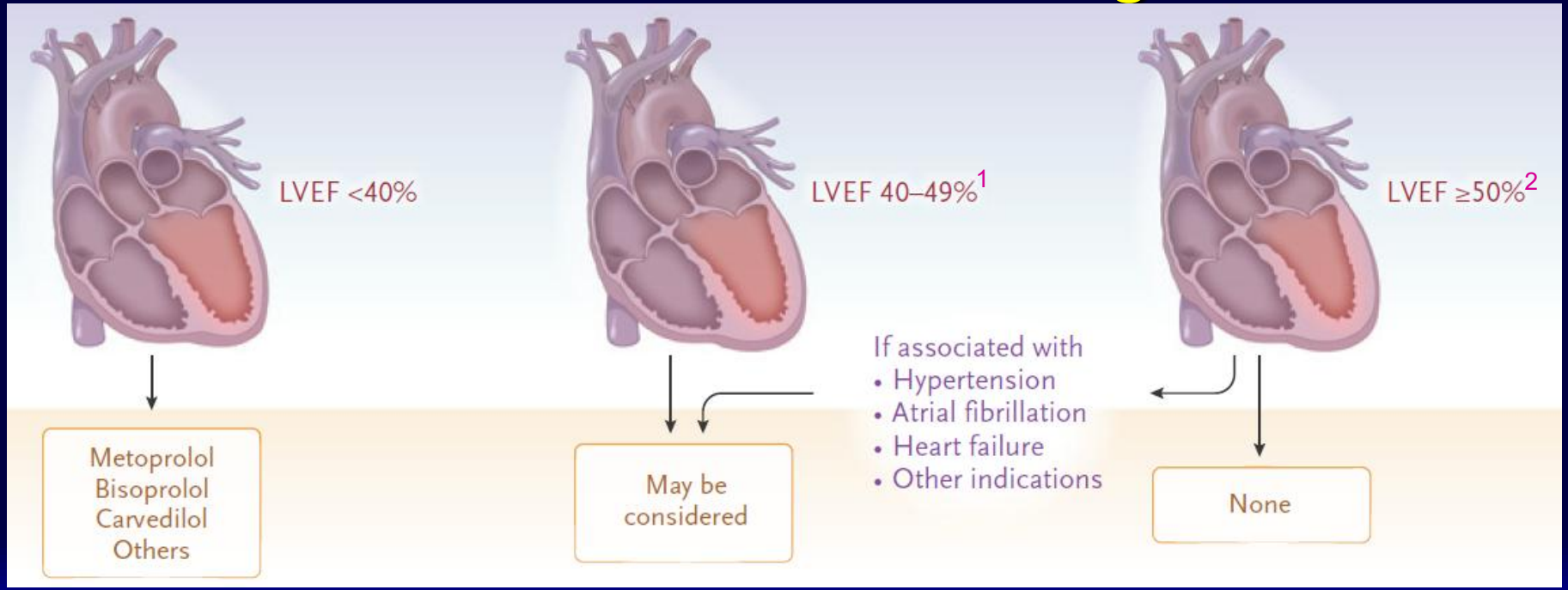
Bhatt et al *Can J Cardiol* 2025;41:2644-48 – *Supplementary Appendix*

Renin-Angiotensin-Aldosterone System Inhibition in MI and Chronic Coronary Syndromes

- Early and short-term benefits (including mortality) of ACEi (e.g., rampiril, lisinopril) in *all* (regardless of LVEF) MI patients[1]
  - Vascular protection in all ASCVD patients (regardless of BP, LVEF)[2]
- No role for routine use in unselected MI patients of mineralocorticoid receptor antagonist (MRA; spironolactone [CLEAR SYNERGY])[3]
- Consider use in selected MI patients with
  - HFrEF: MRA (eplerenone [EPHESUS])[4]
  - HF±rEF: Angiotensin-Neprilysin Inhibitor (ARNI) instead of ramipril (sacubitril-valsartan [PARADISE-MI])[5]

[1]ACE Inhibitor Collaborative Group *Circulation* 1998;97:2202-12; [2]Jolly et al *N Engl J Med* 2025;392:643-52; [3]Jolly et al *N Engl J Med* 2025;392:643-52; [4]Pitt et al *N Engl J Med* 2003;348:1309-21; [5]Pfeffer et al *N Engl J Med* 2021;385:1845-55

Beta-Blockers After Myocardial Infarction: Toward Personalized Management

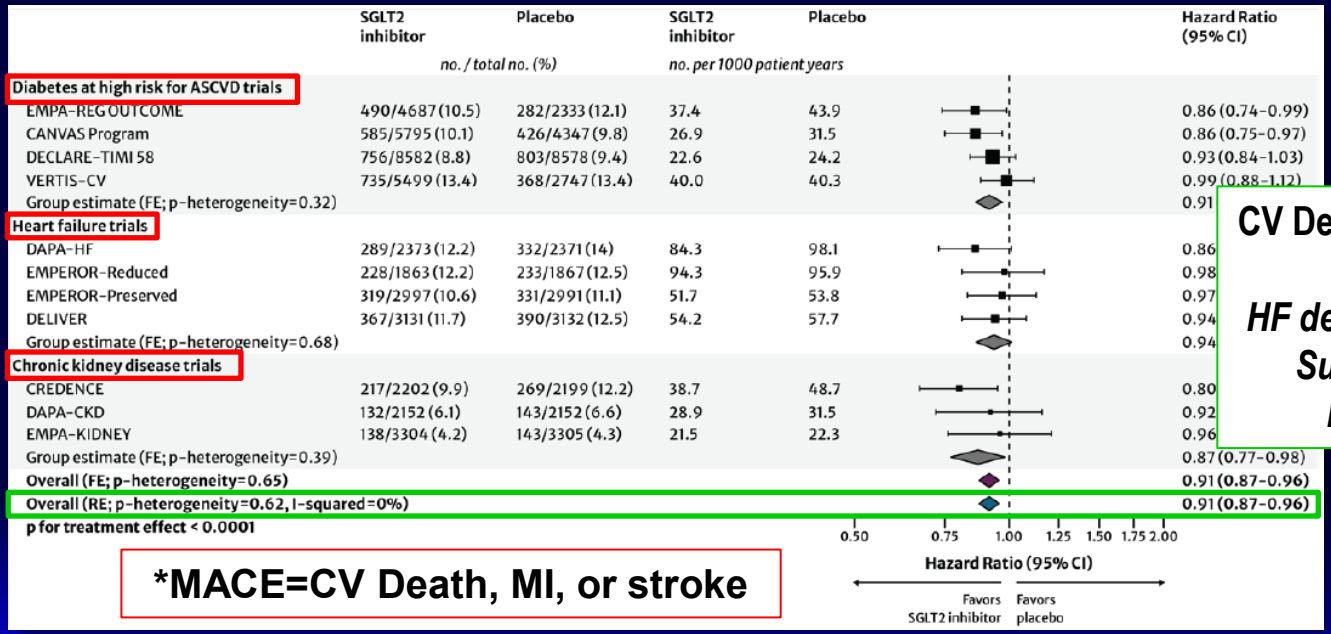


Lüscher & Wenzl *N Engl J Med* 2026;394:599-602

[1]Rossello et al *Lancet* 2025;406:1128-37; [2]Kristensen et al *N Engl J Med* 2025;DOI:10.1056/NEJMoa2512686

Sodium-Glucose Cotransporter-2 Inhibitors and Major Adverse Cardiovascular Outcomes (MACE)*

Patients (n=78,607; 11 trials) with Type 2 Diabetes at high risk for ASCVD (54%), HF (26%), or CKD (20%); mean age 62-72 years, 34% women with T2D (80%), HF (36%), eGFR<60 ml/min (37%): canagliflozin, empagliflozin, dapagliflozin, ertugliflozin vs. placebo with 2-4 year follow-up



	SGLT2 inhibitor	Placebo	SGLT2 inhibitor	Placebo	Hazard Ratio (95% CI)
	no. / total no. (%)		*no. per 1000 patient years*		
Diabetes at high risk for ASCVD trials					
EMPA-REG OUTCOME	490/4687 (10.5)	282/2333 (12.1)	37.4	43.9	0.86 (0.74–0.99)
CANVAS Program	585/5795 (10.1)	426/4347 (9.8)	26.9	31.5	0.86 (0.75–0.97)
DECLARE-TIMI 58	756/8582 (8.8)	803/8578 (9.4)	22.6	24.2	0.93 (0.84–1.03)
VERTIS-CV	735/5499 (13.4)	368/2747 (13.4)	40.0	40.3	0.99 (0.88–1.12)
Group estimate (FE; p-heterogeneity=0.32)					0.91
Heart failure trials					
DAPA-HF	289/2373 (12.2)	332/2371 (14)	84.3	98.1	0.86
EMPEROR-Reduced	228/1863 (12.2)	233/1867 (12.5)	94.3	95.9	0.98
EMPEROR-Preserved	319/2997 (10.6)	331/2991 (11.1)	51.7	53.8	0.97
DELIVER	367/3131 (11.7)	390/3132 (12.5)	54.2	57.7	0.94
Group estimate (FE; p-heterogeneity=0.68)					0.94
Chronic kidney disease trials					
CREDENCE	217/2202 (9.9)	269/2199 (12.2)	38.7	48.7	0.80
DAPA-CKD	132/2152 (6.1)	143/2152 (6.6)	28.9	31.5	0.92
EMPA-KIDNEY	138/3304 (4.2)	143/3305 (4.3)	21.5	22.3	0.96
Group estimate (FE; p-heterogeneity=0.39)					0.87 (0.77–0.98)
Overall (FE; p-heterogeneity=0.65)					**0.91 (0.87–0.96)**
Overall (RE; p-heterogeneity=0.62, I-squared=0%)					**0.91 (0.87–0.96)**
p for treatment effect < 0.0001					

CV Death: HR 0.86 (0.81-0.92); p<0.0001

HF death: HR 0.68 (0.46-1.02)

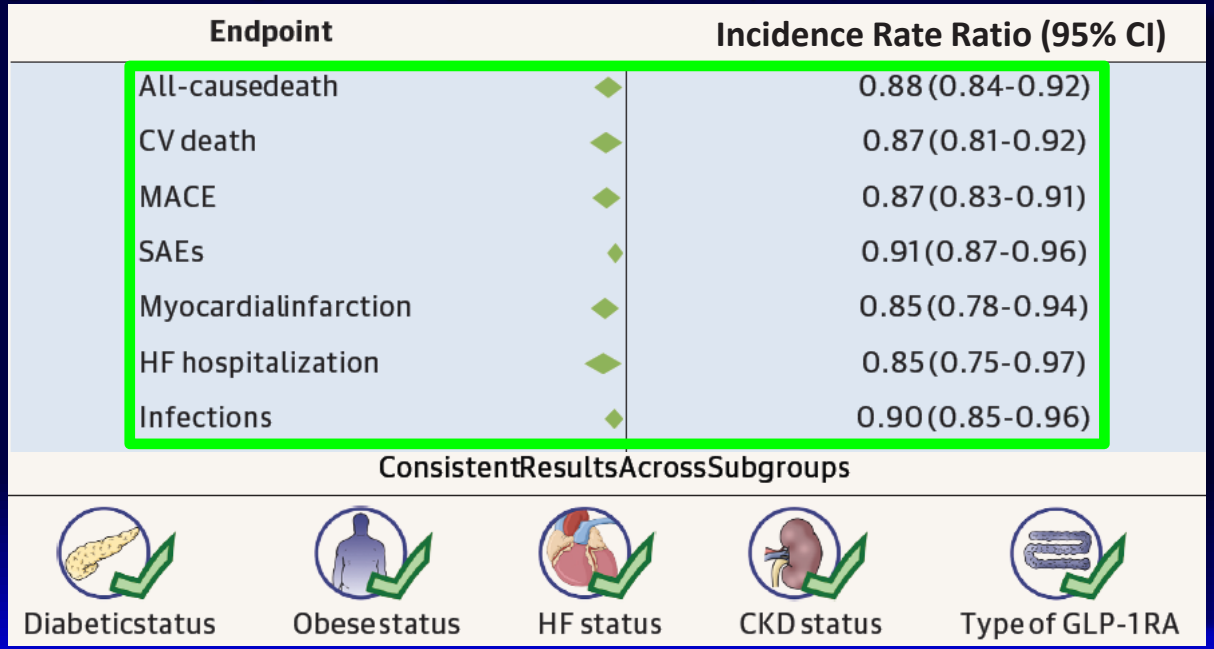
Sudden cardiac death: HR 0.86 (0.78-0.95)

***MACE=CV Death, MI, or stroke**

Patel et al (Cherney), SGLT2i Meta-analysis Cardio-Renal Trialists Consortium *Circulation* 2024;49:1789-1801

Cardiovascular Effects and Tolerability of GLP-1 Receptor Agonists

n=99,599 (21 trials) with established CV disease (e.g., history of HF or prior CV events), those at high risk (e.g., diabetes, obesity, or chronic kidney disease), or both; 8 GLP-1ras (lixisenatide, liraglutide, exenatide, semaglutide, efpeglenatide, dulaglutide, albiglutide, tirzepatide) vs. placebo/controls; mean follow-up 2.4 yrs

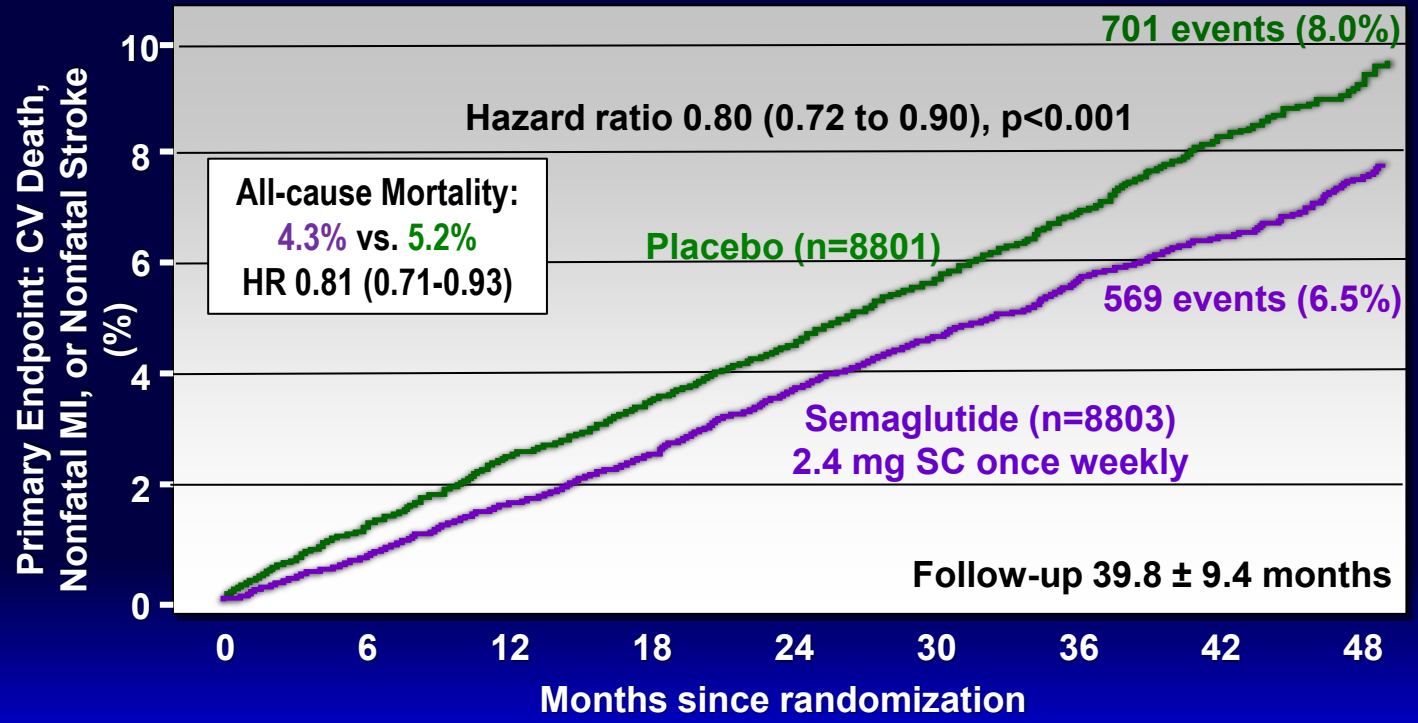


Galli et al *J Am Coll Cardiol* 2025;86:1805-19

SELECT
semaglutide | effects on cardiovascular outcomes in people with overweight or obesity

GLP-1ra Benefit in Obesity/Overweight and ASCVD

Age ≥45 yrs, BMI ≥27 kg/m^2, and ASCVD (Prior MI, stroke, or symptomatic PAD [claudication with ABI <0.85, peripheral artery revascularization, or amputation due to atherosclerotic disease]) *without DM*



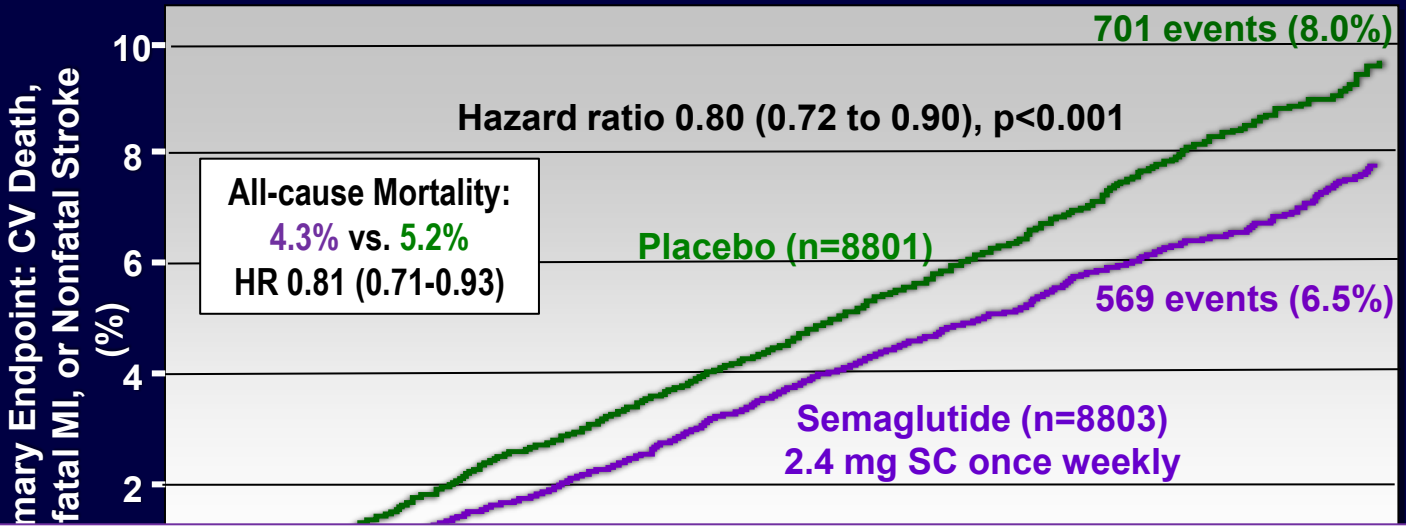
Age 62 years,
28% female
BMI 33 kg/m^2,
71% ≥30 kg/m^2
Prior MI 76%
Prior HF 24%

Lincoff et al *N Engl J Med* 2023;389:2221-32

SELECT
semaglutide | effects on cardiovascular outcomes in people with overweight or obesity

GLP-1ra Benefit in Obesity/Overweight and ASCVD

Age ≥45 yrs, BMI ≥27 kg/m^2, and ASCVD (Prior MI, stroke, or symptomatic PAD [claudication with ABI <0.85, peripheral artery revascularization, or amputation due to atherosclerotic disease]) *without DM*



Age 62 years,
28% female
BMI 33 kg/m^2,
71% ≥30 kg/m^2
Prior MI 76%
Prior HF 24%

cardioprotective effects of semaglutide independent of baseline adiposity and weight loss

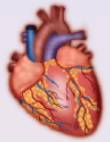
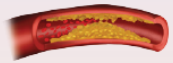
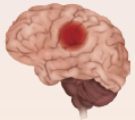
MACE benefit mediated through waist circumference reduction (visceral adiposity)

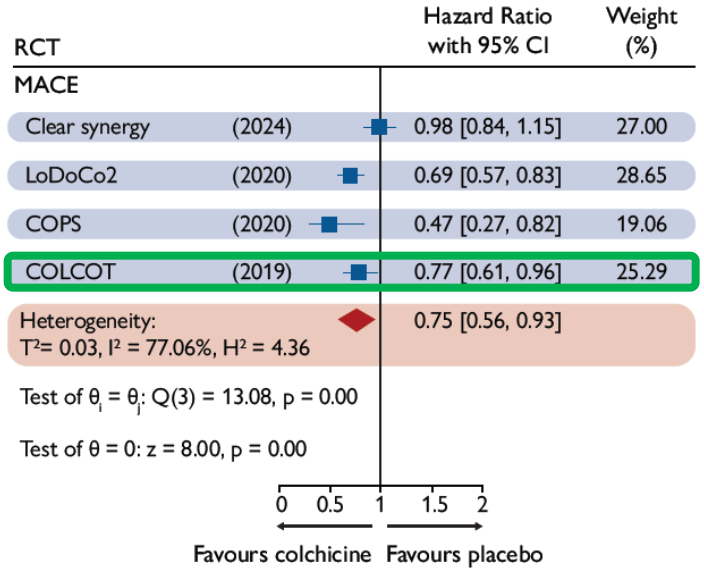
→ suggests some mechanisms for benefit beyond adiposity/weight loss reduction

Deanfield et al *Lancet* 2025;406:2257-68

Low Dose Colchicine in ASCVD

This updated systematic review and meta-analysis of 6 randomized controlled trials in 21 800 patients with vascular disease (post-myocardial infarction, stroke, and stable CAD) demonstrated that colchicine (compared to medical therapy only) reduced:

- 25% ↓ MACE 
- 29% ↓ Myocardial infarction 
- 37% ↓ Ischaemic stroke 
- 33% ↓ Urgent coronary revascularization 



All-Cause Mortality: Risk Ratio 1.01 (95% CI 0.80-1.28)
Non-Cardiovascular Mortality: 1.06 (0.76-1.54)

Circulation

PERSPECTIVE

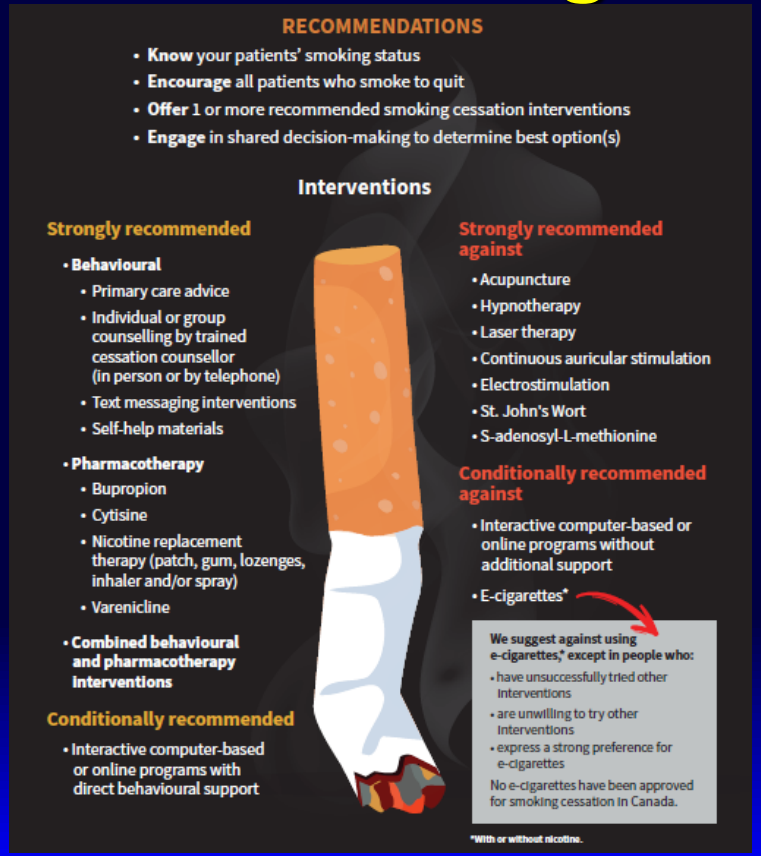
The Time to Initiate Anti-Inflammatory Therapy for Patients With Chronic Coronary Atherosclerosis Has Arrived

Paul M Ridker, MD, MPH

"I…will initially be considering low-dose colchicine for my high risk "frequent flyer" secondary prevention patients who have recurrent coronary events and persistent symptoms despite aggressive guideline directed therapy. For now, I am also likely to take a conservative stance and limit low dose colchicine to those with hsCRP levels >2 mg/L for whom I am concerned that inflammation is a silent driver of disease progression."

Ridker *Circulation* 2023;148:1071-73

Recommendations on Interventions for Tobacco Smoking Cessation



Thombs et al, for the Canadian Task Force on Preventive Health Care
CMAJ 2025;197:E846-61

ABCDEFs in Secondary Prevention of Coronary Artery Disease

- **A**nti-thrombotic (antiplatelet[s] ± anticoagulant) therapy,
- **A**CE inhibitor (or **A**ngiotensin Receptor Blocker), and
- **A**nti-inflammatory therapy
- **B**eta-blocker and **B**lood Pressure-lowering
- **C**holesterol-modifying therapy
- **D**iet, **D**iabetes-control/vascular protection, and **D**on't smoke
- **E**xercise → Referral to Cardiac Rehabilitation program
- **F**ollow-up

Adapted from Cohen *Lancet* 2001;357:972-73

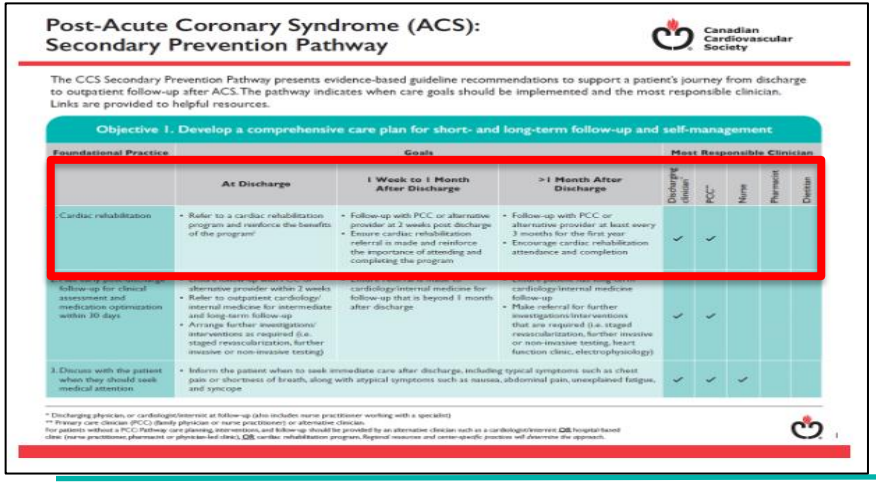
CCS Secondary Prevention Pathway

Canadian Cardiovascular Society

The CCS has developed a Secondary Prevention Pathway to standardize care and improve uptake of evidence-based recommendations after acute coronary syndrome (ACS) (heart attack). By enhancing guideline-directed care, this multidisciplinary pathway aims to improve patient outcomes after ACS.

CCS Tools for Healthcare Providers:

- Post-ACS Secondary Prevention Pathway – Evidence-based tool to support a patient's journey from discharge to outpatient follow-up after ACS.



Post-Acute Coronary Syndrome (ACS): Secondary Prevention Pathway

Canadian Cardiovascular Society

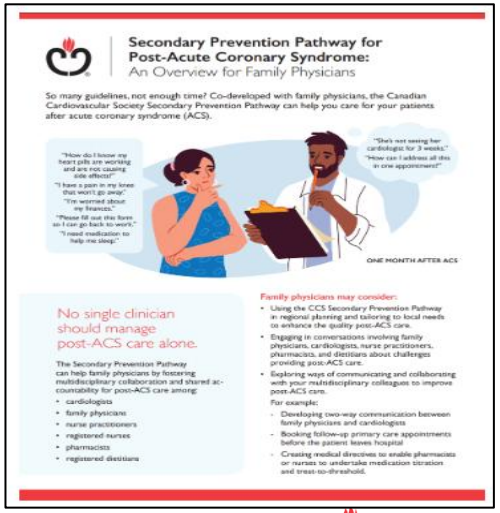
The CCS Secondary Prevention Pathway presents evidence-based guideline recommendations to support a patient's journey from discharge to outpatient follow-up after ACS. The pathway indicates when care goals should be implemented and the most responsible clinician. Links are provided to helpful resources.

Objective 1. Develop a comprehensive care plan for short- and long-term follow-up and self-management

Foundational Practice	Goals			Most Responsible Clinician				
	At Discharge	1 Week to 1 Month After Discharge	>1 Month After Discharge	Discharging clinician*	PCC**	Nurse	Pharmacist	Dietitian
Cardiac rehabilitation	• Refer to a cardiac rehabilitation program and reinforce the benefits of the program†	• Follow-up with PCC or alternative provider at 2 weeks post discharge • Ensure cardiac rehabilitation referral is made and reinforce the importance of attending and completing the program	• Follow-up with PCC or alternative provider at least every 3 months for the first year • Encourage cardiac rehabilitation attendance and completion	✓	✓			
follow-up for clinical assessment and medication optimization within 30 days	alternative provider within 2 weeks • Refer to outpatient cardiology/ internal medicine for intermediate and long-term follow-up • Arrange further investigations/ interventions as required (i.e. staged revascularization, further invasive or non-invasive testing)	cardiology/internal medicine for follow-up that is beyond 1 month after discharge	cardiology/internal medicine follow-up • Make referral for further investigations/interventions that are required (i.e. staged revascularization, further invasive or non-invasive testing, heart function clinic, electrophysiology)	✓	✓			
3. Discuss with the patient when they should seek medical attention	• Inform the patient when to seek immediate care after discharge, including typical symptoms such as chest pain or shortness of breath, along with atypical symptoms such as nausea, abdominal pain, unexplained fatigue, and syncope			✓	✓	✓		

* Discharging physician, or cardiologist/internist at follow-up (also includes nurse practitioner working with a specialist)
** Primary care clinician (PCC) (family physician or nurse practitioner) or alternative clinician.
For patients without a PCC: Pathway care planning, interventions, and follow-up should be provided by an alternative clinician such as a cardiologist/internist OR hospital-based clinic (nurse practitioner, pharmacist or physician-led clinic), OR cardiac rehabilitation program. Regional resources and center-specific practices will determine the approach.

- An Overview for Family Physicians – An introduction to the Secondary Prevention Pathway to help inform regional planning through collaborative conversations.



Secondary Prevention Pathway for Post-Acute Coronary Syndrome:
An Overview for Family Physicians

So many guidelines, not enough time? Co-developed with family physicians, the Canadian Cardiovascular Society Secondary Prevention Pathway can help you care for your patients after acute coronary syndrome (ACS).

"How do I know my heart pills are working and are not causing side effects?"
"I have a pain in my knee that won't go away."
"I'm worried about my finances."
"Please fill out this form so I can go back to work."
"I need medication to help me sleep."
"She's not seeing her cardiologist for 3 weeks."
"How can I address all this in one appointment?"

ONE MONTH AFTER ACS

No single clinician should manage post-ACS care alone.

The Secondary Prevention Pathway can help family physicians by fostering multidisciplinary collaboration and shared accountability for post-ACS care among:

- cardiologists
- family physicians
- nurse practitioners
- registered nurses
- pharmacists
- registered dietitians

Family physicians may consider:

- Using the CCS Secondary Prevention Pathway in regional planning and tailoring to local needs to enhance the quality post-ACS care.
- Engaging in conversations involving family physicians, cardiologists, nurse practitioners, pharmacists, and dietitians about challenges providing post-ACS care.
- Exploring ways of communicating and collaborating with your multidisciplinary colleagues to improve post-ACS care.

For example:

- Developing two-way communication between family physicians and cardiologists
- Booking follow-up primary care appointments before the patient leaves hospital
- Creating medical directives to enable pharmacists or nurses to undertake medication titration and treat-to-threshold.

https://ccs.ca/guidelines/ccs-secondary-prevention-pathway/

CCS Secondary Prevention Pathway

Canadian Cardiovascular Society

The CCS has developed a Secondary Prevention Pathway to standardize care and improve uptake of evidence-based recommendations after acute coronary syndrome (ACS) (heart attack). By enhancing guideline-directed care, this multidisciplinary pathway aims to improve patient outcomes after ACS.

CCS Tools for Patients and Carers:

- Your Health After a Heart Attack – Guidance for patients and carers to help manage health and prevent future heart attacks after discharge from hospital.
- Resources – Information to support a healthy lifestyle after a heart attack.

Canadian Cardiovascular Society

Your Health after a Heart Attack

You have experienced a heart attack. A heart attack is most often caused by a build up of plaque (a mix of fat and cholesterol) inside your arteries that blocked blood flow to your heart muscle.

To help you recover, stay well, and prevent future heart attacks, you will need an ongoing care plan as well as support from your healthcare team, family, and friends. You may have to make some changes to your lifestyle too.

You may feel overwhelmed at times, but taking your care step-by-step will help you feel more in control.

EMERGENCY WARNING SIGNS!
Call 911 if you have:

- Severe chest pain or discomfort
- Sudden shortness of breath
- Fainting or dizziness
- Sudden numbness or weakness in the face, arm, or leg
- Unexplained swelling in legs or feet

© 2026 Canadian Cardiovascular Society | January 2026

Steps you can follow:

A Upon DISCHARGE
1. Know your Care Plan
2. Ask for Support
3. Take your Medications

B In the FIRST month
4. Go to your Appointments
5. Have your Tests
6. Make Healthy Lifestyle Choices
7. Communicate with your Care Team

C After ONE month
8. Cardiac Rehabilitation and Ongoing Care

Use the Care Tracker at the back of this booklet to record important information about your care plan and heart health.

https://ccs.ca/guidelines/ccs-secondary-prevention-pathway/

Canadian Cardiovascular Society | Société cardiovasculaire du Canada