



## 2009 Cholesterol Guidelines

Cardiovascular disease continues to be the leading cause of death in Canada and is expected to increase in the next decade in response to an increase in the incidence of obesity, diabetes and sedentary lifestyles (Genest et al., 2009). In order to respond to the challenges resulting from cardiovascular disease, it is important for cardiovascular nurses to be aware of the many contributing risk factors. Sedentary lifestyle, age, male gender, diabetes, cigarette smoking, obesity, increasing cholesterol levels, hypertension, and family history have been identified as the major nonmodifiable and modifiable risk factors contributing to cardiac disease (Genest et al.).

Modifiable risk factors, those risk factors that can be targeted, can be the source of secondary prevention

strategies for cardiovascular disease. Nurses and health care providers practising within the realm of cardiovascular nursing should be aware of these risk factors and associated interventions. A part of the process can be familiarizing oneself with established practice guidelines and recommendations.

The Canadian Cardiovascular Society released the 2009 dyslipidemia guidelines for the diagnosis and management of dyslipidemia and the prevention of cardiovascular disease in the fall of 2009. The summary of recommendations (printed on the following page) addresses screening lipid profile, targets of therapy based on individual risk level, modification of health behaviours and recommended medication regimens and follow-up (Genest et al., 2009). ♥

### Reference

Genest, J., McPherson, R., Frohlich, J., Anderson, T., Campbell, N., Carpentier, A., et al. (2009). 2009 Canadian Cardiovascular Society/Canadian guidelines for the diagnosis and treatment

of dyslipidemia and prevention of cardiovascular disease in the adult—2009 recommendations. *Canadian Journal of Cardiology*, 10, 567–579.

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### CANADIAN COUNCIL OF CARDIOVASCULAR NURSES

The Canadian Council of Cardiovascular Nurses (CCCN) was founded in April 1973, and incorporated in July 1994. The CCCN is a national body composed of 10 provincial divisions, each with its own executive and committee structure.

The Canadian Council of Cardiovascular Nurses represents Canadian nurses interested in heart health and/or practising in the cardiovascular field. The Council is dedicated to promoting and maintaining high standards of practice relating to cardiovascular health. In order to maintain these standards, a continuing acquisition of knowledge, skills and attitudes is essential.

The mission of the CCCN is to advance cardiovascular nursing through education, research, health promotion, strategic alliances and advocacy.

Our objectives are to:

- identify current profiles and needs of cardiovascular nurses to effectively recruit and sustain members
- develop and maintain administrative and financial infrastructures that support strategic directives

- foster a sense of inquiry by supporting research opportunities and sharing findings in the cardiovascular nursing field
- develop an education strategy for cardiovascular nursing
- enhance the cardiovascular health of Canadians through health promotion and advocacy.

### BENEFITS OF MEMBERSHIP

- Subscription to *Canadian Journal of Cardiovascular Nursing*, the Council's peer reviewed journal
- Reduced registration fees for the Annual Meeting and Scientific Sessions of the CCCN and the Canadian Cardiovascular Congress
- Reduced registration fees for professional education seminars and workshops addressing a variety of current topics and issues in cardiovascular nursing
- Eligibility for continuing education units (CEUs) at the CCCN Scientific Sessions
- Eligibility to apply for CCCN Research Grant
- Liaison with the Canadian Nurses Association and other key leadership organizations in Canada and internationally
- Eligibility for the CCCN Clinical Excellence, Leadership and Research Awards and to nominate your peers
- Access to CCCN's website and membership area, including electronic copies of the journal, certification updates and other news

# CANADIAN CHOLESTEROL GUIDELINES 2009: SUMMARY OF RECOMMENDATIONS

## SCREENING FASTING LIPID PROFILE

- Screen men who are at least 40 years of age, and women who are at least 50 years of age or postmenopausal.
- Adults with the following risk factors should be screened at any age:
  - Diabetes;
  - Cigarette smoking;
  - Hypertension;
  - Obesity (body mass index greater than 27 kg/m<sup>2</sup>);
  - Family history of premature coronary artery disease;
  - Clinical signs of hyperlipidemia;
  - Evidence of atherosclerosis;
  - Rheumatoid arthritis, systemic lupus erythematosus, psoriasis;
  - HIV infection on highly active antiretroviral therapy;
  - Estimated glomerular filtration rate of less than 60 mL/min/1.73 m<sup>2</sup>; or
  - Erectile dysfunction.
- Screen children with a family history of hypercholesterolemia or chylomicronemia.

## CARDIOVASCULAR RISK ASSESSMENT

Determine risk using the Framingham risk score modified for family history (double the cardiovascular disease risk percentage if any cardiovascular disease is present in a first-degree relative before 60 years of age). In men older than 50 years or women older than 60 years of age, of intermediate risk whose low-density lipoprotein cholesterol does not already suggest treatment, high-sensitivity C-reactive protein can be used for risk stratification.

## TARGETS OF THERAPY

Risk level	Primary target: LDL-C	Class, level
High	<2mmol/L	Class I, level A
CAD, PVD, atherosclerosis	or	
Most patients with diabetes	≥50% LDL-C	
FRS ≥20%	apoB <0.80 g/L	
RRS ≥20%		
Moderate	<2 mmol/L*	Class IIa, level A
FRS 10% to 19% or		
LDL-C >3.5 mmol/L	≥50% LDL-C	
TC/HDL-C >5.0	apoB <0.80 g/L	
hs-CRP >2 mg/L in men		
>50 years and women		
>60 years of age		
Family history and hs-CRP modulate risk		
Low	≥50% LDL-C	Class IIa, level A
FRS <10%		

\*Clinicians should exercise judgement when implementing statin therapy. Meta-analysis of statin trials show that for each 1.0 mmol/L decrease in low-density lipoprotein cholesterol (LDL-C), there is a corresponding 20% to 25% RR reduction. Those whose 10-year risk for cardiovascular disease is 5% to 9% have been shown in randomized clinical trials to achieve the same RR reduction from statin therapy as those at higher 10-year risk, but the absolute benefit of therapy is estimated to be smaller. apoB Apolipoprotein B; CAD Coronary artery disease; FRS Framingham risk score; HDL-C High-density lipoprotein cholesterol; hs-CRP High-sensitivity C-reactive protein; PVD Peripheral vascular disease; RRS Reynolds Risk Score; TC Total cholesterol

### Secondary (optional) targets (once low-density lipoprotein cholesterol is at goal)

- Total cholesterol to high-density lipoprotein cholesterol ratio of less than 4.0;
- Non-high-density lipoprotein cholesterol of less than 3.5 mmol/L;
- Triglycerides of less than 1.7 mmol/L;
- Apolipoprotein B to apolipoprotein AI ratio lower than 0.80; and
- high-sensitivity C-reactive protein of less than 2 mg/L.

Clinical trial evidence is lacking for secondary targets; clinical judgements are warranted.

## TREATMENT

### Health behaviours

- Smoking cessation;
- Diet (reduced saturated fats and refined sugars);
- Weight reduction and maintenance;
- Exercise (daily); and
- Stress management.

### Medication

In high-risk patients, pharmacological therapy should be considered concomitantly with lifestyle changes. In moderate-risk patients, lifestyle changes should be implemented first, followed by medications if the targets are not reached.

Generic name	Trade name (manufacturer)	Dose range (daily)
<b>Statins</b>		
Atorvastatin	Lipitor (Pfizer Canada Inc)	10 mg – 80 mg
Fluvastatin	Lescol (Novartis Pharmaceuticals Canada Inc)	20 mg – 80 mg
Lovastatin	Mevacor (Merck Frosst Canada Ltd)	20 mg – 80 mg
Pravastatin	Pravachol (Bristol-Myers Squibb Canada)	10 mg – 40 mg
Rosuvastatin	Crestor (AstraZeneca Canada)	5 mg – 40 mg
Simvastatin	Zocor (Merck Frosst Canada Ltd)	10 mg – 80 mg*
<b>Bile acid and/or cholesterol absorption inhibitors</b>		
Cholestyramine	Questran (Bristol-Myers Squibb, USA)	2 g – 24 g
Colestipol	Colestid (Pfizer Canada Inc)	5 g – 30 g
Ezetimibe	Ezetrol (Merck Frosst/Schering Pharmaceuticals Canada)	10 mg
<b>Fibrates</b>		
Bezafibrate	Bezalip (Actavis Group PTC EHF Iceland)	400 mg
Fenofibrate†	Lipidil Micro/Supra/EZ (Fournier Pharma Inc, Canada)	48 mg – 200 mg
Gemfibrozil‡	Lopid (Pfizer Canada Inc)	600 mg – 1200 mg
<b>Niacin</b>		
Nicotinic acid	Generic niacin	1 g – 3 g
	Niaspan (Oryx Pharmaceuticals Inc, Canada)	0.5 g – 2 g

\*Simvastatin 80 mg has a higher incidence of rhabdomyolysis; †Reduce dose or avoid in renal impairment; ‡Should not be used with a statin because of an increased risk of rhabdomyolysis

### Other risk factors/risk markers

The clinical usefulness of other risk factors or markers of risk has not been evaluated in large-scale clinical trials.

### Noninvasive assessment of atherosclerosis

The determination of the ankle-brachial index, carotid plaque, coronary calcium score or multidetector computed tomography coronary angiography will detect asymptomatic atherosclerosis not always predicted by the cardiovascular risk assessment algorithms.

### Follow-up

Most lipid-lowering medications are well tolerated. Serum transaminases and creatine kinase should be followed regularly (every six to 12 months) or when symptoms develop. Follow-up is not required if levels are consistently normal and the patient has no symptoms.

### Referral to specialized clinics

Most Canadian universities have a specialized lipid clinic. Cases of unexplained atherosclerosis, severe dyslipidemias, genetic lipoprotein disorders and patients refractory to pharmacological treatment should be referred.

## Canadian Cholesterol Guidelines 2009: Summary of Recommendations

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