

Cholesterol

Official publication of
CACRC
Canadian Association
of Cardiac Rehabilitation

The 2009 Canadian Lipid Guidelines: Who, When, What, Where, Why, and How

James A. Stone, MD, PhD, FRCPC, Cardiology Consultants of Calgary

The 2009 Canadian Lipid Guidelines were updated with a goal of simplicity in mind.¹ The simplicity is not in their derivation and production, which by necessity is complex and involves the assessment and classification of vast amounts of scientific evidence by multiple expert stakeholders, but it is in the messaging. Know your cardiovascular disease (CVD) event risk, know your CVD treatment targets, and know how to get to those targets. The clinical practice recommendations contained within these guidelines are meant to be simple and implemental. Clinical practice guidelines, no matter how comprehensive or authoritatively written, which are not used, are not useful.² Thus, these guidelines were updated and rewritten with a primary goal of being useful.

“Clinical practice guidelines, no matter how comprehensive or authoritatively written, which are not used, are not useful.”

Who?

These clinical practice guidelines apply to:

- Men over 40 and postmenopausal women
- Anyone with atherosclerosis regardless of age
- Anyone with diabetes regardless of age
- Family history of premature CVD (<60 yrs)
- Arterial hypertension (Check for metabolic disorder, dyslipidemia)
- Inflammatory diseases (including lupus, rheumatoid arthritis, psoriasis)
- Obesity (BMI > 27)
- Children of patients with severe dyslipidemia
- HIV infection with HAART therapy
- Clinical hyperlipidemias (xanthomas, xanthelasmas, premature arcus corneus)
- Erectile dysfunction
- Chronic renal disease (GFR < 60)

When?

These patient populations should be screened for lipid abnormalities every 1 to 3 years depending on their CVD event risk classification (High, Moderate, or Low risk).

What?

An individual's CVD event risk should be assessed with a screening tool that may include some or all of the following parameters:

- Age
- Gender
- Cigarette smoking
- Diabetes mellitus
- Fasting cholesterol profile (total cholesterol,

Continued on page 4

Inside

Feature Articles:

The 2009 Canadian Lipid Guidelines.....1
(continued on page 4)

Dietary Considerations for Managing Cholesterol.....6

From the Editor:

Lea Carlyle2

References & Reviews.....10

Book Review: CACR Canadian Guidelines for Cardiac Rehabilitation and Cardiovascular Disease Prevention, 3rd Ed.11

Case Studies

Impact of New Guidelines on the Treatment and Management of Dyslipidemia.....11

Investigating Types of Cardiac Rehabilitation Referral and How they Influence Utilization Rates: The Cardiac Rehab Care Continuity through Automatic Referral Evaluation (CRCARE) Study.....14

National Office News:

CACR Student award winner's abstracts.....16

From the Office.....19

HDL, LDL, TG, \pm ApoB)

- Systemic blood pressure
- Adjustment for family history
- Inflammatory markers
- BMI and waist circumference

The recommended risk models in these Guidelines are the Framingham Risk Score (FRS) and the Reynold's Risk Score (RRS). The two scoring systems produce similar results but the RRS includes hs-CRP as a biomarker of possible susceptibility to atherosclerosis. In either risk assessment model, patients are considered high risk if their ten year likelihood of suffering a CVD event exceeds 20%. Patients with documented or symptomatic CVD, such as those in cardiac rehabilitation programs, are automatically included in the high-risk group. However, these patients still require risk stratification with respect to their overall cardiometabolic fitness, as per the Canadian Association of Cardiac Rehabilitation Guidelines. Assessment of cardiometabolic fitness includes determining the patient's Duke Treadmill Score and their FRS with an FRS risk algorithm specifically for persons with documented CVD.³

Where?

Individuals and patients should be screened within both primary prevention and secondary prevention environments.

Why?

The evidence for the use of lipid modifying strategies in both the primary and secondary

prevention settings is substantial.⁴ Both large clinical trials and comprehensive meta-analysis have demonstrated significant reductions in CVD events when lipid levels are lowered. It is important to remember that the risk associated with lipid levels and adverse CVD events is a continuum. Although treatment targets for the three risk groups (High, Moderate, and Low) are based on the scientific evidence, any reduction in lipid levels is likely to be beneficial. Thus, lipid lowering strategies should not be thought of as all or none (i.e., statin or no statin if not tolerated), but rather the goal should be to always lower lipid levels to some degree and, preferably, to below target levels (See Table 1).

“The evidence for the use of lipid modifying strategies in both the primary and secondary prevention settings is substantial.”⁴

How?

The treatment thresholds for lipids and the treatment targets, based on CVD event risk, are presented in Table 1. It is important to remember that treatment includes both health behaviour interventions and pharmacologic therapy.

Health behaviour interventions refer to smoking cessation therapies, low sodium, Mediterranean style diets, caloric control to maintain ideal body weight, moderate to vigorous physical activity for 30-60 minutes most (preferably all) days of the

Risk Level: Initiate treatment if:	Primary Target LDL-C	Primary Alternate ApoB
High: Consider treatment in all patients <ul style="list-style-type: none"> • CAD or PAD • Atherosclerosis • Most Patients with Diabetes • FRS \geq 20% • RRS \geq 20% 	<2 mmol/L Or \downarrow 50% LDL-C	ApoB<0.80
Moderate: FRS or RRS 10-19% and: <ul style="list-style-type: none"> • LDL-C>3.5 mmol/L • TC/HDL >5.0 • hs-CRP >2 in men 50+, women 60+ Family history and hs-CRP <i>modulate risk</i>	<2 mmol/L Or \downarrow 50% LDL-C	ApoB<0.80
Low: FRS or RRS <10% and: <ul style="list-style-type: none"> • LDL-C>5.0mmol/L 	\downarrow 50% LDL-C Class IIA Level A	

week, moderate alcohol consumption for those who choose to drink, and, where appropriate, psychosocial stress management.

The pharmacological interventions for lipid lowering are presented in Table 2. For most patients, initial therapy will be with a moderate

dose statin followed by combination therapy as required to achieve the appropriate treatment targets. For patients who are having trouble with statin intolerance, strategies such as low dose statin therapy, e.g., 5 mg of rosuvastatin, or alternate day statin use may be helpful. For patients with persistent symptoms of myalgia or

myopathy, referral to a muscle neurologist should be considered.

As mentioned above, the use of pharmacological lipid lowering therapies should not be thought of as an all or none phenomena. Any reduction in LDL is likely to have some beneficial effects on outcomes, and therefore, even if patients cannot

Table 2. Pharmacologic Options for Lipid Lowering (modified from Genest et al. ¹)			
Class of Medication	Generic Name	Trade Name	Daily Dose Range
Statins			
	Atrovastatin	Lipitor	10-80 mg
	Fluvastatin	Lescol	20-80 mg
	Lovastatin	Mevacor	20-80 mg
	Pravastatin	Pravachol	10-40 mg
	Rosuvastatin	Crestor	5-40 mg
	Simvastatin	Zocor	10-40 mg
Bile Acid Sequestrants			
	Cholestyramine	Questran	2 gm to 24 gm
	Colestipol	Colestid	5 gm to 30 gm
Cholesterol Absorption Inhibitors			
	Ezetimibe	Ezetrol	10 mg
Fibrates			
	Bezafibrate	Bezalip	400 mg
	Fenofibrate	Lipidil Micro	48 mg to 200 mg
	Genfibrozil	Lopid	600 mg to 1200 mg
Niacin			
	Nicotinic acid	Niacin	1 gm to 3 gm
	Slow release formulation	Niaspan	0.5 gm to 2 gm

tolerate sufficient medication to reach treatment targets, low dose therapy is likely still preferable to “no dose” therapy.

The dose of Fenofibrate should be reduced in those with renal impairment and Gemfibrozil should not be used with a statin because of the significantly increased risk of rhabdomyolysis. Follow-up monitoring of liver transaminases (ALT, AST) and creatine kinase (CK) should be assessed semi-annually or with any change in the dose or type of lipid lowering medication.

Summary

The updated 2009 Canadian Lipid Guidelines are intended to simplify lipid management for those with or at moderate and high risk for CVD events. The population to be screened has been clearly identified. Health behaviour interventions are appropriate for most, if not all, members of the screened populations and should be undertaken in everyone receiving pharmacological therapy.

In all likelihood, future research will indicate even more aggressive treatment targets for lipids. Consequently, adherence to the 2009 treatment targets will simply make future adjustments to therapy that much easier.

References

1. Genest J, McPherson R, Frohlich J, et al. 2009 Canadian Cardiovascular Society/Canadian guidelines for the diagnosis and treatment of dyslipidemia and the prevention of cardiovascular disease in the adult-2009 recommendations. *Can J Cardiol* 2009;25:567-79.
2. Stone JA, Austford L, Parker JH, et al. AGREEing on Canadian cardiovascular clinical practice guidelines. *Can J Cardiol* 2008;24:753-57.
3. Stone JA, McCartney N, Millar PJ, et al. Chapter 10. Risk stratification, exercise testing, exercise prescription, and program safety. In: CACR Canadian Guidelines for Cardiac Rehabilitation and Cardiovascular Disease Prevention. 3rd Ed. Stone JA, Arthur HM, & Suskin N. CACR. Winnipeg, MB. 2009.
4. Stone JA, Campbell NR, Genest J, et al. Chapter 9. Health behaviour interventions and cardiovascular disease risk factor modifications. In: CACR Canadian