

2007 Kansas City Quality Improvement Consortium Management of Hyperlipidemia in Adults 18+

The following guidelines apply to management of patients in the ambulatory setting.

Population	Physician / Pt.	Recommendation and Level of Evidence			
Adults 18 and older with LDL > 100	Initial Assessment	<ul style="list-style-type: none"> ▪ Screening: Initial fasting lipid profile (i.e., total, LDL, HDL, triglycerides); If normal repeat every five years [D] ▪ Treatment is based on LDL, major risk factors and presence of coronary heart disease (CHD)¹ or equivalent 			
	Patient education and nonpharmacologic interventions	Major Risk Factors: <ul style="list-style-type: none"> ▪ Cigarette smoking ▪ Hypertension (BP ≥ 140/90) ▪ HDL < 40 men; < 50 women (HDL ≥ 60 = negative risk factor) ▪ Family history (first degree) of premature CHD (men < 55 years; women < 65 years) ▪ Age (men ≥ 45 years; women ≥ 55 years) 		CHD Risk Equivalents: <ul style="list-style-type: none"> ▪ Other clinical forms of atherosclerotic disease (e.g., peripheral arterial disease, abdominal aortic aneurysm, and/or symptomatic carotid artery disease) ▪ Diabetes ▪ 2+ risk factors with a 10 year risk for CHD > 20% ▪ CHD¹ and CHD risk equivalents give a > 20% risk of a CHD event within 10 years 	
	Pharmacologic interventions	▪ Calculate short-term risk for patients with 2+ risk factors using Framingham projection of 10 year absolute risk [D]:			
		Categorical Risk	Goal for LDL	Initiate TLC ³ at LDL	LDL to Consider Starting Drug Therapy
		<i>High risk:</i> CHD ¹ or CHD risk equivalents (10 year risk ≥ 20%)	< 100 mg/dl (optional goal: < 70 mg/dl) ²	≥ 100 mg/dl	≥ 100 mg/dl (<100 mg/dL: consider drug option)
		<i>Moderately high risk:</i> 2+ risk factors 10 year risk: 10% to 20%	< 130 mg/dl	≥ 130 mg/dl	≥ 130 mg/dl (100 – 129 mg/dL; consider drug options)
		<i>Moderate risk:</i> 2+ risk factors (10-year risk < 10%)	< 130 mg/dl	≥ 130 mg/dl	≥ 160 mg/dl for 10 year risk: < 10%
	<i>Lower risk:</i> 0 – 1 risk factor	< 160 mg/dl	≥ 160 mg/dl	≥ 190 mg/dl (160- 189 mg/dl: LDL-lowering drug optional)	
Education and risk factor modification	Educate patient/family regarding: <ul style="list-style-type: none"> ▪ Reduce saturated fats and cholesterol [A], increase plant stanols/sterol to 28 g/day (e.g.; cholesterol-lowering margarines), increase viscous soluble fiber to 10 – 25 g/day (e.g.; oats, barley, lentils beans) ▪ Decrease weight and increase exercise to moderate level of activity for 30 minutes, most days of the week [A] 				
Pharmacologic interventions	<ul style="list-style-type: none"> ▪ TLC³ and/or drug therapy may be initiated based on the LDL level and/or presence of CHD risk or CHD risk factors. ▪ Consider drug therapy when LDL is not at goal 6-8 weeks after TLC³ has begun in earnest ▪ Statins are the most commonly used lipid-lowering agents. Liver function test monitoring is recommended at initiation, 12 weeks after treatment has begun, and with any dosage increases of any statin ▪ Evaluate and adjust drug therapy at 6 - 8 week intervals ▪ For patients who do not reach LDL goal, add fibrate or nicotinic acid and consider referral to lipid management clinic 				

¹Coronary Heart Disease includes history of myocardial infarction, unstable angina, stable angina, coronary artery procedures (angioplasty or bypass surgery), or evidence of clinical significant myocardial ischemia.

²Very high risk favors the optional LDL-C goal of < 70 mg/dL and in patients with high triglycerides, non-HDL-C <100 mg/dL

³Therapeutic Lifestyle Changes (TLC) is an essential modality in clinical management. TLC has the potential to reduce cardiovascular risk though several mechanisms beyond LDL lowering.

Levels of Evidence for the most significant recommendations: A = randomized controlled trials; B = controlled trials, no randomizations; C = observational studies; D = opinion of expert panel.

This guideline represents steps to be taken for the usual treatment of individuals with Hyperlipidemia. Individual patient considerations and advances in medical science may supersede or modify these recommendations.

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Other Considerations

1. CHD includes history of myocardial infarction, unstable angina, stable angina, coronary artery procedures (angioplasty or bypass surgery), or evidence of clinically significant myocardial ischemia
2. CHD risk equivalents include clinical manifestations of noncoronary forms of atherosclerotic disease (peripheral arterial disease, abdominal aortic aneurysm, and carotid artery disease [transient ischemic attacks or stroke of carotid origin or >50% obstruction of carotid artery]), diabetes, and 2+ risk factors with 10-year risk for hard CHD >20%
3. Risk factors include cigarette smoking, hypertension (BP \geq 140/90 mm hg or on antihypertensive medication), low HDL cholesterol (<40 mg/dl), family history of premature CHD (CHD in male first-degree relative <55 years of age; CHD in female first-degree relative <65 years of age), and age (men \geq 45 years; women \geq 55 years)
4. Almost all people with zero or 1 risk factor have a 10-year < 10%, and 10-year risk assessment in people with zero to 1 risk factor is thus not necessary.
5. Very high risk favors the optional LDL goal of < 70 mg/dl, and in patients with high triglycerides, not HDL < 100 mg/dl
6. An electronic 10 year risk calculator is available at www.nhlbi.nih.gov/guidelines/cholesterol

Optional LDL goal < 100 mg/dl

1. Any person at high risk or moderately high risk who has lifestyle –related risk factors (e.g.; obesity, physical inactivity, elevated triglyceride, low HDL, or metabolic syndrome) is a candidate for therapeutic lifestyle changes to modify these risk factors regardless of LDL level
2. When LDL-lowering drug therapy is employed; it is advised that intensity of therapy be sufficient to achieve at least a 30% to 40% reduction in LDL levels.
3. If baseline LDL is <100 mg/dl, institution of an LDL-lowering drug is a therapeutic option on the basis of available clinical trial results. IF a high-risk person has high triglycerides or low HDL, combining a fibrate or nicotinic acid with an LDL- lowering drug can be considered
4. For moderately high-risk persons, when LDL level is 100 to 129 mg/dL, at baseline or on lifestyle therapy, initiation of an LDL drug to achieve an LDL level <100 mg/d: is a therapeutic option on the basis of available clinical trial results

Fish and Omega-3 Fatty Acids*

Patients without documented coronary heart disease (CHD)	Eat a variety of (preferably fatty) fish at least twice a week. Include oils and foods rich in alpha-linolenic acid (flaxseed, canola and soybean oils; flaxseed and walnuts)
Patients who need to lower triglycerides	2 to 4 grams of EPA+DHA per day provided as capsules under a physician's care.

Patients taking more than 3 grams of omega-3 fatty acids from capsules should do so only under a physician's care. High intakes could cause excessive bleeding in some people.

*See 2007 KCQIC Hyperlipidemia Medications for Adults Guidelines for additional information

References: 2001 National Cholesterol Education Program (NCEP) Expert Panel Report on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) (www.nhlbi.nih.gov). NCEP Report (2004). Implications of recent clinical trials for the national cholesterol Education Program Adult Treatment Panel III Guidelines. *Circulation*, 110, 227-239. American Heart Association (2007) Fish and Omega-3 Fatty Acids available at <http://www.americanheart.org/presenter.jhtml?identifier=4632>

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