



## Lipid Management in Adults Clinical Guideline

### Guideline History

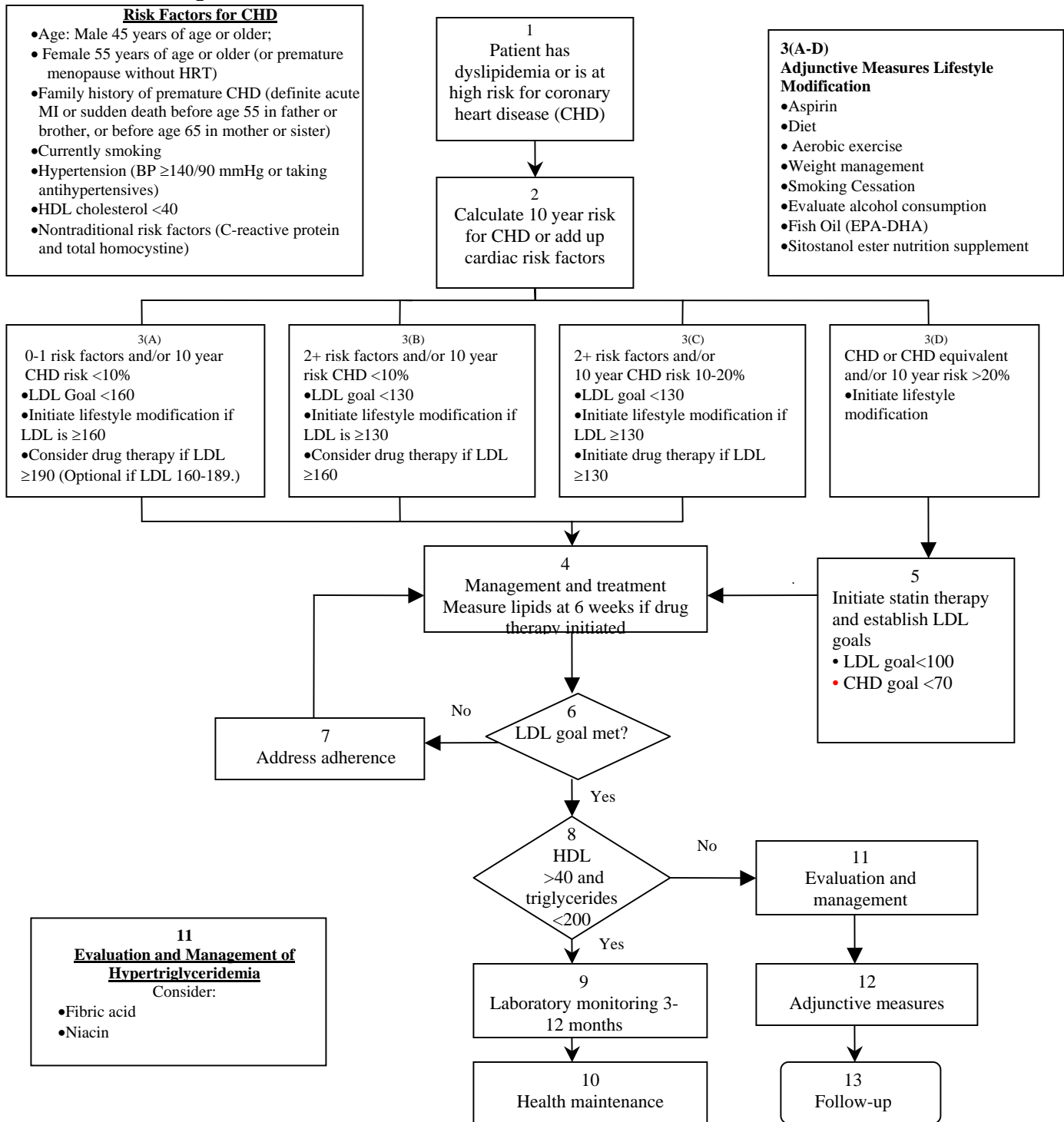
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These Guidelines are promulgated by Sentara Healthcare (SHC) as recommendations for the clinical management of specific conditions. Clinical data in a particular case may necessitate or permit deviation from these Guidelines. The SHC Guidelines are institutionally endorsed recommendations and are not intended as a substitute for clinical judgment.

# Lipid Management in Adults

Source: Institute for Clinical Systems Improvement 2007 and SHM Physician Advisory Council

2



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# *Lipid Management in Adults Algorithm Annotations*

## **1. Patient has Dyslipidemia or is at High Risk for Coronary Heart Disease**

Secondary causes of abnormal lipid levels should be considered and treated when appropriate. Diet and exercise are the cornerstone of treatment for asymptomatic patients with dyslipidemia. Patients with an elevated LDL-cholesterol level should begin the American Heart Association (AHA) Step I diet and an individualized program of regular aerobic exercise. A diet low in fat, especially saturated fat and high in soluble fiber is recommended. Patients who are overweight should be advised to reduce their calorie intake to achieve a modest weight loss. Patients should follow the diet and exercise program for a reasonable amount of time to determine whether their LDL-cholesterol level is lowered to the target range. For many asymptomatic patients, a diet and exercise program is sufficient.

Patients with a history of non-coronary atherosclerosis (including carotid vascular disease, abdominal aortic aneurysm, or peripheral vascular disease) or who have diabetes are at high risk for CHD and are considered CHD equivalent.

## **2. Calculate 10-Year Risk for CHD or Add up Cardiac Risk Factors**

The National Cholesterol Education Program Adult Treatment Panel III defines high risk as a net of two or more (CHD) risk factors, which leads to more vigorous intervention.

Obesity and physical inactivity are not listed as risk factors, but should be considered as targets for intervention. Obesity operates through other risk factors (hypertension, hyperlipidemia, decreased HDL-cholesterol and diabetes mellitus).

If HDL-cholesterol is 60 mg/dL or higher, one risk factor may be subtracted, because high HDL-cholesterol levels decrease CHD risk.

## **3. Lifestyle Modification/Drug Therapy/Adjunctive Measures**

Lifestyle modifications include diet, aerobic exercise, weight management, aspirin, evaluation of alcohol consumption, fish oil (EPA-DHA), smoking cessation, and nutritional supplement containing sitostanol ester. To avoid unintended toxic effects from vitamins, patients should be cautioned not to exceed recommended doses.

Vitamin E supplements should not be used. Studies have shown no benefit in preventing clinical outcomes and smaller studies suggest a blunting effect from antidyslipidemic medications on HDL-C and an angiographic progression of vascular disease.

The decision to begin drug therapy must be based on a clinical discussion with the patient in which the evidence-based outcome data, possible side effects, and cost are weighed.

Patients with a family history of coronary disease but no history of disease who receive lipid lowering therapy are likely to experience a decreased risk of coronary heart disease.

#### **4. Management and Treatment**

The patient should receive dietary instruction through a class or individually from a registered dietician or trained professional. Adjunctive measures should be reinforced. Secondary causes should be considered. Lipid levels should be checked again in 6 weeks. Use of pharmacological treatment is based on risk level and patient preference. Referral to a lipid clinic should be considered.

No primary prevention studies have addressed pharmacological lipid treatment in persons at low risk for CHD, and there is no evidence to support drug treatment in this population. In particular, the incidence of CHD in men under 40 and premenopausal women is very low, and drug treatment in these groups is discouraged.

Primary prevention studies of pharmacological lipid lowering have not shown a decrease in mortality, although most studies have shown about a 30% reduction in CHD events. Study populations have consisted of middle-aged men, some with other risk factors. Similar benefit in higher-risk women can be assumed but has not been demonstrated.

#### **5. Initiate Statin Therapy and establish LDL Goals**

Recent studies indicate that for patients with coronary artery disease or coronary artery disease equivalents, statin treatment significantly reduces mortality and major cardiovascular events regardless of baseline LDL levels. These data support the use of statins in such high-risk patients regardless of LDL level. For care of patients with established CHD or CHD equivalent (which include occlusive carotid, peripheral vascular disease, abdominal aortic, or diabetes), the use of statin therapy is recommended.

If patients are intolerant to a statin, clinicians are encouraged to have the patient try the other statins in reduced doses before ruling out all statins. If patients are unable to take a statin, then fibric acids, niacin, and ezetimibe and bile-acid sequestrants are available.

#### **6. LDL Goal Met?**

Patients with CHD have an LDL goal less than 70 mg/dL. A recent trial provides evidence that intensive statin therapy to reduce LDL-cholesterol levels below 100 mg/dL showed substantial clinical benefit in patients with stable CAD.

If lipid goals are not met, it is important to intensify therapy until goals are reached. Lipid treatment is intensified within four months of an abnormal LDL value less than 20% of the time.

#### **7. Address Adherence**

#### **8. HDL >40 and Triglycerides <200?**

If the triglyceride level exceeds 400 mg/DL, the LDL-cholesterol level cannot be calculated according to the Friedewald formula. In such cases, a direct measurement of LDL-cholesterol, where available, can be used.

Non-HDL cholesterol becomes a secondary target when triglycerides are 200-499. The non-HDL target is 30 mg/dL higher than the LDL target. Non-HDL cholesterol is calculated by the formula non-HDL cholesterol=T cholesterol-HDL cholesterol.

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## **9. Laboratory Monitoring in 3-12 Months**

Obtain a fasting lipid panel or lipid panel with direct LDL and transaminase as indicated.

## **10. Health Maintenance**

## **11. Evaluation and Management**

Evaluation of elevated triglycerides includes screening for diabetes, metabolic syndrome, and hypothyroidism, and consideration of secondary causes. If triglycerides are greater than 500, triglyceride lowering drugs become first line therapy.

The clinician may wish to consider the use of statin therapy. This is especially true if there is a strong family history of CHD and dyslipidemia, such as familial combined hyperlipidemia, or if the patient has evidence of atherosclerotic disease. Treatment can be supported in diabetics with or without low HDL-cholesterol.

Uncontrolled glucose levels in patients with DM contributes to hypertriglyceridemia. Glucose levels in patients with diabetes should be under control to bring triglyceride levels under control.

## **12. Adjunctive Measures**

Evidence suggests that adults with elevated lipid levels should follow the therapeutic lifestyle change or other equivalent diet. Nutritional assessment and evaluation should be carried out by a registered dietitian whenever possible.

## **13. Follow-Up**

Coronary risk status and a lipid profile should be obtained at least annually.

## *Lipid Management in Adults*

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## *Lipid Management in Adults Algorithm-Risk Calculator*

Points					
Age	20-39	40-49	50-59	60-69	70-79
Nonsmoker	0	0	0	0	0
Smoker-Male	8	5	3	1	1
Smoker-Female	9	7	4	2	1

Systolic BP	Untreated		Treated	
	Male	Female	Male	Female
<120	0	0	0	0
120-129	0	1	1	3
130-139	1	2	2	4
140-159	1	3	2	5
>160	2	4	3	6

HDL	Points
>60	-1
50-59	0
40-49	1
<40	2

Points		
Age	Male	Female
20-34	-9	-7
35-39	-4	-3
40-44	0	0
45-49	3	3
50-54	6	6
55-59	8	8
60-64	10	10
65-69	11	12
70-74	12	14
75-79	13	16

Point Total	10-Year Risk %	
	Male	Female
<0	<1	<1
0	1	<1
1	1	<1
2	1	<1
3	1	<1
4	1	<1
5	2	<1
6	2	<1
7	3	<1
8	4	<1
9	5	1
10	6	1
11	8	1
12	10	1
13	12	2
14	16	2
15	20	3
16	25	4
17	>30	5
18	>30	6
19	>30	8
20	>30	11
21	>30	14
22	>30	17
23	>30	22
24	>30	27
>25	>30	>30

Points										
Age	20-39		40-49		50-59		60-69		70-79	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Total Cholesterol										
<160	0	0	0	0	0	0	0	0	0	0
160-199	4	4	3	3	2	2	1	1	0	1
200-239	7	8	5	6	3	4	1	2	0	1
240-279	9	11	6	8	4	5	2	3	1	2
>280	11	13	8	10	5	7	3	4	1	2

There is an "on-line" and a palm format downloadable CV risk calculator that is used in assessing 10-year risk of CV disease used in the Adult Treatment Panel III (ATP III) guideline report and this guideline on lipid management. The links are:

On-line calculator: <http://hin.nhlbi.nih.gov/atpiii/calculator.asp?usertype=prof>

Palm format (downloadable): <http://hin.nhlbi.nih.gov/atpiii/riskcalc.htm>

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