

C14

National Cholesterol Education Program

Adult Treatment Panel III Report

2001

ATP III Outline

Acknowledgments	ix
National Cholesterol Education Program Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III).....	ix
Executive Committee Advisor and Reviewers	ix
National Cholesterol Education Program Coordinating Committee	ix
I. Background and Introduction.....	I-1
1. Development of an evidence-based report.....	I-1
2. Features of ATP III similar to those of ATP I and II.....	I-2
3. New features of ATP III	I-3
4. Relation of ATP III to NCEP's public health approach	I-4
5. Relation of ATP III to other clinical guidelines.....	I-5
II. Rationale for Intervention.....	II-1
1. Basic description of lipids and lipoproteins.....	II-1
2. LDL cholesterol as the primary target of therapy	II-1
a. Serum LDL cholesterol as a major cause of CHD	II-2
b. Serum LDL cholesterol as target of therapy	II-4
c. Categories and classification of total cholesterol and LDL cholesterol.....	II-7
3. Other lipid risk factors	II-8
a. Triglycerides	II-8
1) Elevated serum triglycerides (and triglyceride-rich lipoproteins) as a risk factor	II-8
2) Lipoprotein remnants as atherogenic lipoproteins.....	II-8
3) VLDL cholesterol as a marker for remnant lipoproteins.....	II-9
4) Causes of elevated serum triglyceride	II-9
5) Categories of serum triglycerides	II-9
6) Elevated serum triglycerides and triglyceride-rich lipoproteins as targets of therapy.....	II-10
b. Non-HDL cholesterol.....	II-11
1) Non-HDL cholesterol as a risk factor.....	II-11
2) Non-HDL cholesterol as a secondary target of therapy	II-12
c. High density lipoproteins (HDL)	II-13
1) Low HDL cholesterol as an independent risk factor for CHD	II-13
2) Causes of low HDL cholesterol.....	II-14
3) Classification of serum HDL cholesterol	II-15
4) Low HDL cholesterol as a potential target of therapy.....	II-16
d. Atherogenic dyslipidemia	II-16
1) Atherogenic dyslipidemia as a "risk factor"	II-16
2) Atherogenic dyslipidemia as a target of therapy	II-17
4. Nonlipid risk factors	II-22
a. Modifiable risk factors	II-23
1) Hypertension.....	II-23

2) Cigarette smoking.....	II-24
3) Diabetes	II-24
4) Overweight/obesity.....	II-25
5) Physical inactivity.....	II-26
6) Atherogenic diet	II-27
b. Nonmodifiable risk factors	II-28
1) Age.....	II-28
2) Male sex.....	II-28
3) Family history of premature CHD.....	II-29
5. Emerging risk factors.....	II-30
a. Emerging lipid risk factors.....	II-31
1) Triglycerides.....	II-31
2) Lipoprotein remnants.....	II-31
3) Lipoprotein (a).....	II-32
4) Small LDL particles.....	II-33
5) HDL subspecies.....	II-33
6) Apolipoproteins	II-33
a) Apolipoprotein B	II-33
b) Apolipoprotein AI.....	II-34
7) Total cholesterol/HDL-cholesterol ratio.....	II-34
b. Emerging nonlipid risk factors.....	II-34
1) Homocysteine	II-34
2) Thrombogenic/hemostatic factors	II-35
3) Inflammatory markers	II-36
4) Impaired fasting glucose.....	II-36
c. Subclinical atherosclerotic disease.....	II-37
1) Ankle-brachial blood pressure index (ABI)	II-37
2) Tests for myocardial ischemia.....	II-37
3) Tests for atherosclerotic plaque burden.....	II-38
a) Carotid intimal medial thickening	II-38
b) Coronary calcium	II-38
6. Metabolic syndrome.....	II-39
a. Metabolic syndrome as multiple, interrelated factors that raise risk	II-39
b. Diagnosis of metabolic syndrome.....	II-40
c. Metabolic syndrome as a target of therapy	II-41
7. Primary prevention: persons without established CHD.....	II-42
a. Scope of primary prevention.....	II-42
b. Clinical strategy in primary prevention effort	II-42
c. Concepts of short-term and long-term prevention	II-43
d. Role of LDL lowering in short-term and long-term primary prevention.....	II-43
e. Risk assessment in primary prevention.....	II-44
f. Primary prevention with lifestyle changes	II-46
1) Basis for lifestyle recommendations for primary prevention	II-46
2) Dietary clinical trials of cholesterol lowering	II-46
3) Linkage of public health approach and clinical approach in primary prevention.....	II-46
g. Effectiveness of LDL-lowering drugs in primary prevention.....	II-46

h. Selection of persons for short-term risk reduction with LDL-lowering drugs	II-47
i. Selection of older persons for short-term, primary prevention.....	II-48
j. Selection of persons for long-term primary prevention in the clinical setting	II-49
k. LDL goals in primary prevention	II-54
8. Secondary prevention: persons with CHD.....	II-56
a. Secondary prevention of recurrent CHD.....	II-56
b. Effects of lipid-lowering therapy on stroke	II-62
9. Total mortality considerations and therapeutic safety	II-62
10. Magnitude of reduction in CHD risk	II-65
11. CHD as a risk indicator.....	II-66
12. Concept of CHD risk equivalents	II-67
a. Other forms of clinical atherosclerotic disease	II-67
1) Peripheral arterial disease (PAD)	II-67
2) Carotid artery disease	II-70
3) Abdominal aortic aneurysm (AAA)	II-73
b. Diabetes as a CHD risk equivalent	II-74
c. High-risk persons with multiple risk factors	II-78
13. Models for clinical intervention: role of multidisciplinary team	II-79
14. Cost-effectiveness issues	II-80
a. Purpose of cost-effectiveness analysis of LDL-lowering therapy	II-80
b. Approaches to estimating cost-effectiveness of cholesterol-lowering therapies	II-81
c. Criteria for cost-effectiveness therapies.....	II-84
d. Cost effectiveness analysis for LDL lowering for secondary prevention (persons with established CHD)	II-84
e. Cost effectiveness analysis in persons with CHD risk equivalents.....	II-85
f. Cost effectiveness of primary prevention	II-85
1) Cost effectiveness of dietary therapy for primary prevention	II-85
2) Cost effectiveness of drug therapy for short-term primary prevention	II-85
3) Cost-effectiveness for primary prevention based on WOSCOPS results.....	II-86
4) Cost effectiveness of primary prevention based on the AFCAPS/TexCAPS trial.....	II-86
5) Cost-effectiveness in long-term primary prevention	II-87
g. Summary	II-87

III. Detection and Evaluation III-1

1. Identification of risk categories for setting of LDL-cholesterol goals.....	III-1
a. Identification of persons with CHD and CHD risk equivalent	III-1
b. Risk assessment in persons without CHD or CHD risk equivalents (starting with risk factor counting)	III-2
1) Identification of persons with multiple (2+) risk factors.....	III-3
2) Calculation of 10-year CHD risk	III-3
2. Determination and classification of LDL cholesterol	III-8
a. Who should be tested for cholesterol and lipoproteins?	III-8
b. Procedures of measurement	III-9
c. Classification of lipid and lipoprotein levels	III-10
d. Secondary dyslipidemias (see Section VII)	III-10

3. Atherogenic dyslipidemia and the metabolic syndrome.....	III-11
a. Atherogenic dyslipidemia and classification of serum triglycerides.....	III-11
b. Diagnosis of the metabolic syndrome.....	III-11
4. Role of emerging risk factors in risk assessment.....	III-11
IV. General Approach to Treatment—Goals and Thresholds	IV-1
1. Therapeutic goals for LDL cholesterol.....	IV-1
2. Management of LDL Cholesterol	IV-2
a. CHD and CHD risk equivalents.....	IV-2
1) Baseline LDL cholesterol \geq 130 mg/dL	IV-3
2) Baseline LDL cholesterol 100–129 mg/dL	IV-3
3) Baseline LDL cholesterol $<$ 100 mg/dL	IV-3
b. Multiple (2+) risk factors.....	IV-4
1) Multiple risk factors, 10-year risk $>$ 20 percent	IV-4
2) Multiple risk factors, 10-year risk 10–20 percent.....	IV-4
3) Multiple risk factors, 10-year risk $<$ 10 percent	IV-4
c. Zero to one risk factor.....	IV-5
d. Management of LDL cholesterol when risk assessment begins with Framingham scoring (Table IV.2–4)	IV-5
e. Recommendations for persons whose LDL cholesterol levels are below goal.....	IV-6
f. LDL-lowering therapy in older persons	IV-7
3. Management of atherogenic dyslipidemia and the metabolic syndrome.....	IV-7
a. Atherogenic dyslipidemia	IV-7
b. Metabolic syndrome.....	IV-7
V. Adopting Healthful Lifestyle Habits to Lower LDL Cholesterol and Reduce CHD Risk.....	V-1
1. Population approach: promoting a base of healthy life habits.....	V-1
2. General approach to therapeutic lifestyle changes (TLC)	V-5
3. Components of the TLC diet.....	V-13
a. Major nutrient components	V-13
1) Saturated fatty acids.....	V-13
2) Trans fatty acid	V-15
3) Dietary cholesterol.....	V-15
4) Monounsaturated fatty acids.....	V-16
5) Polyunsaturated fatty acids.....	V-17
6) Total fat.....	V-18
7) Carbohydrate	V-19
8) Protein.....	V-20
b. Additional dietary options for LDL lowering.....	V-20
1) Increasing viscous fiber in the diet	V-20
2) Plant stanols/steryl.....	V-21
3) Soy protein.....	V-22
c. Other dietary factors that may reduce baseline risk for CHD	V-22
1) n-3 (omega-3) polyunsaturated fatty acids	V-23
2) Vitamins/antioxidants.....	V-24
a) Folic acid and vitamins B6 and B12.....	V-24

Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.