

LIPID TREATMENT ALGORITHM FOR TYPE 1 AND TYPE 2 DIABETES MELLITUS IN ADULTS¹

FLP Goals:

LDL-C <100 mg/dL¹

LDL-C <70 mg/dL²

HDL-C ≥40 mg/dL

TG <150 mg/dL

Determine Fasting Lipid Profile (FLP) yearly

Abnormal FLP ⇒ **TLC; control diabetes**; evaluate and treat secondary causes of dyslipidemia: alcohol, estrogen, anabolic steroids, corticosteroids, hypothyroidism, hepatic disease, nephrotic syndrome, chronic renal failure.
If LDL-C elevated = primary treatment target, unless TG ≥400 mg/dL, which then becomes the primary treatment target

Legend

TLC =Therapeutic Lifestyle Changes (refer to TDC Medical Nutrition, Weight Loss, and Exercise Algorithms)

Statin=HMG Co-A Reductase Inhibitor⁵

TG=Triglycerides

Non-HDL-C=TChol minus HDL-C

Consider Fibrate, Niacin⁴, or Statin

Isolated low HDL-C <40 mg/dL
(LDL-C <100 mg/dL & TG <150 mg/dL)

Elevated LDL-C ≥100mg/dL³

Elevated TG ≥150 mg/dL

Start Statin, titrate to goal LDL-C
Reinforce TLC

If LDL-C remains >100 mg/dL³
Add Bile acid resin-binder⁶ or Ezetimibe or Orlistat

If LDL-C remains >100mg/dL³

Refer to Lipid Specialist

150–199 mg/dL

TLC

200–399 mg/dL

TLC & Calculate Non-HDL-C

<130 mg/dL

Start Fibrate or Niacin²

≥130 mg/dL

LDL-C <100 mg/dL,
Start Fibrate or Niacin⁴

LDL-C ≥100 mg/dL,
follow elevated LDL-C algorithm

≥400mg/dL

TLC & Start Fibrate, titrate to goal TG

If TG remains >200 mg/dL,
Add Niacin⁴ or Statin or Orlistat

¹Consider statin therapy in all diabetics >age 40 with total cholesterol ≥135 mg/dL to achieve an LDL-C reduction of ~30% (and LDL-C <100 mg/dL) irrespective of initial LDL-C levels (Heart Protection Study. *Lancet* 361:2005-16; 2003). ²LDL-C goal is <70 mg/dl for the very high risk person: i.e. diabetes plus known heart disease such as acute coronary syndrome, or a history of previous cardiovascular events such as MI, CVA, etc. or UKPDS 10-yr event risk >20% (<http://www.dtu.ox.ac.uk/riskengine>)³or LDL-C ≥70 mg/dL in the very high risk person.⁴ Use with caution in patients with diabetes. Need to closely follow self-monitoring blood glucose (SMBG) as may worsen glycemic control. Recheck FLP and ALT 2–3 months after drug therapy initiation/titration. If patient develops myalgias, hold lipid-lowering drug and check CPK as soon as possible.⁵See reverse side for more information.⁶If TG <200 mg/dL. **See web site** (<http://www.texasdiabetesCouncil.org>) **for latest version and disclaimer.**

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HMG Co-A Reductase Inhibitors LDL-C Equivalency In Patients with Hypercholesterolemia

Fluvastatin	Pravastatin	Lovastatin	Simvastatin	Atorvastatin	Rosuvastatin	%LDL ↓
20 mg	10 mg	10 mg	-----	-----	-----	15-20
40 mg	20 mg	20 mg	5-10 mg	-----	-----	21-29
80-XL	40-80 mg	40 mg	20 mg	10 mg	-----	30-38
-----	-----	80 mg	40 mg	20 mg	5-10 mg	39-47
-----	-----	-----	80 mg	40 mg	20 mg	48-54
-----	-----	-----	-----	80 mg	40 mg	>55

Jones P, Kafonek S, Laurora I, et al. Comparative dose efficacy study of atorvastatin versus simvastatin, pravastatin, lovastatin, and fluvastatin in patients with hypercholesterolemia (the CURVES study) *Am J Cardiol.* 1998;81(5):582-7.

Hirsch M, O'Donnell JC, Jones P. Rosuvastatin is cost-effective in treating patients to low-density lipoprotein-cholesterol goals compared with atorvastatin, pravastatin and simvastatin: analysis of the STELLAR trial. *Eur J Cardiovasc Prev Rehabil.* 2005;12(1):18-28.

***Footnote:** This information is not based on head to head comparisons.

Adapted from: National Cholesterol Education Program Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) *JAMA* 2001;285(19):2466-97.

American Diabetes Association Clinical Practice Recommendations, *Diabetes Care.* 2005 Jan;28(suppl_1): S3; S4-S36; Dyslipidemia Management in Adults with Diabetes. *Diabetes Care.* 2004;27 (suppl 1):S68-S71.

Effect of Niacin on Lipid and Lipoprotein Levels and Glycemic Control in Patients with Diabetes and Peripheral Arterial Disease (The ADMIT Study: A Randomized Trial) *JAMA* 2000; 284 (10):1263-70.