

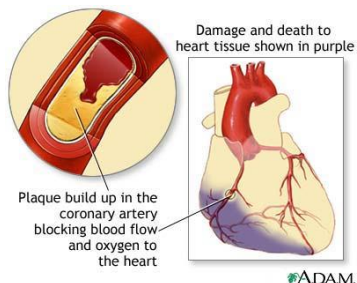
KPP *Klinical Update*

February 28th, 2012

The Statins

A Powerful and Effective Cholesterol Fighting Drug Class

Cholesterol is a fatty steroid utilized in the human body to create membranes and act as a building block in the formation of various life sustaining substances like bile. When someone has too much cholesterol, obtained either from diet or its synthesis in the liver, it can cause coronary artery disease (CAD). This is when the arteries, which supply the heart muscle with blood, become restricted or blocked due to the formation of plaque, a buildup of cholesterol on the inside of an artery (see diagram). There are two main types of cholesterol:



LDL “bad cholesterol” and HDL “good cholesterol”. LDL is the substance which sticks to the walls of arteries and forms the plaques which restrict blood flow while HDL, at high levels, seems to protect against cardiovascular disease by “cleaning” LDL from arterial walls and transporting it back to the liver. The

American Heart Association has issued guidelines regarding appropriate levels of both types of cholesterol in the body based on various health factors.

HDL Cholesterol Level	Category
Less than 40 mg/dL (for men) Less than 50 mg/dL (for women)	Low HDL cholesterol. A major risk factor for heart disease.
60 mg/dL and above	High HDL cholesterol. An HDL of 60 mg/dL and above is considered protective against heart disease.

LDL Cholesterol Level	Category
Less than 100 mg/dL	Optimal
100 to 129 mg/dL	Near or above optimal
130 to 159 mg/dL	Borderline high
160 to 189 mg/dL	High
190 mg/dL and above	Very high

Your LDL Cholesterol Goal Depends on How Many Other Risk Factors You Have.

- If you don't have coronary heart disease or diabetes and have one or no risk factors, your LDL goal is less than 160 mg/dL.
- If you don't have coronary heart disease or diabetes and have two or more risk factors, your LDL goal is less than 130 mg/dL.
- If you do have coronary heart disease or diabetes, your LDL goal is less than 100 mg/dL.

*Your physician may set a goal lower than these guidelines

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American Heart Association 
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The Pharmacological Solution to High Cholesterol (Hyperlipidemia)

Initial research around the liver's synthesis of cholesterol began in the early 1970s. The pharmaceutical company Merck & Co. began collaborating with researchers in 1976 and isolated the compound lovastatin. Beginning in 1982, several small-scale clinical investigations were conducted which led to full scale clinical trials in the mid 80s. In August of 1987 the American Food and Drug Administration approved the drug Mevacor, the brand name of lovastatin. With that, a new drug class was born: HMG-CoA reductase inhibitors, also known as the statins. There are now 6 statin drugs on the market (see chart below)

Did You Know?

The original research leading up to the discovery of the statin drug class was not intended to help lower cholesterol in humans. Researchers were studying a fungus which produced a substance that damaged other organisms by inhibiting their ability to repair membranes and cell walls.

Medication	Average Expected LDL % Reduction	Average Monthly Cost
Pravachol (Pravastatin)	18%-34%	10/20/40 mg \$4
Mevacor (Lovastatin)	21%-36%	10/20 mg - \$4 40 mg - 30
Zocor (Simvastatin)	26%-45%	10 mg - \$13 20/40 mg -\$20 80 mg- \$20
Lescol XL (Fluvastatin)	22%-25%	\$125
Crestor (Rosuvastatin)	43%-55%	\$140
Lipitor (Atrovastatin)	42%-54%	10 mg - \$106 20 mg - \$135 40 mg - \$153 80 mg - \$160

- Generically available medications are in **bold**
- Pricing accurate as of 2/28/2012 @ a Kroger pharmacy in the Cincinnati division

Side Effects, Precautions, and Recommendations

- When started on a statin drug, a liver function test should be completed after about 3 months to check on liver enzyme levels in the blood.
- Tell your physician immediately if you notice muscle ache or pain while taking a statin.
- Grapefruit and/or grapefruit juice should not be consumed while taking a statin.
- It may be beneficial to take your statin medication at bedtime. This is because studies show the human body processes cholesterol at a higher rate while sleeping.

Which Statin is Right For Me?

Only your doctor is qualified to choose the right statin for you. However, as with all medical decisions, Kroger Prescription Plans recommends you have a discussion with your physician regarding the desired outcome, interactions, any supplements you might be taking, and the monthly price of the medication. Here are several things to keep in mind:

- Based on your blood test results, if your cholesterol is very high you may need a more powerful statin like Lipitor or Crestor.
- If you have heart disease or diabetes and need 30% or less reduction in LDL, simvastatin may be an effective and cost efficient choice.
- If you have an LDL level which needs reduction by 30% or less and/or are on a limited income, lovastatin or pravastatin may be an

effective and cost efficient choice as multiple strengths of both medications are on the Kroger \$4/\$10 list.

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