



# Highlights of the 2018 Guideline on the Management of Blood Cholesterol

## Importance of Cholesterol Management

The “2018 Guideline on the Management of Blood Cholesterol” is an update to the 2013 guideline on diagnosing, treating, and monitoring high cholesterol.

Fifty-six million (48.6%) US adults over 40 years of age are eligible for statin therapy on the basis of the 2013 guideline for managing blood cholesterol from the American College of Cardiology and the American Heart Association. This is significant when you consider that having a high level of low-density lipoprotein cholesterol (LDL-C) is a major risk factor for atherosclerotic cardiovascular disease (ASCVD). Because LDL-C contributes to fatty buildups and narrowing of the arteries (atherosclerosis), it’s often called the “bad” cholesterol, and in fact, high LDL-C at any age can cumulatively increase the risk for heart disease and stroke.

While there is no *ideal* target blood level for LDL-C, the 2018 guideline recognizes, in principle, that “lower is better.” Studies suggest that an optimal total cholesterol level is about 150 mg/dL, with LDL-C at or below 100 mg/dL, and adults with LDL-C in this level have lower rates of heart disease and stroke.

## Risk Assessment

The 2018 guideline recommends that healthcare providers conduct a detailed risk assessment with their patients through an ASCVD risk calculator ([static.heart.org/riskcalc/app/index.html#!/baseline-risk](http://static.heart.org/riskcalc/app/index.html#!/baseline-risk)), which providers can use to discuss risks and treatment options with patients. A consumer-facing risk calculator is available as well at [www.heart.org/cccccalculator](http://www.heart.org/cccccalculator). This calculator combines all major risk factors to estimate a patient’s probability for developing ASCVD. Risk factors include smoking, high blood pressure, abnormal cholesterol, and diabetes. Because atherosclerosis progresses over a lifetime, age counts as a risk factor, too. When the ASCVD risk status is uncertain, a coronary artery calcium test may clarify risk for patients ages 40 to 75, and it may also help decide whether to start or restart statin therapy.

Along with traditional cardiovascular disease risk factors like smoking, high blood pressure, high cholesterol, and high blood sugar, the guideline now calls for further review in some people ages 40 to 75 of **risk-enhancing factors** such as family history and other health conditions. The presence or absence of risk-enhancing factors in this age group without diabetes and 10-year risk of 7.5% to 19.9% can help further determine whether patients should start or intensify statin therapy.

Patients with extremely high LDL-C (190 mg/dL or more) or other conditions that can increase their ASCVD risk, and those who have been diagnosed with cardiovascular disease, need immediate intervention with high-intensity statins to manage their cholesterol without further risk assessment.

The 2018 guideline also recognizes the importance of identifying and managing high LDL-C in children, adolescents, and young adults to reduce their lifetime exposure to the health effects of high cholesterol. Most children can reduce their lifetime ASCVD risk by

practicing healthier lifestyles. In some cases, high cholesterol in children can point to a genetic issue like familial hypercholesterolemia, prompting screening of family members to identify those who are at increased risk.

## Primary Prevention

The 2018 guideline recommends that for adults 20 years or older who are free from ASCVD (and not on lipid-lowering therapy), measure LDL-C with either a fasting or nonfasting plasma lipid profile when estimating ASCVD risk, and document baseline LDL-C. For adults 20 years or older who have an initial nonfasting lipid profile with triglycerides 400 mg/dL or higher, repeat the lipid profile with the patient fasting to establish fasting triglyceride levels and baseline LDL-C.

As with children, most patients can reduce their lifetime ASCVD risk through healthier lifestyle practices. Encourage patients to reduce their caloric intake of saturated fat and dietary cholesterol and to eliminate trans fat completely. In addition to these dietary changes, patients should strive for an average of 40 minutes of moderate to vigorous physical activity 3 to 4 times per week. But even moderate amounts of activity can reduce risk for patients who achieve this goal, and patients with metabolic syndrome may also benefit from physical activity.

When lifestyle interventions alone are not enough to lower LDL-C, statins generally provide the most effective lipid-lowering treatment. There are 3 main treatment regimens for statins:

- **High intensity**, which typically lowers LDL-C by 50% or more
- **Moderate intensity**, which lowers LDL-C by 30% to 49%
- **Low intensity**, which lowers LDL-C by 30% or less

Use a stepwise approach to manage high cholesterol, adding therapies as tolerated until the cholesterol levels are lowered adequately. If a patient has problems taking a statin or if a statin alone doesn’t sufficiently lower LDL-C additional drug options are available. Adding a bile acid sequestrant or ezetimibe to a statin regimen further lowers LDL-C by approximately 15% to 30% and 13% to 20%, respectively. And adding a PCSK9 inhibitor to a statin regimen has been shown to further reduce LDL-C by 43% to 64%.

Patients with extremely high LDL-C (190 mg/dL or higher) have a high lifetime risk for a cardiovascular event. For patients ages 20 to 75, providers should prescribe a maximally tolerated statin.

Adults **ages 40 to 75 who have diabetes** are usually considered at moderate to high risk for cardiovascular disease. The guideline recommends moderate-intensity statins, regardless of the patient’s estimated 10-year risk for ASCVD (Figure 1).

## Secondary Prevention

For patients who have had a serious cardiovascular incident or procedure, secondary prevention may reduce the risk of another event. Providers should use an ideal LDL-C threshold of less than 70 mg/dL when considering adding ezetimibe and PCSK9 inhibitors to an existing statin therapy (Figure 2).

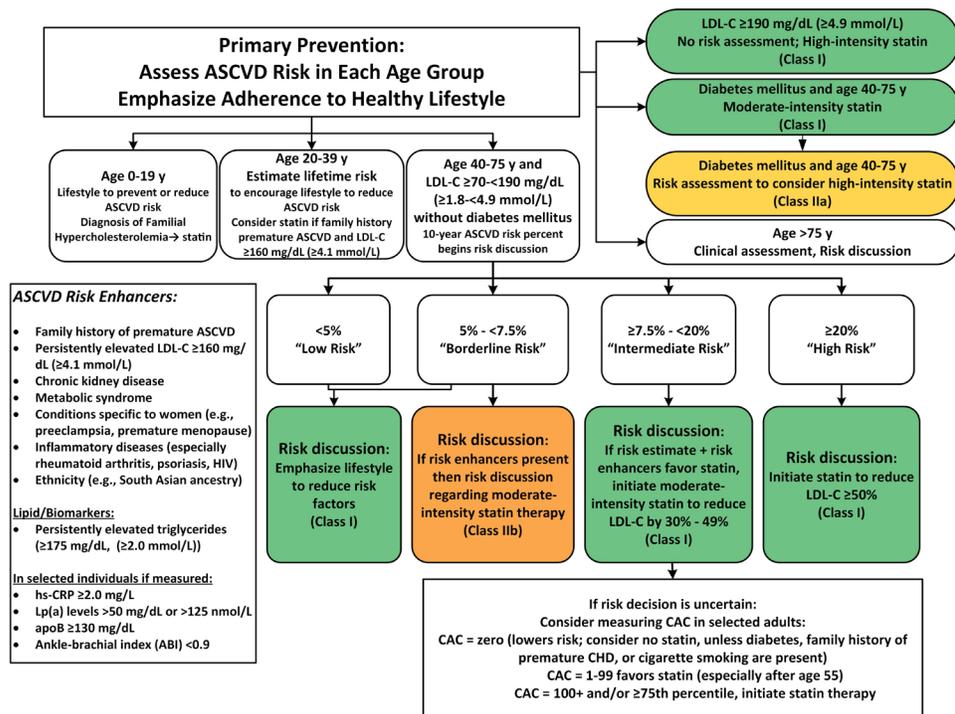


Figure 1. Primary Prevention.

apoB indicates apolipoprotein B; ASCVD, atherosclerotic cardiovascular disease; CAC, coronary artery calcium; hsCRP, high-sensitivity C-reactive protein; LDL-C, low-density lipoprotein cholesterol; and Lp(a), lipoprotein (a).

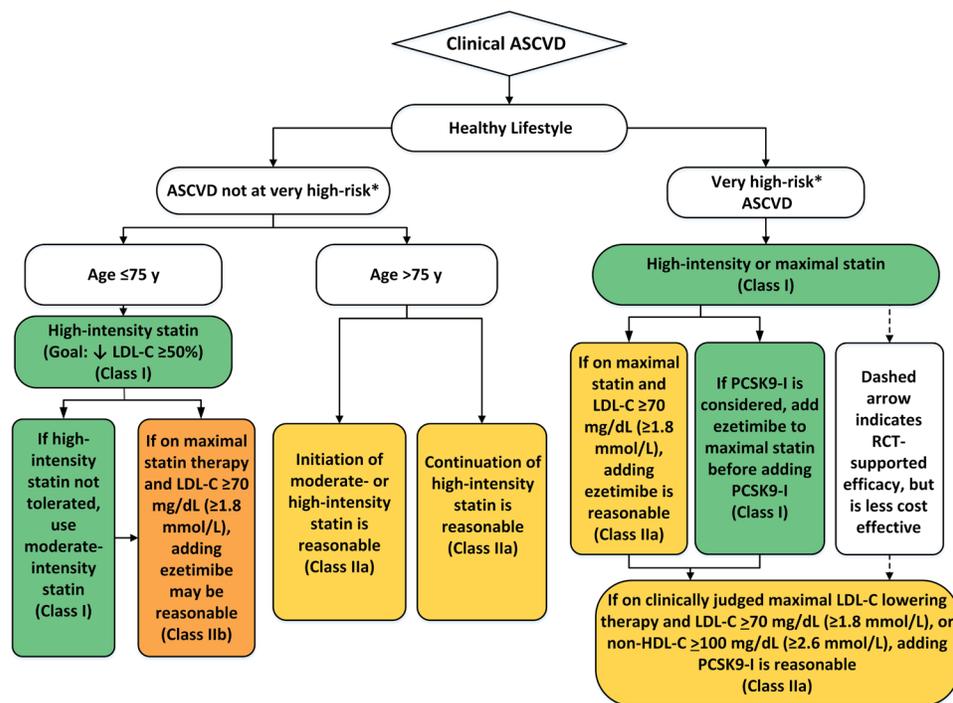


Figure 2. Secondary prevention.

ACS indicates acute coronary syndrome; ASCVD, atherosclerotic cardiovascular disease; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; MI, myocardial infarction; and PCSK9i, PCSK9 inhibitor. \*Very high risk includes a history of multiple major ASCVD events or 1 major ASCVD event and multiple high-risk conditions.

To download the full version of the 2018 Cholesterol Guideline, please visit

[https://professional.heart.org/professional/ScienceNews/UCM\\_502791\\_2018-Cholesterol-Management-Guideline.jsp](https://professional.heart.org/professional/ScienceNews/UCM_502791_2018-Cholesterol-Management-Guideline.jsp),

or download a QR code reader app and scan this QR code with your smartphone.



## Monitoring

Once patients begin a treatment plan, providers should reassess at 4 to 12 weeks with a fasting or nonfasting lipid test and check for statin intolerance, and retest every 3 to 12 months if needed. Using the percentage reduction in LDL-C (rather than total cholesterol) in follow-up monitoring of patients can help you estimate how well the statin medication is working.

Lowering LDL-C levels by 1% generally equals about 1% reduction in heart disease and stroke risk, but the effect can be even greater when starting with higher baseline levels of LDL-C. On the basis of several large studies, it's estimated that reducing LDL-C levels with statins by about 38.7 mg/dL can reduce heart disease and stroke risk by about 21%, based on the results of several large studies.

## Implementing the 2018 Guideline Recommendations

When initiating treatment plans and before prescribing therapy, providers should

- Allow patients to ask questions and express concerns and preferences about their ability and likelihood to follow and stick to the lifestyle and medication plan
- Emphasize the potential for lowering the patient's cardiovascular disease risk
- Discuss any possible drug interactions and adverse effects
- Address issues that factor into, or may become a barrier to, a shared-decision plan, such as costs and the patient's overall health

The 2018 guideline recommends offering options such as phone and calendar reminders, educational activities, and simplified medication doses to help patients stick to their treatment plans. The 2018 guideline also includes considerations for special populations in the United States:

- Racial/ethnic groups (Section 4.5.1)
- Women (Section 4.5.3)
- People with diabetes (Section 4.3)
- People with chronic kidney disease (Section 4.5.4)
- People with chronic inflammatory conditions/HIV (Section 4.5.5)
- Older adults (Section 4.4.4.1)
- People with hypertriglyceridemia (Section 4.5.2)