

KP National Cardiovascular Risk and Dyslipidemia Management Guideline

CLINICIAN GUIDE
OCTOBER 2014

Introduction

This Clinician Guide was developed to assist Primary Care physicians and other clinicians in the outpatient management of cholesterol for primary and secondary prevention of atherosclerotic cardiovascular disease (ASCVD). The KP National Risk Assessment and Cholesterol Management Guideline adopted the 2013 recommendations developed by the American College of Cardiology Foundation (ACCF)/American Heart Association (AHA), with minor modifications. It is not intended or designed as a substitute for the reasonable exercise of independent clinical judgment by practitioners.

Definitions

- ▶ **Clinical atherosclerotic cardiovascular disease (ASCVD)** includes acute coronary syndromes, history of MI, stable or unstable angina, coronary or other arterial revascularization, stroke, TIA, carotid stenosis $\geq 50\%$, repaired abdominal aortic aneurysm (AAA), or symptomatic peripheral arterial disease presumed to be of atherosclerotic origin.
- ▶ **Subclinical ASCVD** includes asymptomatic coronary artery disease or peripheral artery disease, e.g., aortic atherosclerosis, unrepaired abdominal aortic aneurysm (AAA), or abnormal ankle brachial index (ABI) detected on screening.
- ▶ **Terminology:** Below is a brief guide to the wording, strength and actions associated with the recommendations in this Clinician Guide.

Recommendation	Strength*	Action
Start, initiate, prescribe, treat, , etc.	Strong	Most individuals should receive the recommended course of action; only a small proportion will not want the intervention.
Consider	Weak	The majority of individuals in this situation will want the course of action, but many will not. Different choices will be appropriate for different patients. Assist each patient to arrive at a management decision consistent with her or his values and preferences.
Consider discussing	Very Weak	Some patients will want this course of action, but the majority will not. A discussion of the intervention may be useful to assist selected patients arrive at a management decision consistent with her or his values and preferences.

*Refers to the extent to which one can be confident that the desirable effects of an intervention outweigh its undesirable effects.

Key Points

- ▶ **For all adults, encourage a heart-healthy lifestyle to reduce the risk of ASCVD.** This includes regular physical activity, weight reduction and maintenance, smoking cessation, and controlling blood pressure and diabetes.
- ▶ **Focus on treatment of blood cholesterol to reduce ASCVD risk in adults.**
- ▶ **Identify adults most likely to benefit from cholesterol-lowering therapy, i.e., the 4 statin benefit groups.**
- ▶ **Identify and address safety issues related to cholesterol treatment options.**

Cholesterol Treatment

FOUR STATIN BENEFIT GROUPS

- ▶ **Recommend statin therapy for adults in risk groups for which a demonstrated ASCVD risk reduction benefit has been shown to outweigh the risks. See Table 1 for the four groups in which statins have been shown to reduce ASCVD.**
- ▶ There is no recommendation for or against specific LDL-C or non-HDL-C targets for the primary or secondary prevention of ASCVD.
- ▶ There is no recommendation for or against the initiation or discontinuation of statins in patients with NYHA class II-IV ischemic systolic heart failure or in patients on maintenance hemodialysis.

TABLE 1. Four Statin Benefit Groups

Secondary Prevention	▶ Adults with clinical ASCVD
Primary Prevention	▶ Adults aged 21 and older with primary elevations of LCL-C ≥ 190 mg/dL
	▶ Adults with diabetes aged 40-75 years who have LDL-C 70 to 189 mg/dL
	▶ Adults <i>without</i> diabetes aged 40-75 years with estimated 10-year ASCVD risk $\geq 7.5\%$ and LDL-C 70 to 189 g/dL

Cholesterol Treatment Recommendations, By Risk Group

SECONDARY PREVENTION:

ADULTS WITH CLINICAL ASCVD

- ▶ **Aged ≤75: Initiate or continue a high-intensity statin as first-line therapy, unless contraindicated.**
 - If contraindicated or characteristics predisposing to statin-associated adverse effects are present, use a moderate-intensity statin as the second option, if tolerated.
 - If unable to tolerate high-intensity statin therapy, use the maximum tolerated statin intensity.
- ▶ **Aged >75:** Evaluate the potential ASCVD risk-reduction benefits, adverse effects and drug-drug interactions, and consider patient preferences when initiating a moderate- or high-intensity statin. Continue statin therapy in those who are tolerating it.

PRIMARY PREVENTION:
AGED 21 AND OLDER
WITH LDL-C ≥190 MG/DL

- ▶ **Evaluate for secondary causes of hyperlipidemia**
- ▶ **Initiate or continue high-intensity statin therapy, unless contraindicated.**
 - 10-year ASCVD risk estimation not required.
 - If unable to tolerate high-intensity statin therapy, use the maximum tolerated statin intensity.
- ▶ **Consider intensifying statin therapy to achieve at least a 50% LDL-C reduction.**
- ▶ **After the maximum intensity of statin therapy has been achieved, consider addition of a nonstatin drug to further lower LDL-C.** Evaluate the potential for ASCVD risk reduction benefits, adverse effects and drug-drug interactions, and consider patient preferences.

PRIMARY PREVENTION:
DIABETES, AGED 40-75
AND LDL-C 70-189 MG/DL

- ▶ **Initiate or continue moderate-intensity statin therapy.** Consider high-intensity statin therapy for adults with diabetes and a ≥7.5% estimated 10-year ASCVD risk.
- ▶ **If aged under 40 or over 75,** evaluate the potential for ASCVD benefits, adverse effects and drug-drug interactions, and consider patient preferences when deciding to initiate, continue, or intensify statin therapy.

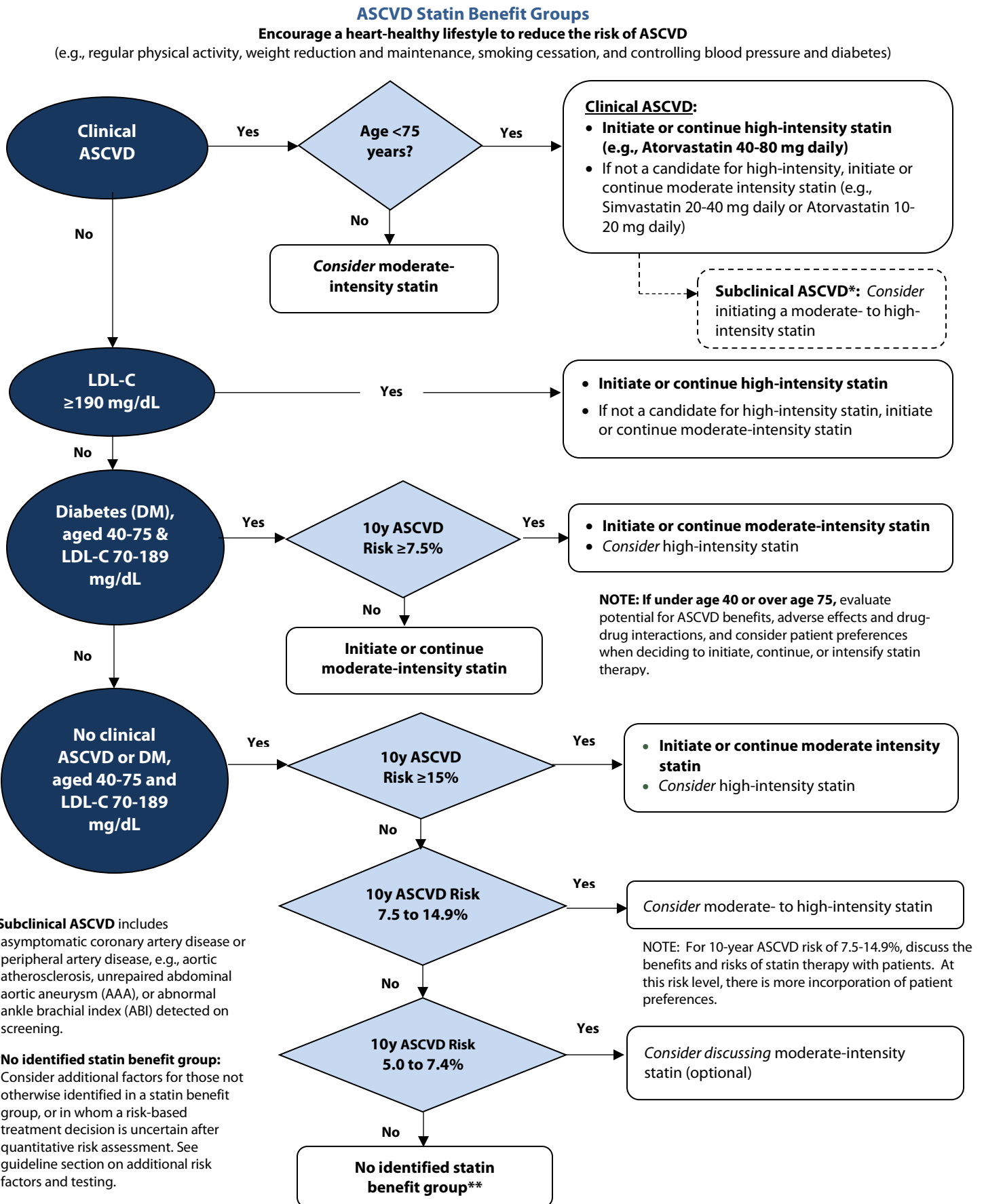
PRIMARY PREVENTION:
NO DIABETES, AGED 40-75
AND LDL-C 70-189 MG/DL

- ▶ **Use The Pooled Cohort Equations (AHA/ACC CV Risk Calculator) or other risk calculator to estimate 10-year ASCVD risk and to guide initiation of statin therapy.**
 - If using The Pooled Cohort Equations for populations other than Non-Hispanic Whites or African Americans, use the equations for Non-Hispanic Whites.
 - NOTE: Because no cardiovascular risk calculator has been studied prospectively and compared to another risk calculator, some clinicians may choose a different risk calculator to estimate cardiovascular risk. Clinicians selecting a different risk calculator may decide to apply different treatment thresholds than those proposed in the Pooled Cohort Equations.
- ▶ **For adults at elevated risk (e.g., 7.5-14.9%), consider treatment with a moderate- to high-intensity statin,** after a discussion which considers the potential for ASCVD risk reduction benefits, adverse effects, drug-drug interactions, and patient preferences for treatment.
- ▶ **For adults with a very elevated estimated 10-year ASCVD risk (e.g. ≥15% by the AHA/ACC Pooled Cohort Equations), initiate or continue treatment with a moderate- to high-intensity statin.**
- ▶ **Consider discussing treatment with a moderate-intensity statin with adults who have a slightly elevated estimated 10-year ASCVD risk (e.g. ≥5% to 7.4%).**

PRIMARY PREVENTION:
SUBCLINICAL ASCVD OR
NO IDENTIFIED STATIN
BENEFIT GROUP

- ▶ **In patients with asymptomatic (subclinical) noncoronary atherosclerosis** (including asymptomatic peripheral arterial disease (PAD), carotid stenosis and aortic atherosclerosis) **or unrepaired abdominal aortic aneurysm (AAA),** assess ASCVD risk and consider a moderate- to high-intensity statin to reduce the risk of developing symptomatic cardiovascular disease or cardiovascular disease progression.
- ▶ **Consider additional factors for those not otherwise identified in a statin benefit group, or in whom a risk-based treatment decision is uncertain after quantitative risk assessment.**
 - Additional risk factors include baseline LDL-C ≥160 or other evidence of genetic hyperlipidemias, lifetime risk of ASCVD, family history of premature ASCVD with onset <55 years in a first-degree male relative, or <65 in a first-degree female relative, testing for hsCRP, Ankle-Brachial Index (ABI), or Coronary Artery Calcium (CAC).
 - Order testing for additional risk factors *only* if the result will prompt a therapeutic decision, and the clinician and patient agree to initiate statin therapy if the result is abnormal, and to forgo statin therapy if the result is normal. Use shared decision making to discuss significant differences in convenience, cost, invasiveness, and radiation exposure.

Figure 1. Cholesterol Treatment Recommendations, By Risk Group



*Subclinical ASCVD includes asymptomatic coronary artery disease or peripheral artery disease, e.g., aortic atherosclerosis, unrepaired abdominal aortic aneurysm (AAA), or abnormal ankle brachial index (ABI) detected on screening.

**No identified statin benefit group: Consider additional factors for those not otherwise identified in a statin benefit group, or in whom a risk-based treatment decision is uncertain after quantitative risk assessment. See guideline section on additional risk factors and testing.

Optimizing Statin Therapy

- ▶ **Use the maximum tolerated intensity of statin in individuals for whom a high- or moderate-intensity statin is recommended, but not tolerated.**

Insufficient Response to Statin Therapy

- ▶ **Focus on treatment of blood cholesterol to reduce ASCVD risk in adults.**
- ▶ In individuals who have a less-than-anticipated therapeutic response or are intolerant of the recommended intensity of statin therapy:
 - Reinforce medication adherence
 - Reinforce adherence to intensive lifestyle changes
 - Exclude secondary causes of hyperlipidemia
- ▶ The following are indicators of anticipated therapeutic response to the recommended intensity of statin therapy. Focus is on the intensity of the statin therapy. As an aid to monitoring:
 - High-intensity statin therapy generally results in an average LDL-C reduction of $\geq 50\%$ from the untreated baseline;
 - Moderate-intensity statin therapy generally results in an average LDL-C reduction of 30 to $< 50\%$ from the untreated baseline;
 - LDL-C levels and percent reduction are to be used only to assess response to therapy and adherence. They are not to be used as performance standards.
- ▶ In individuals at higher ASCVD risk receiving the maximum tolerated intensity of statin therapy who continue to have a less than-anticipated therapeutic response, consider adding a nonstatin cholesterol-lowering drug(s) if the ASCVD risk-reduction benefits outweigh the potential for adverse effects.

Higher-risk individuals include:

 - Individuals with clinical ASCVD < 75 years of age.
 - Individuals with baseline LDL-C ≥ 190 mg/dL.
 - Individuals 40 to 75 years of age with diabetes mellitus.
- ▶ In individuals who are candidates for statin treatment but are completely statin intolerant, consider nonstatin cholesterol lowering drugs that have been shown to reduce ASCVD events in RCTs (i.e., niacin, bile acid resins and fibrates) if the ASCVD risk-reduction benefits outweigh the potential for adverse effects.
- ▶ Give preference to nonstatin cholesterol-lowering drugs shown to reduce ASCVD events in RCTs (i.e., niacin and bile acid resins).

Risk Assessment

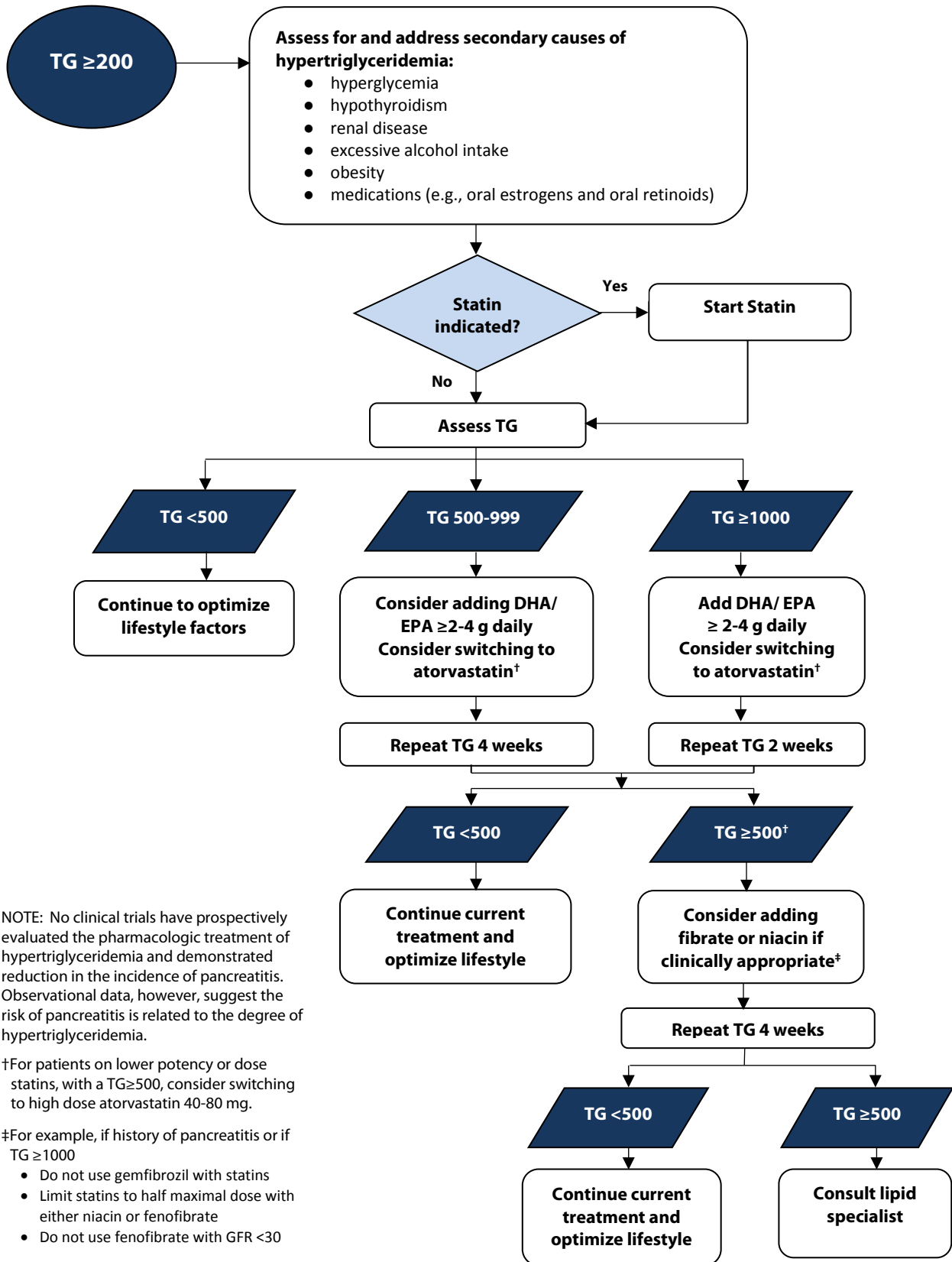
- ▶ The contribution to risk assessment for a first ASCVD event using ApoB, CKD, albuminuria, or cardiorespiratory fitness is uncertain at present.
- ▶ The Carotid Intima-Media Thickness Test (CIMT) is not recommended for routine measurement for risk assessment for a first ASCVD event.
- ▶ Assess traditional ASCVD risk factors every 4 to 6 years in adults aged 20 -79 who are free from ASCVD and to estimate 10-year ASCVD risk every 4 to 6 years in adults aged 40 -79 years without ASCVD.
- ▶ Consider assessing 30-year or lifetime ASCVD risk based on traditional risk factors in adults 20 to 59 years of age without ASCVD and who are not at high short-term risk. A risk calculator for this assessment is available at: <http://tools.cardiosource.org/ASCVD-Risk-Estimator/>

Triglyceride Treatment

- ▶ There is evidence that elevated TG is independently associated with increased risk of atherosclerosis. However, not all people with high TGs are at increased risk, and neither the threshold for initiation of therapy, nor the goal of therapy, is known. Although there is direct evidence that lowering LDL-C reduces the risk of CAD events, there are no clinical trials to demonstrate that reducing TG levels will reduce CAD events. There is expert opinion that a desirable TG level is < 150 mg/dL, but there are no studies to support the benefit of obtaining this level.
- ▶ When making treatment decisions, consider a person's other lipid levels and nonlipid CAD risk factors. Although there is no direct evidence, there is consensus that TG ≥ 500 mg/dL warrants treatment to prevent pancreatitis. Specific recommendations for treating high TG level are presented

in the Triglyceride Algorithm (see Figure 2).

Figure 2. Triglyceride (TG) Treatment Algorithm



NOTE: No clinical trials have prospectively evaluated the pharmacologic treatment of hypertriglyceridemia and demonstrated reduction in the incidence of pancreatitis. Observational data, however, suggest the risk of pancreatitis is related to the degree of hypertriglyceridemia.

†For patients on lower potency or dose statins, with a TG ≥ 500, consider switching to high dose atorvastatin 40-80 mg.

‡For example, if history of pancreatitis or if TG ≥ 1000

- Do not use gemfibrozil with statins
- Limit statins to half maximal dose with either niacin or fenofibrate
- Do not use fenofibrate with GFR < 30

Statin Safety Recommendations

- ▶ **Women of Childbearing Potential**
 - Statins are classified as pregnancy category X and are contraindicated during pregnancy and lactation.
 - Discuss the potential risks to the fetus should they become pregnant
 - Discuss practicing effective contraceptive measures consistently while taking statins
 - Advise women using statins to stop statins and contact their OB/GYN provider immediately if they become pregnant
 - In women planning a pregnancy, discontinue statins prior to conception
- ▶ To maximize the safety of statins, select the appropriate statin and dose in men and nonpregnant/nonnursing women based on patient characteristics, level of ASCVD risk*, and potential for adverse effects. ASCVD risk is based on the presence of clinical ASCVD, diabetes mellitus, LDL-C ≥ 190 mg/dL, or level of estimated 10-year ASCVD risk.
- ▶ Use moderate-intensity statin therapy in individuals in whom high-intensity statin therapy would otherwise be recommended when characteristics predisposing them to statin-associated adverse effects are present.
- ▶ Characteristics predisposing individuals to statin adverse effects include, but are not limited to:
 - Multiple or serious comorbidities, including impaired renal or hepatic function
 - History of previous statin intolerance or muscle disorders
 - Unexplained ALT elevations >3 times ULN
 - Patient characteristics or concomitant use of drugs affecting statin metabolism
 - >75 years of age
 - Additional characteristics that may modify the decision to use higher statin intensities may include, but are not limited to:
 - History of hemorrhagic stroke
 - Asian ancestry
- ▶ Evaluate adults receiving statin therapy for new-onset diabetes mellitus according to current diabetes screening guidelines. Encourage those who develop diabetes mellitus during statin therapy to adhere to a heart healthy dietary pattern, engage in physical activity, achieve and maintain a healthy body weight, cease tobacco use, and continue statin therapy to reduce their risk of ASCVD events.
- ▶ For adults taking any dose of statins, use caution in those >75 years of age, as well as in adults taking concomitant medications that alter drug metabolism, taking multiple drugs, or taking drugs for conditions that require complex medication regimens (e.g., those who have undergone solid organ transplantation or are receiving treatment for HIV). A review of the manufacturer's prescribing information may be useful before initiating any cholesterol-lowering drug.
- ▶ Consider decreasing the statin dose when 2 consecutive values of LDL-C levels are <40 mg/DL.
- ▶ Initiating simvastatin at 80 mg daily or increasing the simvastatin dose to 80 mg daily may be harmful.

CK Measurement

- ▶ Do not routinely measure CK in individuals receiving statin therapy.
- ▶ Consider baseline measurement of CK for individuals believed to be at increased risk for adverse muscle events based on a personal or family history of statin intolerance or muscle disease, clinical presentation, or concomitant drug therapy that might increase the risk for myopathy.
- ▶ During statin therapy, measure CK in individuals with muscle symptoms, including pain, tenderness, stiffness, cramping, weakness, or generalized fatigue.

Hepatic Function

- ▶ Perform baseline measurement of hepatic transaminase levels (ALT) before initiating statin therapy.
- ▶ During statin therapy, measure hepatic function if symptoms suggesting hepatotoxicity arise (e.g., unusual fatigue or weakness, loss of appetite, abdominal pain, dark colored urine or yellowing of the skin or sclera).

Table 2: Statin Therapy Options, By Intensity

HIGH INTENSITY*	MODERATE INTENSITY	LOW INTENSITY
<i>Daily dose lowers LDL-C by approx. $\geq 50\%$</i>	<i>Daily dose lowers LDL-C by approx. 30-50%</i>	<i>Daily dose lowers LDL-C by $<30\%$</i>
<ul style="list-style-type: none"> – Atorvastatin 40-80 mg – Rosuvastatin 20-40 mg 	<ul style="list-style-type: none"> – Simvastatin 20-40 mg – Atorvastatin 10-20 mg – Lovastatin 40-80 mg – Pravastatin 40-80 mg – Rosuvastatin 5-10 mg – Fluvastatin XL 80 mg – Fluvastatin 40 mg bid – Pitavastatin 2-4 mg 	<ul style="list-style-type: none"> – Simvastatin 10 mg – Lovastatin 20 mg – Pravastatin 10-20 mg – Fluvastatin 20-40 mg – Pitavastatin 1 mg
<p>*Initiating simvastatin 80 mg is no longer recommend. For those people who are already taking and tolerating simvastatin 80 gm daily, it can be considered a high-intensity statin.</p>		

Assessing/Managing Muscle Symptoms during Statin Treatment

- ▶ Evaluate and treat muscle symptoms, including pain, tenderness, stiffness, cramping, weakness, or fatigue, in statin-treated patient:
 - To avoid unnecessary discontinuation, obtain a history of prior or current muscle symptoms to establish a baseline before initiating statin therapy.
 - If unexplained severe muscle symptoms or fatigue develop during statin therapy, promptly discontinue the statin and address the possibility of rhabdomyolysis by evaluating CK, creatinine, and a urinalysis for myoglobinuria.
 - If mild-to-moderate muscle symptoms develop during statin therapy:
 - Discontinue the statin until the symptoms can be evaluated.
 - Evaluate for other conditions that might increase risk for muscle symptoms (e.g., hypothyroidism, reduced renal or hepatic function, rheumatologic disorders (polymyalgia rheumatica), steroid myopathy, vitamin D deficiency, or primary muscle diseases.)
 - If muscle symptoms resolve and no contraindication exists, give patient the original or a lower dose of the same statin to establish a causal relationship between the muscle symptoms and statin therapy.
 - If a causal relationship exists, then discontinue the original statin. Once muscle symptoms resolve, use a low dose of a different statin.
 - Once a low dose of a statin is tolerated, gradually increase the dose as tolerated.
 - If muscle symptoms or elevated CK levels do not resolve completely, after 2 months without statin treatment, consider other causes of muscle symptoms listed above.
 - If persistent muscle symptoms are determined to arise from a condition unrelated to statin therapy, or if the predisposing condition has been treated, resume statin therapy at the original dose.
 - If presenting with a confusional state or memory impairment while on statins, consider evaluation for nonstatin causes (e.g., exposure to other drugs, systemic and neuropsychiatric causes, etc.), as well as adverse effects associated with statin therapy.

Nonstatin Safety Recommendations

Niacin

- ▶ Order baseline hepatic transaminases, fasting blood glucose or hemoglobin A1C, and uric acid before initiating niacin, and again during up-titration to a maintenance dose and periodically thereafter.
- ▶ Do not use niacin if:
 - Hepatic transaminase elevations are higher than 2 to 3 times ULN.
 - Persistent severe cutaneous symptoms, persistent hyperglycemia, acute gout or unexplained abdominal pain or gastrointestinal symptoms occur.
 - New-onset atrial fibrillation or weight loss occurs.
- ▶ If adverse effects from niacin, reconsider potential for ASCVD benefits and adverse effects before reinitiating niacin therapy.
- ▶ To reduce the frequency and severity of adverse cutaneous symptoms:
 - Start niacin at a low dose and titrate to a higher dose over a period of weeks as tolerated.
 - Take niacin with food or premedicating with aspirin 325 mg 30 minutes before niacin dosing to alleviate flushing symptoms.
 - If an extended-release preparation is used, increase the dose of extended-release niacin from 500 mg to a maximum of 2,000 mg/day over 4 to 8 weeks, with the dose of extended release niacin increasing not more than weekly.
 - If immediate-release niacin is chosen, start at a dose of 100 mg 3 times daily and up-titrate to 3 g/day, divided into 2-3 doses.

Bile Acid Sequestrants (BAS)

- ▶ Do not use BAS in individuals with baseline fasting triglyceride levels ≥ 300 mg/dL or type III hyperlipoproteinemia, because severe triglyceride elevations might occur. (A fasting lipid panel should be obtained before BAS is initiated, 3 months after initiation, and every 6 to 12 months thereafter.)
- ▶ Use BAS with caution if baseline triglyceride levels are 250 to 299 mg/dL, and evaluate a fasting lipid panel in 4 to 6 weeks after initiation. Discontinue the BAS if triglycerides exceed 400 mg/dL.

Cholesterol-Absorption Inhibitors

- ▶ Obtain baseline hepatic transaminases before initiating ezetimibe. When ezetimibe is coadministered with a statin, monitor transaminase levels as clinically indicated, and discontinue ezetimibe if persistent ALT elevations >3 times ULN.

Fibrates

- ▶ Do not use gemfibrozil in patients on statin therapy due to an increased risk for muscle symptoms and rhabdomyolysis.
- ▶ Consider fenofibrate concomitantly with a low- or moderate-intensity statin only if the benefits from ASCVD risk reduction or triglyceride lowering when triglycerides are ≥ 500 mg/dL, are judged to outweigh the potential risk for adverse effects.
- ▶ Evaluate renal status before fenofibrate initiation, within 3 months after initiation, and periodically thereafter. Assess renal safety with both a serum creatinine level and an eGFR based on creatinine.
 - If eGFR is between 30 and 59 mL/min per 1.73 m², do not exceed a dose of 54 mg/day of fenofibrate.
 - Do not use fenofibrate if moderate or severe renal impairment, defined as eGFR <30 mL/min per 1.73 m², is present.
 - If during follow-up the eGFR decreases persistently to ≤ 30 mL/min per 1.73 m², then discontinue fenofibrate.

Omega-3 Fatty Acids

- ▶ If using EPA and/or DHA for severe hypertriglyceridemia (TG ≥ 500 mg/dL), evaluate for GI disturbance, skin change, and bleeding.

DISCLAIMER

Kaiser Permanente Clinical Practice Guidelines, Clinician Guides, and Practice Tools/Resources have been developed to assist clinicians by providing an analytical framework for the evaluation and treatment of selected common problems encountered in patients. They are not intended to establish a protocol for all patients with a particular condition. While the guidelines provide one approach to evaluating a problem, clinical conditions may vary significantly from individual to individual. Therefore, the clinician must exercise independent judgment and make decisions based upon the situation presented. While great care has been taken to assure the accuracy of the information presented, the reader is advised that KP cannot be responsible for continued currency of the information, for any errors or omissions in this guideline, or for any consequences arising from its use. These recommendations are not used to make utilization management determinations regarding the medical necessity of a member's care. ■