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Stroke Prevention Strategy: Cholesterol Management

September 2021

Implementation of Quality Improvement Initiatives to
Improve Diabetes and Hypertension



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Purpose of Module

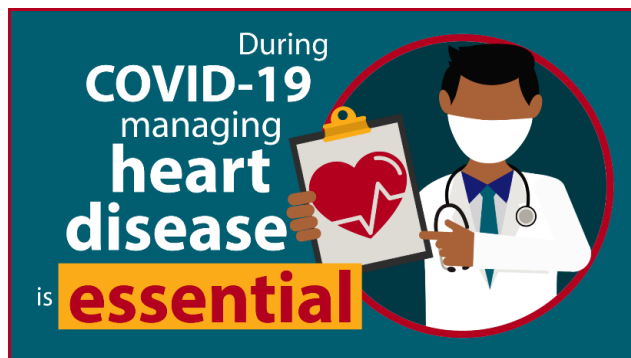
Quality Insights provides on-site and virtual technical assistance to practices who are dedicated to improving cardiovascular (CV) health across their patient population. As an active participant in the [Delaware Division of Public Health's Quality Improvement in Hypertension and Uncontrolled Diabetes Project](#), this practice module is designed to support and supplement practice quality improvement efforts related to CV health and cholesterol management.

Sections are highlighted by the “3 A’s” – **Awareness, Assessment, and Action** – and include many tools and resources found in the module as well as the [Quality Insights website](#).



Note: Guidelines referenced in this module are provided in brief, summary format. Full recommendations should be reviewed in the original publication(s) and utilized with physician/clinician judgment, treatment, and based on individual patient's unique needs and circumstances.

Introduction



During the current Coronavirus (COVID-19) pandemic, CV health remains a top public health priority. Not only have there been more deaths from cardiovascular disease during the pandemic, but people who have serious heart conditions are also at high risk for severe illness from COVID-19.

Quality Insights joins the Centers for Disease Control and Prevention (CDC) [Million Hearts®](#)

[initiative](#) and health organizations across the nation in spotlighting the importance of maintaining heart health, especially during COVID-19. [Check out this CDC-approved PSA reminding Americans to guard their heart health](#), especially during this pandemic.

Million Hearts® resources for the health care community:

- [COVID-19 and Cardiovascular Disease Partner Toolkit](#): Access resources approved by CDC's Division for Heart Disease and Stroke Prevention to encourage individuals to continue seeking cardiovascular care.
- [Millions Hearts® Action Guides](#): Access evidence-based strategies for improving CV health.
- Sign up for the [Million Hearts® e-Update newsletter](#) to say up-to-date on all the latest Million Hearts® news and activities.
- Connect with other health care professionals and share the latest in cardiovascular health from the [Million Hearts® LinkedIn Showcase page](#).

Awareness: Identifying Evidence-Based Guidelines

The [2018 Guideline on the Management of Blood Cholesterol](#), published in the journal [Circulation](#), is a full revision of the 2013 American College of Cardiology (ACC)/American Heart Association (AHA) Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults. It provides current cholesterol-lowering recommendations, including lifestyle interventions, statin and non-statin regimens, risk assessment tools, and management of specific patient populations. A [Guidelines Made Simple summary](#) is also available and highlights key messages as abbreviated below:

Top Ten Take-Home Messages to Reduce Risk of Atherosclerotic Cardiovascular Disease (ASCVD) through Cholesterol Management	
1	In all individuals, emphasize heart-healthy lifestyle across the life-course.
2	In patients with clinical ASCVD, reduce low-density lipoprotein cholesterol (LDL-C) with high-intensity statin therapy or maximally tolerated statin therapy.
3	In very high-risk ASCVD patients, use an LDL-C threshold of 70 mg/dL to consider the addition of non-statins to statin therapy.
4	In patients with severe primary hypercholesterolemia (LDL-C level ≥ 190 mg/dL), without calculating 10-year ASCVD risk, begin high-intensity statin therapy without calculating 10-year ASCVD risk.
5	In patients 40-75 years of age with diabetes mellitus and LDL-C ≥ 70 mg/dL, start moderate-intensity statin therapy without calculating 10-year ASCVD risk.
6	In adults 40-75 years of age evaluated for primary ASCVD prevention, have a clinician-patient risk discussion before starting statin therapy.
7	In adults 40-75 years of age without diabetes mellitus and with LDL-C levels ≥ 70 mg/dL, at a 10-year ASCVD risk of ≥ 7.5 percent, start a moderate-intensity statin if a discussion of treatment options favors statin therapy.
8	In adults 40 to 75 years of age without diabetes mellitus and 10-year risk of 7.5 percent to 19.9 percent (intermediate risk), risk-enhancing factors favor initiation of statin therapy (see #7).
9	In adults 40 to 75 years of age without diabetes mellitus and with LDL-C levels ≥ 70 mg/dL at a 10-year ASCVD risk of ≥ 7.5 percent to 19.9 percent, if a decision about statin therapy is uncertain, consider measuring CAC.
10	Assess adherence and percentage response to LDL-C-lowering medications and lifestyle changes with repeat lipid measurement 4 to 12 weeks after statin initiation or dose adjustment, repeated every 3 to 12 months, as needed.

Download the AHA Guidelines on-the-go Mobile App and stay up-to-date no matter where you are. Actionable at the point of care, users will be able to retrieve relevant pieces of content while also having access to additional support detail and evidence.

- [Download for iPhone/iOS](#)
- [Download for Android](#)



Early Prevention is Key for Children & Adolescents

BE ALERT EARLY

Take a “Lifespan” approach to lower heart disease risk, stroke and other major problems. If there’s a family history, it’s reasonable to test children as young as two.

Source: [AHA](#)



A scientific statement, [Cardiovascular Risk Reduction in High-Risk Pediatric Patients](#), released by the AHA in 2019, cites an estimated **≈6 percent of all youth 2 to 19 years old (equating to >4,000,000 children and adolescents) are afflicted with severe obesity in the United States**. Unlike moderate (class I) obesity or overweight, rates of severe obesity have increased over the past decade.

The report, in addition to the challenges of the COVID-19 pandemic, highlights that **children and adolescents may be at higher risk for cardiovascular disease**. Primary prevention of atherosclerotic cardiovascular disease (ASCVD) over the lifespan requires attention to

prevention or management of ASCVD risk factors beginning early in life.

Risk-Enhancing Factors

The guideline states that although LDL-C is a primary cause of atherosclerosis, other contributing risk factors exist. The **major risk factors** include cigarette smoking, hypertension, dysglycemia, and other lipoprotein abnormalities. Because atherosclerosis progresses with advancing age, a person’s age also counts as a risk factor. Additionally, the guideline adds factors like family history (see information on [Familial Hypercholesterolemia](#)) and ethnicity, as well as certain health conditions such as metabolic syndrome, chronic kidney disease, chronic inflammatory conditions, premature menopause, pre-eclampsia, and high lipid biomarkers. [Risk-enhancing Factors for Clinician-Patient Risk Discussion are outlined in the guideline on page 13.](#)

See the American Diabetes Association’s (ADA) [Cardiovascular Disease and Risk Management: Standards of Medical Care in Diabetes--2021](#), for more information on cardiovascular risk management in patients with diabetes and hypertension.

GENETICS MATTER

Some populations are more prone to certain medical conditions and could have racial and/or ethnic features that could influence risk. Tools used for risk assessment are not always able to provide accurate information about all populations or individuals.

Source: [AHA](#)



Awareness Resources for Providers:

- [ACC Comparison Tool: 2013-2018](#): Review side-by-side comparison of guideline recommendations.
- [ACC Cholesterol Guideline Hub](#): Use the Hub to locate comprehensive, easy-to-navigate resources to help both you and your patients put the guidelines into practice.
- [AHA Cholesterol Management Guide for Health Care Professionals](#): A convenient guide designed to assist professionals in addressing, diagnosing, and managing their patients’ cholesterol.
- [Heart Disease and Stroke Statistics—2021 Update: A Report from the AHA](#)
- *Journal of the American Medical Association* (August 2021): Research Letter: [Changes in Body Mass Index Among Children and Adolescents During the COVID-19 pandemic](#)

Assessment: Knowing the Numbers, Using the Tools

MONITOR

People over 20 who don't have cardiovascular disease should have a risk assessment every 4-6 years.

Source: [AHA](#)



Monitoring Cholesterol Levels in Adults

The [AHA recommends](#) all adults age 20 or older should have their cholesterol (and other traditional risk factors) checked every four to six years as long as their risk remains low. After age 40, 10-year risk of having heart attack or stroke should be calculated (see page 7). People with cardiovascular disease, and those at elevated risk, may need their cholesterol and other risk factors assessed more often.

The guideline outlines these values as acceptable, borderline, and high measurements for adults. All values are in mg/dL (milligrams per deciliter):

Rating	Total Cholesterol	HDL Cholesterol	LDL Cholesterol	Triglycerides
Good	Less than 200	Ideal is 60 or higher; 40 or higher for men and 50 or higher for women is acceptable	Less than 100; below 70 if coronary artery disease is present	Less than 149
Borderline	200–239	N/A	130–159	150–199
High	240 or higher	N/A	160 or higher; 190 considered very high	200 or higher; 500 considered very high
Low	N/A	less than 40	N/A	N/A

Monitoring Cholesterol Levels in Children & Adolescents

Children who are physically active, have a healthy diet, aren't overweight, and don't have a family history of high cholesterol are at a lower risk for having high cholesterol. However, abnormal lipid levels are relatively common in children and adolescents, [affecting approximately 1 in 5 adolescents](#).

The 2018 guideline prioritizes the identification of children, adolescents, and young adults with familial hypercholesterolemia, as well as estimation of lifetime risk and promotion of lifestyle risk reduction. In children and adolescents without cardiovascular risk factors or family history of early cardiovascular disease (CVD), it may be reasonable to measure a fasting lipid profile or

As of September 2021, the United States Preventive Services Task Force (USPSTF) is updating its Recommendation Statement for *Lipid Disorders in Children and Adolescents: Screening*. [Visit the USPSTF website to stay up-to-date with progress.](#)



nonfasting non-HDL cholesterol once between the ages of 9 and 11 years, and again between the ages of 17 and 21 years, to detect moderate to severe lipid abnormalities. Screening is advised beginning at age 2 years if a family history is suggestive of either early CVD or significant primary hypercholesterolemia.

The table below includes the guideline-recommended cholesterol levels for children. All values are in mg/dL (milligrams per deciliter).

Rating	Total Cholesterol	HDL Cholesterol	LDL Cholesterol	Triglycerides
Good	170 or less	Greater than 45	Less than 110	Less than 75 in children 0–9; less than 90 in children 10–19
Borderline	170–199	40–45	110–129	75–99 in children 0–9; 90–129 in children 10–19
High	200 or higher	n/a	130 or higher	100 or more in children 0–9; 130 or more in children 10–19
Low	N/A	Less than 40	N/A	N/A

ASCVD Risk Assessment

The use of quantitative 10-year risk assessment, based on measurement of traditional ASCVD risk factors and with use of a validated risk prediction tool, is an important first step in considering treatment options for primary prevention.

The ASCVD Risk Estimator Plus, intended and validated for use in patients aged between 40–75, is currently recommended for assessing a patient’s 10-year CVD risk or lifetime risk estimation in younger adults to inform intensity of statin dosing. The tool is available by app from both the [ACC](#) and [AHA](#), or by accessing the [online version](#). A [patient-facing risk calculator](#) is also available from AHA.

Coronary Artery Calcium (CAC) Score

Among patient’s ≥40 years with an uncertain risk status, calculating the [coronary artery calcium \(CAC\) score](#) is recommended to help with prevention and/or treatment decision-making. This non-invasive CT scan of the heart calculates risk of developing coronary artery disease (CAD) by measuring the amount of calcified plaque in the coronary arteries. For selected examples of candidates for CAC measurement who might benefit from knowing they have a 0 CAC score, see page 15 of the [2018 Guidelines Made Simple](#).

Assessment Resources for Providers:

- [ACC Cholesterol Guideline Tool: Overview of Primary & Secondary Prevention](#)
- [2019 AHA/ACC Special Report: Use of Risk Assessment Tools to Guide Decision-Making in the Primary Prevention of Atherosclerotic Cardiovascular Disease](#)
- [2020 AHA Circulation: Cardiovascular Imaging research article: Predictive Value of Coronary Artery Calcium Score Categories for Coronary Events Versus Strokes: Impact of Sex and Race](#)

Action: Improving Health Across the Lifespan

Lifestyle Change Programs & Modifications

FOCUS ON LIFESTYLE

Healthy eating and physical activity are proven to lower LDL cholesterol.

Source: [AHA](#)



Recommendations for living a healthy lifestyle, comprised of eating a nutrient-dense diet and the inclusion of regular physical activity, remain a focal point of the 2018 AHA/ACC cholesterol guidelines as well as the [2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease](#).

The CDC recommends the following evidence-based lifestyle change programs as appropriate choices for referral of adults with high blood cholesterol:

- [Weight Watchers \(WW\)](#)
- [Taking Off Pounds Sensibly \(TOPS\)](#)

The following lifestyle modification resources and referral recommendations are included in the 2018 guideline as part of the [Checklist for Clinician-Patient Shared Decision-Making for Initiating Therapy](#).

- [AHA Life's Simple 7](#): Easy-to-follow instructions on how to manage blood pressure, control cholesterol, reduce blood sugar, get active, eat better, lose weight, and stop smoking.
- [ACC CardioSmart® Patient Fact Sheets: High Cholesterol](#) and [Healthy Living resources](#)
- [National Lipid Association \(NLA\) Patient Tear Sheets](#)
- [Preventive Cardiovascular Nursing Association \(PCNA\) Heart Healthy Toolbox](#)
- Referral to [cardiac rehabilitation](#), [registered dietitian](#) and/or [smoking cessation program](#)



[The University of Delaware Cooperative Extension programs](#) are designed to help individuals make healthy food choices and lead a physically active lifestyle. Visit the [University of Delaware's Nutrition & Wellness Event website](#) and view their event calendar to locate no-cost programs available to patients on a rotating schedule.

[Healthy Delaware](#) recognizes that the path to preventing chronic disease starts with little choices. Its patient-facing [Healthy Living website](#) offers a variety of tips and tools to eat better, increase physical activity, avoid stress, and promote regular checkups and screenings.

Pharmacy-Based Interventions for Lifestyle Change

The [Community Preventive Services Task Force \(CPSTF\)](#) recommends tailored pharmacy-based adherence interventions for cardiovascular disease prevention. Evidence shows interventions delivered by pharmacists in community and health system pharmacies increased the proportion of patients who reported taking medications as prescribed. The CPSTF also finds these interventions are cost-effective for cardiovascular disease prevention.



The **Delaware Pharmacists Society (DPS)** offers medication therapy management (MTM) to patients living with CVD and/or diabetes. If your patients could benefit from a pharmacist consult, they can send their name and phone number to [DPS via email](#) and be connected to this service. [Learn more about their MTM program here](#), and [download this fax form to make a referral](#).

Statin & Non-Statin Therapy

In addition to lifestyle interventions, statins continue to be the cornerstone of therapy for lipid management. High-intensity, moderate-intensity, and low-intensity statin therapies lower LDL-C levels by ≥ 50 percent, 30 to 49 percent, and < 30 percent, respectively. Recommended statin regimens for each intensity level include:

- **High-Intensity Therapy:** 80mg atorvastatin (40mg: down titration if intolerable to 80mg) and 20mg rosuvastatin (40mg)
- **Moderate-Intensity Therapy:** 10mg atorvastatin (20mg) and 10mg rosuvastatin (5mg) and 20mg to 40mg simvastatin or 40mg pravastatin (80mg) and 40mg lovastatin (80mg) and 80mg fluvastatin XL and 40mg fluvastatin BID and pitavastatin
- **Low-Intensity Therapy:** 10mg simvastatin or 10mg to 20mg pravastatin and 20mg lovastatin and 20mg to 40mg fluvastatin.

In very high-risk ASCVD, use an LDL-C threshold of 70 mg/dl (1.8 mmol/L) to consider addition of nonstatins to statins.

KEEP MONITORING

People age 40-75 are most likely to need medicine. Among the many factors that could further increase risk:

- Family history of heart disease and stroke
- High triglycerides
- Metabolic syndrome
- Chronic kidney disease
- Chronic inflammatory conditions, such as rheumatoid arthritis, psoriasis or HIV
- History of pre-eclampsia or early menopause
- Ethnicity



Source: [AHA](#)

It is reasonable to add ezetimibe to maximally tolerated statin therapy when the LDL-C level remains ≥ 70 mg/dl (≥ 1.8 mmol/L). In patients at very high risk whose LDL-C level remains ≥ 70 mg/dl on maximally tolerated statin and ezetimibe therapy, adding a PCSK9 inhibitor is reasonable, although the long-term safety (> 3 years) is uncertain and cost-effectiveness is low at mid-2018 prices.

Clinicians are recommended to assess for medication adherence and efficacy at 4 to 12 weeks using a fasting lipid test. Retests for adherence and efficacy should then occur at every three to twelve months, depending on the patient.



Shared Decision-Making and Statin Choice

The Mayo Clinic's Statin Choice Decision Aid is another recommended, evidence-based, [shared decision-making tool](#) regarding statin choice intervention. This tool is designed to assist providers in determining individualized estimation of risks and benefits with and without statins.

Learn more about the Statin Choice Decision Aid and how you can integrate its use into

standard practice workflow by [viewing the demo video presentation](#) and accessing the [Statin Choice Toolkit](#).

Leveraging the Care Team to Address Barriers in Statin Adherence

A [2019 article](#) featured in *U.S. Pharmacist* cites nonadherence to statin therapy as a pervasive issue that can lead to poor health outcomes, including cardiovascular disease-related emergency department visits, health care costs, and mortality. A comprehensive care team approach rooted in understanding the causes behind patient nonadherence and being willing to work with a nonadherent patient may improve future adherence or adherence with other caregivers.

Predictors of Statin Nonadherence	Predictors of Statin Adherence
<ul style="list-style-type: none">• Muscle-related effects• Cognitive or memory problems• New-onset diabetes• Adults aged 50 years or younger and aged 70 years or older• Female• African Americans or Hispanic patients• Low income patients• Low health literacy• Patients without coronary heart disease (CHD)• Financial barriers, including copays	<ul style="list-style-type: none">• Middle age• Male• White ethnicity• Higher income• Cardiovascular disease• Comorbidities• Follow-up monitoring• Cardiologist care

The following chart from a [2021 article](#) in *U.S. Pharmacist* offers a summary of existing adherence-enhancing strategies health care teams can utilize in their efforts to improve statin adherence.

Initial Active Measures for Improvement of Patient-Adherence Outcomes	
Recommended Measure	Action to Facilitate Improved Adherence
Provide a rationale for treatment	<ul style="list-style-type: none"> Identify and support patient's specific reasons for treatment and lifestyle changes Address misperceptions of CVD risk Reinforce the medical benefits of treatment
Use motivational interviewing strategies	<ul style="list-style-type: none"> Seek patient's perspective on taking medication and making lifestyle changes Express acceptance and support for patient's difficulties and successes Affirm patient's freedom to choose the best course of action Provide research-based evidence of success in accomplishing treatment adherence
Identify and address general barriers to adherence	<ul style="list-style-type: none"> Assess suspected cognitive impairment or psychopathology using questions regarding mood, coping, sleep, and appetite disturbance Collaborate with caregivers to assess treatment motivation by asking patient why they want to undergo treatment and encouraging patient to voice personal and medical reasons for treatment Assess functional illiteracy by asking patient to recall comprehension Clarify and tailor explanation based on the need for further understanding
Collaborate on the treatment plan	<ul style="list-style-type: none"> Incorporate health beliefs and concerns into treatment plan by allowing patient to come to the best-information decision for himself or herself
Identify and address specific barriers to implementation	<ul style="list-style-type: none"> Collaborate with family/caregivers and patient to formulate a change Address financial and functional barriers to treatment and barrier beliefs regarding medications or lifestyle changes Confirm agreement and patient understanding by asking patient to describe schedule and specific directions for taking medications Define the lifestyle treatment goal and method for achieving it
Encourage patient to obtain social support for treatment	<ul style="list-style-type: none"> Discuss with patient how to locate support groups in which other patients are making similar changes (this is helpful in reinforcing positive health motivations and behaviors)
Set up frequent follow-ups	<ul style="list-style-type: none"> Utilize information on past medication fills to identify patients at risk for nonadherence so that time constraints and limited resources can be addressed Increase touchpoints (phone, messages) with at-risk patients to answer questions, monitor and address cessation of treatment, and reinforce motivation for continuing engagement in medical treatment or lifestyle change.

Consider supplementation	<ul style="list-style-type: none"> Share evidence-based literature with the patient: 1) In 2 small cohort studies, >90% of patients previously intolerant of statins and with low baseline vitamin D levels were able to adhere to statins one year after vitamin D supplementation. 2) Vitamin D supplementation as adjunct therapy for patients on long-term statins merits further investigation, but it may play a role (supplementation theoretically may lead to reduction in statin-induced myopathy) and should be discussed with both physician and patient.
Consider possibility of medication intolerance	<ul style="list-style-type: none"> Ask clarifying questions to determine the cause and work with physician to rechallenge with the same or a different statin or a lower dose, and if that fails, initiate a trial of intermittent nondaily dosing. Know the medication's potency, hydrophilicity, and elimination half-life (see Table 4 in link), which can help determine the best option.

Care Team and Medication Adherence Resources for Providers

- [ACC LDL-C Manager App](#): A free app that guides clinicians through one continuous lipid-lowering process by linking three tools – the ASCVD Risk Estimator, Statin Intolerance app, and the Lipid-Lowering Therapy Pathway tool – all based on up-to-date ACC clinical policy.
- [The Adherence Estimator®](#): A patient-centered tool designed to help care teams gauge a patients' likelihood of adhering to newly prescribed oral medication for certain chronic, asymptomatic conditions.
- [National Association of Community Health Centers \(NACHC\) Statin Therapy for High-Risk Patients Provider Training Package](#)
- [Million Hearts® Protocol Library](#): Offers a variety of evidence-based protocols for cholesterol management, tobacco cessation and hypertension treatment that can be utilized in the outpatient setting.
- **Quality Insights Care Team Tools:**
 - [Care Team Interventions to Implement American Heart Association CVD Primary Prevention Guidelines](#)
 - White Paper: [Team Up for Quality Care: The Role of Primary Care Teams in Prevention of Cardiovascular Disease](#)
 - [2021 Care Team Practice Module and Medication Adherence Practice Module](#)

Social Determinants of Health: Statin Considerations for Underserved Populations

A [2019 study published in the *Journal of the American Heart Association*](#) documented that although statins are recommended with a high level of evidence for four primary prevention benefit groups (clinical ASCVD, severe hypercholesterolemia, diabetes mellitus in adults, and those with an ASCVD 10-year risk greater ≥ 7.5 percent), prescribing disparities still exist. The effects of race on statin prescribing for primary prevention with high ASCVD risk were evaluated from 2013-2018 in a large academic health system and concluded that blacks are less like to be prescribed a statin in the diabetes mellitus and

ASCVD >7.5 percent groups compared with whites. Blacks <60 years of age were less likely to be prescribed statins compared with those 60 to 69 and 70 to 79 years of age.

Improved efforts for primary prevention of ASCVD with tailored interventions targeting patients with multiple vulnerabilities are needed to optimize statin utilization.

When identifying patients who have elevated cholesterol levels, providers and clinical staff can help underserved populations prevent progression by:

- Assessing [social determinants of health](#) by collecting and analyzing race, ethnicity and preferred language data (using the [PRAPARE tool](#)) with the goal of integrating services to meet identified needs of patients.
- Making efforts to partner and support community champions who specifically target underserved populations in their geographic areas.
- Providing [educational materials developed in multiple languages](#) and at appropriate [health literacy levels](#).



Ready to Learn More?

Access [Quality Insights' Social Determinants of Health practice module](#) to learn about action steps your practice can take to identify and address the needs of your patients both individually and as a population.

Did You Know?

Education is one of the strongest determinants of heart disease and this may be in part due to less access to care in those with lower education attainment.



Learn more about the global correlation between socioeconomic status and a person's susceptibility to heart attacks and strokes in this [2019 cohort study](#) published in *The Lancet: Global Health*.

The EHR & You: Three Tips for Streamlined Cholesterol Management

In the limited amount of face-to-face time providers have with their patients, the ability to directly focus on their needs, instead of a screen, is critical. Below are three key ways you can utilize your electronic health record (EHR) to improve overall cholesterol management without losing valuable interaction time.

1. Mind Your Measures

While it can be challenging to keep up with the quality measure landscape, collecting, analyzing and sharing cholesterol management measure data can assist you in raising awareness of opportunities for improvement, measuring progress of implemented workflows and strengthening care coordination. If you aren't sure where to start, click here to [learn more about CMS 347/MIPS438/ACO-42](#): Statin Therapy for the Prevention and Treatment of Cardiovascular Disease.



2. Document Referrals in Structured Data Fields

You may already be in the habit of regularly referring your patients to evidence-based lifestyle change programs that can decrease cholesterol levels. By ensuring referrals are entered into [structured data fields](#), you can readily account for who and how many patients are being referred, what types of programs are most often utilized, and run reports to ensure feedback reports are obtained from referral partners.

3. Utilize EHR Alerts

Most EHRs have the capacity to provide clinical reminders (also known as [Clinical Decision Support or CDS](#)), a type of alert triggered by a parameter such as time and data, high/low threshold, or clinical indication such as the need to check a patient's cholesterol levels. Using these reminders can be especially helpful in high-volume practice settings where it can be challenging to readily identify or remember important health maintenance information.

While CDS tools are helpful to electronic health record (EHR) users, they are also primarily linked to clinician burden and alert fatigue. Users and developers can decrease clinician burden if they can improve alert relevance, garner end-user feedback, customize alerts for the clinician, measure outcomes and metrics, and continuously optimize, according to a [study](#) published in the *Yearbook of Medical Informatics*. Learn more in this *EHR Intelligence* article, [5 Ways to Improve CDS Tools, Minimize Clinician Burden](#).

Patient Education Toolkit for Cholesterol Management

Education Theme	Tools	Title	Description
Cholesterol Management	American Heart Association	My Cholesterol Guide: Take Action. Live Healthy!	Free guide designed to help patients understand & manage cholesterol
	American Heart Association	Downloadable Patient Education Resources	Access fact sheets, videos, and other interactive resources
	Foundation of the National Lipid Association	Lipid and Blood Pressure Management Video Education Lab	Offers free, patient-facing education videos on a variety of heart healthy topics
	Medline Plus	Cholesterol – Multiple Languages	Offers resources in Chinese, Spanish, French, Hindi, Japanese, Korean, Nepali, Russian, Somali, and Vietnamese
	National Forum for Heart Disease & Stroke Prevention	Counter Cholesterol™ Resources	Access infographics, fact sheets, and videos
	Preventive Cardiovascular Nurses Association	Tools and Handouts for Your Patients	Topics included statin and non-statin therapies, fact sheets, and a healthy lifestyle booklet
Familial Hypercholesterolemia (FH)	FH Foundation	What is Familial Hypercholesterolemia	Patient-facing resources and guidance on finding a FH specialist
	Foundation of the National Lipid Association	Definition of FH	Patient-facing fact sheet defining FH

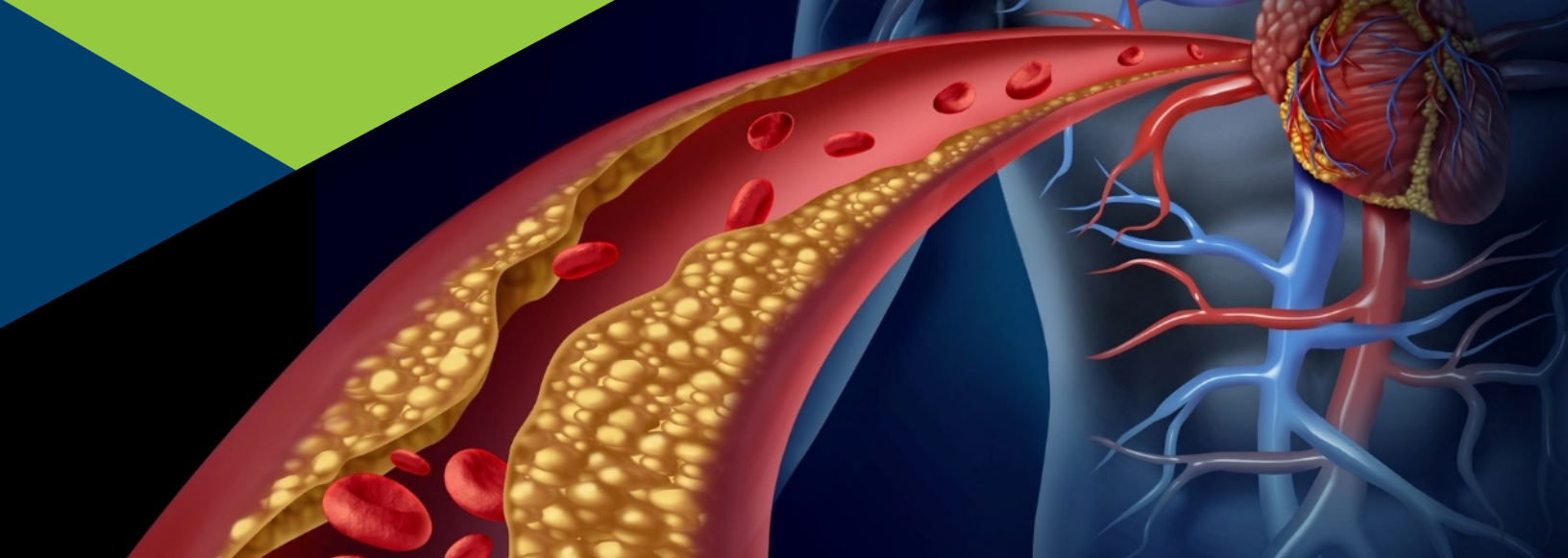
Education Theme	Tools	Title	Description
Heart Disease and Women	Foundation of the National Lipid Association	Reduce Your Risk for Heart Disease Infographic	Available in English and Spanish
	National Forum for Heart Disease & Stroke Prevention	How Important is Mom's Heart Health?	Patient-facing education website available at countercholesterol.org
Heart Healthy Lifestyle	Health.gov	Move Your Way® Campaign Materials	Includes fact sheets, posters, videos, and interactive tools for a variety of demographics
	U.S. Department of Agriculture	MyPlate: Healthy Eating on a Budget	Budget-friendly and healthy meal planning resources
	Foundation of the National Lipid Association	Shopping List for Heart Healthy Eating on a Budget	Downloadable shopping list available in English and Spanish
	Million Hearts®	Recipes for a Heart-Healthy Lifestyle	Access a variety of healthy eating resources, recipes, and meal planning information
	Healthy Delaware	Chronic Disease Patient Education Materials	Free materials to download or order. Many items are available in multiple languages, including Spanish and Haitian Creole.
Non-statin Therapies	American College of Cardiology	Beyond Statins: Other LDL-C Lowering Treatments	Includes information about ezetimibe and PCSK9 inhibitors.
Statin Therapy	American College of Cardiology	Straight Talk about Statins	Addresses common concerns and questions related to statin therapy
	CDC and Million Hearts	How Do Statins Prevent Heart Attacks and Strokes?	Short, animated video explains the importance of statins and how they work
	Million Hearts	The Scoop on Statins: What Do You Need to Know?	Provides answers to frequently asked questions about statins
	National Lipid Association	Diabetes Mellitus, Heart Disease, and Statins	Describes the relationship between diabetes and heart disease
	National Association of Community Health Centers	How Do Statins Prevent Heart Attacks and Strokes	Includes links to patient education animation and infographic, available in English and Spanish
	National Association of Community Health Centers	Statins and Lifestyle: Patient Education Infographic	Available in English and Spanish

Contact Quality Insights



Would your staff and patients benefit from additional cholesterol management training and educational resources? We invite you to take advantage of the **no-cost assistance** available from Quality Insights to elevate your practice's quality improvement efforts around cardiovascular health and cholesterol management. Please email [Ashley Biscardi](#) or call **1.800.642.8686, Ext. 137** for more details.

Visit the Quality Insights website to access our online [resource library](#) and [practice module archive](#) for additional guidance and tools related to hypertension and diabetes prevention and management.



Workflow Modifications: Actions Your Practice Can Take to Improve Cholesterol Management

Providers and practices who are actively engaged in the [Delaware Division of Public Health Quality Improvement in Hypertension and Uncontrolled Diabetes Project](#) have the benefit of scheduling a no-cost workflow assessment (WFA) with a local Quality Insights Practice Transformation Specialists (PTS). WFAs are completed **annually** and designed to initiate a future state of processes that will move the needle on clinical quality improvement activities.

The following list includes solutions aimed at achieving better patient outcomes in cooperation with the WFA. **We encourage you to partner with your Quality Insights PTS to discuss scheduling a WFA and implementing at least ONE of the recommendations listed below.**

Electronic Health Record (EHR) Actions

	Obtain an inventory of patients with low-density lipoprotein cholesterol (LDL-C) greater than 100 mg/dl to track over time.
	If EHR is capable, execute NQF reports at race and ethnicity levels. Partner with Quality Insights to conduct a pilot to report these quality measures.
	Activate a clinical decision support (CDS) reminder for LDL >100 mg/dl.
	Activate clinical decision support (CDS) reminders for patients with high cholesterol for referral to lifestyle change program such as Weight Watchers, TOPS, and University of Delaware Cooperative Extension.
	Report cholesterol/statin measure (CMS 347/MIPS 438/ACO-42) annually and quarterly.
	Review and implement the PRAPARE tool or other social determinant of health (SDOH) EHR template.
	Evaluate EHR capabilities related to use of ICD-10-CM ("Z Codes") use. If already utilizing Z Codes, document use and report utilization.
	Partner with Quality Insights to mitigate barriers related to social determinants of health identification tools and ICD-10 coding.

Practice & Clinical Solutions

Using the 2021 Cholesterol Management Practice Module as a guide:

	Partner with Quality Insights to provide pharmacist-led Medication Therapy Management (MTM) at your clinic for individuals diagnosed with hypercholesterolemia and/or hypertension.
	Educate all members of the care team on lifestyle change programs including the providers who are key in patients accepting the recommendations.

Patient Education Actions

	Share community resources with patients promoting CDC-approved programs such as Weight Watchers (WW) and TOPS.
	Implement use of the Adherence Estimator® and suggested patient conversations to enhance medication adherence. Review Quality Insights' Medication Adherence learning module for more information.



The healthcare improvement experts.

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