

2019 ESC/EAS Guidelines for the management of dyslipidaemias: *lipid modification to reduce cardiovascular risk*

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Conflict of Interest:

Research support, speaking and consulting honoraria
from several diagnostic and pharmaceutical companies

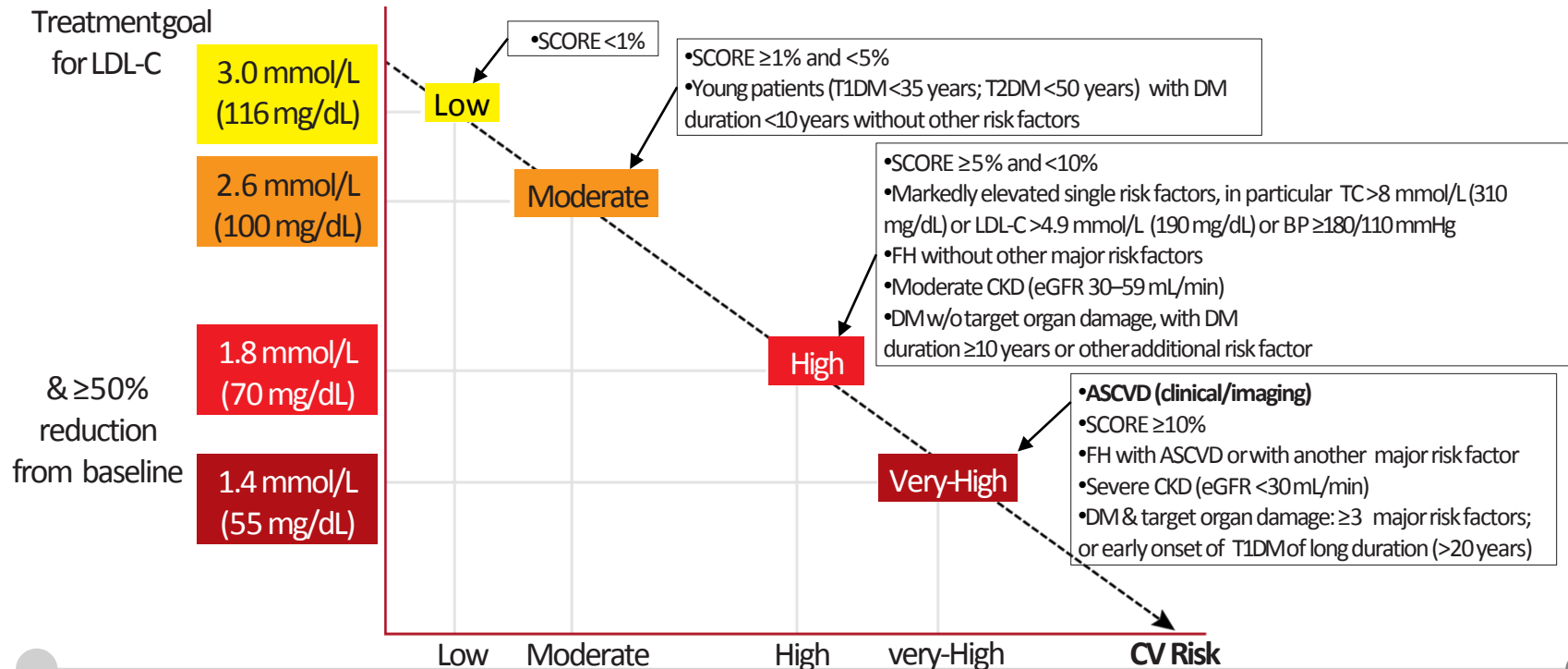
2019 ESC/EAS Guidelines for the management of dyslipidaemias: lipid modification to reduce cardiovascular risk (1)

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¹Representing the European Atherosclerosis Society (EAS)

Treatment goals for low-density lipoprotein cholesterol (LDL-C) across categories of total cardiovascular disease risk



New recommendations (1)

Cardiovascular imaging for assessment of ASCVD risk

Assessment of arterial (carotid and/or femoral) plaque burden on arterial ultrasonography should be considered as a risk modifier in individuals at low or moderate risk.

Cardiovascular imaging for assessment of ASCVD risk

CAC score assessment with CT should be considered as a risk modifier in the CV risk assessment of asymptomatic individuals at low or moderate risk.

Lipid analyses for CVD risk estimation

Lp(a) measurement should be considered at least once in each adult person's lifetime to identify those with very high inherited Lp(a) levels >180 mg/dL (>430 nmol/L) who may have a lifetime risk of ASCVD equivalent to the risk associated with heterozygous familial hypercholesterolaemia.

New recommendations (2)

Drug treatments of patients with hypertriglyceridaemia

In high-risk (or above) patients with TG between 1.5 and 5.6 mmol/L (135 - 499 mg/dL) despite statin treatment, n-3 PUFAs (icosapent ethyl 2 x 2g/day) should be considered in combination with statins.

Treatment of patients with heterozygous FH

In primary prevention, for individuals with FH at very-high risk, an LDL-C reduction of $\geq 50\%$ from baseline and an LDL-C goal of < 1.4 mmol/L (< 55 mg/dL) should be considered.

Treatment of dyslipidaemias in older people

Treatment with statins is recommended for primary prevention, according to the level of risk, in older people aged ≤ 75 .

Treatment of dyslipidaemias in older people

Initiation of statin treatment for primary prevention in older people aged > 75 may be considered, if at high risk or above.

New recommendations (3)

Treatment of dyslipidaemias in DM

In patients with T2DM at very-high risk, an LDL-C reduction of $\geq 50\%$ from baseline and an LDL-C goal of < 1.4 mmol/L (< 55 mg/dL) is recommended.

In patients with T2DM at high risk, an LDL-C reduction of $\geq 50\%$ from baseline and an LDL-C goal of < 1.8 mmol/L (< 70 mg/dL) is recommended.

Statins are recommended in patients with T1DM who are at high or very-high risk.

Treatment of dyslipidaemias in DM

Intensification of statin therapy should be considered before the introduction of combination therapy.

If the goal is not reached, statin combination with ezetimibe should be considered.

Treatment of dyslipidaemias in DM

Statin therapy is not recommended in pre-menopausal patients with DM who are considering pregnancy or not using adequate contraception.

Changes in recommendations (2)

2016	2019
Pharmacological LDL-C lowering	Pharmacological LDL-C lowering
If the LDL goal is not reached, statin combination with a cholesterol absorption inhibitor should be considered.	If the goals are not achieved with the maximum tolerated dose of statin, combination with ezetimibe is recommended.

Changes in recommendations (3)

2016	2019
Pharmacological LDL-C lowering	Pharmacological LDL-C lowering
In patients at very-high risk, with persistent high LDL-C despite treatment with maximal tolerated statin dose, in combination with ezetimibe or in patients with statin intolerance, a PCSK9 inhibitor may be considered.	For secondary prevention, patients at very-high risk not achieving their goal on a maximum tolerated dose of statin and ezetimibe, a combination with a PCSK9 inhibitor is recommended. For very-high-risk FH patients (that is, with ASCVD or with another major risk factor) who do not achieve their goals on a maximum tolerated dose of statin and ezetimibe, a combination with a PCSK9 inhibitor is recommended.

Changes in recommendations (4)

2016	2019
Drug treatments of hypertriglyceridaemia	Drug treatments of hypertriglyceridaemia
Statin treatment may be considered as the first drug of choice for reducing CVD risk in high-risk individuals with hypertriglyceridaemia.	Statin treatment is recommended as the first drug of choice for reducing CVD risk in high-risk individuals with hypertriglyceridaemia [TG >2.3 mmol/L (200 mg/dL)].

Changes in recommendations (5)

2016

Treatment of patients with heterozygous FH

Treatment should be considered to aim at reaching an LDL-C <2.6 mmol/L (<100 mg/dL) or in the presence of CVD <1.8 mmol/L (<70 mg/dL). If targets cannot be reached, maximal reduction of LDL-C should be considered using appropriate drug combinations.

2019

Treatment of patients with heterozygous FH

For FH patients with ASCVD who are at very-high risk, treatment to achieve at least a 50% reduction from baseline and an LDL-C <1.4 mmol/L (<55 mg/dL) is recommended. If goals cannot be achieved, a drug combination is recommended.

Changes in recommendations (6)

2016

Treatment of patients with heterozygous FH

Treatment with a PCSK9 antibody should be considered in FH patients with CVD or with other factors putting them at very-high risk for CHD, such as other CV risk factors, family history, high Lp(a), or statin intolerance.

2019

Treatment of patients with heterozygous FH

Treatment with a PCSK9 inhibitor is recommended in very-high-risk FH patients if the treatment goal is not achieved on maximal tolerated statin plus ezetimibe.

Changes in recommendations (7)

2016

Treatment of dyslipidaemias in older adults

Since older people often have comorbidities and have altered pharmacokinetics, lipid-lowering medication should be started at a lower dose and then titrated with caution to achieve target lipid levels that are the same as in younger people.

2019

Treatment of dyslipidaemias in older adults

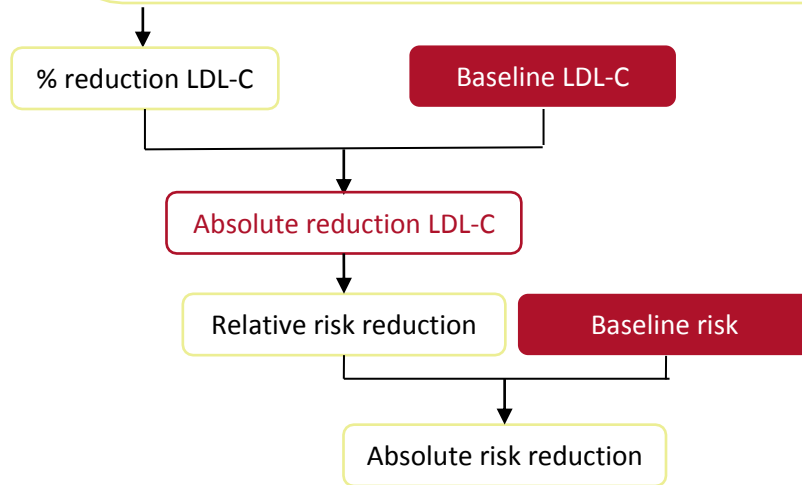
It is recommended that the statin is started at a low dose if there is significant renal impairment and/or the potential for drug interactions, and then titrated upwards to achieve LDL-C treatment goals.

Changes in recommendations (8)

2016	2019
Lipid-lowering therapy in patients with ACS	Lipid-lowering therapy in patients with ACS
If the LDL-C target is not reached with the highest tolerated statin dose and/or ezetimibe, PCSK9 inhibitors may be considered on top of lipid-lowering therapy; or alone or in combination with ezetimibe in statin-intolerant patients or in whom a statin is contraindicated.	If the LDL-C goal is not achieved after 4 - 6 weeks despite maximal tolerated statin therapy and ezetimibe, addition of a PCSK9 inhibitor is recommended.

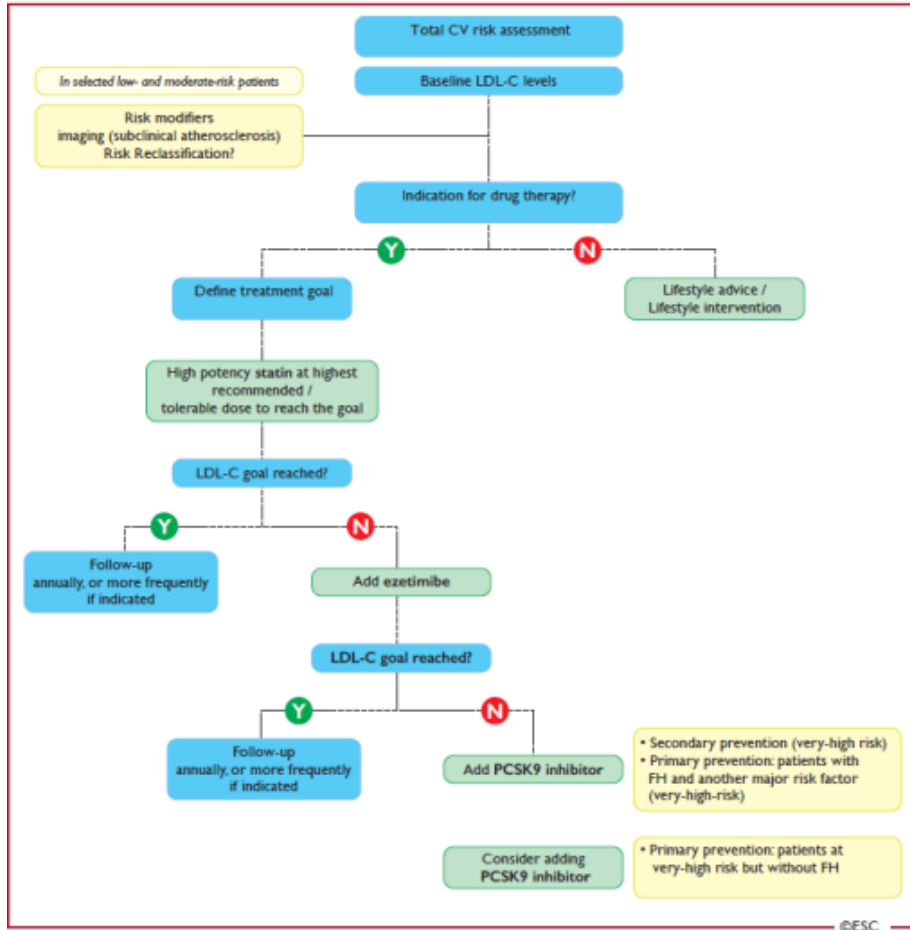
Intensity of lipid lowering treatment

Treatment	Average LDL-C reduction
Moderate intensity statin	≈ 30%
High intensity statin	≈ 50%
High intensity statin plus ezetimibe	≈ 65%
PCSK9 inhibitor	≈ 60%
PCSK9 inhibitor plus high intensity statin	≈ 75%
PCSK9 inhibitor plus high intensity statin plus ezetimibe	≈ 85%



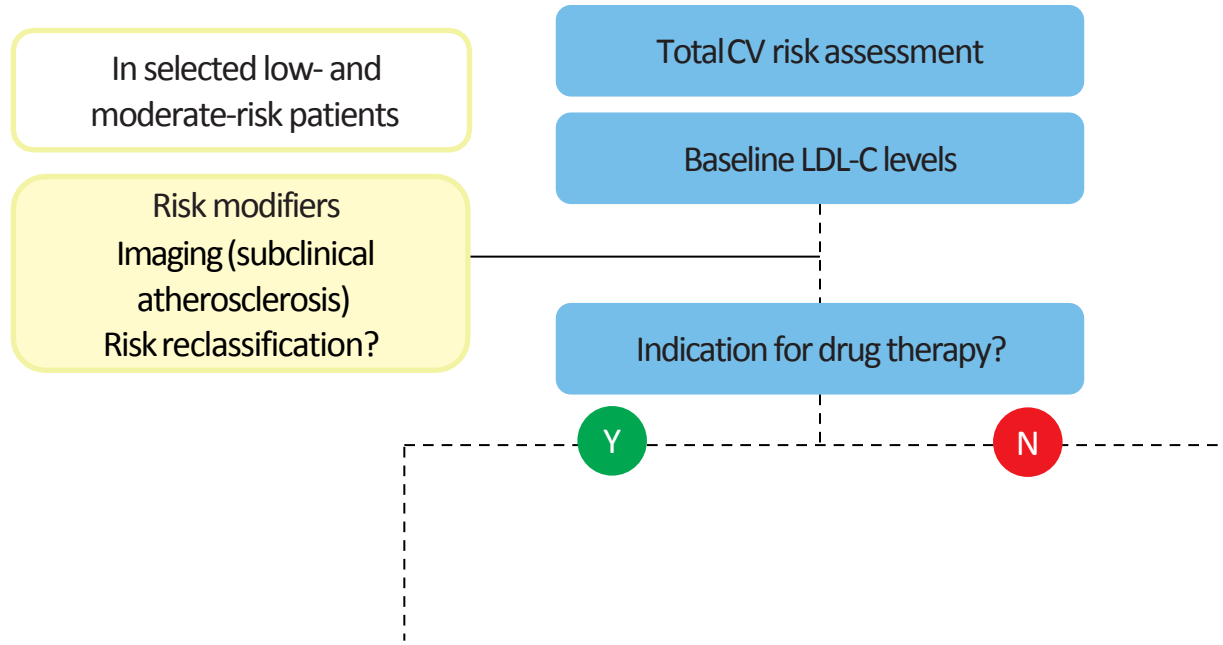
Expected clinical benefit of low-density lipoprotein cholesterol lowering therapies

LDL-C = low-density lipoprotein cholesterol;
PCSK9 = proprotein convertase subtilisin/kexin type 9.

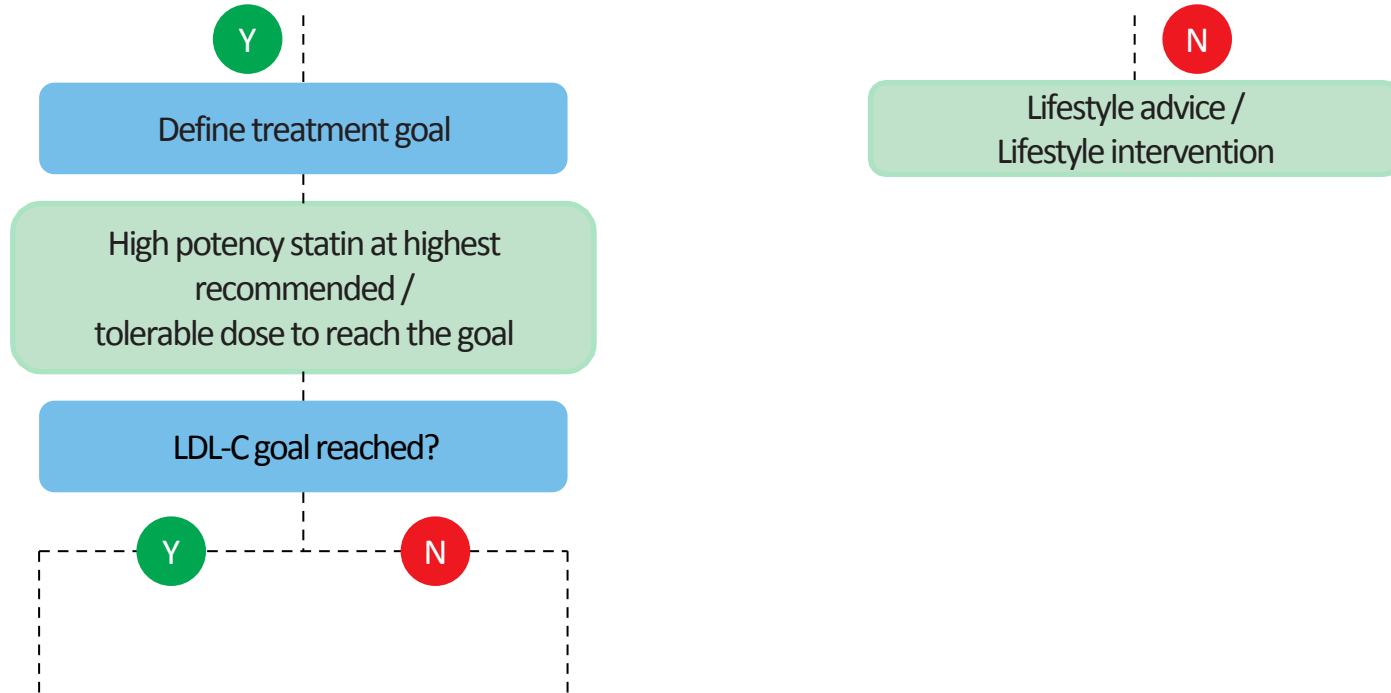


Central Illustration Lower panel: Treatment algorithm for pharmacological LDL-C lowering

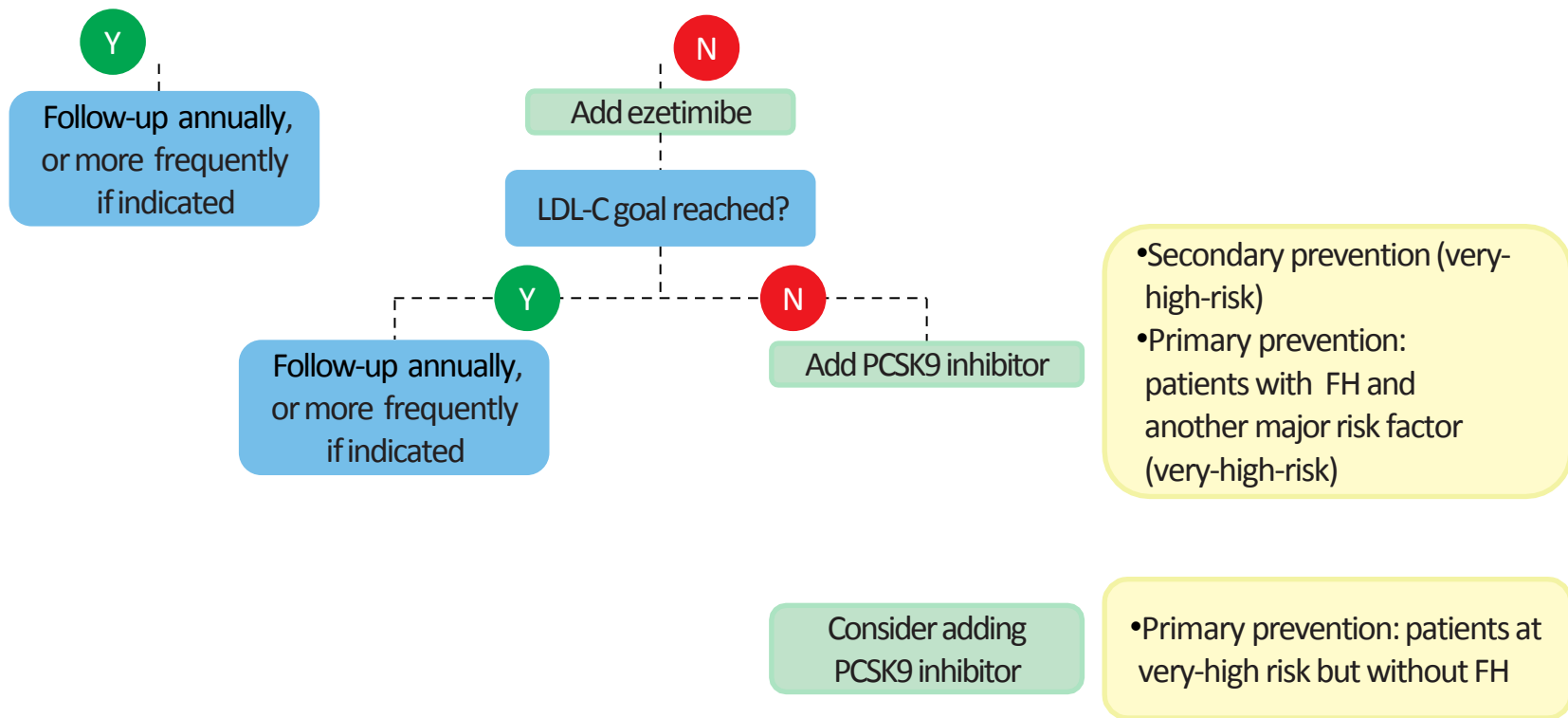
Central Illustration Lower panel: Treatment algorithm for pharmacological LDL-C lowering (1)



Central Illustration Lower panel: Treatment algorithm for pharmacological LDL-C lowering (2)



Central Illustration Lower panel: Treatment algorithm for pharmacological LDL-C lowering (3)



Treatment goals for low-density lipoprotein cholesterol (LDL-C) across categories of total cardiovascular disease risk

