Cardiovascular disease: risk assessment and reduction, including lipid modification

# Frequently asked questions

# Why are NICE-recommended lipid targets for secondary prevention higher than other national and international targets?

Recommendation 1.7.1 states: For secondary prevention of CVD, aim for low-density lipoprotein (LDL) cholesterol levels of 2.0 mmol per litre or less, or non-HDL cholesterol levels of 2.6 mmol per litre or less. **[December 2023]**

The committee agreed that, as a general principle, LDL cholesterol and non-HDL cholesterol levels should be reduced as much as possible in people with CVD. However, people respond differently to statins and other lipid-lowering treatments, and it is not cost-effective to offer the full range of treatments to everyone with CVD.

In response to feedback, expert testimony and evidence, NICE developed an aspirational lipid target for secondary prevention to guide the aims of treatment. The previously recommended 40% reduction was difficult to measure and report on, and difficult to follow if baseline levels were not measured or recorded.

An economic model was developed which estimated the absolute LDL cholesterol target at which it was cost-effective to escalate treatment for people on high-intensity statins. An LDL cholesterol target of 1.8 mmol per litre was not cost effective and had a cost per QALY gained that was substantially above £20,000 when compared to 2.0 mmol per litre. It would require many more people to use an injectable therapy and the opportunity cost to other NHS patients would be considerable.

Escalation of treatment to add in other treatment options was cost effective for people on statins with LDL cholesterol levels of more than 2.2 mmol per litre. There was more uncertainty about the cost effectiveness of escalating treatment for people with LDL cholesterol levels between 2.0 and 2.2. The committee decided that 2.0 mmol per litre was likely to be cost effective and would allow more people to be treated than 2.2 mmol per litre.

The NICE-recommended targets are slightly higher than other national and international targets because they consider the cost effectiveness of treatment escalation. However, the committee thought they were sufficiently similar and because they are more affordable, were more likely to be implemented.

The committee recognised the need to identify a non-HDL cholesterol target for use when LDL cholesterol levels have not been requested or calculated. The committee understood that a non-HDL target is preferable to both practitioners and people living with CVD as it does not require a fasting blood test. Information on how this was calculated can be found in both the [rational and impact section on lipid target for secondary prevention of CVD](https://www.nice.org.uk/guidance/ng238/chapter/Rationale-and-impact#lipid-target-for-secondary-prevention-of-cardiovascular-disease) and [evidence review D in the NICE guideline on cardiovascular disease](https://www.nice.org.uk/guidance/ng238/evidence/d-escalation-of-lipidlowering-treatment-for-secondary-prevention-of-cvd-pdf-13253908141).

# Is the target for secondary prevention different from QOF indicator CHOL002?

Information from NHS England:

Indicator CHOL002 will be updated so that it is aligned with the new [NICE indicator NM252](https://www.nice.org.uk/standards-and-indicators/qofindicators/the-percentage-of-patients-with-cvd-in-whom-the-last-recorded-ldl-cholesterol-level-is-2-0-mmol-per-litre-or-less-or-last-recorded-non-hdl-cholesterol-level-is-2-6-mmol-per-litre-or-less-if-ldl-cholesterol-is-not-recorded) definition from 1 April 2024, ensuring that QOF maintains its strong link to the latest evidence-based guidance.

NHS England will consider any potential changes to future QOF arrangements as part of the usual annual review process. Contact england.gpcontracts@nhsengland.net with any queries.

# Escalating treatment for people on statins for secondary prevention of CVD

As per recommendations 1.7.8 to 1.7.10, escalation of treatment should follow an informed discussion between a clinician and the person living with CVD. If the person is taking the maximum tolerated dose and intensity of statin but the lipid target for secondary prevention is not met, clinicians may discuss treatment options with the person living with CVD and consider additional lipid-lowering treatments as part of a shared decision-making process. (see [NICE's technology appraisal guidance on alirocumab](https://www.nice.org.uk/guidance/ta393), [evolocumab](https://www.nice.org.uk/guidance/ta394), [ezetimibe](https://www.nice.org.uk/guidance/ta385) and [inclisiran](https://www.nice.org.uk/guidance/ta733)). These recommendations enable the flexible prescribing of treatments. The choice of additional treatment(s) should be based upon clinical judgement, to use the one that will most likely lower LDL to target, balanced with eligibility as per respective NICE technology appraisal thresholds. For further information about the benefits and harms of lipid-lowering treatments which may inform shared decision making, go to the [GP Evidence website](https://www.nice.org.uk/guidance/ng238/resources/gp-evidence-website-summaries-of-the-benefits-and-harms-of-treatments-for-preventing-cardiovascular-disease-13254188077).

# Why consider adding ezetimibe in secondary prevention, even if the lipid target is met?

Recommendation 1.7.11 states that ezetimibe may be considered in addition to maximally tolerated intensity and dose of statins to reduce CVD risk further, even if the lipid target for secondary prevention of CVD is met. Ezetimibe is cost effective regardless of LDL cholesterol, so the committee agreed that it could be considered for people with lipid levels below the agreed target. They noted that the trade-off between further reducing risk and increasing medication should be considered. It was also noted that adherence may be lower for people on 2 pills rather than 1, especially if they are below the target. All treatment decisions should be discussed with the person as part of informed and shared decision making.

For further information about the benefits and harms of lipid-lowering treatments which may inform shared decision making, go to the [GP Evidence website](https://www.nice.org.uk/guidance/ng238/resources/gp-evidence-website-summaries-of-the-benefits-and-harms-of-treatments-for-preventing-cardiovascular-disease-13254188077).

# Why consider a lifetime risk calculator?

Recommendation 1.1.16 states: Consider using a lifetime risk tool such as [QRISK3-lifetime](https://qrisk.org/lifetime/) to inform discussions on CVD risk and to motivate lifestyle changes, particularly for people with a 10-year QRISK3 score less than 10%, and people under 40 who have CVD risk factors. **[May 2023]**

The committee agreed that the evidence base supporting the use of lifetime risk calculators has evolved and that there is potential utility in the application of a lifetime risk calculator in certain populations. For example, younger people, who may not cross the threshold for being considered high risk based on 10-year estimates and have CVD risk factors. In this group, the use of lifetime risk estimates could help inform discussions about CVD risk and the importance of lifestyle modification at an earlier age. Earlier reductions in LDL cholesterol and implementing lifestyle changes which are maintained over a lifetime will allow for greater benefit at population level rather than treating established/more advanced atherosclerotic CVD, where combinations of lipid-lowering therapy may be required.

Of note, the committee agreed that using an appropriate risk assessment tool should not replace clinical judgement and that risk score interpretation should be individualised. Additionally of note, risk assessment tools may underestimate the ongoing benefit of lipid-lowering treatments as they do not predict risk reduction from taking medicines.

Calculating an individual’s lifetime risk of experiencing an adverse cardiovascular event may:

* identify people at a lower than 10-year risk of experiencing a CV event, but overall higher lifetime risk, such as younger people and women (in whom QRISK generally underestimates risk and may lead to suboptimal management)
* identify people when overt disease is not present and when preventative measures will have their greatest impact
* demonstrate a continuum of risk and the impact of exposure to CVD risk factors over time, presenting an opportunity to implement lifestyle changes and the initiation of atorvastatin 20 mg.

# Why consider statins in people with a 10-year risk of CVD less than 10%?

Recommendation 1.6.8 states: Do not rule out treatment with atorvastatin 20 mg for the primary prevention of CVD just because the person’s 10-year QRISK3 score is less than 10% if they have an informed preference for taking a statin or there is concern that risk may be underestimated. **[May 2023]**

The committee agreed that focusing on increasing uptake among people with the most potential to benefit would have more impact than lowering the statin treatment threshold for offering statins. If more people took statins there would be a greater reduction in CVD events, and in fact evidence indicates that statins are cost effective for people with 10-year CVD risk scores less than 10%.

While there are still opportunities to increase the uptake of statin therapy from a primary prevention perspective (CVDPREVENT data), national audit data indicates that even people with a less than 10% 10‑year risk may choose to take statin therapy.

Risk scores provide an important means by which to allow for an informed discussion and shared decision making in relation to the initiation of statin treatment in addition to lifestyle changes. Addressing risk in people with a less than 10% 10-year risk allows for interventions to be implemented prior to the onset or progression of atherosclerotic CVD and will have greater benefits in the longer term through reduction in an individual’s lifetime risk.

# What support resources are available?

* NICE has developed and linked to various [tools and resources to support implementation](https://www.nice.org.uk/guidance/ng238/resources)
* UCLPartners has developed a [size of the prize resource](https://uclpartners.com/project/size-of-the-prize-for-preventing-heart-attacks-and-strokes-at-scale/) for the management of high cholesterol in secondary prevention. This uses integrated care board level data to demonstrate the potential to prevent heart attacks and strokes at scale
* NHS England has published [information on cardiovascular disease high-impact interventions](https://www.england.nhs.uk/ourwork/prevention/secondary-prevention/cardiovascular-disease-high-impact-interventions/)
* CDRC improves the care and safety of patients by identifying undiagnosed, misdiagnosed conditions or those that are coded incorrectly and allows clinicians to provide the appropriate care at the right time. See the [CDRC resources page](https://cdrc.nhs.uk/resources/)
* The BHF has developed [local infographics reports](https://www.bhf.org.uk/what-we-do/our-research/heart-statistics/local-statistics) which provide further detail regarding comorbidities and burden of disease.