Primary Care Cardiovascular Society

Empowering primary care to deliver the best in cardiovascular health

PCCS Triglycerides QI programme

The diagnostic pathway

Dr Jim Moore

This programme has been funded by Amarin Corp plc. Amarin were not involved in the development of the programme, content, selection of speakers or their arrangements. All content has been independently developed by the PCCS.

Dr Jim Moore disclosures

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Dr Jim Moore FRCP (London) FRCP (Edin) FPCCS

Immediate Past President Primary Care Cardiovascular Society

GP with a Specialist Interest in Cardiovascular Medicine and GPSI Gloucestershire Heart Failure Service

National (NHSE) Primary Care Co-Lead with the Cardiac Transformation and CVD Prevention Programmes

NHS Gloucestershire ICB Circulatory Programme Group

National Heart Failure Audit Domain Expert Group

In the last year Honoraria received from Amarin, Bayer, Boehringer Ingelheim, Daiichi-Sankyo, Novartis, Medtronic, Pfizer and Roche for various activities including attending and participating in educational events and advisory boards.

Contents

- Identifying patients at risk of CVD and a holistic approach to patient review
- The importance of disease registers, patient coding, recall and review
- Measuring TG and when to refer
- Assessing for hypertriglyceridaemia
- Secondary causes of hypertriglyceridaemia

CVD, cardiovascular disease; TG, triglycerides.

Patient identification: make every contact count

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NHS health checks

- For patients aged 40 to 74 years[2]
- Calculating QRISK to assess a person's risk of developing CVD over the next 10 years[3]

Proactive population health management

- Assessing lipid profile of at-risk groups such as:[1]
  - Secondary prevention
  - Patients with CKD
  - Patients with hepatic impairment
  - Patients with diabetes
  - Smokers or ex-smokers
  - Older adults
  - South Asian population
  - Other QRISK3 factors[3*]

Comorbidity assessments (case-based strategy)

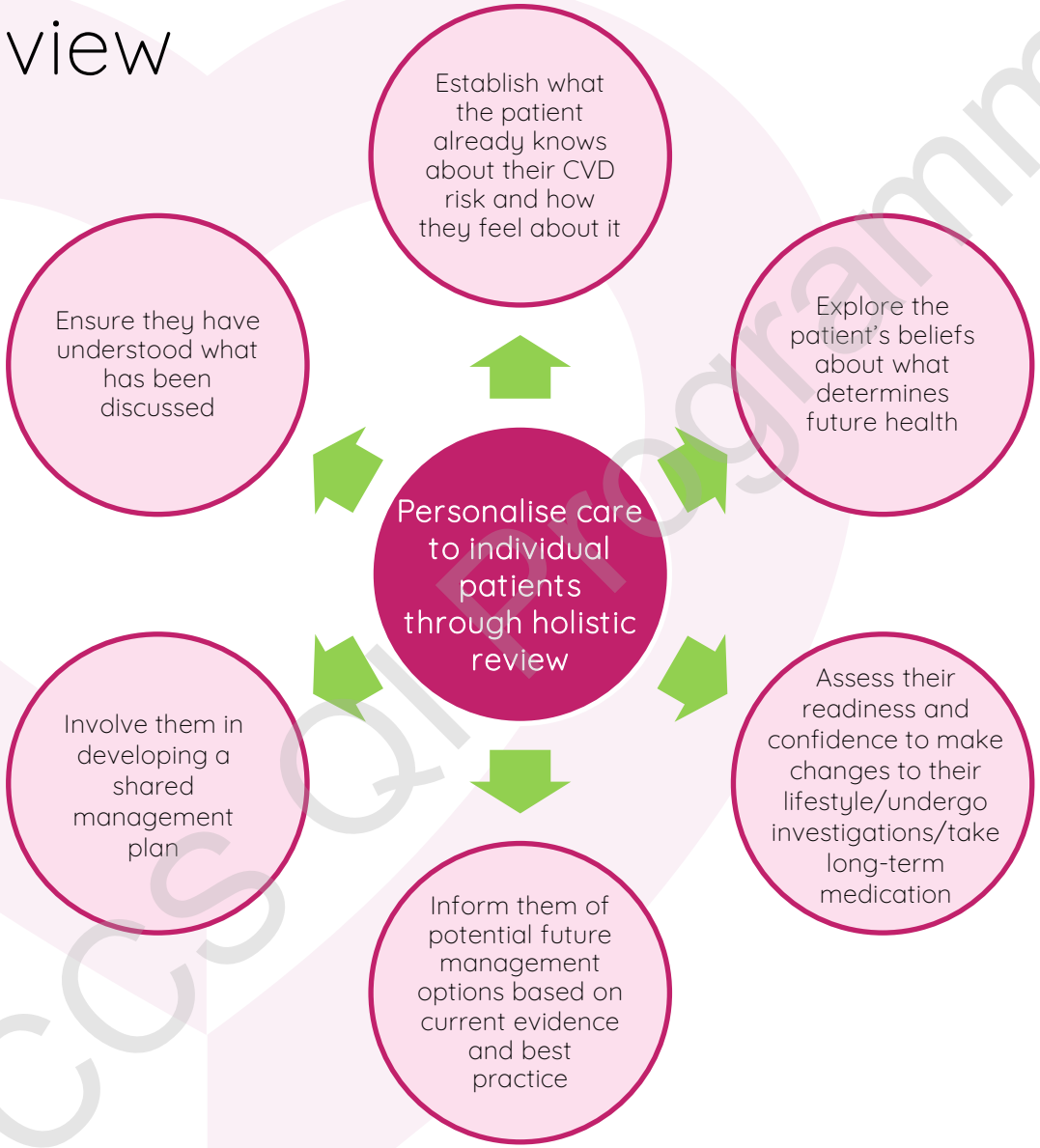
- Opportunistic
- Assessing CVD risk and lipids in patients with comorbidities such as AF and hypertension[4]
- Utilise long-term condition appointments to also undertake vital checks to assess a person's risk of CVD, e.g., BP checks[5]
- Secondary prevention

Opportunistic screening → Patients at increased risk → Patients with established CVD

*Please refer to QRISK3 for other CVD risk factors. AF, atrial fibrillation; BP, blood pressure; CKD, chronic kidney disease; CVD, cardiovascular disease; NHS, National Health Service.

1. British Heart Foundation. High Cholesterol – Symptoms, Causes & Levels. Available at: https://www.bhf.org.uk/informationsupport/risk-factors/high-cholesterol. Accessed January 2025; 2. NHS. NHS Health Check. Available at: https://www.nhs.uk/conditions/nhs-health-check/. Accessed January 2025; 3. ClinRisk. Welcome to the QRISK®3-2018 risk calculator. Available at: https://qrisk.org/. Accessed January 2025; 4. British Heart Foundation. Incidence and prevalence - comorbidities - coronary heart disease. Available at: https://www.bhf.org.uk/what-we-do/our-research/heart-and-circulatory-diseases-in-numbers/comorbidities-coronary-heart-disease. Accessed January 2025; 5. NHS. Cardiovascular disease. Available at: https://www.nhs.uk/conditions/cardiovascular-disease/#:~:text=High%20blood%20pressure%20(hypertension)%20is,can%20damage%20your%20blood%20vessels. Accessed January 2025.

Patient review



CVD, cardiovascular disease.

NICE. Cardiovascular disease: risk assessment and reduction, including lipid modification [NG238]. Available at: https://www.nice.org.uk/guidance/ng238. Accessed January 2025.

Systematic registration, recall and review

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- Practices/PCNs should have a robust process in place for systematic retrospective coding
- In addition, there should be a mechanism to maintain registers through disease/risk factor detection and contemporaneous coding practices. This will close the prevalence gap and support the creation of an accurate disease register
- A disease register will enable effective population health management and a reliable patient recall and review system

Special notes:

- Holistic, personalised care should be offered to all
- For patients with a QRISK3 score ≥ 10%/secondary prevention who decline pharmacological intervention, reassess CVD risk in the future[1]
- For patients treated for primary and secondary prevention of CVD, annual medication reviews are important[2]
- Younger patients may have a low 10-year CVD risk, but which is still higher than others of their age. Calculating lifetime risk in this cohort of patients can help to identify these high-risk younger patients, to allow early intervention and modification of risk factors[3]
    - Use the QRISK3 tool to calculate the estimated CVD risk within the next 10 years for people aged between 25 and 84 without CVD[1]

CVD, cardiovascular disease; PCNs, primary care networks.

1. NICE. Cardiovascular disease: risk assessment and reduction, including lipid modification (NG238). Available at: https://www.nice.org.uk/guidance/ng238. Accessed January 2025; 2. BNF. Cardiovascular disease risk assessment and prevention. Available at: https://bnf.nice.org.uk/treatment-summaries/cardiovascular-disease-risk-assessment-and-prevention/. Accessed January 2025; 3. Keele University: Centre for Medicines Optimisation. NPC Archive Item: Estimating lifetime cardiovascular risk – we can, but should we? Available at: https://www.centreformedicinesoptimisation.co.uk/estimating-lifetime-cardiovascular-risk-we-can-but-should-we/. Accessed January 2025.

Systematic registration, recall and review

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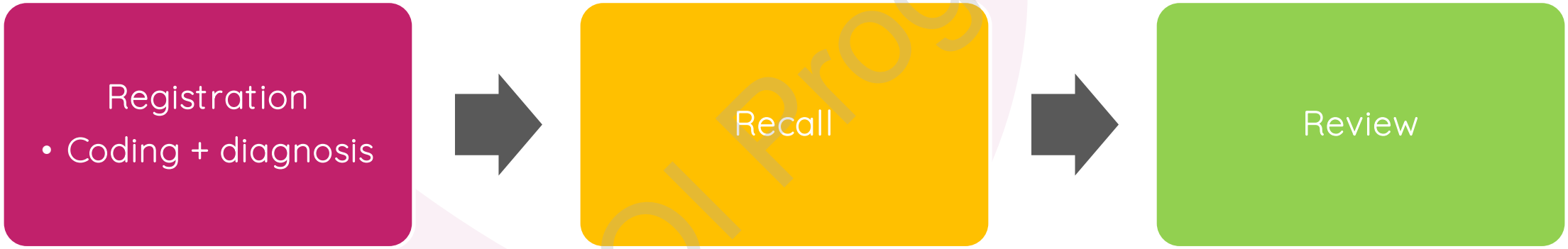
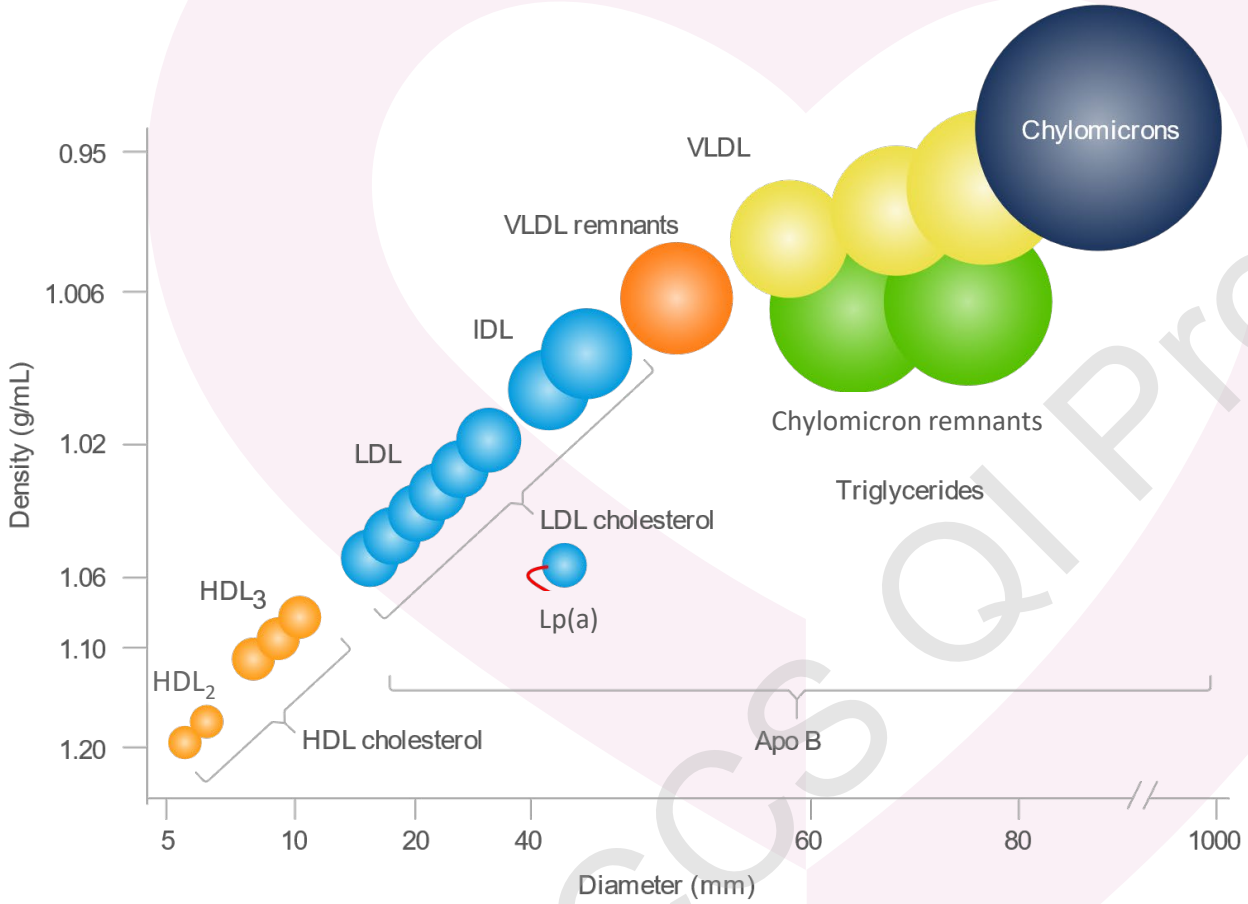


AAC guidelines: TG

TG concentration	Action
> 20 mmol/L	Refer to lipid clinic for urgent specialist review if not a result of excess alcohol or poor glycaemic control. At risk of acute pancreatitis.
10–20 mmol/L	Repeat the TG measurement with a fasting test (after an interval of 5 days, but within 2 weeks) and review for potential secondary causes of hyperlipidaemia. Seek specialist advice if the TG concentration remains > 10 mmol/litre. At risk of acute pancreatitis.
4.5–9.9 mmol/L	If non-fasting triglycerides are greater than 4.5 mmol/L, repeat with a fasting TG measurement. Be aware that the CVD risk may be underestimated by risk assessment tools, optimise the management of other CVD risk factors present and seek specialist advice if non HDL-C concentration is > 7.5 mmol/litre.

AAC, Accelerated Access Collaborative; CVD, cardiovascular; non HDL-C, non high-density lipoprotein cholesterol; TG, triglycerides.
Adapted from: Khatib R and Neely D on behalf of the AAC Clinical Subgroup. Summary of National Guidance for Lipid Management for Primary and Secondary Prevention of CVD. Available at: https://www.england.nhs.uk/aac/publication/summary-of-national-guidance-for-lipid-management/. Accessed December 2024.

Establishing a full lipid profile is important in ASCVD[1]



Adapted from Attia P, 2019.[1]

Measurement	Equation
TC	VLDL-C + IDL-C + LDL-C + Lp(a)-C + HDL-C
Non-HDL-C	TC – HDL-C
Calculated LDL-C (using Sampson equation)	TC/0.948 – HDL-C/0.971 – (TG/8.56 + TG × non-HDL-C/2,140 – TG^2/16,100) – 9.44 (mg/dl)

ApoB, apolipoprotein B; ASCVD, atherosclerotic cardiovascular disease; HDL-C, high-density lipoprotein cholesterol; IDL-C, intermediate-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; Lp(a)-C, lipoprotein "little a" cholesterol; TC, total cholesterol; VLDL-C, very-low-density lipoprotein cholesterol.

1. Attia P. Measuring cardiovascular disease risk and the importance of apoB. 2019. Available at: https://peterattiamd.com/measuring-cardiovascular-disease-risk-and-the-importance-of-apob-part-1/. Accessed January 2025.

Assessing hypertriglyceridaemia

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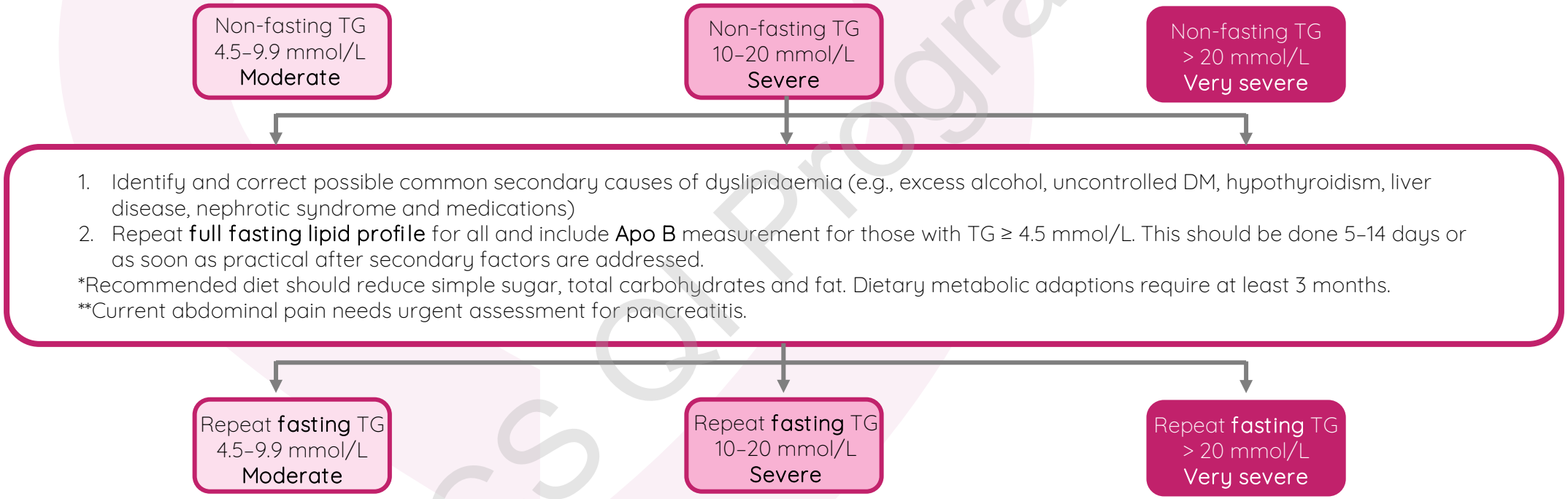

Apo B, apolipoprotein B; DM, diabetes mellitus; TG, triglycerides.

NHS. Northern England Evaluation and Lipid Intensification guideline. Version 2023.1. Available at: https://ntag.nhs.uk/wp-content/uploads/2023/11/NEELI-v2023.1.1-final.pdf. Accessed January 2025.

Assessing hypertriglyceridaemia (cont)

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Repeat **fasting** TG 4.5–9.9 mmol/L
Moderate

Repeat **fasting** TG 10–20 mmol/L
Severe

Repeat **fasting** TG > 20 mmol/L
Very severe

Assess and treat CVD risk as for general population but note that this may be underestimated by risk assessment tools

Start Atorvastatin 20 mg OD if QRISK ≥ 10%
Lifestyle intervention:
- *Reduce weight*
- *Improve diet*
- *Reduce alcohol intake*
- *Increase aerobic activity*

Submit an Advice & Guidance request via eReferral
- Non-HDL-C > 7.5 mmol/L
- Untreated Apo B < 1.0 g/L

At risk of acute pancreatitis
Consider Fenofibrate 200 mg OD; use reduced dose of 67 mg OD if eGFR 30–59mL/min/1.73m²
Lifestyle intervention for the longer term:
- *Strict fat reduced diet (< 20% of calories as fat)*
- *Reduce body weight*
- *Reduce alcohol intake*
- *Improve diet*
- *Increase aerobic activity*

**Fibrates work through nuclear transcription. Effects become apparent after ~2–3 weeks of sustained use*

Routine referral to lipid clinic

Urgent referral to lipid clinic

Apo B, apolipoprotein B; CVD, cardiovascular disease; eGFR, estimated glomerular filtration rate; non-HDL-C, non-high-density lipoprotein cholesterol; OD, once daily; TG, triglycerides.

1. Adapted from NHS. Northern England Evaluation and Lipid Intensification guideline. Version 2023.1. Available at: https://ntag.nhs.uk/wp-content/uploads/2023/11/NEELI-v2023.1.1-final.pdf. Accessed January 2025; 2. NICE. Cardiovascular disease: risk assessment and reduction, including lipid modification [NG238]. Available at: https://www.nice.org.uk/guidance/ng238. Accessed May 2025.

Assessing hypertriglyceridaemia

Secondary causes

- Obesity
- Metabolic syndrome
- Excess alcohol consumption
- Diet with high fat or calories
- Diabetes mellitus (mainly T2D)
- Inherited conditions
- Hypothyroidism
- Systemic lupus erythematosus
- Paraproteinaemia
- Pregnancy (particularly in the third trimester)
- Renal disease (proteinuria, uraemia or glomerulonephritis)

Medications, including:

- Corticosteroids
- Oral oestrogen
- Tamoxifen
- Thiazides
- Non-cardioselective beta-blockers
- Bile acid sequestrants
- Cyclophosphamide
- L-asparaginase
- Protease inhibitors
- Second generation antipsychotic agents e.g., clozapine and olanzapine)

T2D, type 2 diabetes.

Adapted from NHS. Northern England Evaluation and Lipid Intensification guideline. Version 2023.1. Available at: https://ntag.nhs.uk/wp-content/uploads/2023/11/NEELI-v2023.1.1-final.pdf. Accessed January 2025.

Summary

- Primary care should maximise every opportunity to identify patients at risk of CVD
- Holistic patient reviews should be undertaken and patients should be encouraged to participate in reducing their CVD risk[1]
- General practices should have processes in place for systematic registration, including coding and diagnosis, patient recall and review

CVD, cardiovascular disease.

1. NICE. Cardiovascular disease: risk assessment and reduction, including lipid modification [NG238]. Available at: https://www.nice.org.uk/guidance/ng238. Accessed January 2025.