Summary of National Guidance for Lipid Management for Primary and Secondary Prevention of CVD

INITIAL CONSIDERATIONS:
- Measure non-fasting full lipid profile (Total cholesterol, HDL-C, non-HDL-C, triglycerides) and HbA1c as part of an initial baseline assessment.
- Consider secondary causes of hyperlipidaemia and manage as needed.
- Ensure appropriate baseline and follow up tests as detailed on page 2. Measure BMI.
- Identify and exclude people with contraindications/drug interactions
- If non-fasting triglyceride above 4.5mmol/L see page 2.

PRIMARY PREVENTION
Consider statin therapy for adults who do not have established CVD but fall into the categories below. Use QRISK risk assessment tool where appropriate (see page 2, Primary Prevention Risk Assessment).

- Type 2 diabetes & QRISK ≥10% over next 10 years
- Age ≥85 & QRISK ≥10% over next 10 years
- Type 1 diabetes, if they have one or more of the following:
  - Over 40 years
  - Had diabetes for >10 years
  - Have established nephropathy
  - Have other CVD risk factors
- CKD eGFR < 60 mL/min/1.73m² and/or albuminuria
- Age ≥85 years if appropriate consider comorbidities, frailty & life expectancy

TREATMENT TARGETS IN FH
If clinical diagnosis of FH or high-risk FH is made, consider:
- Treatment goals for patients with FH: LDL-C < 1.8mmol/L (secondary prevention)
- Treatment goals for patients with FH and other CVD risk factors: LDL-C < 2.5mmol/L (primary prevention)

SECONDARY PREVENTION
Offer statin therapy to adults with CVD, this includes angina, previous MI, revascularisation, stroke or TIA or symptomatic peripheral arterial disease. Do not delay statin treatment if a person has acute coronary syndrome. Take a lipid sample on admission (within 24 hours).

- Identify and address all modifiable risk factors - smoking, diet, obesity, alcohol intake, physical activity, blood pressure and HbA1c.
- Measure full lipid profile (Total cholesterol, HDL-C, non-HDL-C, triglycerides) and HbA1c as part of an initial baseline assessment.
- Consider secondary causes of hyperlipidaemia and manage as needed.
- If non-HDL-C baseline value is not available, use target non-HDL-C < 2.5mmol/L (approximately equivalent to LDL-C < 1.8mmol/L) as recommended by JBS3 consensus statement - a 'lower is better approach'.
- If patients on a high-intensity statin have side effects, offer a lower dose or an alternative statin (see page 2, ‘Statin Intensity Table’).
This guidance applies to new patients and may also be taken into consideration for those already on statins at their annual review. If 40% reduction of non-HDL-C is not achieved, offer high intensity statin. Discuss with people who are stable on a low- or medium-intensity statin the likely benefits and potential risk of side effects if changed to a high-intensity statin when they have a medication review and agree with the person whether a change is needed.

If statin therapy is contraindicated, not tolerated or not effective, consider ezetimibe. Do not offer a fibrate, nicotinic acid, bile acid binder or omega-3 fatty acids alone or in combination with statin, for the prevention of CVD (Check NICE CG181 for exceptions).

## PRIMARY PREVENTION RISK ASSESSMENT

**QIRSK3** is the current version of the QIRSK calculator. www.qrisk.org/three
- Do not use this risk assessment tool for people with established CVD or those who are at high risk of developing CVD because of FH or other inherited disorders of lipoprotein metabolism
- Do not use a risk assessment tool to assess CVD risk in people with type 1 diabetes, or eGFR less than 60 mL/min/1.73 m² and/or albuminuria.
- Consider people aged ≥ 85 at increased risk of CVD because of age alone particularly people who smoke or have raised BP.

### Additional Risk Factors

Note, standard CVD risk scores including QIRSK may underestimate risk in people who have additional risk because of underlying medical conditions or treatments. These groups include the following groups of people;
- severe obesity (BMI>40kg/m²) increases CVD risk
- treated for HIV,
- serious mental health problems,
- taking medications that can cause dyslipidaemia such as antipsychotic medication, corticosteroids or immunosuppressive drugs
- autoimmune disorders such as systemic lupus erythematosus, and other systemic inflammatory disorders
- non-diabetic hyperglycaemia
- significant hypertriglyceridaemia (fasting triglycerides 4.5-9mmol/L)
- recent risk factor changes e.g. quit smoking, BP or lipid treatment Consider socio-economic status as an additional factor contributing to CVD risk.

If QIRSK < 10% over the next 10 years - Give lifestyle advice and ensure regular review of CVD risk in line with guidance.

## SPECIAL PATIENT POPULATIONS

### Type 1 Diabetes

While NICE recommends offering statins to patients with Type 1 diabetes as detailed in the algorithm, it also states to consider statins in all adults with type 1 diabetes.

### Chronic Kidney Disease

Offer atorvastatin 20mg for the primary or secondary prevention of CVD to people with CKD (eGFR less than 60 mL/min/1.73m² and/or albuminuria) Increase the dose if a greater than 40% reduction in non-HDL-C is not achieved and eGFR is 30 mL/min/1.73m² or more. The AECG recommends using higher doses with a renal specialist if eGFR is less than 30 mL/min/1.73m².

## ABBREVIATIONS

- **CVD**: cardiovascular disease
- **CKD**: chronic kidney disease
- **FH**: Familial Hypercholesterolaemia
- **ALT**: alanine aminotransferase
- **AST**: aspartate aminotransferase
- **non-HDL-C**: non-high density lipoprotein cholesterol
- **LDL-C**: low density lipoprotein cholesterol
- **PCSK9i**: proprotein convertase subtilisin 9 inhibitor

## STATIN INTENSITY TABLE

<table>
<thead>
<tr>
<th>Approximate reduction in LDL-C</th>
<th>Statin dose mg/day</th>
<th>5</th>
<th>10</th>
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### Baseline Measurements

In addition to full lipid profile, measure renal, thyroid and liver profiles (including aspartate aminotransferase, ALT and AST) to exclude secondary causes and co-morbidities. Measure baseline liver transaminase (ALT or AST) before starting a statin. Measure CK if unexplained muscle pain before starting a statin. CK should not be measured routinely especially if a patient is asymptomatic.

### Monitoring

- **Primary Prevention**
  - Lipid Profile
  - ALT or AST
- **Secondary prevention**
  - Lipid Profile
  - ALT or AST

### TRIGLYCERIDES

**Triglycerides concentration:** Action

- **Greater than 20mmol/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 - 20mmol/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 > 10mmol/litre. At risk of acute pancreatitis
- **4.5 - 9.9mmol/L** If non-fasting triglycerides are greater than 4.5mmol/litre, repeat with a fasting TG measurement. Be aware 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 > 7.5mmol/litre.

## STATIN TOLERANCE

Statin Intolerance is defined as the presence of clinically significant adverse effects from statin therapy that are considered to represent an unacceptable risk to the patient or that may result in adherence to therapy being compromised.

For people who are intolerant of the recommended statin treatment see the NHS AAC statin intolerance algorithm, available on the NHS AAC page (Click here)

### References

- Navarrete et al. 2015. Annals of internal medicine 163(1):40-51
- NICE. 2015. TA393 www.nice.org.uk/guidance/cg71
- NICE. 2016. TA394 www.nice.org.uk/guidance/CG180
- NICE. 2016. TA395 www.nice.org.uk/guidance/CG181
- NICE. 2016. TA396 www.nice.org.uk/guidance/CG182
- NICE. 2016. TA397 www.nice.org.uk/guidance/CG183
- NICE. 2016. TA398 www.nice.org.uk/guidance/CG184
- NICE. 2016. TA399 www.nice.org.uk/guidance/CG185
- NICE. 2018. TA399 www.nice.org.uk/guidance/CG186
- NICE. 2020. CG118 www.nice.org.uk/guidance/CG118

Authors: Dr Rani Khatib & Dr Dermot Neely on behalf of the AAC Clinical Subgroup. March 2020. Review date: March 2021. Pathway endorsed by NICE April 2020.

**TITRATION THRESHOLD / TARGETS**

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**FH** Optimise lipid lowering therapy to achieve at least 50% reduction in LDL-C (or non-HDL-C cholesterol).

If baseline cholesterol is unknown in the setting of secondary prevention use the Joint British Societies’ JBS3 consensus recommendation.

- **Non-HDL-C = TC minus HDL-C**
- **LDL-C <3.5mmol/L (Fasting triglycerides≤2.2)**
  - valid only when fasting triglycerides are less than 4.5 mmol/L

## SPECIAL SERVICES

Scope of specialist service available locally may include; Lipid Clinic, PCSK9i clinic (offering initiation and subsequent follow up). FH Genetic Diagnosis and Cascade testing, Lipoprotein Apheresis service. NICE eligibility criteria for PCSK9i and fasting LDL-C thresholds are summarised below.

- **NICE TA393 Alirocumab**
- **NICE TA394 Evolocumab**

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