Lipid guideline for prevention of atherosclerotic cardiovascular disease (ASCVD) in adults

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NHS Lothian

(For ***Suspected Inherited Hyperlipidaemia*** – see "Referral guidance" tab below)

Note (ASSIGNv2.0 vs ASSIGNv1.5): ASSIGN was updated in 2024 to become ASSIGNv2.0 (available on the Right Decision Service website). But the older ASSIGNv1.5 remains embedded within Vision+ and BlueBayCT.
- *ASSIGNv2.0 generates lower risk scores, and therefore a lower threshold for treatment should be used.*
-*Thresholds for both versions of the ASSIGN score are incorporated within this flow diagram.*

Primary Prevention

Consider ASCVD risk in all adults >40 years
(or younger adults, with 1st deg rel. ASCVD <60 yr)
Frail or elderly – consider whether appropriate

Does **not** belong to high-risk primary prevention group (as per red box below)

↓

Total chol, HDL-C

(can be non-fasting)

Calculate ASSIGN score

High-risk primary prevention group (as per red box below)

↓

Full lipid profile

(can be non-fasting)

ASSIGN NOT required

Secondary Prevention

↓

Full lipid profile

(can be non-fasting)

ASSIGN NOT required

ASSIGNv2.0 <7.5%
(ASSIGNv1.5 <10%)
and
Non-HDL-C <6.0

- Lifestyle advice
- Reassess every 5 years**, or according to clinical judgement

ASSIGNv2.0 ≥7.5%
(ASSIGNv1.5 ≥10%)
or
Non-HDL-C ≥6.0

High-risk primary prevention

Diabetes (as per SIGN 149)
and Age ≥40 yr
OR
Age <40 yr, and any of:
- diabetes for >20 yr
- end-organ damage
- other significant CV risk factors

Chronic kidney disease
eGFR <60, and/or
Micro- or macroalbuminuria

HIV and age >40 yr

**Angina, MI,
TIA, amaurosis fugax, stroke,
peripheral vascular disease,
renovascular disease,
ischaemic bowel**

Do not delay statin treatment in order to identify, or address causes of hyperlipidaemia

Non-inherited causes of hyperlipidaemia – identify and /or address

Common:
- alcohol excess
- diabetes **(glucose / HbA1c)**
- obesity **(BMI)**
- hypothyroidism **(TFTs)**
- pregnancy

Other causes:
- keto-or high-fat diets
- eating disorders
- nephrotic syndrome **(albumin, urine ACR)**
- cholestatic liver disease **(LFTs)**
- drugs: oestrogen, retinoids, antiretrovirals, antipsychotics, corticosteroids, ciclosporin

Inherited hyperlipidaemia suspected?
- Non-inherited cause excluded
- Family history of ASCVD <60 yr, or hyperlipidaemia
- See **"Referral guidance" tab** below

After identifying / addressing non-inherited causes:
- If large cholesterol reduction likely (for example – after patient significantly reduces high alcohol intake), consider arranging: full lipid profile and (where required) re-calculation of ASSIGN score.
- Hypothyroidism - do not start a statin until managed adequately
- Trigs >4.5 mmol/L, see **Quick Links** below flow-diagram for *Hypertriglyceridaemia (general guidance)*

ASSIGNv2.0: 7.5 – 10%
(ASSIGNv1.5: 10 – 20%)
or
Non-HDL-C ≥6.0

- Discuss lifestyle
- Address modifiable risk factors
- Any additional risk factors?*
- **Consider statin, OR**

ASSIGNv2.0 ≥10%
(ASSIGNv1.5 ≥20%)

High-risk primary prevention group

Offer statin
Discuss lifestyle
Address modifiable risk factors

Secondary prevention

re-assess after lifestyle change

Risk factors not captured by ASSIGN
- Indian, Pakistani, or Bangladeshi ethnicity
- Physical inactivity
- Systemic inflammatory disease
- Mental health disorders
- Early menopause

Atorvastatin 20 mg OD

Atorvastatin 80 mg OD

- Use lower dose of Atorvastatin if potential drug interaction, high risk of adverse effects, or patient preference
- Offer Atorvastatin 20mg if CKD (eGFR< 60)

***** Patient groups that may benefit from annual TC, HDL-C:***
- *Secondary prevention*
- *Diabetes*
- *Familial hypercholesterolaemia*
- *Long-term therapies causing hyperlipidaemia (see "Non-inherited causes" above)*
- *Strong family history of ASCVD at age <60 yr*
- *Poor medication compliance*

Frequency of monitoring may be tailored according to CV risk, patient choice and consistency of cholesterol reduction.

Statin monitoring
- **ALT and Total chol, HDL-C**: within 3 months of initiation, or any dose increase
- **Total chol, HDL-C**: annually alongside cardiovascular risk review for ***selected*** patients**
- **Creatine kinase (CK):** only if muscular pain, weakness

Primary prevention
Aim for:
>40% reduction in non-HDL-C, or LDL-C (e.g. equivalent to reducing LDL-C from 5.0 to less than 3.0 mmol/L)

Secondary prevention
Aim for:
Non-HDL-C <2.5 and, LDL-C <1.8 mmol/L

Where above not achieved
- Discuss compliance / diet / lifestyle, re-consider secondary causes e.g. diabetes, alcohol
- **Intensification of therapy** ------ consider for **highest risk patients:**
  - increase atorvastatin dose until target achieved
  - consider rosuvastatin if atorvastatin not tolerated, or ineffective
  - if max. tolerated dose of statin then add Ezetimibe 10mg (consider seeking lipid clinic advice to use fibrate instead of Ezetimibe, where persistent fasting triglycerides >5 mmol/L)
- **Consider further options below, where:**
  - Secondary prevention and LDL-C >3.5 mmol/L

Highest risk patients
- **Secondary prevention**
- **Diabetes with end-organ damage**
- **Familial Hypercholesterolaemia**
- *Diabetes*
- *CKD*
- *1st deg rel ASCVD <60yr*

plus adverse factor: smoking, or poorly-controlled BP or hyperlipidaemia

- Secondary prevention and LDL-C >3.5 mmol/L
- Highest-risk patient AND unable to take statin AND tolerates ezetimibe

Statin intolerance

- Low-dose atorvastatin, or rosuvastatin (incl. rosuvastatin 5 mg alternate days) may provide best balance between efficacy and tolerability
- Any statin, at any dose can provide significant risk reduction. (But note that simvastatin is more prone to drug-drug interaction, and pravastatin / fluvastatin are less potent.)
- Ezetimibe monotherapy may be offered if multiple statin intolerance

See **Quick links above** flow-diagram for:

Approach to statin intolerance

Statins and deranged LFTs

Hypertriglyceridaemia

Options beyond statins and ezetimibe

Consider lipid clinic referral for:

***PCSK9-inhibitors,* where:**

Familial Hypercholesterolaemia
- No CVD: LDL-C >5.0 mmol/L
- Known CVD: LDL-C >3.5 mmol/L

OR

Secondary prevention
- Single CV event: LDL-C >4.0 mmol/L
- 2+ CV events: >3.5mmol/L

despite (well-tolerated) maximal statin and/or Ezetimibe therapy

Bempedoic acid with Ezetimibe **where ALL apply:**

- Highest risk patients – *see bullet-pointed groups in shaded box (above)*
- Unable to take statin
- Ezetimibe tolerated, but cholesterol remains off-target
- PCSK9i not suitable (see SMC criteria immediately above)