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

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 group (as per red box below)

↓

Full lipid profile
(can be non-fasting)

ASSIGN NOT required

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

Secondary Prevention

↓

Full lipid profile
(can be non-fasting)

ASSIGN NOT required

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 re-assess after lifestyle change**

ASSIGNv2.0 ≥10%
(ASSIGNv1.5 ≥20%)

High-risk primary prevention group

Offer statin
Discuss lifestyle
Address modifiable risk factors

Secondary prevention

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)

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

***** 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.

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 patient AND unable to take statin AND tolerates ezetimibe

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

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)