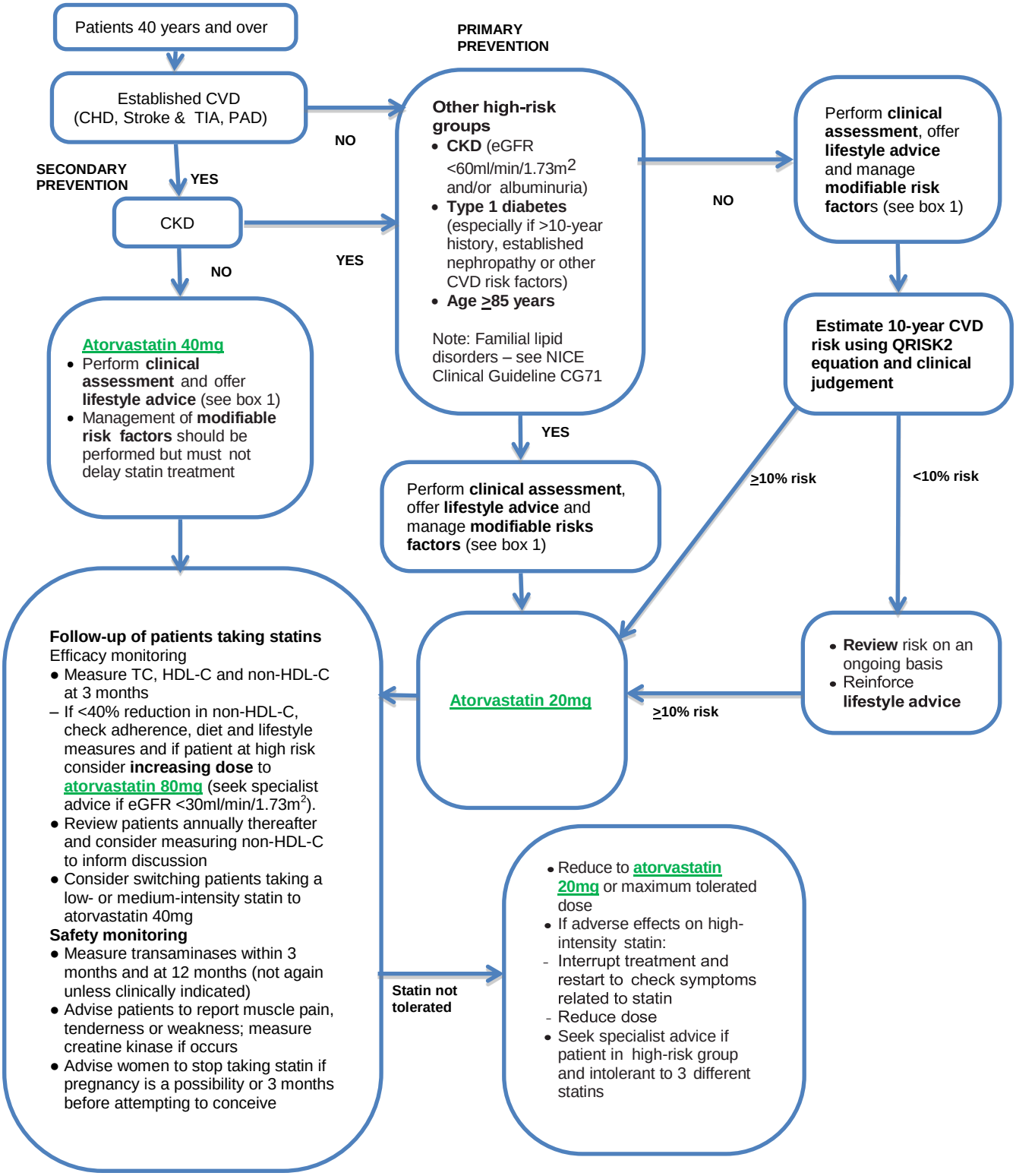
NHS
Vale of York
Clinical Commissioning Group

CAR05
Referral Support Service

Cardiology

Management of Cardiovascular Risk Using Statins



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Clinical Assessment	Lifestyle Advice
BP BMI HbA1c Renal function and eGFR Transaminases TSH Smoking status Alcohol consumption TC, non-HDL-C and TG (if not already available)* If unexplained muscle pain before starting statin, check creatine kinase levels BE AWARE OF Familial Hypercholesterolaemia *Refer to Lipidologist if TC > 9mmol/L, nonHDL-C > 7.5mmol/L or TG persistently > 10mmol/L Refer urgently if TG >20mmol/L and not due to excess alcohol or poor glycaemic control	Diet and weight Physical activity Alcohol reduction Smoking cessation

Definition

Patient has an abnormal lipid profile or is being treated because they are considered to be at high risk of or have existing cardiovascular disease
Cardiovascular disease includes angina, heart attack, stroke, TIA and peripheral vascular disease

Exclude the following

- People under 16
- People who are allergic to statins
- People with an estimated life expectancy of less than 2 years
- Statins are contraindicated in pregnancy and should be discontinued 3 months before pregnancy and restarted after breastfeeding has finished.

General points

- **It is expected that the majority of people with lipid disorders will be managed in the community and do not require specialist referral for advice see lipid guideline** Cardiovascular disease remains one of the highest causes of death in the Vale of York CCG. However, the CCG is in the lowest quartile nationally for the treatment of high cholesterol in people with known CHD. More effective treatment with a high intensity statin is considered a CCG priority to reduce premature mortality.
- Each 1mmol lowering of LDL cholesterol is associated with approximately a 19% risk reduction in coronary mortality and 17% reduction in stroke.
- The majority of people with high cholesterol levels do not have an underlying cause for this. However, abnormal lipid profiles are associated with familial hyperlipidaemia, diabetes, metabolic syndrome, thyroid disease, liver disease, excess alcohol intake, nephrotic syndrome and some medications, especially steroids and antipsychotics.

Investigation and assessment

- A non-fasting total cholesterol, HDL cholesterol and estimated non-HDL cholesterol is used to estimate risk.
- Where a metabolic cause is considered or the lipid levels are significantly abnormal please arrange full fasting lipid profile, LFT, TFT, HbA1C, urea and electrolytes and test urine (dipstick) for protein.
- When total cholesterol is >7.5 mmol/l AND there is a family history of premature heart disease consider Familial Hyperlipidaemia (see CAR006)

Management guidelines

- Management of lipids should be in the context of a formal risk assessment made using QRISK2 or JBS3 and medication started in the context of risk reduction according to the patients informed opinion.
- Cardiovascular risk assessment tools should not be used in people with Type 1 diabetes, CKD with eGFR <60ml/min/1.73m^2, known Familial Hyperlipidaemia and existing CVD.
- Lifestyle advice in the context of weight optimisation, diet, physical activity, smoking cessation are an integral part of the consultation; however for the majority, a low-fat diet will have only a minor (<10%) effect on lipid levels.
- Improving diabetes control and reducing alcohol intake should be a target for management.
- NICE Guidelines do not recommend the use of fibrates, omega 3 fatty acids, plant stanols or sterols in the context of cardiovascular risk reduction.

Use of statins for cardiovascular risk reduction

- **As a class, statins are the most highly studied therapy and have revolutionised the prevention and management of cardiovascular disease.**
- NICE Guidance recommends the use of a high-intensity statin when the decision has been made with the patient to use medication.
- NICE guidance recommends the use of **atorvastatin** for those estimated to be at >10% ten year risk, people with CKD, those over the age of 40 with type1 diabetes, people with type 2 diabetes over 10% risk, and those with established cardiovascular disease.
- Vale of York Clinical recommendation is to start with **40mg of atorvastatin for secondary prevention**, which is associated with a 49% lowering of LDL cholesterol, and titrate to 80mg if tolerated. 40mg dose has been recommended because it is likely to give the optimum LDL lowering (> 40%) in the majority, with no dose titration and minimal side effects
- Primary prevention = 20mg – as per NICE CG 181
- **Atorvastatin** does not need to be taken at night to improve concordance

Follow up and potential complications of treatment

- It is important to discuss the risks and benefits of statin therapy and individualise the advice
- Community pharmacists can offer support when new prescriptions are issued
- NICE guidance recommends follow up at 3 months after commencing a statin, with lipid profile and liver enzymes (ALT). This should be repeated once more at 12 months unless dose has increased or kidney function has declined
- If the target of > 40% non-HDL lowering is not achieved:

  - Discuss adherence
  - Optimise diet and lifestyle measures (including alcohol intake)
  - Consider increasing the dose if taking less than **atorvastatin 80mg** and at high risk
- Muscle pains are common in the population. They are usually trivial and related to activity. It is not necessary to check creatine kinase in people with minor symptoms but the patient should be encouraged to continue. There is no evidence for Co-enzyme Q10 to improve muscle pains
- Dose reduction may improve symptoms as may changing to **pravastatin** although this is less effective at lipid lowering, it is important to stress that any statin dose will reduce risk.
- Rhabdomyolysis is a rare complication occurring in 0.5-1/10,000 patient years and related to higher doses. Initial management is to stop all statins and check creatine kinase levels.
- Statin therapy may be associated with increasing liver transaminases. Fatty liver also causes abnormal LFT and improves with the lipid lowering effects of statins. Do not routinely exclude statin therapy for people who have liver transaminase levels that are raised but are less than 3 times the upper limit of normal. Specialist advice may be sought at this stage.
- The risk of Type 2 diabetes increases with high dose statin therapy but only in those with underlying glucose intolerance with rates of 15/1,000 statin treated individuals over 5 years
- Statins have been shown to be associated with a reduction in dementia, VTE, fractures and pneumonia

Indications to request a consultant opinion from the specialist lipid clinic see *Lipid Referral Guideline*

Patient information leaflets/ PDAs

- British Heart Foundation www.bhf.org.uk/heart-health
- https://www.bhf.org.uk/publications/heart-conditions/familial-hypercholesterolaemia---your-quick-guide

References.

- Cholesterol Treatment Trialists' (CTT) Collaboration. Efficacy and safety of intensive LDL-cholesterol-lowering therapy: A meta-analysis of data from 170 000 participants in 26 randomised trials. *Lancet* 2010; DOI:10.1016/S0140-6736(10)61350-5. Available at: http://www.thelancet.com.
- Cholesterol Treatment Trialists' CTT Collaboration.. Lancet 2012; 380: 581-590
- NICE Clinical guideline [CG181] Cardiovascular disease: risk assessment and reduction, including lipid modification Published date: July 2014, Last updated: September 2016
- Ridker et al Lancet 2012; 380; 565-571
- Sattar et al. Statins and risk of incident diabetes: a collaborative meta-analysis of statin trials. Lancet 2010; 375; 735-742

	Reduction in low-density lipoprotein cholesterol				
Dose (mg/day)	5	10	20	40	80
Fluvastatin	–	–	21%[1]	27%[1]	33%[2]
Pravastatin	–	20%[1]	24%[1]	29%[1]	–
Simvastatin	–	27%[1]	32%[2]	37%[2]	42%[3,4]
Atorvastatin	–	37%[2]	43%[3]	49%[3]	55%[3]
Rosuvastatin	38%[2]	43%[3]	48%[3]	53%[3]	–

[1] 20%–30%: low intensity

[2] 31%–40%: medium intensity

[3] Above 40%: high intensity

[4] Advice from the MHRA: there is an increased risk of myopathy associated with high-dose (80 mg) simvastatin. The 80 mg dose should be considered only in patients with severe hypercholesterolaemia and high risk of cardiovascular complications who have not achieved their treatment goals on lower doses, when the benefits are expected to outweigh the potential risks.

Data from NICE guideline CG181[8]

The information used to make the table is from Law MR, Wald NJ, Rudnicka AR. Quantifying effect of statins on low density lipoprotein cholesterol, ischaemic heart disease, and stroke: systematic review and meta-analysis. *Br Med J* 2003;**326**:1423.

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