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UCLPartners Proactive Care Framework:

Lipid Management including Familial Hypercholesterolaemia

April 2021

Supporting Primary Care to Restore and Improve Proactive Care

- COVID-19 has placed unprecedented pressure on our health system. This brings an added risk to people with long term conditions who need ongoing proactive care to stay well and avoid deterioration. Disruption to routine care may worsen outcomes for patients, increase their COVID risk and result in exacerbations that further increase pressure on the NHS – driving demand for unscheduled care in GP practices and hospitals.

- As primary care transforms its models of care in response to the pandemic, UCLPartners has developed real world frameworks to support proactive care in long term conditions. The frameworks include pathways for remote care, support for virtual consultations and more personalised care, and optimal use of the wider primary care team, e.g., healthcare assistants (HCA), link workers and pharmacists.

- Additionally, the frameworks include a selection of appraised digital tools, training and other resources to support patient activation and self-management in the home setting.

- This work has been led by primary care clinicians and informed by patient and public feedback.

- The UCLPartners frameworks and support package will help Primary Care Networks and practices to prioritise in this challenging time and to focus resources on optimising care in patients at highest risk. It will support use of the wider workforce to deliver high quality proactive care and improved support for personalised care. And it will help release GP time in this period of unprecedented demand.

UCLPartners has developed a series of frameworks for local adaptation to support proactive management of long-term conditions in post-COVID primary care.

- Led by clinical team of GPs and pharmacists
- Supported by patient and public insight
- Working with local clinicians and training hubs to adapt and deliver

Core principles:

1. Virtual where appropriate and face to face when needed
2. Mobilising and supporting the wider workforce (including pharmacists, HCAs, other clinical and non-clinical staff)
3. Step change in support for self-management
4. Digital innovation including apps for self-management and technology for remote monitoring

CVD High Risk Conditions – Stratification and Management Overview

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Healthcare Assistants/other trained staff

Gather information e.g.	Up to date bloods, BP, weight, smoking status, run risk scores: QRISK, ChadsVasc, HASBLED
Self management e.g.	Education (condition specific, CVD risk reduction), self care (eg red flags, BP measurement, foot checks), signpost shared decision making
Behaviour change e.g.	Brief interventions and signposting e.g. smoking, weight, diet, exercise, alcohol

Risk Stratification & Prioritisation

- **Atrial Fibrillation**
- **Blood Pressure**
- **Cholesterol**
- **Diabetes**

Prescribing Clinician

Optimise therapy and mitigate risk
Review blood results, risk scores & symptoms
Initiate or optimise therapy
Check adherence and adverse effects
Review complications and co-morbidities
CVD risk – BP, cholesterol, pre-diabetes, smoking, obesity

Why focus on Lipids

1. High cholesterol causes cardiovascular disease and accounts for a third of all heart attacks

2. Lifestyle change is key to cholesterol lowering. Where this is ineffective or in people at highest risk (e.g. pre-existing CVD or familial hypercholesterolaemia (FH)), drug therapy with statins and other medications is very effective

3. Every 1mmol/l reduction in low-density lipoproteins (LDL) cholesterol reduces risk of a cardiovascular event by 25% [1]

4. People with high cholesterol who also have other risk factors (e.g. high blood pressure, diabetes, smoking) are at significantly greater risk of CVD and have most to gain from a reduction in cholesterol

5. FH is high risk but very treatable. Half of men with FH will have a heart attack or stroke before age 50 and a third of women before age 60. Statins are highly effective at reducing this risk

The following 4 slides offer a phased approach to lipid management guided by clinical priority, together with a pathway for FH case finding and management.

Cholesterol – Secondary Prevention (pre-existing CVD)

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Healthcare assistants/other appropriately trained staff

Gather information e.g. Up to date bloods, BP, weight, smoking status

Self-management e.g. Education (cholesterol, CVD risk), BP monitors (what to buy, how to use), signpost to shared decision making resources

Behaviour change e.g. Brief interventions and signposting e.g. smoking, weight, diet, exercise, alcohol

Stratification

Priority One	Priority Two (A)	Priority Two (B)	Priority Three – routine follow up
Not on statin therapy	On suboptimal intensity statin*	On suboptimal statin dose**	Sub-optimal non-HDL (>2.5mmol/l) levels despite maximal statin therapy

Prescribing clinician

Optimise lipid modification therapy and CVD risk reduction

1. Review CVD risk factors, lipid results and liver function tests
2. Initiate or optimise statin to high intensity – e.g. atorvastatin 80mg
3. Titrate therapy against reduction in LDLc/non-HDLc (statin>ezetimibe>PCSK9i)
4. Optimise BP and other comorbidities
5. Use intolerance pathway and shared decision-making tools to support adherence
6. Arrange follow-up bloods and review if needed

* E.g simvastatin
** E.g atorvastatin 40mg

Cholesterol – Primary Prevention (no pre-existing CVD)

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Healthcare assistants/other appropriately trained staff

Gather information:	E.g. up to date bloods, BP, weight, smoking status, run QRisk score.*
Self-management:	Education (cholesterol, CVD risk), BP monitors (what to buy, how to use), signpost to shared decision making resources
Behaviour change:	Brief interventions and signposting e.g. smoking, weight, diet, exercise, alcohol

Stratification

Priority One

One of:
- QRisk ≥20%
- CKD
- Type 1 Diabetes

AND
- Not on statin

Priority Two
- QRisk 15-19%

AND
- Not on statin

Priority Three
- QRisk 10-14%

AND
- Not on statin

Priority Four
- On statin for primary prevention but not high intensity

Prescribing clinician

Optimise lipid modification therapy and CVD risk reduction

1. Review QRisk score, lipid results and LFTs
2. Initiate or optimise statin to high intensity – eg atorvastatin 20mg
3. Titrate therapy against reduction in LDLc/non-HDLc (statin>ezetimibe)
4. Optimise BP and other comorbidities
5. Use intolerance pathway and shared decision-making tools to support adherence
6. Arrange follow-up bloods and review if needed

*Qrisk 3 score is recommended to assess CV risk for patients with Severe Mental Illness, Rheumatoid Arthritis , Systemic Lupus Erythematosus, those taking antipsychotics or oral steroids

The UCLPartners FH pathway will help improve identification and management of patients with possible undiagnosed Familial Hypercholesterolaemia (FH).

Currently 92% of people with the condition are estimated to be undiagnosed. This pathway automates and simplifies this process and offers a pragmatic solution to case-finding.

The Simon Broome (SB) criteria can be used to determine if a patient with high cholesterol needs genetic testing.

1. Searches identify patients with a high cholesterol above the NICE recommended (CG71) thresholds.
2. An HCA or other team member then arranges fasting lipids plus renal, liver, thyroid and HbA1c to identify possible secondary causes of raised lipids. Cholesterol levels should then be re-checked after secondary causes are managed.
3. If the triglycerides are below 2.3mmol/l, a simplified family history questionnaire can be texted to the patient, with interpretation checked by the HCA. If family history of early CHD is positive, the Simon Broome criteria for genetic testing are met.
4. If family history is negative, the patient should be assessed for tendon xanthomata (TX). This service could be provided across a PCN or CCG by a trained pharmacist or nurse. If TX are present, the Simon Broome criteria for genetic testing are met.
5. For patients in whom Simon Broom criteria are met and for those with known (coded) FH, a desktop review is conducted by a trained pharmacist or nurse to check results and coding, exclude secondary causes for the elevated lipid levels and referral to specialist service for assessment and genetic testing.

Familial Hypercholesterolaemia Pathway

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*Simon Broome Criteria
SB 1+2 = Definite FH
SB 1+3 = Possible FH

Case find under 30 years:
TC >7.5 or LDL-C >4.9 or non-HDL-C >6.0

Case find 30 years or over:
TC >9.0 or LDL-C >6.4 or non-HDL-C >7.5

S/Broome* 1

HCA Fasting lipids plus LFTs, TFTs, Renal, HbA1c

Known/coded FH

TG <2.3

TG >2.3

Investigate raised TG
Refer if indicated

HCA Text family history questionnaire
1st degree relative MI <60
2nd degree relative MI <50

Negative

? Tendon Xanthomata
PCN Nurse or pharmacist
Face to face or remote assessment

Positive S/Broome* 3

Positive S/Broome* 2

Negative

Refer if not DNA confirmed or if no family testing done
Nurse/Pharmacist Desktop Review

Exclude secondary causes of high TC and refer DNA testing
Nurse/Pharmacist Desktop Review

Unlikely FH: Manage as appropriate for 1°/2° prevention
Aim to reduce non-HDL chol by at least 40%
Support behaviour change, titrate high intensity statins, consider other therapies and manage other CVD risk factors
Treatment in primary care

Not FH

Specialist service and FH Nurse

Genetic counselling and DNA test

No FH mutation

FH mutation

Treatment

Cascade testing for family members

Confirmed FH

FH: Aim to reduce LDL by 50% or more
Titrate high intensity statins, consider other therapies, support behaviour change and manage other CVD risk factors
Treatment in primary care with specialist support

Implementation Resources

1. Optimisation Pathway for Secondary Prevention
2. Optimisation Pathway for Primary Prevention
3. Statin Intolerance Pathway
4. Muscle Symptoms Pathway
5. Abnormal Liver Function Test Pathway
6. Shared Decision-Making Resources
7. Overview of Medicines Optimisation in FH
8. FH questionnaire

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Optimisation Pathway for Secondary Prevention

Is patient on high dose, high intensity statin*?
(atorvastatin 80mg or equivalent)

Yes

No

Increase to high dose high intensity statin *** and re-enforce lifestyle and diet measures

Non-HDL-C reduced by 40% or more from baseline at 3 months? **** (consider a target of non-HDL-C < 2.5mmol/L if baseline is not available) [7]

No

Check adherence to statin and lifestyle measures **

Consider adding Ezetimibe 10mg daily

Yes

After 3 months, check fasting lipids. If LDL cholesterol > 4mmol/L (or 3.5 if recurrent CV events), refer for consideration of PCSK9i

Specialist service review and intervention

Review annually for adherence to drugs and support for diet and lifestyle measures

Optimal High Intensity Statin for secondary prevention
(High intensity statins are substantially more effective at preventing cardiovascular events than low/medium intensity statins)

Atorvastatin	80mg
Rosuvastatin	20mg

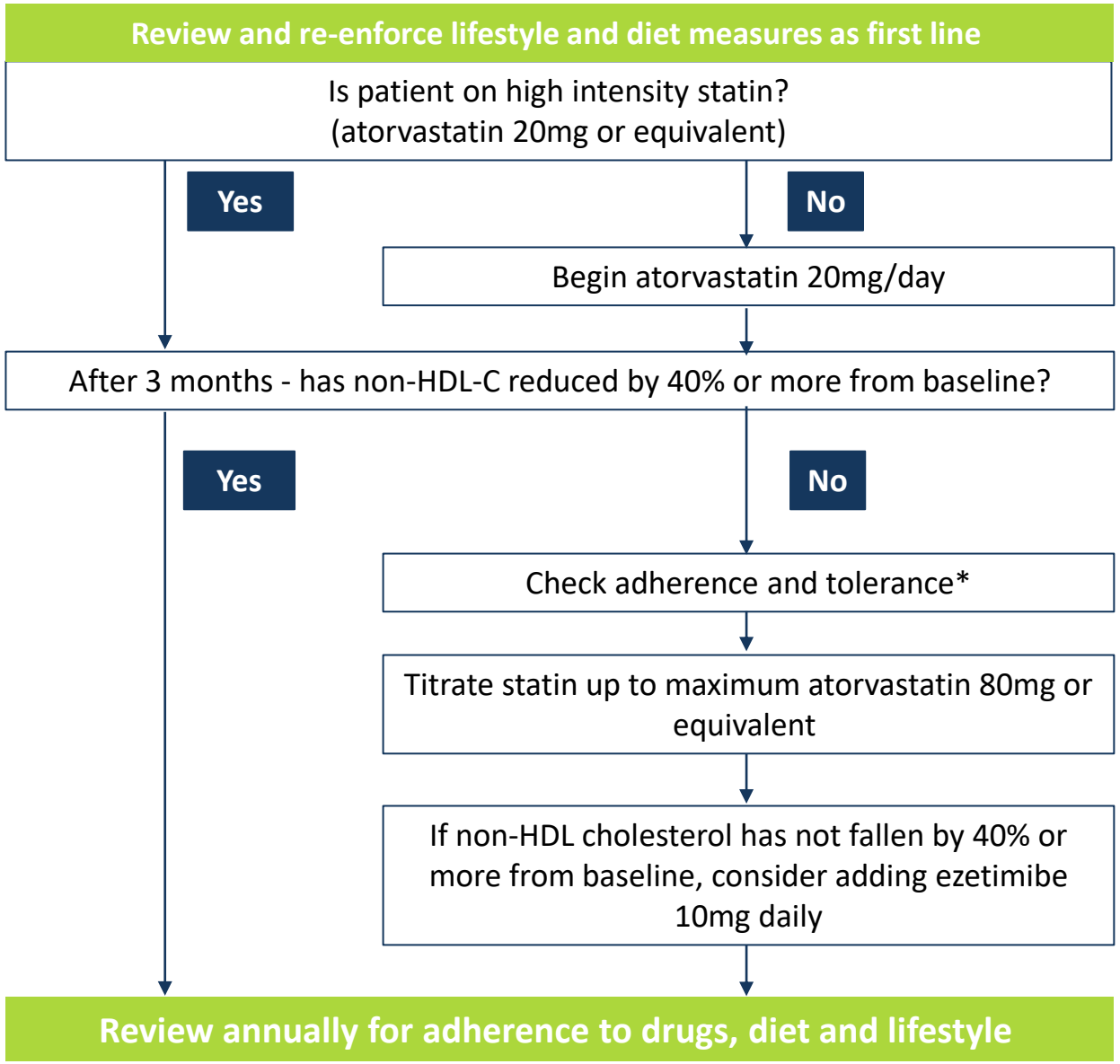
* Dose may be limited if:
- eGFR<30ml/min
- Drug interactions
- Intolerance

** If statin not tolerated, follow statin intolerance pathway and consider ezetimibe 10mg daily monotherapy

*** See statin intensity table

**** Nice Guidance recommends a 40% reduction in non- HDL cholesterol

Optimisation Pathway for Primary Prevention



Optimal High Intensity statin for Primary Prevention (High intensity statins are substantially more effective at preventing cardiovascular events than low/medium intensity statins)	
Atorvastatin	20mg
Rosuvastatin	10mg

* If statin not tolerated, follow statin intolerance pathway and consider ezetimibe 10mg daily monotherapy

Important considerations

- Most adverse events attributed to statins are no more common than placebo*
- Stopping statin therapy is associated with an increased risk of major CV events. It is important not to label patients as ‘statin intolerant’ without structured assessment
- If a person is not able to tolerate a high-intensity statin aim to treat with the maximum tolerated dose.
- A statin at any dose reduces CVD risk – consider annual review for patients not taking statins to review cardiovascular risk and interventions

A structured approach to reported adverse effects of statins

1. Stop for 4-6 weeks.
2. If symptoms persist, they are unlikely to be due to statin
3. Restart and consider lower initial dose
4. If symptoms recur, consider trial with alternative statin
5. If symptoms persist, consider ezetimibe

*(*Collins et al systematic review, Lancet 2016)*

Comorbidities that can increase the risk of developing CVD include:

- Hypertension
- Diabetes mellitus
- Chronic kidney disease
- Dyslipidaemia (familial and non-familial) - *note: some drugs can also cause dyslipidaemia such as some antipsychotics, immunosuppressants, and corticosteroids*
- Atrial fibrillation
- Rheumatoid arthritis, systemic lupus erythematosus, and other systemic inflammatory disorders
- Influenza
- Serious mental health problems - p*atients with psychotic disorders die 10-20 years earlier, with CVD being the most common cause of death*
- Periodontitis

Other factors to consider

- Socioeconomic status — *death from CVD is three times higher among people who live in the most deprived communities*
- Lack of social support

Muscle Symptoms Pathway

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Muscle Symptoms

Check CK

Exclude other possible causes e.g. rigorous exercise, physiological, infection, recent trauma, drug or alcohol addiction. Stop statin if intolerable symptoms, or clinical concern

CK>50x ULN

Consider rhabdomyolysis. Stop statin and seek specialist advice urgently

CK >10-50 ULN

Check renal function

Renal function deteriorating?

Yes

No

CK >4-10 ULN

CK 0-4x ULN

No improvement in CK or symptoms intolerable

Tolerable symptoms

Discuss with patient. Continue statin and review at 2 weeks. Consider lower dose or alternative statin

Monitor CK , continue statin and review at 6 weeks

Stop statin for 4-6 weeks. **2 weeks after symptoms resolved and CK normalised,** restart statin at lower dose (Or consider low dose rosuvastatin if on atorvastatin and titrate up)

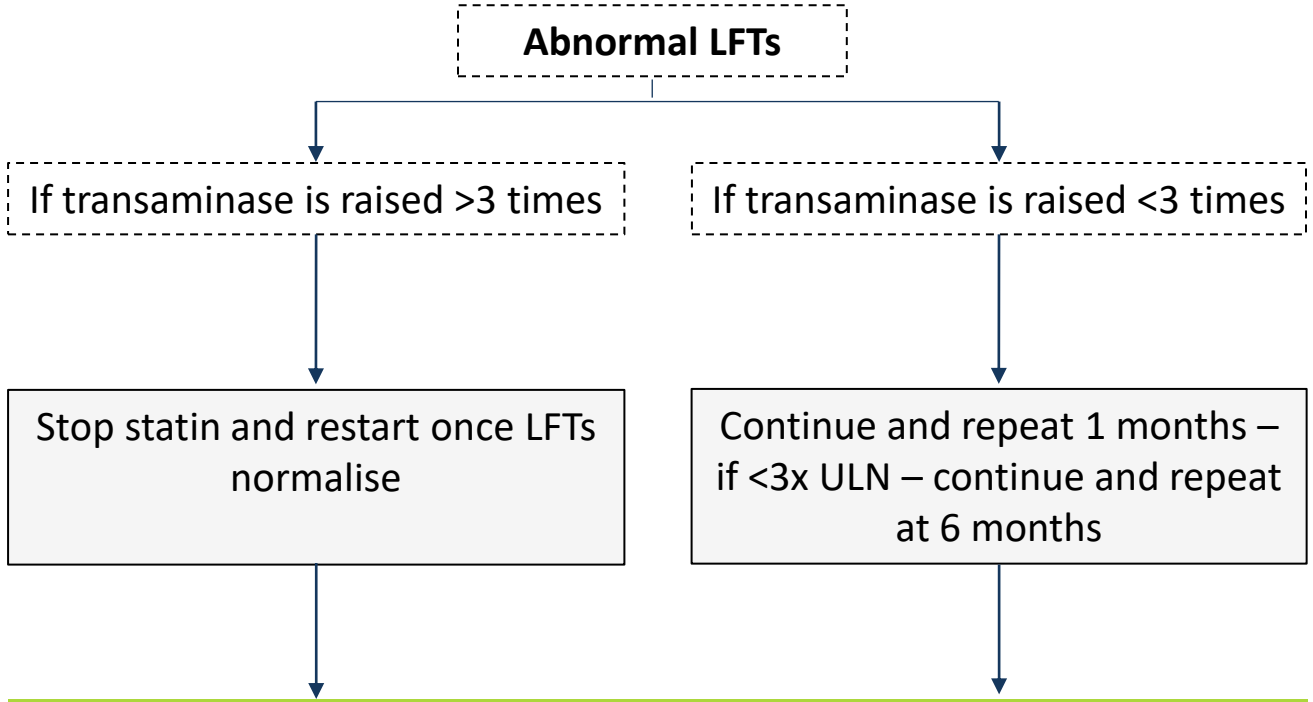
Seek specialist advice if CK not normalised

Titrate to higher dose if tolerated.

If recurrence of symptoms - Consider other Ezetimibe, PSK9i (for secondary prevention)

Detailed guidance:
https://www.england.nhs.uk/aac/wp-content/uploads/sites/50/2020/09/statin-intolerance-pathway-03092020.pdf

Abnormal Liver Function Test Pathway



- Do not routinely exclude from statin therapy people who have liver transaminase levels that are raised but are less than 3 times the upper limit of normal.
- Most adults with fatty livers are likely to benefit from statins and this is not a contraindication.
- Check Liver function at baseline, and once between 3 months and 12 months after initiation of statin therapy.

Shared Decision-Making Resources

Benefits per 10,000 people taking statin for 5 years	Events avoided
Avoidance of major CVD events in patients with pre-existing CVD & a 2mmol/l reduction in LDL	1,000
Avoidance of major CVD events in patients with no pre-existing CVD & a 2mmol/l reduction in LDL	500

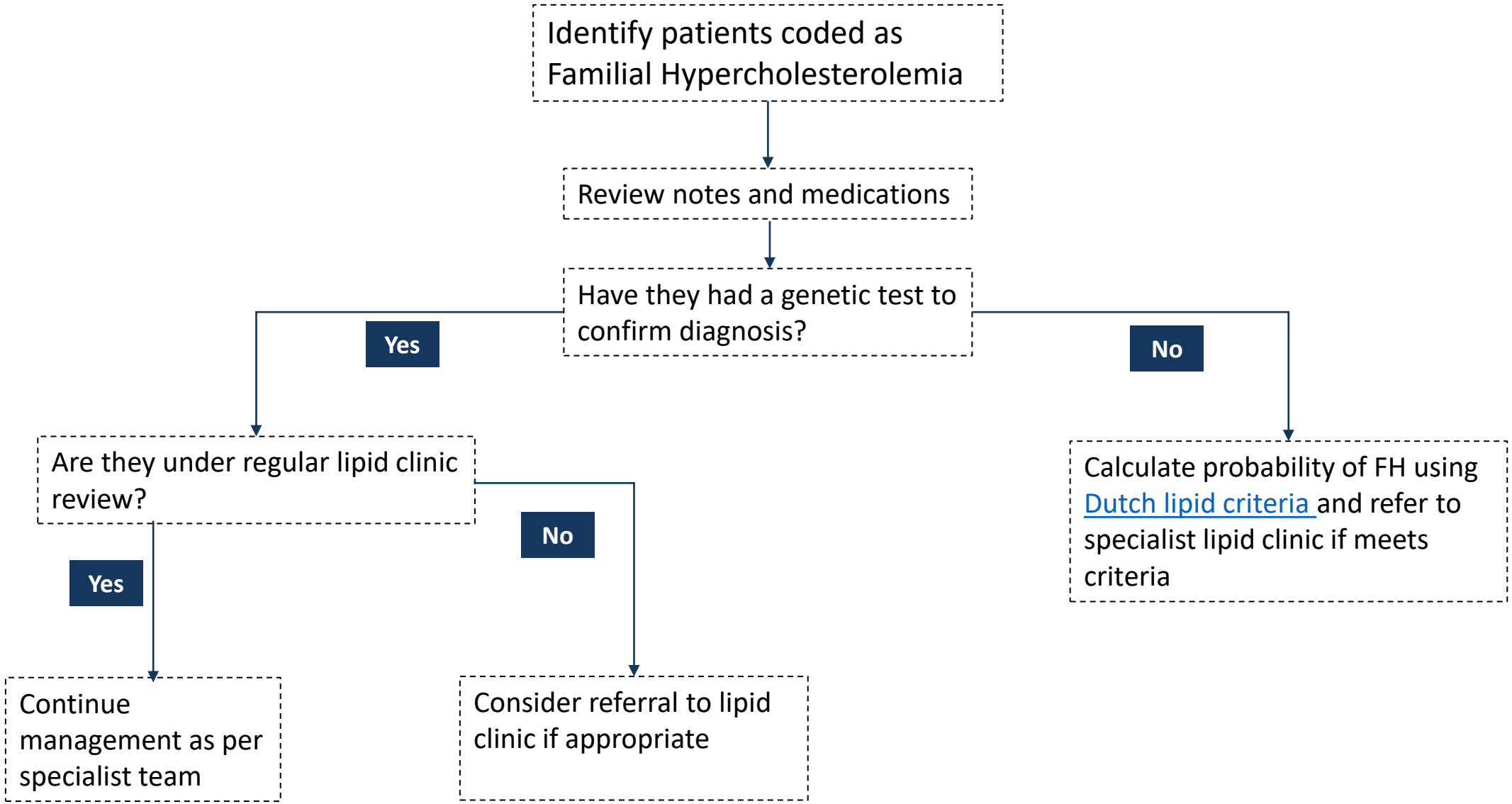
Adverse events per 10,000 people taking statin for 5 years	Adverse events
Myopathy	5
Haemorrhagic Strokes	5-10
Diabetes Cases	50-100

Shared decision-making resources:

- BHF information on statins
- Heart UK: Information on statins
- NICE shared decision-making guide

Collins et al 2016 Lancet Systematic Review Lancet 2016; 388: 2532–61

Desktop Review for People with Coded FH



Overview of Medicines Optimisation in FH

1. Offer a high-intensity statin to all adults with FH
2. Aim for at least a 50% reduction in LDL-C concentration
3. Increase the dose of statin after 3 months if not achieving a 50% reduction in LDL-C and not already prescribed maximum dose
4. Use ezetimibe in patients with FH who have contraindications to or cannot tolerate statin therapy
5. Add ezetimibe to statin therapy in patients who are not achieving a 50% reduction in LDL-C concentration despite maximum dose high intensity statin OR where statin dose is limited by side effects
6. Refer patients to a specialist:
    - if treatment with the maximum tolerated dose of a high-intensity statin and ezetimibe is inadequate
    - if they are assessed to be at very high risk of a coronary event:
        - Established coronary heart disease
        - A family history of premature coronary heart disease
        - Two or more other cardiovascular risk factors (for example, they are male, they smoke, or they have hypertension or diabetes)
7. Specialists may initiate PCSK9i (alirocumab or evolocumab), bile acid binders (resins) or fibrates in patients with an inadequate response to first line lipid lowering therapies therapies.
8. PCSK9i are recommended for use in people with FH:
    - For primary prevention when LDL remains > 5mmol/L despite optimal statin / ezetimibe therapy
    - For secondary prevention when LDL remains > 3.5mmol/L despite optimal statin / ezetimibe therapy

Familial Hypercholesterolaemia Family History Questionnaire

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We have reviewed your cholesterol results and would like some information on your family history to help inform your treatment. Please answer the following questions:

1. Have any of your first-degree blood relatives (mother, father, brother or sister) had a heart attack under the age of 60? **Yes/ No**

   If Yes, which relative (mention how they are related to you) and how old were they when they had the heart attack?

2. Have any of your second-degree blood relatives (grandparents, aunts, uncles, nephews, nieces and half brothers and half sisters) had a heart attack aged 50 or under? **Yes/ No**

   If Yes, which relative (mention how they are related to you) and how old were they when they had the heart attack?

Dutch Lipid Clinic Criteria

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Family history		
First-degree relative with known premature coronary and/or vascular disease (men aged <55 years and women aged <60 years) or First-degree relative with known low-density lipoprotein-cholesterol (LDL-C) above the 95th percentile for age and sex		1
First-degree relative with tendinous xanthomata and/or arcus cornealis or Children aged <18 years with LDL-C above the 95th percentile for age and sex		2
Clinical history		
Patient with premature coronary artery disease (ages as above)		2
Patient with premature cerebral or peripheral vascular disease (as above)		1
Physical examination		
Tendinous xanthomata		6
Arcus cornealis prior to 45 years of age		4
LDL-C (mmol/L)		
	LDL-C ≥8.5	8
	LDL-C 6.5–8.4	5
	LDL-C 5.0–6.4	3
	LDL-C 4.0–4.9	1
Deoxyribonucleic acid (DNA) analysis: Functional mutation in the low-density lipoprotein receptor (LDLR), apolipoprotein B (APOB) or proprotein convertase subtilisin/kexin type 9 (PCSK9) gene		8
Stratification		Total score
Definite familial hypercholesterolaemia (FH)		≥8
Probable FH		6–7
Possible FH		3–5
Unlikely FH		<3

ApoB, apolipoprotein B; DNA, deoxyribonucleic acid; FH, familial hypercholesterolaemia; LDL-C, low-density lipoprotein-cholesterol;
LDLR, low-density lipoprotein receptor; *PCSK9*, proprotein convertase subtilisin/kexin type 9

Digital Resources

Digital Resources to support self-management: Cholesterol

- **Heart UK resources**

Healthy Eating, blood fats explained, understanding cholesterol, and Familial Hypercholesterolemia

- **British Heart Foundation resources**

Understanding Cholesterol

- **Diet**

Providing information and recipes for easy ways to eat better from the 'One You' website
NHS advice on lowering cholesterol levels

- **Smoking cessation**

NHS support, stop smoking aids, tools and practical tips

- **Exercise**

NHS 'One You'
iPrescribe app offers a tailored exercise plan by creating a 12-week exercise plan based on health information entered by the user
Getting active around the home: tips, advice and guidance on how to keep or get active in and around the home from Sport England
Dance to health: Online dance programme especially tailored to people over 55 years old

- **Alcohol**

Heart UK alcohol guidance
NHS Drink Less guidance

- **Mental Health**

Tips and suggestions for looking after your mental health

- **Peer support**

Communities of people living with high cholesterol

Statin Intensity table – Nice recommends Atorvastatin and Rosuvastatin as first line

Approximate Reduction in LDL-C					
Statin dose mg/day	5	10	20	40	80
Fluvastatin			21%	27%	33%
Pravastatin		20%	24%	29%	
Simvastatin		27%	32%	37%	42%
Atorvastatin		37%	43%	49%	55%
Rosuvastatin	38%	43%	48%	53%	
Atorvastatin + Ezetimibe 10mg		52%	54%	57%	61%

Low/moderate intensity statins will produce an LDL-C reduction of 20-30%

Medium intensity statins will produce an LDL-C reduction of 31-40%

High intensity statins will produce an LDL-C reduction above 40%

Simvastatin 80mg is not recommended due to risk of muscle toxicity

QRISK®3 includes more factors than QRISK®2 to help identify those at most risk:

- Chronic kidney disease, which now includes stage 3 CKD
- Migraine
- Corticosteroids
- Systemic lupus erythematosus (SLE)
- Atypical antipsychotics
- Severe mental illness
- Erectile dysfunction
- A measure of systolic blood pressure variability

References

1. Collins et al Lancet 2016; 388: 2532–61
2. NHS England statin intolerance pathway
3. NHS England summary of lipid management national guidance
4. NICE cardiovascular disease clinical guidance
5. NICE secondary prevention clinical guidance
6. European Heart Journal, Volume 37, Issue 29, 1 August 2016, Pages 2315–2381
7. Summary of National Guidance for Lipid Management for Primary and Secondary Prevention of CVD – AAC Subgroup March 2020

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Proactive Care Frameworks: implementation & support package

Implementation Support is critical to enable sustainable and consistent spread.
UCLPartners has developed a support package covering the following components:

Search and stratify

Comprehensive search tools for EMIS and SystmOne to stratify patients
- Pre-recorded webinar as to how to use the searches
- Online Q&A to troubleshoot challenges with delivery of the search tools

Workforce training and support

Training tailored to each staff grouping (e.g. HCA/ pharmacist etc) and level of experience
- **Delivery:** Protocols and scripts provided/ training on how to use these underpinned with motivational interviewing/ health coaching training to enable adult-to-adult conversations
- **Practical support**: e.g. correct inhaler technique; correct BP technique, Very Brief Advice for smoking cessation, physical activity etc
- **Digital implementation** support: how to get patients set up with appropriate digital
- **Education** sessions on conditions
- **Communities of Practice**

Digital support tools

Digital resources to support remote management and self-management in each condition
Implementation toolkits available where required, e.g. MyCOPD
Support available from UCLP's commercial and innovation team for implementation

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Thank you

For more information please contact:

primarycare@uclpartners.com

www.uclpartners.com
@uclpartners

Version tracker

Version	Edition	Changes Made
2	2.0	• Edited the stratification overview slide
3	3.0	• FH pathway updated and guidance for detection • Addition of Medicines Optimisation approach • Guidance on desk top reviews and use of Dutch Lipid Clinic criteria
4	4.0	• Formatting and slide order
4	4.1	• Formatting