



**University College
London Hospitals**
NHS Foundation Trust

LIPIDS

NCL Lipid Management

16th January 2024

DR CATHERINE LUNKEN

GP referral

Dear Doctor

This 54 year man has a cholesterol of 8.4. ?FH

Thank you for seeing him for genetic testing.

?Reasonable request

Yes

No

Further ..

- Total Cholesterol 8.4 Triglycerides 4.5
- HbA1c 74
- Remember previous cholesterols !!!!!

Case 1

- DS 35 year old man

TC 9.4 Trigs1.2 HDL1.11 LDL 7.71

Secondary causes excluded

Father CABG age 50, his father died 60 MI

Simon Broome

Dutch Clinic Lipid score probable FH (11)

Simon Broome criteria

The image shows a screenshot of a presentation slide titled "Simon Broome Criteria". The slide is divided into two columns: (1) Definite familial hypercholesterolemia and (2) Possible familial hypercholesterolemia. Each column lists specific criteria for diagnosis, including cholesterol levels and family history. The slide is displayed in a window titled "simon-broome-criteria-l.jpg".

Simon Broome Criteria

(1) Definite familial hypercholesterolemia:

- (a) Raised cholesterol:
 - (i) total cholesterol greater than 6.7 mmol/l (260 mg/dl) or LDL cholesterol greater than 4.0 mmol/l (155 mg/dl) in a child aged younger than 16 years;
 - (ii) or total cholesterol greater than 7.5 mmol/l (290 mg/dl) or LDL cholesterol greater than 4.9 mmol/l (190 mg/dl) in an adult (age over 16);
- (b) and
 - (i) tendon xanthomas in the patient or in a first (parent, sibling, or child) or second-degree relative (grandparent, aunt, or uncle);
- (c) or
 - (i) DNA-based evidence of LDL-receptor, familial defective apo B-100 or PCSK9 mutations;

(2) Possible familial hypercholesterolemia

- (a) Raised cholesterol:
 - (i) total cholesterol greater than 6.7 mmol/l (260 mg/dl) or LDL-C greater than 4.0 mmol/l (155 mg/dl) in a child aged younger than 16 years;
 - (ii) or total cholesterol greater than 7.5 mmol/l (290 mg/dl) or LDL-C greater than 4.9 mmol/l (190 mg/dl) in an adult;
- (b) and at least one of the following:
 - (i) family history of premature myocardial infarction younger than 50 years of age in second-degree relative or younger than 60 years of age in first-degree relative;

Curr Opin Lipidol 2012, 23:282-289

Dutch clinic lipid score

Biochemical Investigation	
LDL-C level ≥ 8.5 mmol/l	8
LDL-C level 6.5 – 8.4 mmol/L	5
LDL-C level 5.0 – 6.4 mmol/L	3
LDL-C level 4.0 – 4.9 mmol/L	1
Clinical Investigation	
Tendon Xanthomas	6
Arcus Cornealis (age < 45 yrs.)	4
Family Medical History	
1 st degree relative with premature coronary artery disease – OR 1 st degree relative with verified LDL-C above the 95 th percentile	1
1 st degree relative with tendon xanthomas or Arcus cornealis – OR Children with verified LDL-C above the 95 th percentile	2
Patient Past Medical History	
Premature coronary artery disease	2
Premature cerebral or peripheral artery disease	1
Diagnosis	
Definite FH – points	≥ 8
Probable FH – points	6 – 7
Possible FH – points	3 – 5
Unlikely FH – points	< 3
Premature disease is defined as disease before the age of 55 years (Men) or 60 years (Women) Adapted from the 2016 ESC/EAS guidelines for the management of dyslipidaemia	

Genetic testing positive LDLR gene abnormality Heterozygous FH

Important to code...also for probable and possible FH (only 20-30% clinical cases FH will have mutation)

Started on 20mg Atorvastatin

TC 7.7 LDL 5.83

?next

Next step?

- 40mg Atorvastatin
- 80mg Atorvastatin
- 20mg Rosuvastatin
- 40mg Rosuvastatin
- Ezetimibe

Doubling statin dose decreases LDL by

- 20%
- 6%
- 50%
- 12%

Adding ezetimibe decreases LDL by

- 6%
- 20%
- 14%
- 2%

Intensity of lipid-lowering treatment

Treatment	Average LDL-C reduction
Moderate-intensity statin	≈ 30%
High-intensity statin	≈ 50%
High-intensity statin plus ezetimibe	≈ 65%
PCSK9 inhibitor	≈ 60%
PCSK9 inhibitor plus high-intensity statin	≈ 75%
PCSK9 inhibitor plus high-intensity statin plus ezetimibe	≈ 85%



Next step

20 mg Rosuvastatin

10mg Ezetimibe

TC 6.5/LDL 4

Now what?

Next step?

- 40mg Rosuvastatin
- PCSK9i
- Inclisiran
- Carry on

So..

- CTCA and calcification score....deposits
- CIMT ..deposits
- (NICE PCSK9i FH needs to be LDL 5.0 if low risk
High risk 3.5)

Now qualifies as high risk so can use PCSK9i

- LDL now1.4

CASE 2

EB 69 year old woman

Type 2 diabetes 2013

Diabetic clinic 2015 TC 6.2 and LDL 3.2 Hba1c 8.5%

2017 2018 intolerant simvastatin/atorvastatin

2020 Ezetimibe suggested ..headaches

2021 Pravastatin fibrate

2021 Lipid clinic TC 5.2/Trigs 2.4/LDL 3.1 HbA1C 6.7%

Options?

Bempedoic acid started (recommended to monitor uric acid - do baseline)

Nightmares

Rechallenged and taken at lunchtime

TC 3.7 and LDL 1.7

(Always try Rosuvastatin 5mg 2/week)

2023 Dizzy

Totally occluded (L) ICA and tight occlusion (R) ICA

TC 5.3/LDL 3

TC 5.0/LDL 2.6

Today!

She had her first dose of inclisiran as now qualifies

(Nice aimed at Inclisiran to be started in primary care.

Rather slow uptake to date.

Easy to give, does not need refrigeration.

At some practices being given to eligible patients at same time as Flu etc vaccination)

Non HDL v LDL

Secondary prevention use LDL

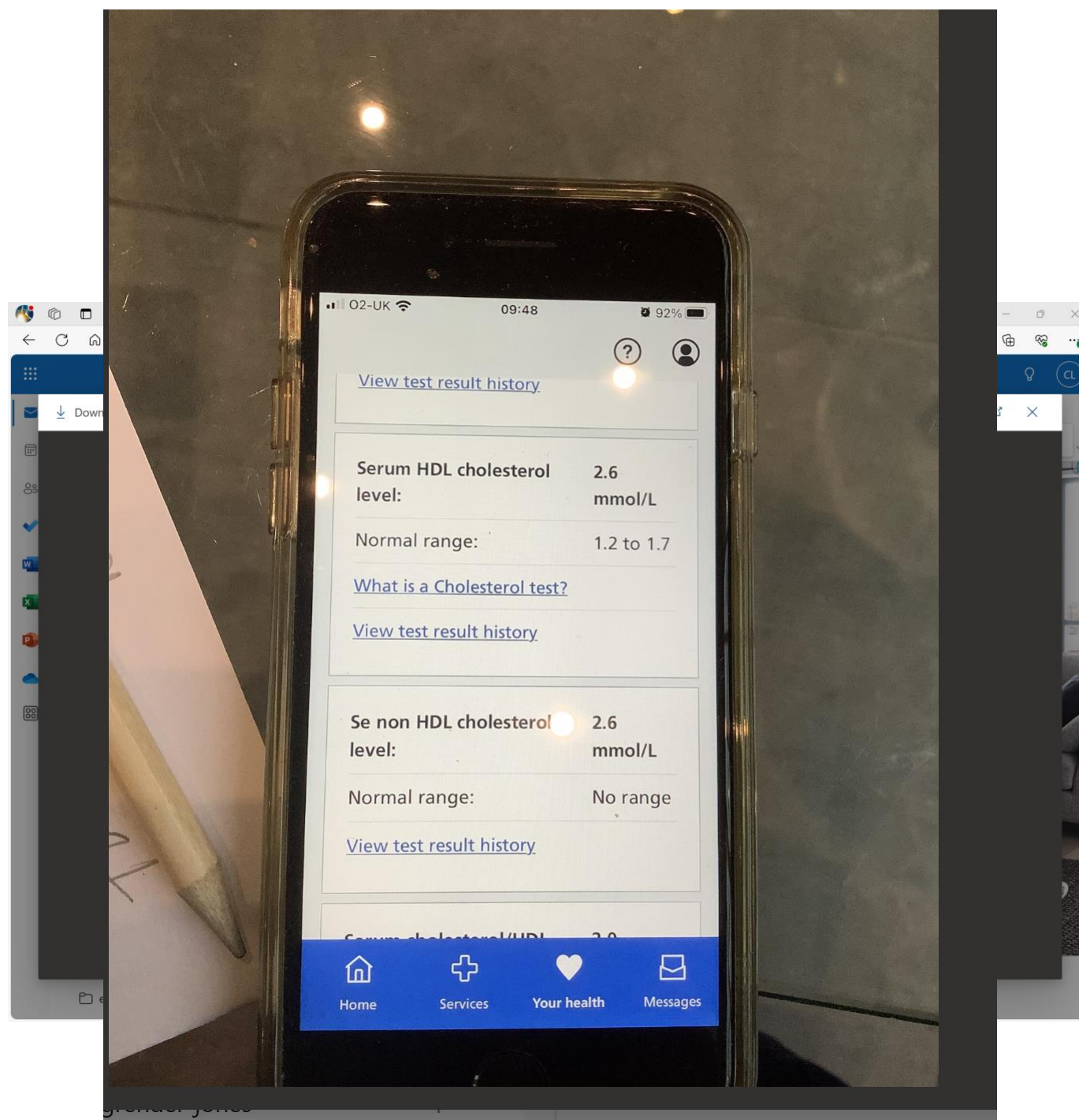
QOF New indicator CHOL002 both nonHDL and LDL

My friend Barbara65 year old woman

MI aged 60, exsmoker, hypertensive

80mg Atorvastatin

Barbara



Take home messages

- Full fasting lipid profile
- Exclude secondary causes
- Previous lipid profiles? (If normal excludes genetic ..think weight, diet drugs, Covid, menopause)
- Add Ezetimibe early (20%reduction)
- Secondary prevention LDL<1.8 high risk <1.4 very high risk
- LDL 2.6 Bempedoic acid Inclisiran
- LDL 3.5 PCSK9i