

MASLD Screening in Diabetic Patients

Ameet Dhar

Lucia Possamai

Bob Grover

Luke Tyson

Matt Foxton

BACKGROUND & STRATEGIC CONTEXT

Clinical Rationale

- Liver disease is the 3rd most common cause of premature death in T2DM
- Type 2 diabetes confers 2–3× increased risk of significant hepatic fibrosis ($\geq$ F3)
- FIB-4 is a non-invasive predictor of fibrosis
- FIB-4 calculable from existing routine bloods (if AST performed)
- Early fibrosis detection enables disease management to try and prevent progression to cirrhosis which confers an increased risk of mortality and morbidity

Strategic Alignment

NHS Long-Term Plan

Prevention of liver disease as a national priority

NICE NG49

Recommends non-invasive fibrosis testing pathways in primary care

NWL ICB Outpatient Transformation

Shift diagnostic workup from secondary to community care

NHSE GIRFT Hepatology

Reduce avoidable outpatient hepatology referrals

EASL/EASD/EASO Guidelines 2016

ELF and FIB-4 endorsed in clinical practice guidelines

Ideally planning of this should have been prospectively with cost effectiveness and capacity modelling prior to roll-out . We now need to work together to sure the right models in place

Non invasive predictors: of Fibrosis:

FIB-4

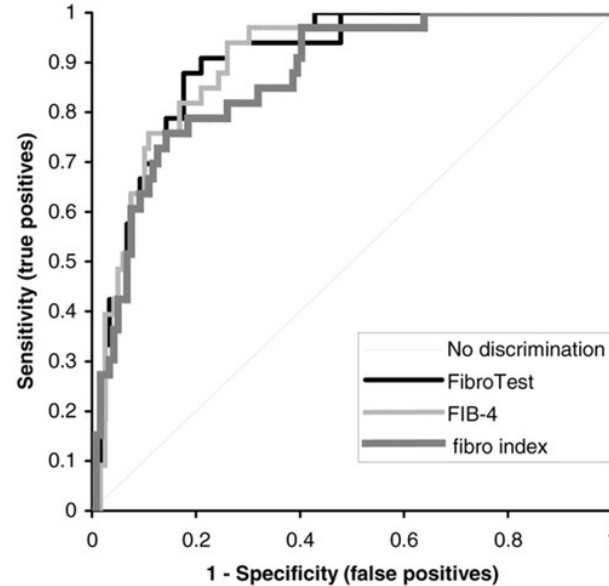
$$\text{FIB-4} = \frac{\text{Age (years)} \times \text{AST (U/L)}}{\text{Platelet Count (10}^9\text{/L)} \times \sqrt{\text{ALT (U/L)}}}$$

IN NAFLD and ALD:

High risk for advanced fibrosis > 3.25:

Intermediate risk for fibrosis if 1.30-3.25

Low risk for fibrosis if <1.30



POPULATION VOLUME MODEL — NWL DIABETIC COHORT

150,000

NWL T2DM Register

Total registered population

35,000

Screened per annum (CRM/diabetes cycle)

Mid-point estimate (~30–40k range)

21,875

FIB-4 Low Risk (62%)

Community management, 3-yearly repeat

11,375

FIB-4 Intermediate Risk (32.5%)

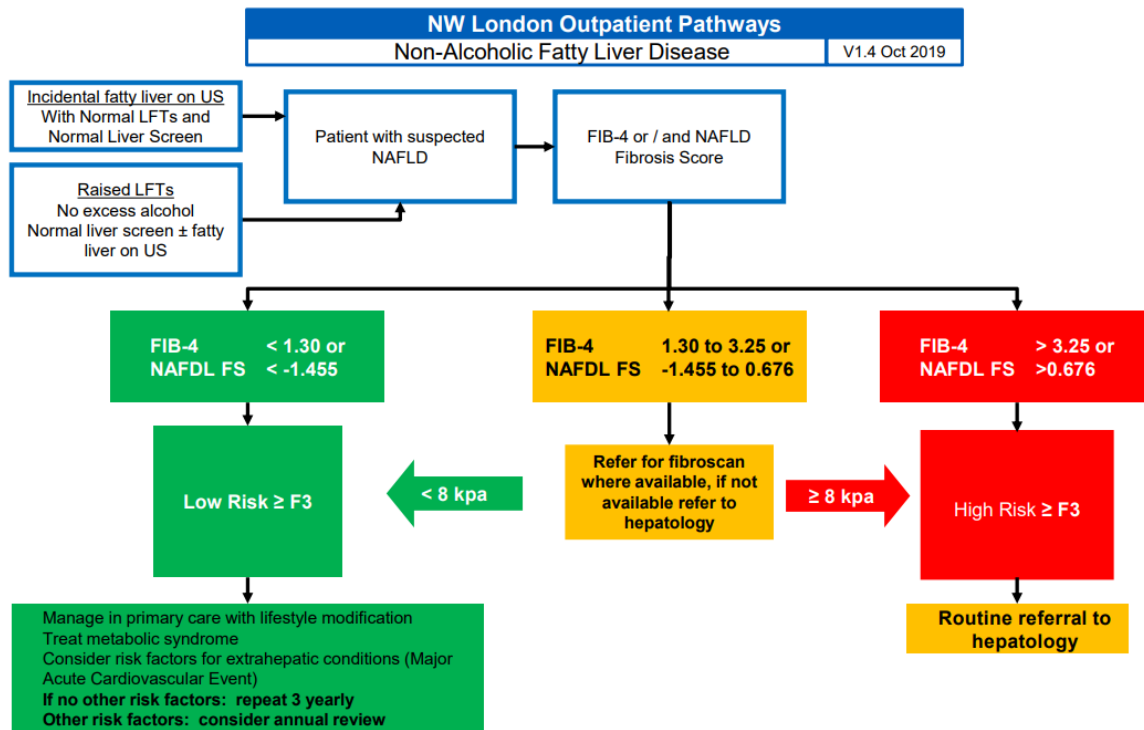
Eligible for ELF reflex test

1,750

FIB-4 High Risk (5%)

Direct to FibroScan

BACKGROUND & STRATEGIC CONTEXT



Current pathway to deal with fatty liver referrals (ie. FIB4 positive DM with presumed fatty liver disease)

References:

- EASL-EASD-EASO 2016 Clinical Practice Guidelines on the management of non-alcoholic fatty liver disease. J Hepatol 2016;64:1388-402
- Non-alcoholic fatty liver disease (NAFLD): assessment and management, NICE guideline (NG49) Published date: July 2016
- Prospective evaluation of a primary care referral pathway for patients with non-alcoholic fatty liver disease. Journal of Hepatology (2019), doi: <https://doi.org/10.1016/j.jhep.2019.03.033>
- Non invasive assessment of liver disease in patients with NAFLD. Gastroenterology 2019;156:1264-1281

POPULATION VOLUME MODEL — NWL DIABETIC COHORT

11,375

FIB-4 Intermediate Risk (32.5%)

Eligible for ELF reflex test

1,750

FIB-4 High Risk (5%)

Direct to FibroScan

Community management, 3-yearly repeat

This means approx. over 13,000 patients per year will need to be referred in for review and fibroscan if we adhered to current MASLD pathway (note this is not even a directly comparable pathway for this patient cohort who just have a positive FIB-4)

Current specialist services would not be able to cope with this surge

Knock on effect – detrimental effect on care of all liver patients within NW Thames (wait times / pressures on services etc)

POPULATION VOLUME MODEL — NWL DIABETIC COHORT

11,375

FIB-4 Intermediate Risk (32.5%)

Eligible for ELF reflex test

1,750

FIB-4 High Risk (5%)

Direct to FibroScan

Community management, 3-yearly repeat

2nd line fibrosis test - ELF TEST (Enhanced liver fibrosis test: blood test- HA/PIIINP/TIMP-1)
65% of intermediate group (7,394 patients) spared FibroScan
35% (3,981) proceed to FibroScan
Total FibroScans: with ELF -5,731 vs 13,125 without ELF)

BACKGROUND & STRATEGIC CONTEXT

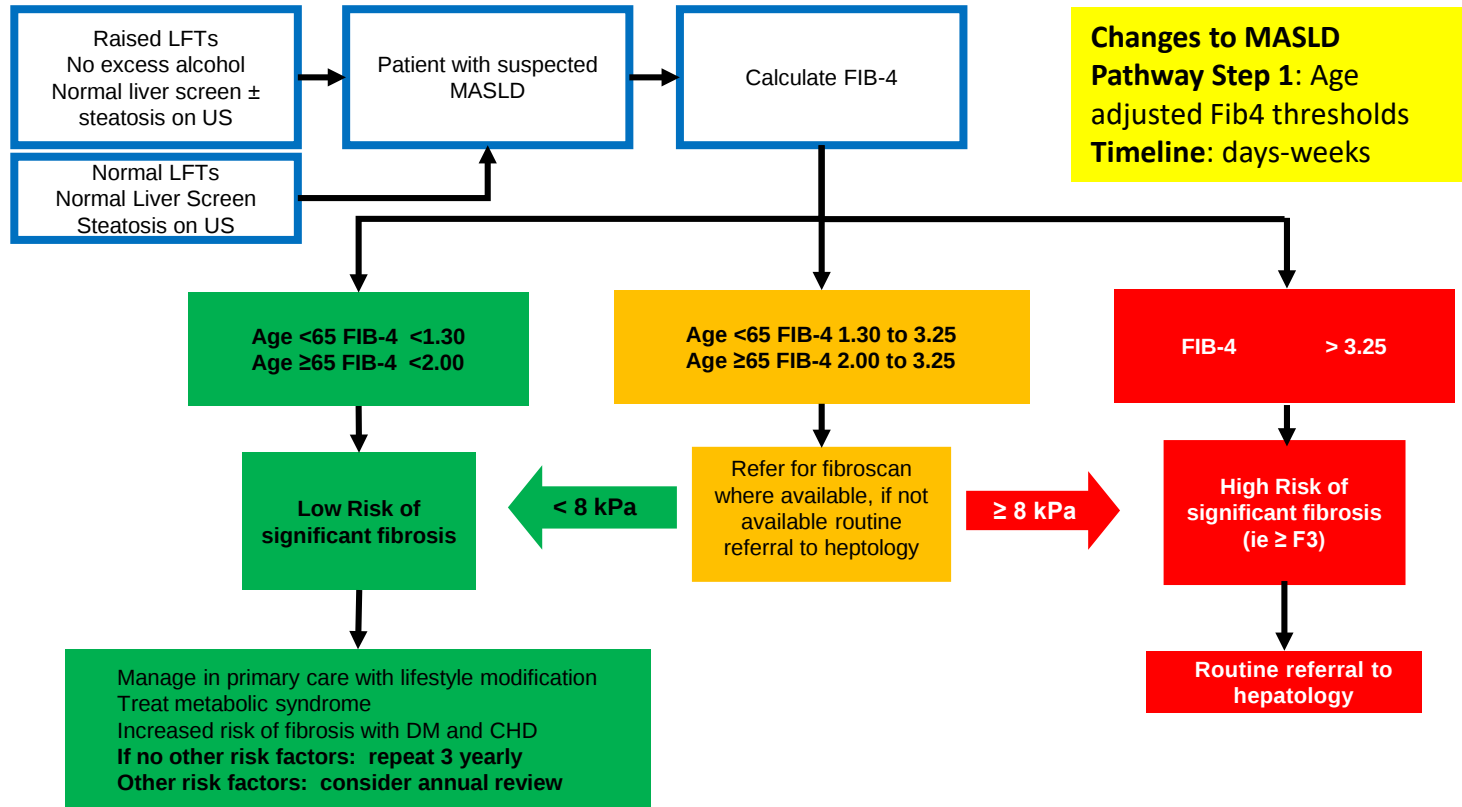
Clinical Rationale

How do we therefore ensure the correct patients are receiving fibroscans

- introduction of a second line blood test for fibrosis - ELF

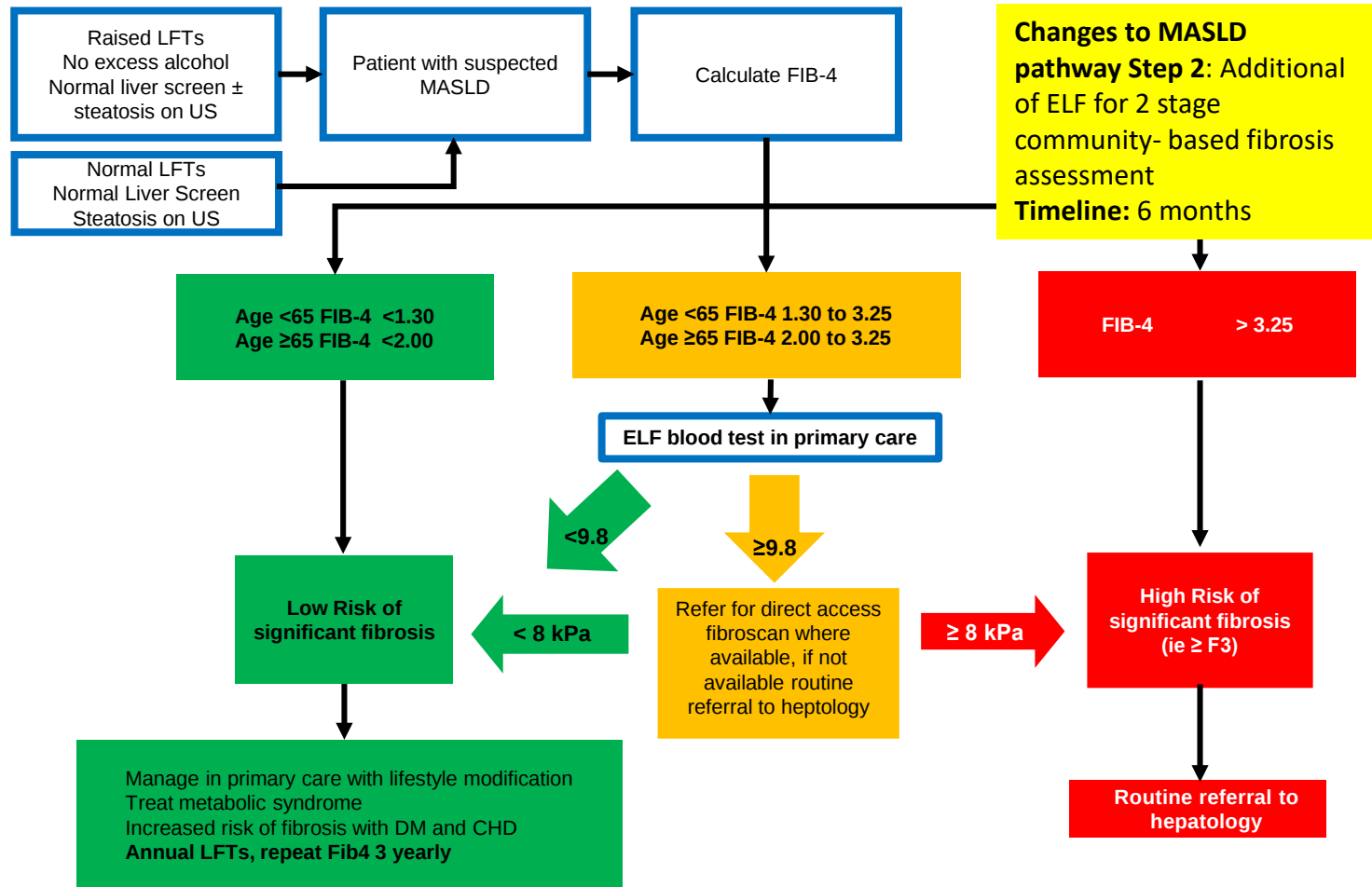
What do we do here and now for these patients:

- the correct FIB-4 model (age adjusted)
- Normal liver tests with an intermediate FIB-4?
- Normal liver tests with a high FIB -4?
- **Patient with abnormal liver tests or proven MASLD – follow these referral pathways please**



References:

- EASL–EASD–EASO 2016 Clinical Practice Guidelines on the management of non-alcoholic fatty liver disease. J Hepatol 2016;64:1388–402
- Non-alcoholic fatty liver disease (NAFLD): assessment and management, NICE guideline [NG49] Published date: July 2016
- Prospective evaluation of a primary care referral pathway for patients with non-alcoholic fatty liver disease. Journal of Hepatology (2019), doi: <https://doi.org/10.1016/j.jhep.2019.03.033>
- Non invasive assessment of liver disease in patients with NAFLD, Gastroenterology 2019;156:1264–1281

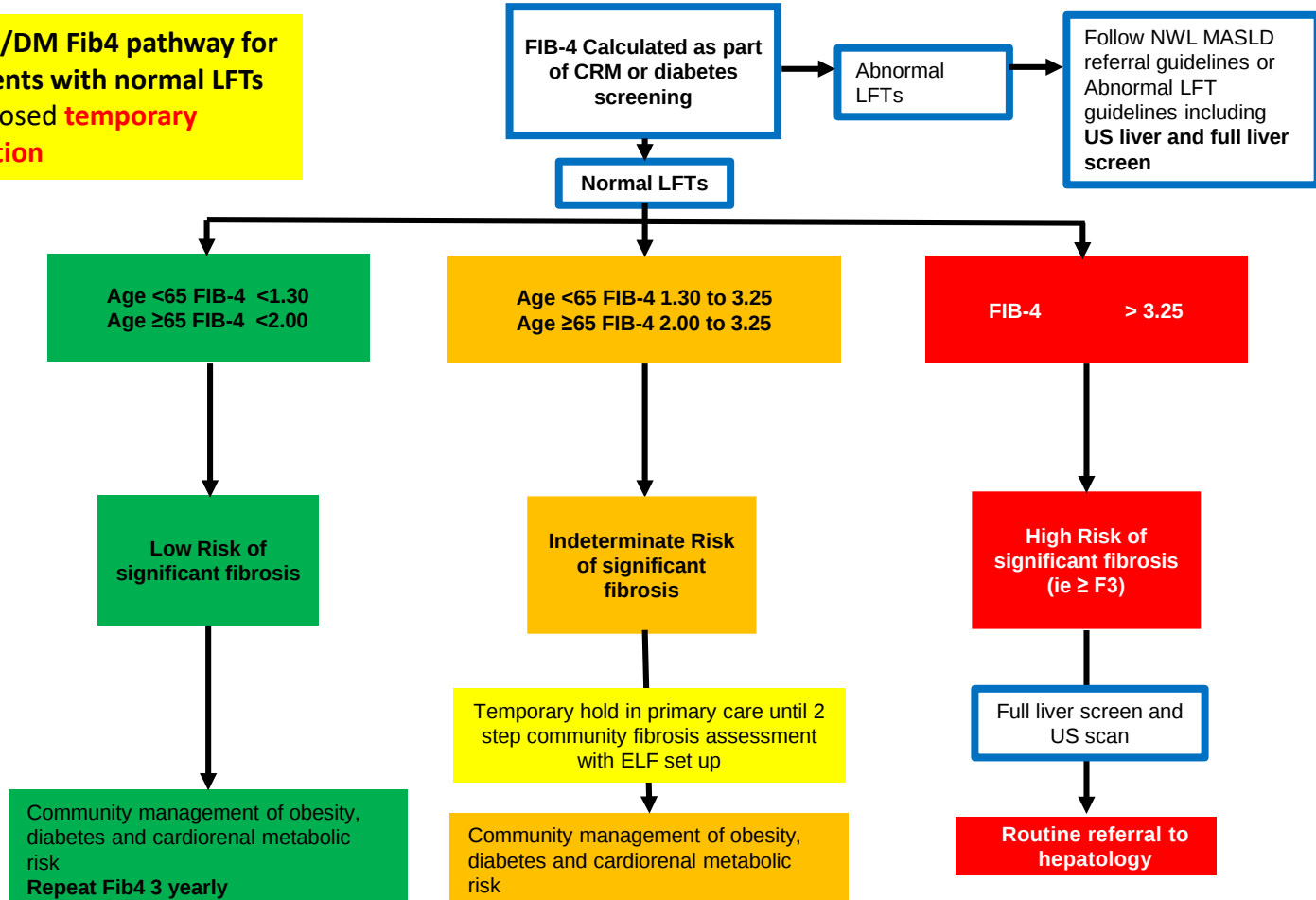


NW London Outpatient Pathways

Positive Fib4 on CRM or diabetes community screening with **normal LFTs**

V1.0 May 2026

CRM/DM Fib4 pathway for patients with normal LFTs
Proposed **temporary** solution

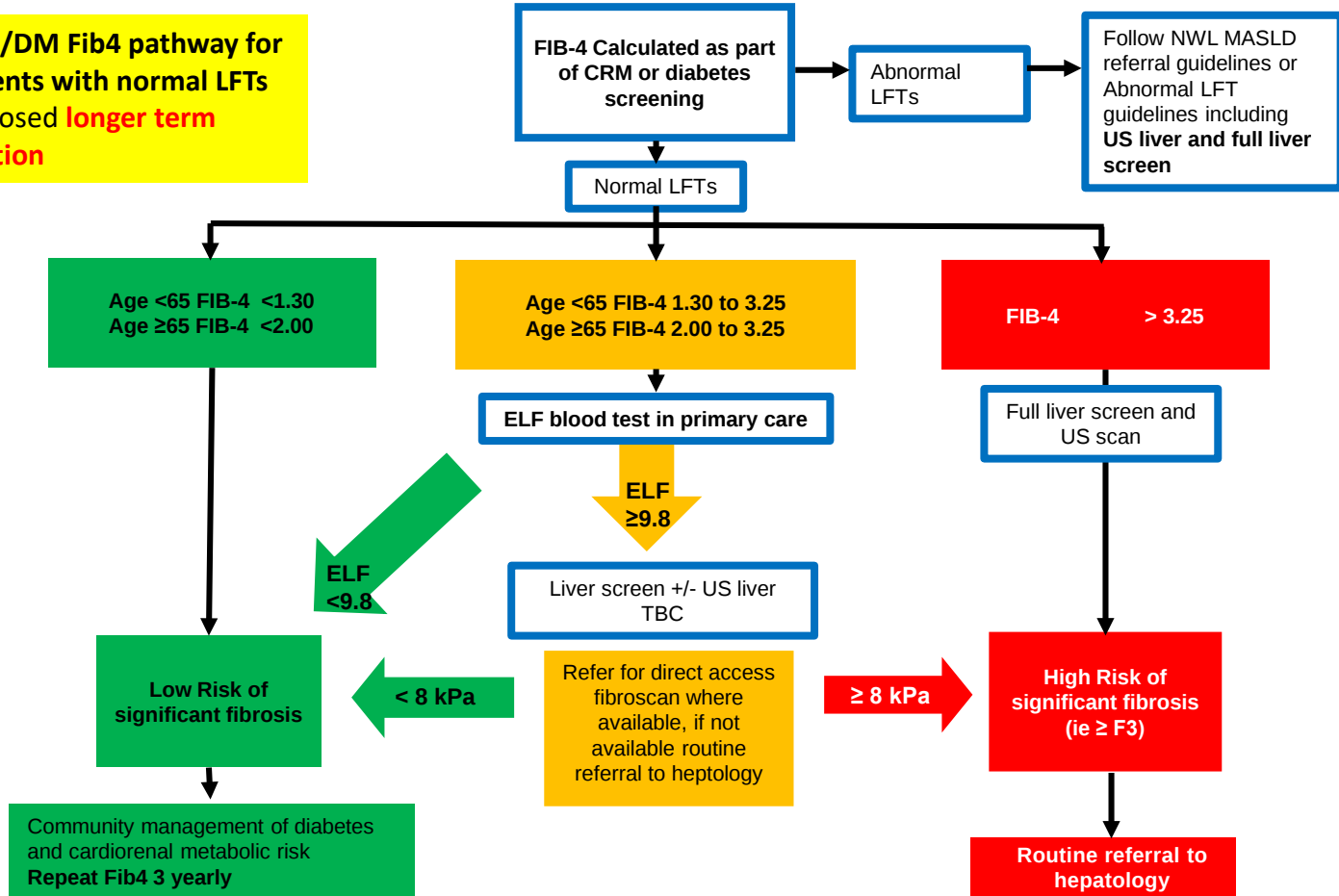


NW London Outpatient Pathways

Positive Fib4 on CRM or diabetes community screening with **normal LFTs**

V1.0 May 2026

CRM/DM Fib4 pathway for patients with normal LFTs
Proposed **longer term solution**



NWL MASLD — SCREENING PATHWAY (DIABETIC / CRM POPULATION)

Step 1

FIB-4 Calculation

Automatically calculated from existing CRM/diabetes bloods

- Age <65: Low <1.30 | Intermediate 1.30–3.25 | High >3.25
- Age ≥65: Low <2.00 | Intermediate 2.00–3.25 | High >3.25

Step 2

ELF Blood Test (intermediate risk only)

One additional sample — no extra patient visit needed

- ELF <9.8: Return to community; repeat FIB-4 in 3 years
- ELF ≥9.8: Proceed to FibroScan

Step 3

Direct Access FibroScan

Applies to: High-risk FIB-4 + ELF ≥9.8 group

- FibroScan <8 kPa: Community management; 3-yearly FIB-4
- FibroScan ≥8 kPa: Routine hepatology referral

London HCV Treatment data 2025/26

- London Hospitals ranked by total HCV treatments
- West London hospitals all within the top ten

London Network	Actuals data taken from Blueteq
Barts	263
North Central London	220
South East Thames	258
South West Thames	125
West London	335
Total	1201

		Trust	(ODN Hub sites)	Q1 Total	Q2 Total	Q3 Total	Q4 Total	Grand Total
1	↑	Barts Health NHS Trust	(NEL ODN Hub)	40	28	46	44	158
2	↓	King's College Hospital NHS Foundation Trust	(SEL ODN Hub)	53	33	27	39	152
3	↔	Imperial College Healthcare NHS Trust	(WL ODN Hub)	26	31	41	34	132
4	↔	St George's University Hospitals NHS Foundation Trust	(SWL ODN Hub)	34	30	39	22	125
5	↔	Royal Free London NHS Foundation Trust	(NCL ODN Hub)	29	28	25	19	101
6	↔	Chelsea & Westminster Hospital NHS Foundation Trust		34	19	24	17	94
7	↔	Barking, Havering & Redbridge University Hospitals NHS Trust		24	23	17	18	82
8	↑	Lewisham & Greenwich NHS Trust		11	19	15	15	60
9	↓	London North West Healthcare NHS Trust		22	14	14	9	59
10	↔	The Hillingdon Hospitals NHS Foundation Trust		12	10	18	10	50
11	↔	Guy's & St Thomas' NHS Foundation Trust		14	13	9	10	46
12	↔	University College London Hospitals NHS Foundation Trust		14	10	10	8	42
13	↔	Homerton University Hospital NHS Foundation Trust		6	7	5	5	23
14	↔	North Middlesex University Hospital NHS Trust		6	2	9	3	20
15	↔	Central & North West London NHS Foundation Trust		6	1	6	7	20
16	↔	East & North Hertfordshire NHS Trust		4	3	0	5	12
17	↔	The Whittington Hospital NHS Trust		3	4	2	3	12
18	↔	West Hertfordshire Teaching Hospitals NHS Trust		2	2	5	2	11
19	↔	Great Ormond Street Hospital for Children NHS Foundation Trust		1	1	0	0	2
Grand Total				341	278	312	270	1201

National Emergency Department (ED) opt out BBV testing programme (NWL data)

HIV tests performed	Reactive
756,931	
Hep B Surface Antigen tests performed	Positive
680,851	
Hep C Antibody tests performed	Positive
681,398	
Hep C RNA tests performed	Positive Hep C RNA tests
8,592	740

Region Name	ICS Name
London	NHS NORTH WEST LONDON
HIV	New diag. 232
Hepatitis C	New diag. 508
Hepatitis B	New diag. 1,564

Large number of patients with viral hepatitis (esp HBV) in local and London population

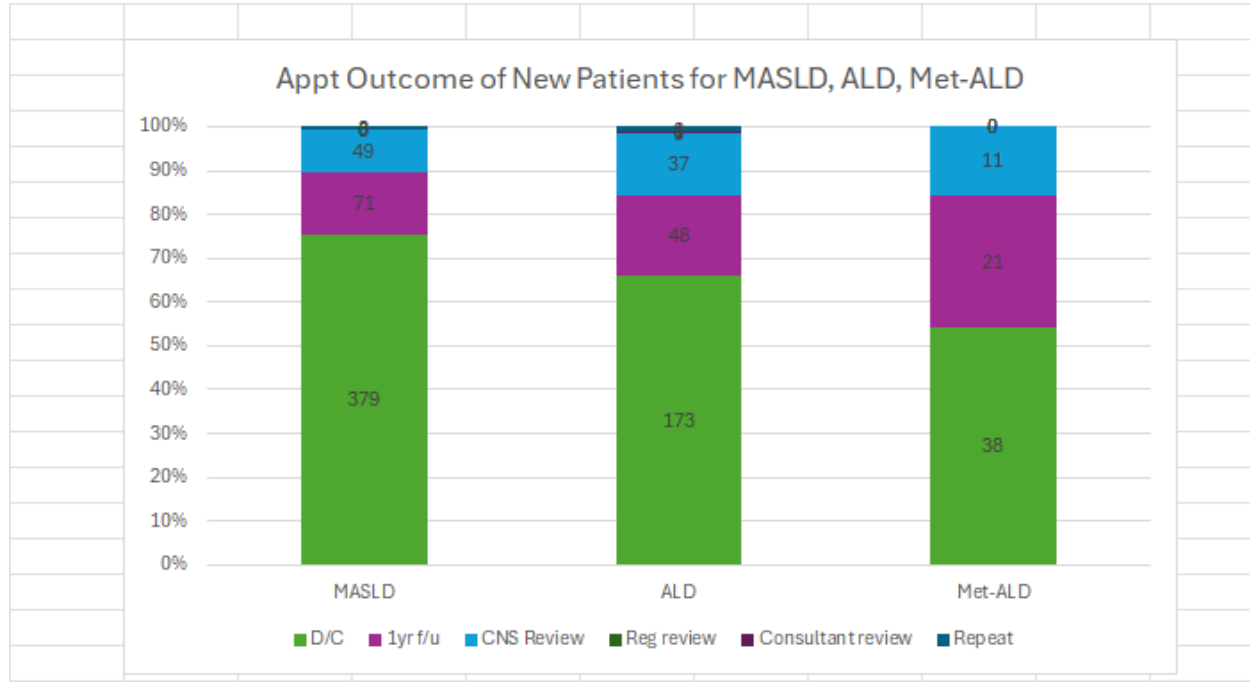
Pan London HBV approach

Often co-existent metabolic risk factors

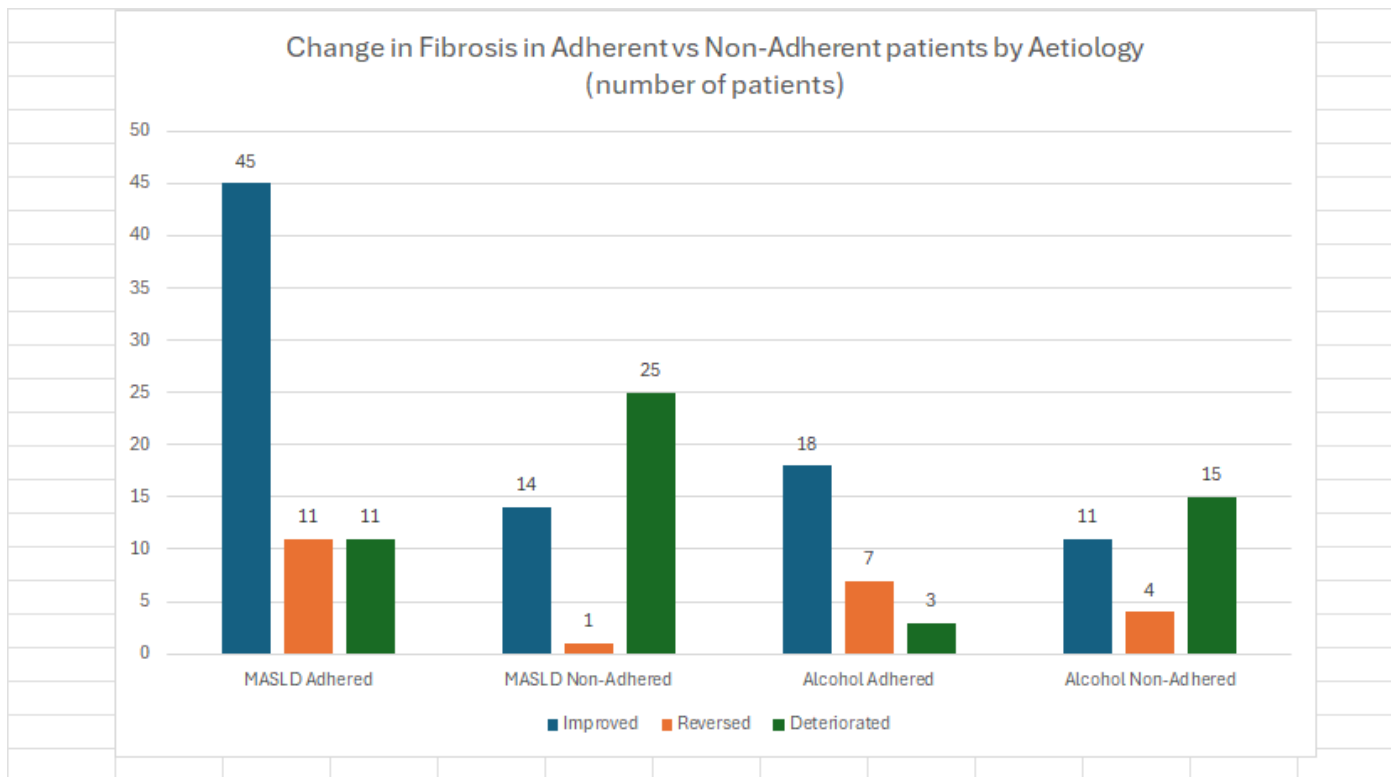
Now... 9% of HCV Ab +ve are PCR +ve
(due to HCV treatment programmes)

April 2022 – Dec 2025
sensitive not for sharing outside NHS/ICB please

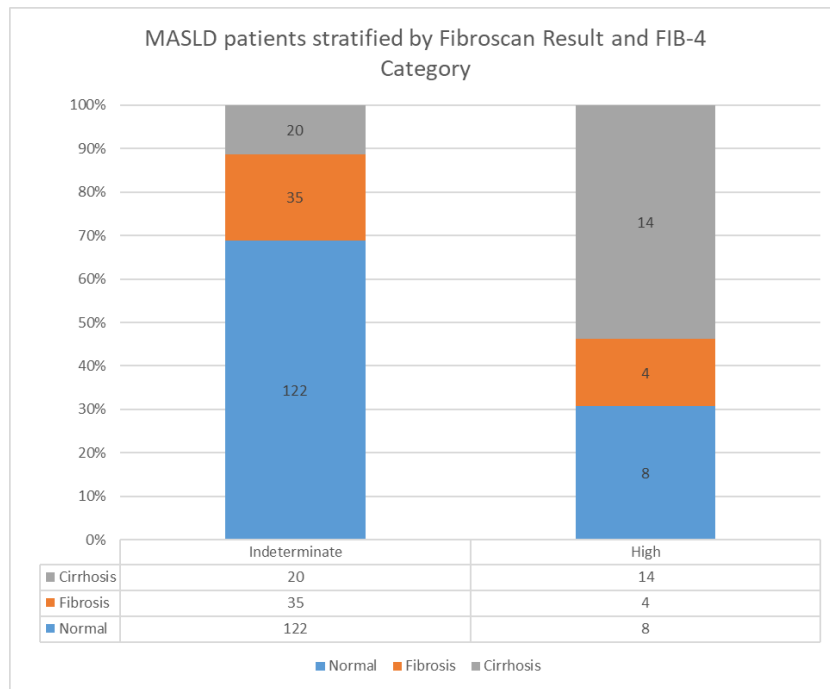
834 patients scanned in one-stop shop Fibroscan® clinic (Hillingdon/ MVH)
All had NILS + USS and consultant triage (Abnormal LFT cohort)
Clinical assessment and brief intervention relevant to risk factors (eg BMI or alcohol)



Longitudinal data for 95 MASLD and 47 ALD patients at 1 year who required follow up.
Demonstrates the effectiveness of intervention within the secondary care Fibroscan® clinic



Abnormal LFT MASLD patients categorised by FIB-4 and Fibroscan® outcome (Hillingdon/MVH data)



Note National NHSE Liver Health Check programme ~113,000 scanned, 8,470 referred on to secondary care (7.5%)

USS + Liver screen

USS

- Not intended to diagnose fatty liver:
50+% sensitive in mild fatty liver,
85% overall Not 100% specific
- To exclude structural pathology/ biliary/
Gallbladder pathology (esp with
cholestatic LFT – ALP)
- Invalid fibroscan with liver lesions or
ascites

Liver screen

The screenshot shows the SUNquest ICE software interface. At the top, patient information is displayed: Patient Name: Mr Test Testing, Hospital Number: ICE408661, Date of Birth: 01 April 2000, NHS Number: No NHS Number, Address: Arjun's Palace, 128 Argyle Road, London, W13 8EL. Below this, there are tabs for Pathology, GP Panel, GP Radiology, Immunology/Serology, Hillingdon ICE, Ealing CCG, and Paediatric. The main area is divided into sections for Common Requests, Multi Requests, Common Items, GP Profiles, Endocrinology, Immunology, Serology, GP label, Physiotherapy, Transport, GUM (Community), Path Supplies, and Risk Profiles. On the left, there is a sidebar with navigation options: Patient Search, Administration, Manuals, Reporting, Requesting, New Request, View Pending Requests, View Requests By Patient, View Requests By Location, and Service Provider List. In the center, there is a search section with a search bar containing 'LIVER'. Below the search bar, there are radio buttons for 'Tests' and 'Collections', with a red arrow pointing to 'Collections'. There are also radio buttons for 'this panel only', 'all tests/collections', and 'Search type: descriptions, codes, descriptions & codes'. At the bottom, there are radio buttons for 'Search for text: Anywhere in name, From the start of the name'. On the right, there is a list of test options with checkboxes: Liver Aspiration, Liver biopsy, Lobe of Liver, F.N.A.Liver, Liver Function Tests, Delivery bloods Hb(D) Neg mother, Liver profile, NM Liver & spleen, MRI Liver & Spleen, MRI Liver with contrast, MRI Liver with hepatobiliary contrast, Liver and Bone profile, Liver screen for GPs (highlighted with a red arrow), and Liver Specific Ab Profile.

Future developments

?? Pan-London iLFT – automated liver
screen for abnormal LFT within lab

CLINICAL RECOMMENDATIONS

1

Here and now – use of AGE adjusted FIB-4 cut offs

2

Here and now – prioritise the referral of patients with HIGH FIB-4 >3.25

3

For HIGH FIB-4 > 3.25 patients please request a NIRS and US liver prior to referral

4

Work towards the development: FIB-4 to reflex ELF to Fibroscan (for both this and MASLD pathway).

5

6

ANNUAL COST COMPARISON — FOUR SCENARIOS



ANNUAL SAVING

£1,001,075

ELF @ £107
vs universal FibroScan

ANNUAL SAVING

£1,421,950

ELF @ £70
vs universal FibroScan

ANNUAL SAVING

£1,649,450

ELF @ £50
vs universal FibroScan

Break-even ELF price = £195/test · Current price (£107) is 45% below break-even · Cost per patient screened: £84 (B1) vs £113 (no ELF)

EXECUTIVE SUMMARY

150,000

Diabetic patients in NWL

Registered type 2 diabetic population

35,000

Annual screenings

Via CRM / diabetes annual review cycle

7,394

**FibroScans avoided/yr
(ELF reflex step)**

65% reduction in FibroScan demand

£1.0M+

**Annual saving
(ELF @ £107 vs universal FibroScan)**

Rising to £1.65M at ELF @ £50

CONCLUSION

- The FIB-4 + ELF Reflex Pathway is Cost-Effective, Clinically Sound, and Ready to Scale
- Use of ELF will infer significant cost savings
- It will prevent unnecessary fibroscans (approx > 7000 per year)
- Still need expanded access to Fibroscan to deal with the additional fibroscan need this will generate, and REFLEX ELF testing to be commissioned
- Here and now we have discussed options for care (to ensure equality of care across the sector)

