Liver disease : MASLD and MASH

Primary Care Diabetes and Obesity Society

7th May 2026

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Progression of liver disease

1. Aetiology

1: Fatty liver disease
ALD
HBV
HCV
HH & Metabolic
Autoimmune liver diseases

ALD combined
Non-ALD combined

2: Hepatitis not specified
Toxic liver disease
Congestive hepatopathy

3: Miscellaneous

3. **Portal hypertension**

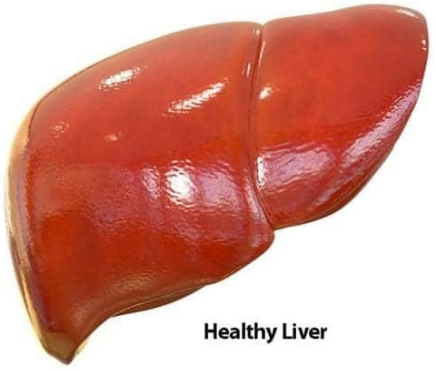
Months to yea

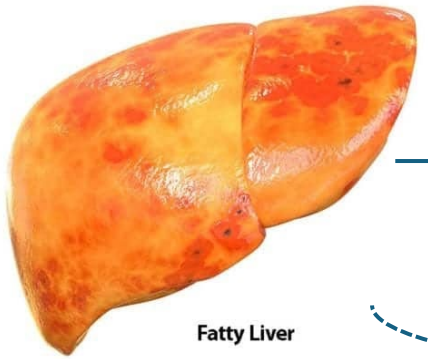
4. **Decompensation / liver failure**

6. **Death**

2. **Cirrhosis**

5. **HCC**

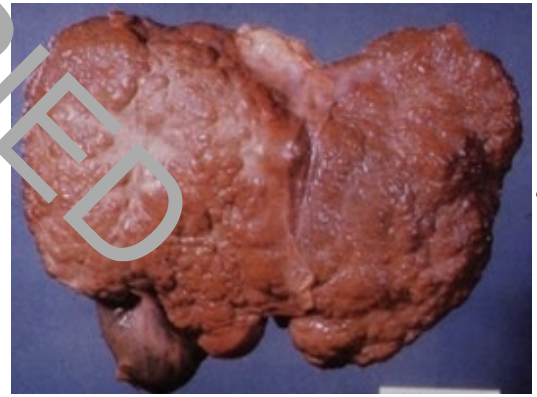




Steatohepatitis

10-30%

15-20%

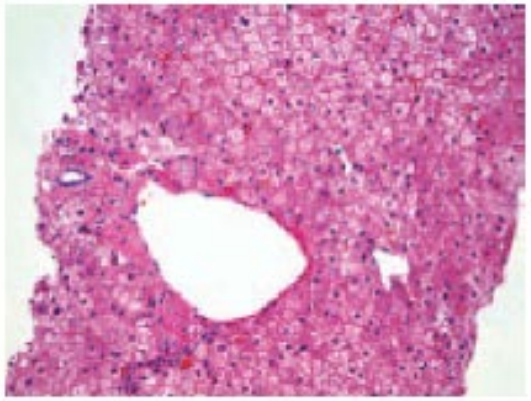


1.5-2% pa

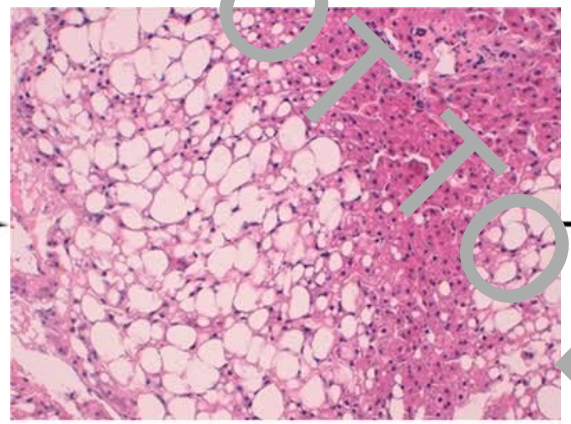
HCC

1%

www.Liverfoundation.org

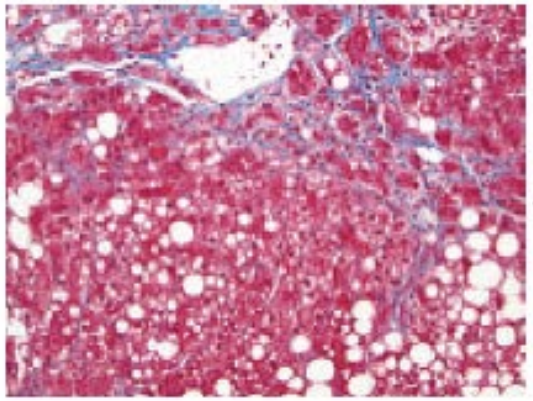


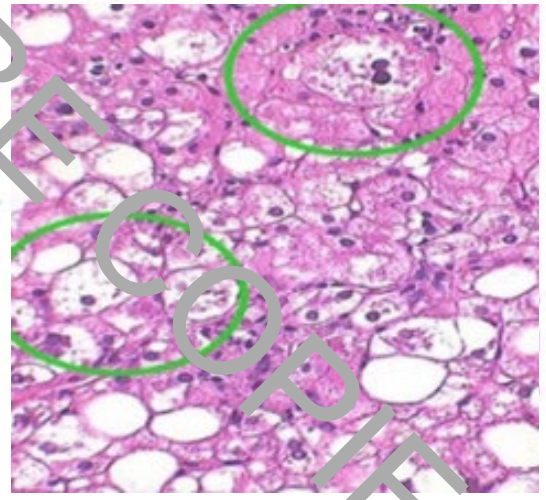
Normal liver



Fatty liver

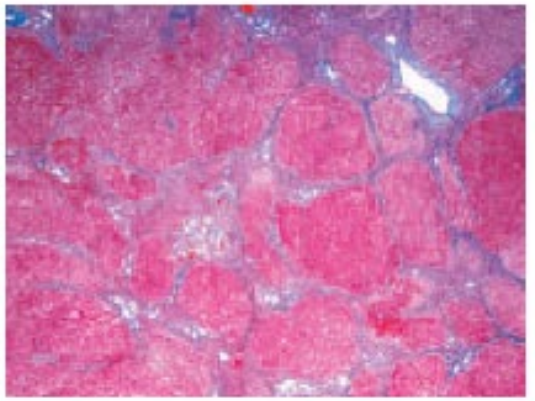
Pericentral fibrosis in fatty liver

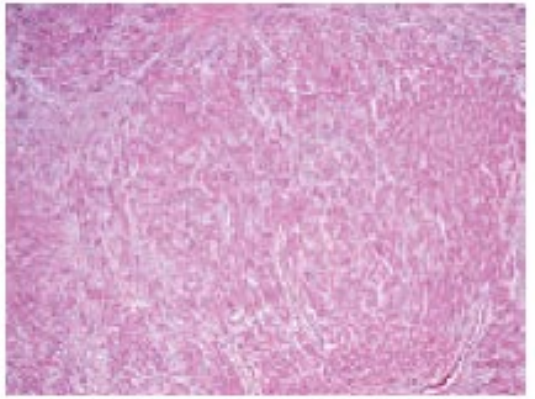




MASH
Cardinal features
steatosis, inflammatory infiltrate
ballooning hepatocyte

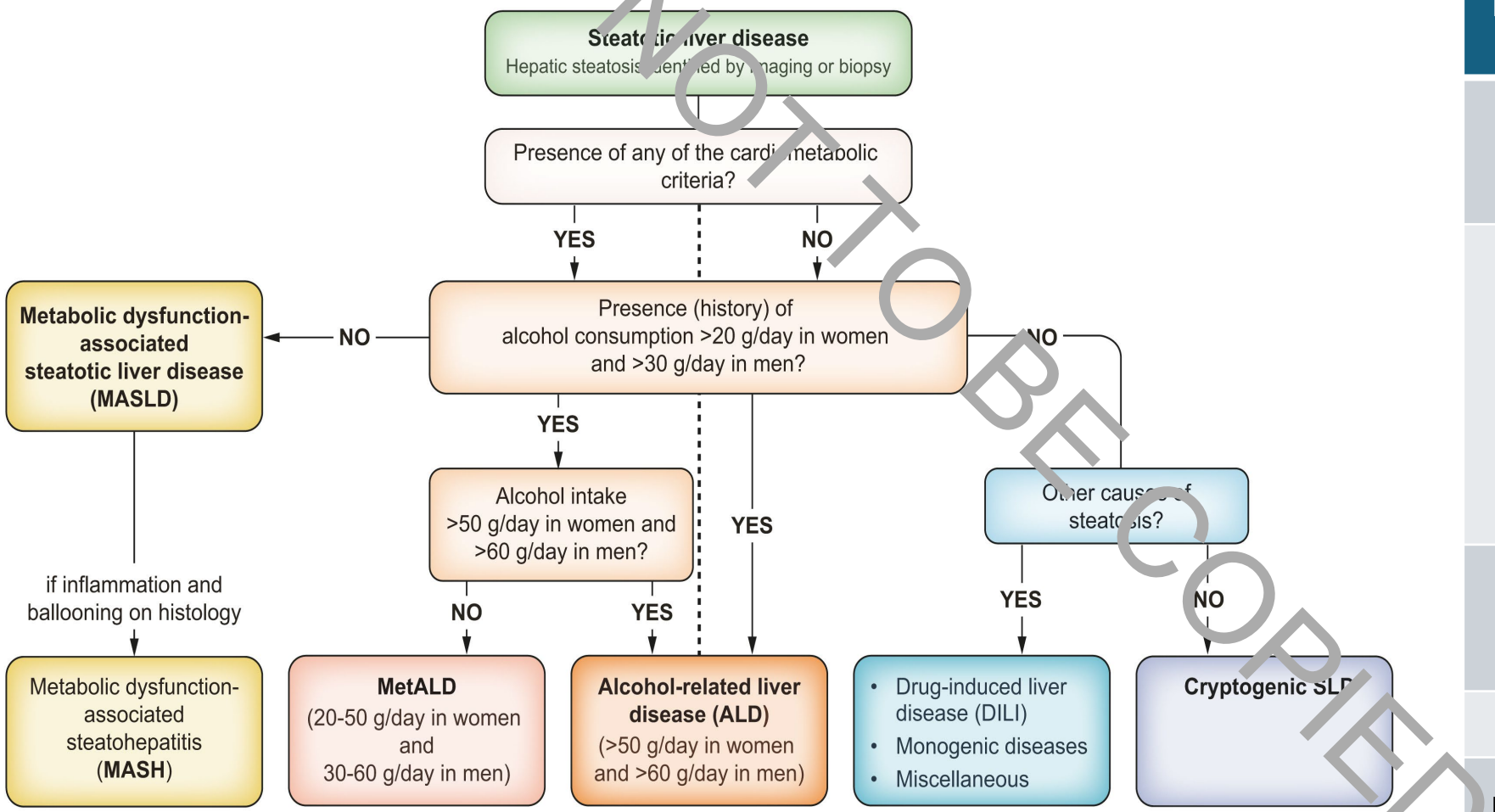
Micronodular cirrhosis





Macronodular cirrhosis with
hepatocellular carcinoma

Steatotic liver disease- Defining MASLD and MASH



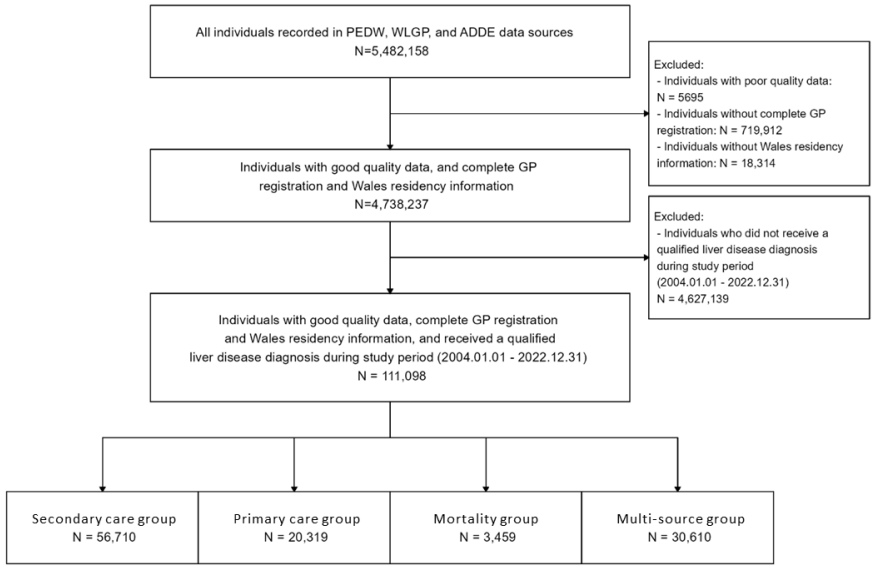
UK unit conversion
20g = 2.5 units 50g = 6.25 units
30g = 3.75 units 60g= 7.5 units

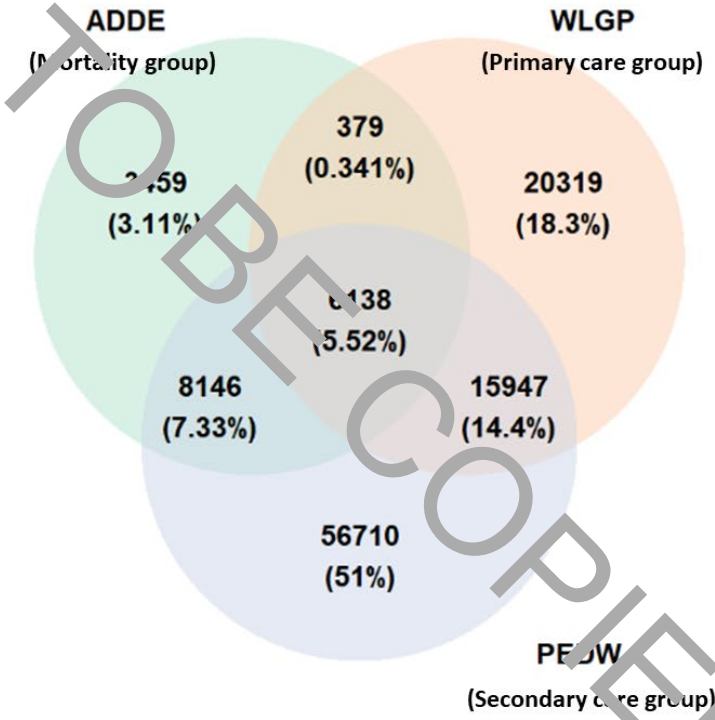
Metabolic risk factor	Adult criteria
Overweight or obese	BMI ≥25 Waist ≥ 94cm men ≥80cm women
Dysglycaemia Or Diabetes	HbA1c 39-47 Fasting glu 5.6-6.9 2hour GTT 7.8-11 HbA1c ≥48 Fasting glu ≥7 2hour GTT ≥11.1
TG	≥1.7 or lipid lower medication
HDL	≤1.0 men ≤1.3 women
Blood pressure	≥130/85 Or anti hypertensive

Journal of Hepatology 2024 81;492-542

Understanding burden of steatotic liver disease in Wales with your data

SAIL ONS mortality and secondary care date
86% Welsh population defined by primary care registration



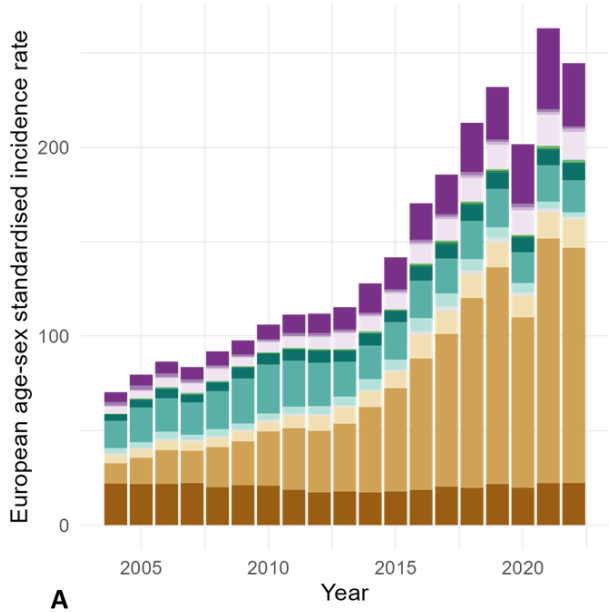


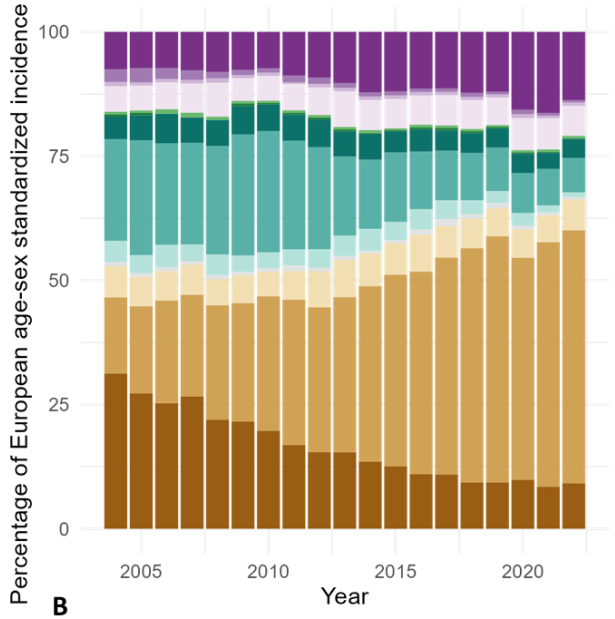
B

Demographic characteristics	Full cohort, n=111 098*
Sex	
Male	57 491 (51.7%)
Female	53 607 (48.3%)
Age	
0–17	1445 (1.3%)
18–29	5862 (5.3%)
30–39	10 109 (9.1%)
40–49	15 370 (13.8%)
50–59	22 799 (20.5%)
60–69	23 264 (20.9%)
70–79	19 189 (17.3%)
80+	13 060 (11.8%)
Cohort entry year	
2004–2007	17 099 (15.4%)
2008–2011	17 554 (15.8%)
2012–2015	20 658 (18.6%)
2016–2019	30 448 (27.4%)
2020–2022	25 339 (22.8%)
WIMD 2019 quintiles	
1, most deprived	27 178 (24.5%)
2	24 391 (22.0%)
3	21 066 (19.0%)
4	19 619 (17.7%)
5, least deprived	18 844 (17.0%)

*n (%).
WIMD, Welsh Index of Multiple Deprivation.

THANK YOU PRIMARY CARE COLLEAGUES





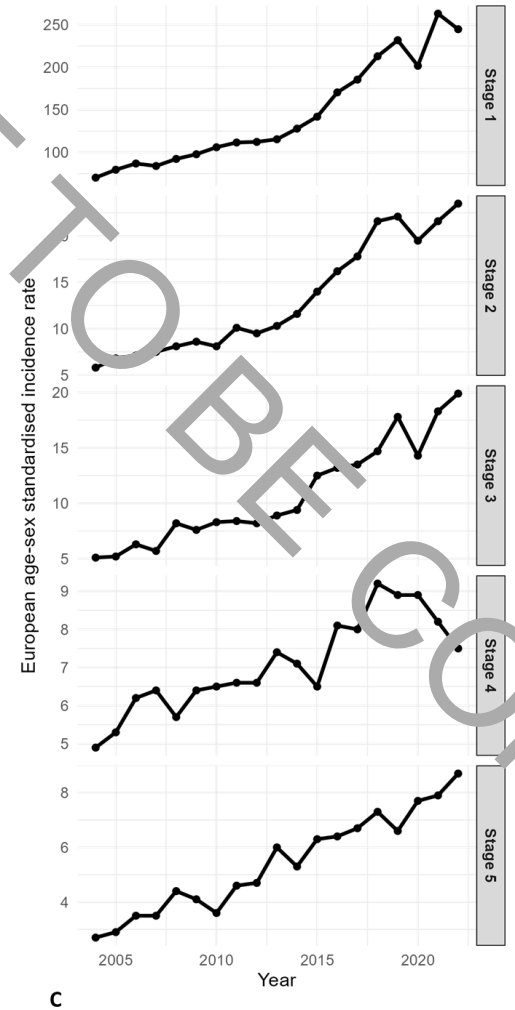


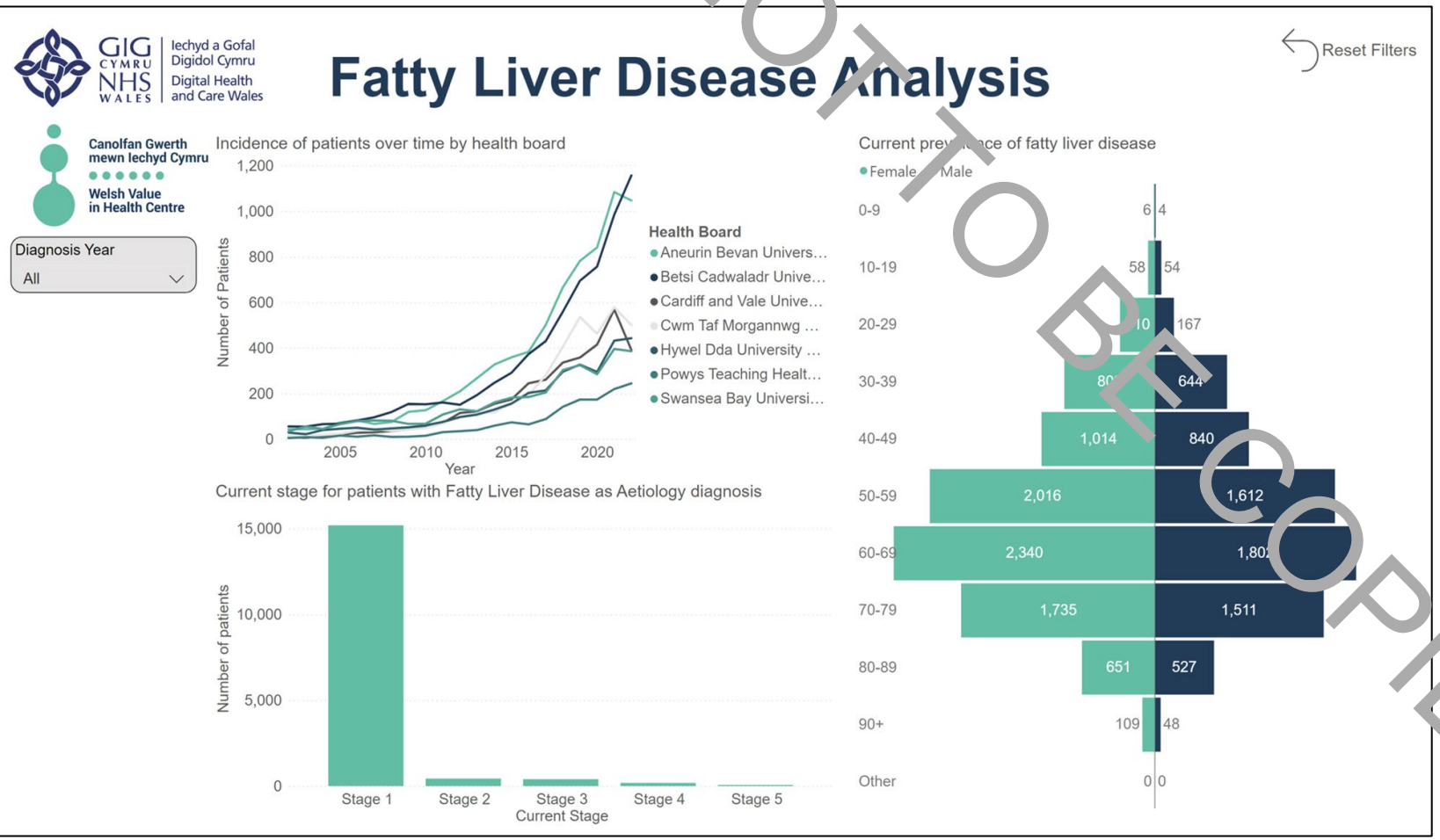
Table 4 Comorbidities associated with liver disease

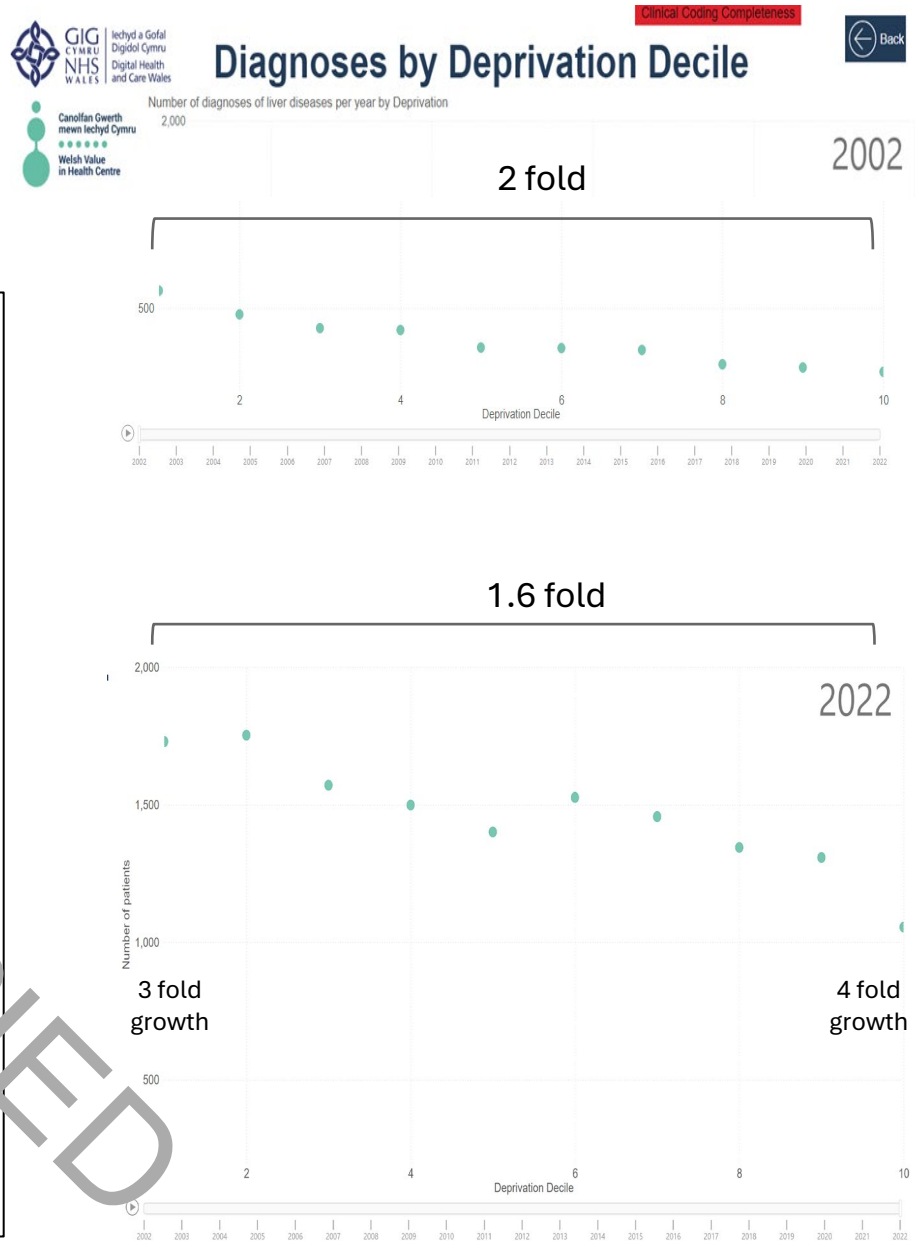
Comorbidities	Full cohort, n=111 098*	Primary care group, n=20 319*	Secondary care group, n=56 710*
CVD-related conditions	8923 (8.0%)	852 (4.2%)	5362 (9.5%)
Diabetes	7658 (6.9%)	1271 (6.3%)	3577 (6.3%)
Hypertension/ antihypertensives	40 427 (36.4%)	7248 (35.7%)	20 361 (35.9%)

*n (%).

Gao et al *BMJ Open* 2025;**15:**e093335

MASLD in Wales





Liver deaths in Wales 1999-2019

559 deaths in people with a NAFLD diagnosis

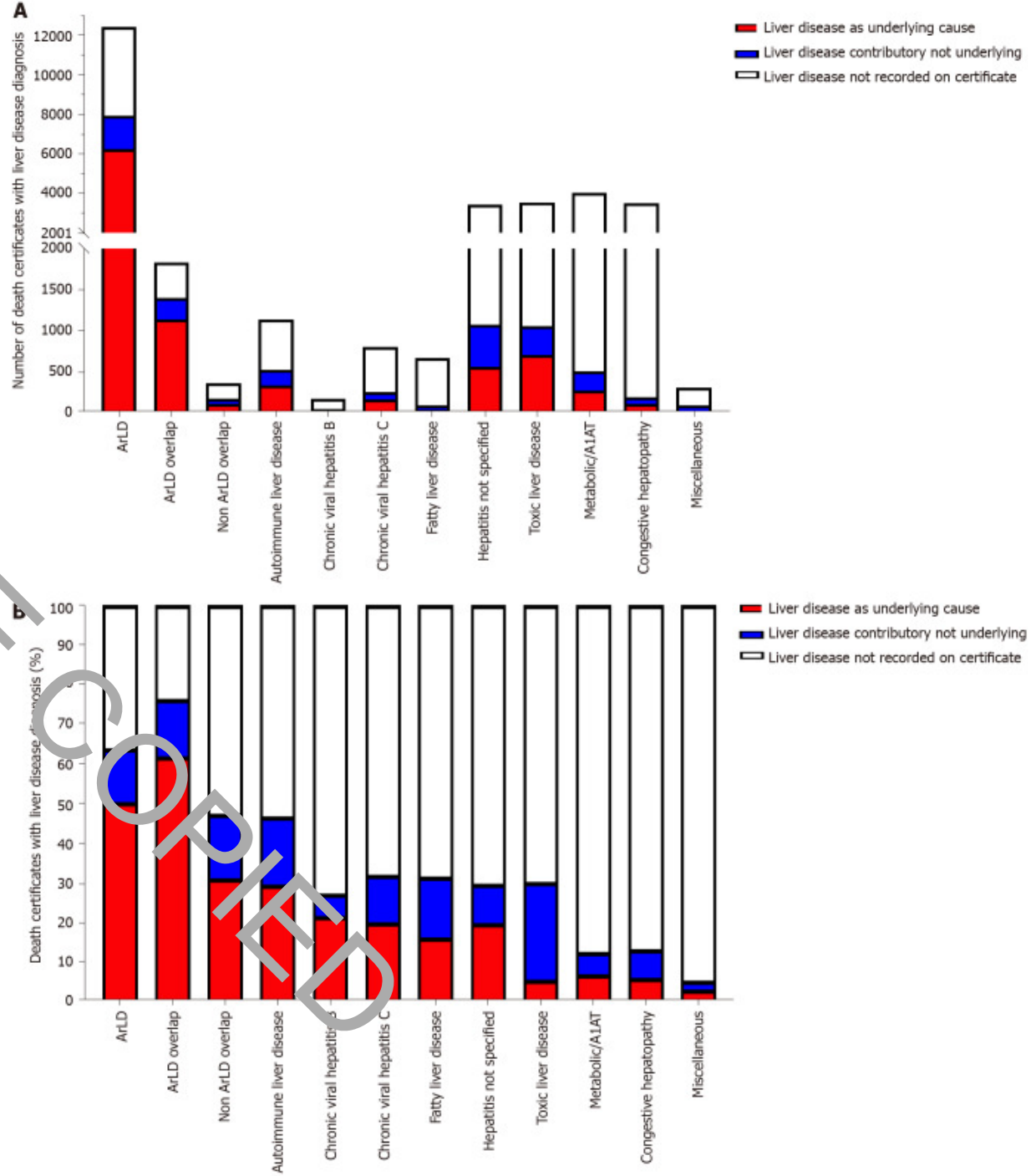
17% Part 1a-c liver disease

16% Part 2 liver disease

66% no mention of liver disease on the death certificate

Predominant causes of death

1. Cardiovascular
2. Cancer
3. Liver disease



DOI: 10.4254/wjh.v15.i1.89

Conclusion 1

MASLD has a high prevalence in Wales

MASLD rarely progresses

Progression of MASLD is more frequently associated with liver related outcomes

Non progressive MASLD is associated with increased mortality linked to neoplasia and cardiovascular disease

Challenge remains to

i) manage the metabolic risk factors

ii) identify and survey those with progressive liver disease to detect sequalae early

Who should be investigated for liver disease

Symptoms and signs consistent with liver disease
No evidence for population screening

Specific groups

Diabetes: yes please up to 7% prevalence of cirrhosis

Harmful alcohol: excess 50 units men 35 units women consider screening

Obesity: No need to screen for MASLD liver disease in obesity including USS

Principles of investigating liver disease

History of risk factors
Previous and current alcohol and metabolic risk factors
Family history

Bloods
Hepatic (ALT) v cholestatic (ALP predominant)

Screen for causes of liver diseases –

Fibrosis screen – 2 step process high negative predictive value then high positive predictive value

Imaging – USS v CT pancreas if concern of malignancy

GGT and Gilbert's

FIB4 and AST:ALT ratios with a 2 step fibrosis screen

1

AST:ALT ratio has reduced fibrosis accuracy but >1 is suggestive and requires second line test

FIB4 with ≤1.3 (or 2 in > 65yrs) has probability low false positives less accurate in ALD

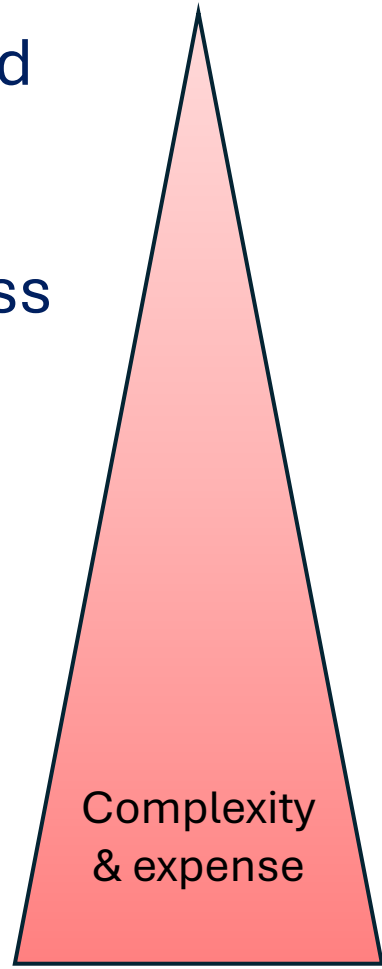
2

ELF test ≥ 9.8 probably F3/4

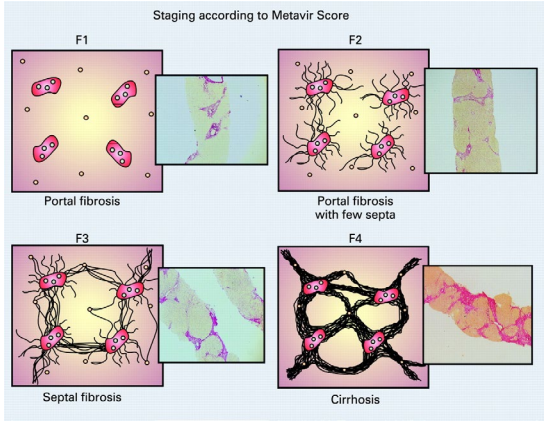
VTCE higher positive predictive of advanced fibrosis

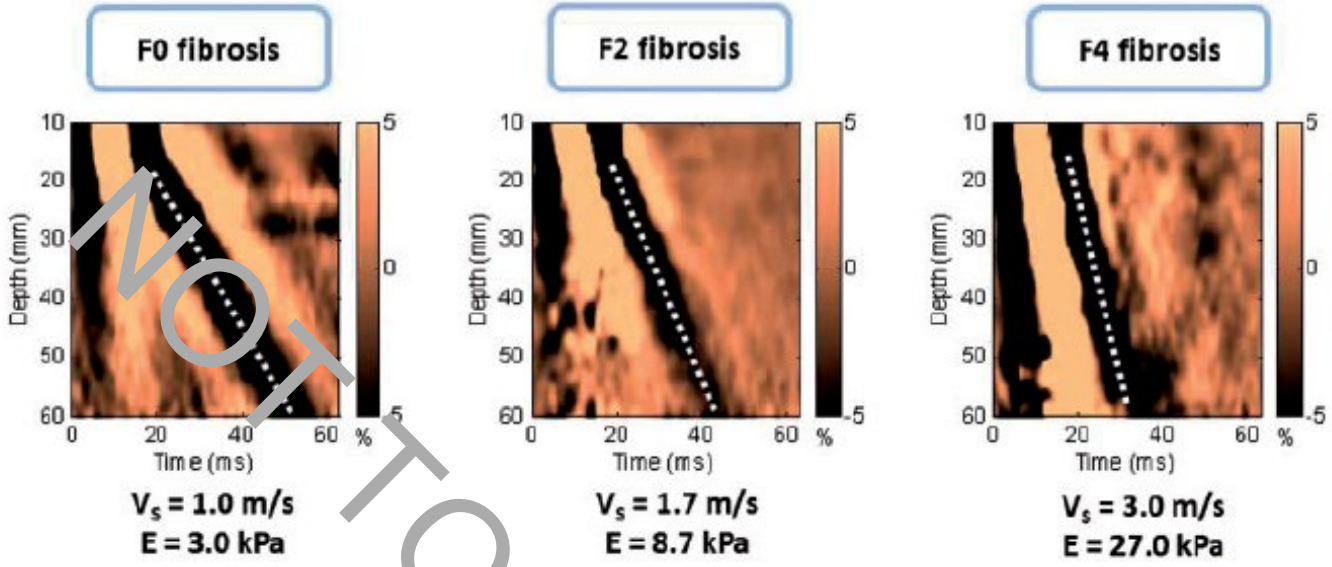
<8kPa excludes F3/4 fibrosis

≥10kPa probably advanced fibrosis



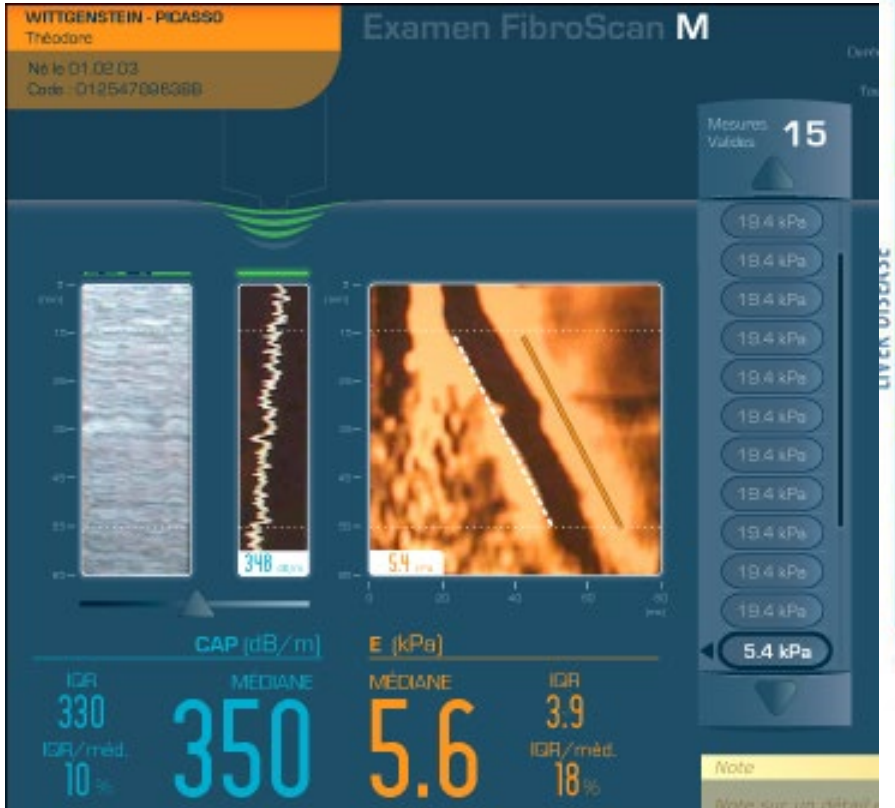
Fibroscan

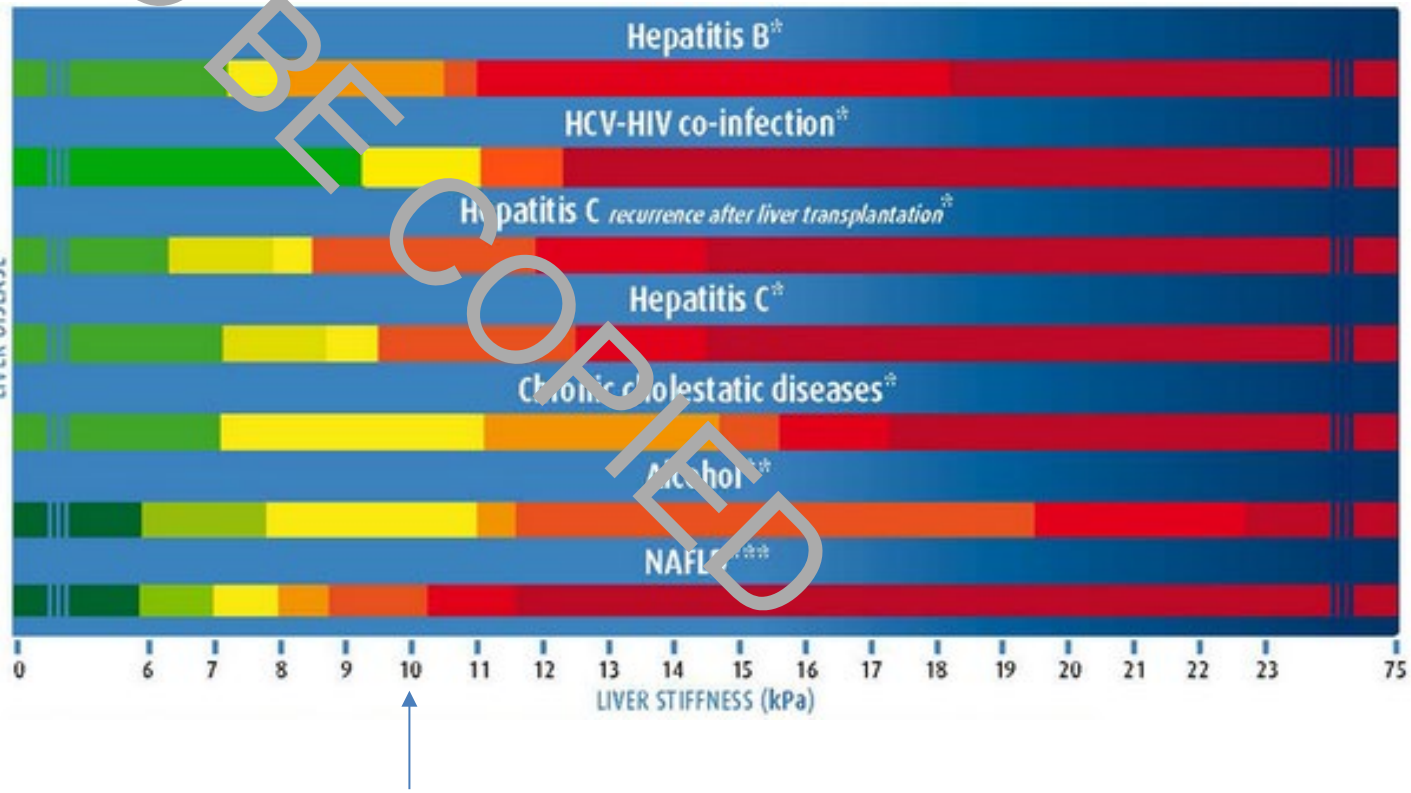




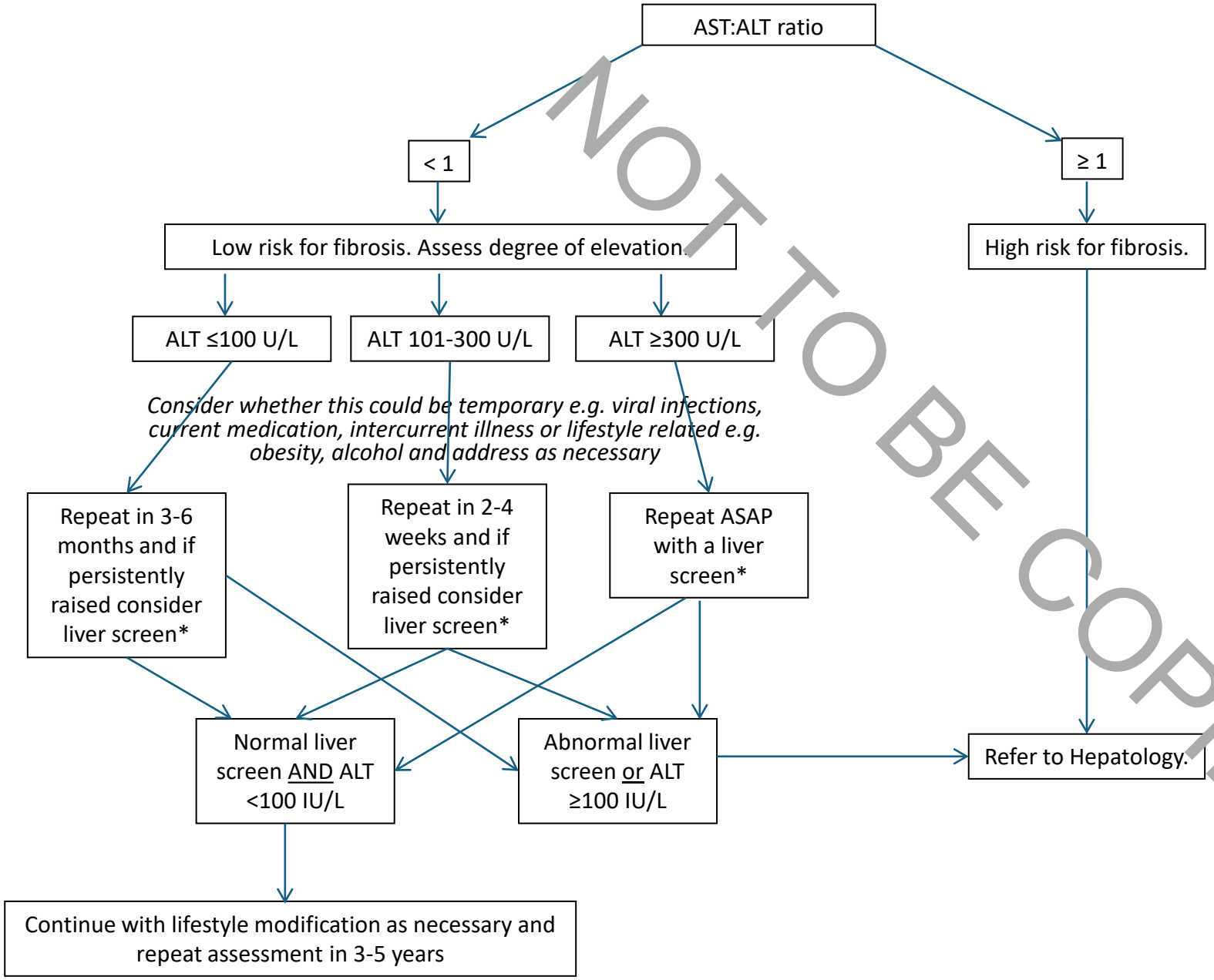
Less accurate if –

- BMI >30 (or 35 XL probe)
- Inflammation
- Steatosis
- Congestion
- Recent meal





Wales abnormal LFT pathway



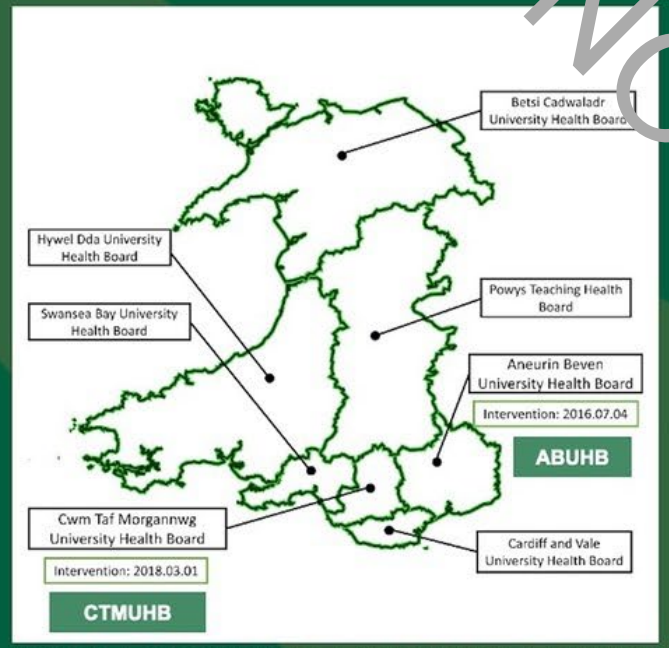
**Liver aetiology screen*

Hepatitis B and C serology
Ferritin and transferrin saturations
anti-SMA, ANA, anti-gastric parietal, anti-LKM
AMA,
Immunoglobulins
Full Blood Count
Ultrasound scan of abdomen

age <45 years Caeruloplasmin
Alpha-1 antitripsin

Drs Andy Yeoman, Steve Short Catherine Bailey

A liver function test pathway significantly increases the early detection of chronic liver disease and cirrhosis



Reflex AST with automated AST:ALT reporting introduced in two Welsh health boards: **ABUHB & CTMUHB**

Study Population

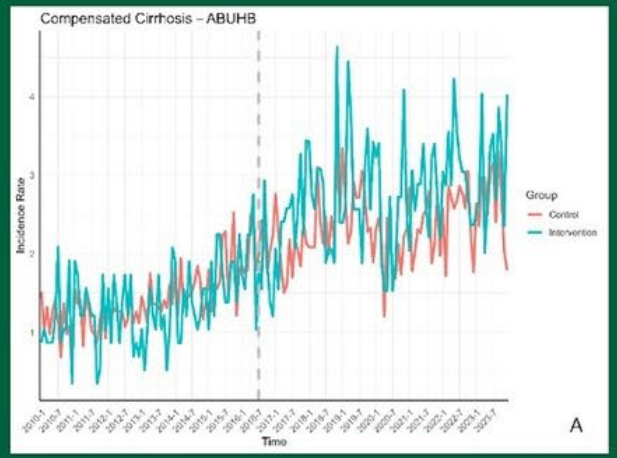
Individuals diagnosed with chronic liver disease (including cirrhosis) 2010-2023

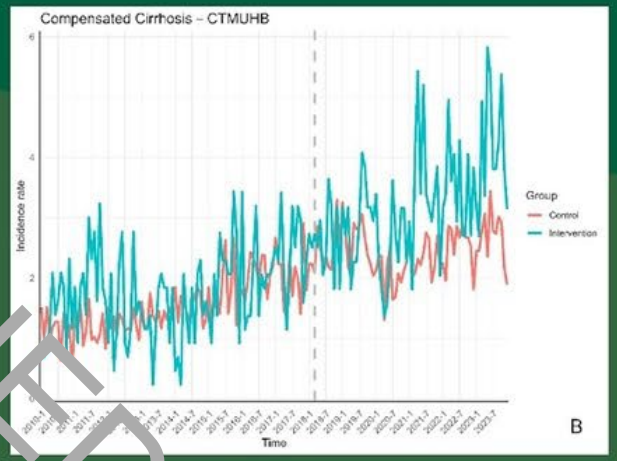
Method

Difference-in-Difference study. Compared monthly incidence in intervention vs control.

Cirrhosis detection increased in both region:

- ABUHB: **IRR 1.24** (95% CI 1.15–1.34)
- CTMUHB: **IRR 1.16** (95% CI 1.02–1.33)





AASLD
Gao et al | *Hepatology Communications* 2025

Hepatology Communications

What is offered in the secondary care hepatology clinic?

Diagnostic confirmation – clinical, radiological and histological

Review risk of compound liver injury – alcohol / haemachromatosis

Discussion of risk from liver health – serial fibroscan monitoring competing mortality risk and comorbidities

Consideration of surveillance programmes if fit

- Varices - OGD every 1~3 years

Clinical/imaging evidence of portal hypertension/ platelets <150 / liver stiffness >20kPa

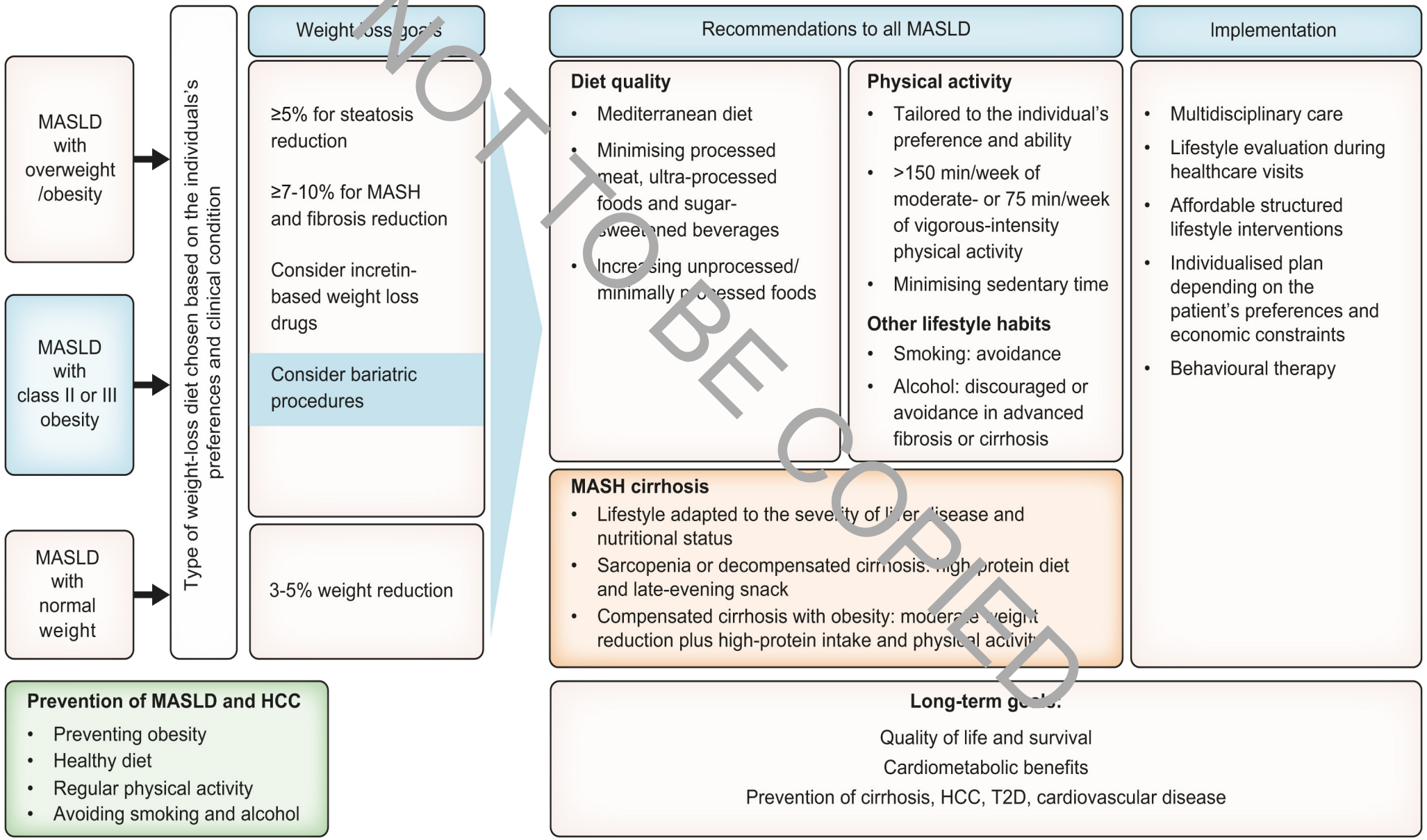
- HCC – USS & AFP 6/12 indications in MASLD cirrhosis & CP A or transplant candidate

Management of decompensation

CNS support in advance liver disease

Pharmacological management

Managing MASLD



MASLD Pharmacotherapy

Direct pharmacotherapy – reserve for MASH with F2+ fibrosis
or those with evidence of high inflammation ALT

- Pioglitazone improvement in ALT and histological inflammation but not fibrosis

– weight gain bone fractures CCF

- Vitamin E – improvement in histology and ALT resolution of NASH in 36% (21% in placebo)

- haemorrhagic stroke and prostate Ca

- Optimal duration of therapy is unknown – if ALT not improved after 6/12 stop

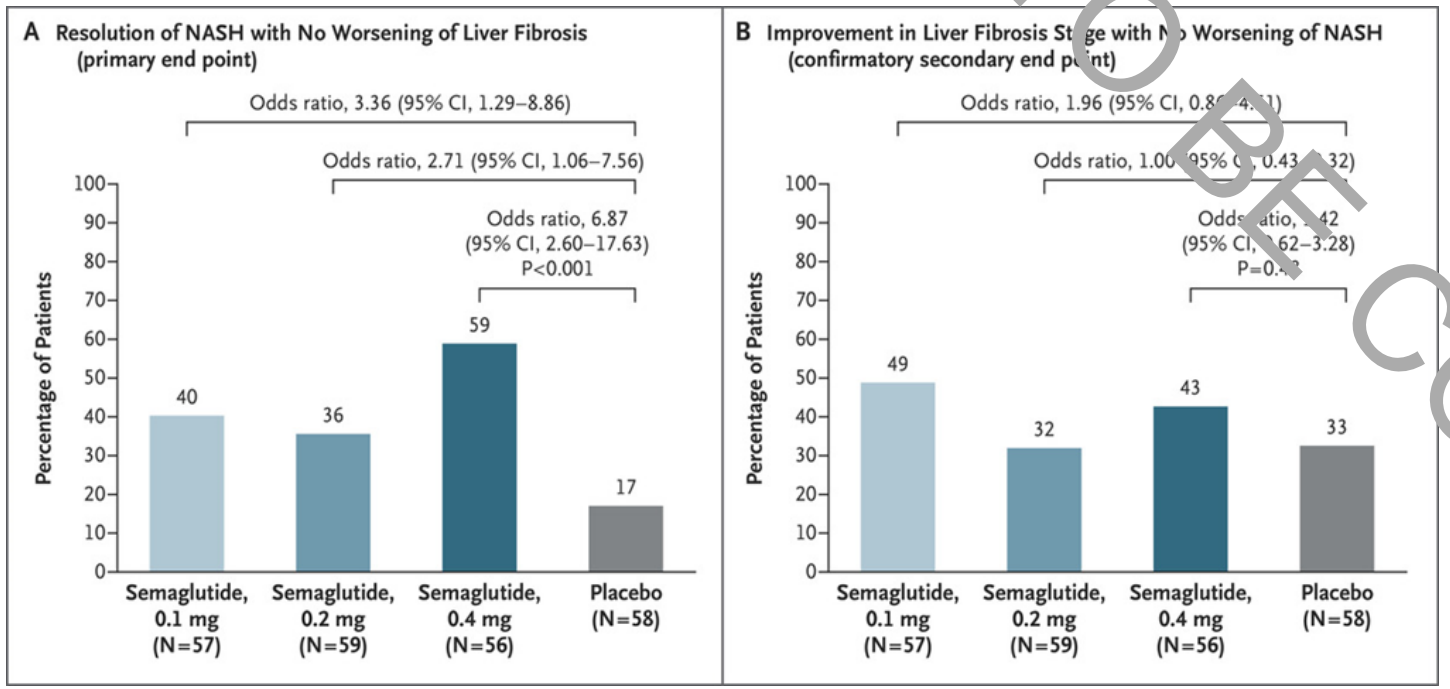
Statins to reduce LDL cholesterol and improve CVD risk reduce HCC risk

Obetacholic acid trials **X**

New drugs.....

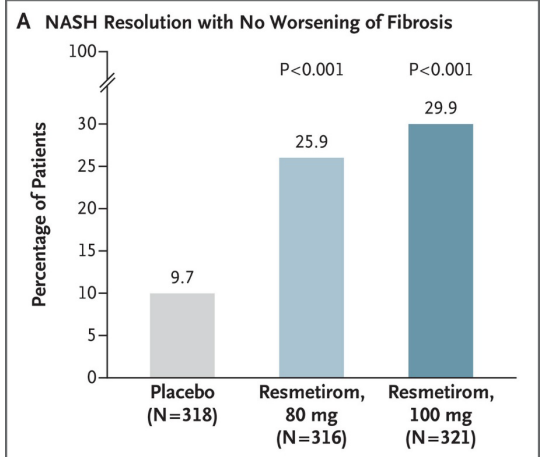
MASLD Pharmacotherapy
New agents

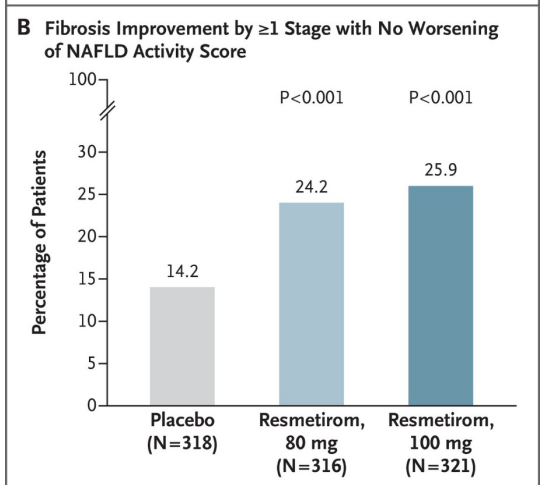
Semaglutide

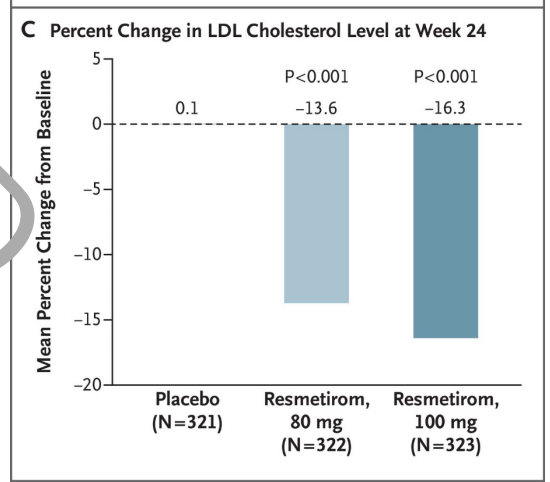


Newsome N Engl J Med 2021.

Resmetiron

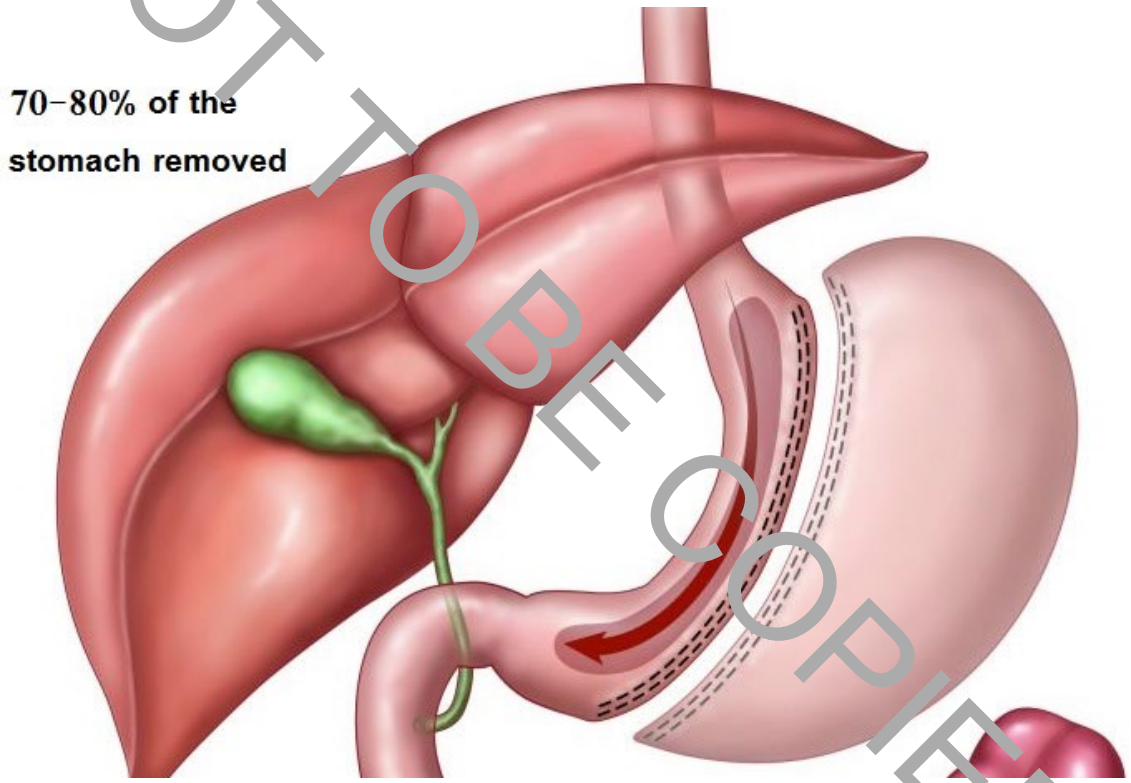






Harrison N Engl J Med 2024.

Bariatric surgery associated weight loss →
85% of individuals having MASH resolution,
34% fibrosis improvement



Transplantation – an increasing indication MASLD is associated with good graft survival however, there is a 50% 1 yr mortality in those with BMI>35
10% & 45% 10 and 20 year graft failure in obese patients

Conclusion

Diagnoses of liver disease in Wales are evolving

Over 20 years there has been a 10 fold increase in MASLD diagnoses

- Progression occurs in a minority of patients ~5%
- However there is a significant association with cardiovascular disease and malignancy

Work up - exclude other causes liver screen
- 2 step screening for fibrosis AAR /FIB4

Management of MASLD is predominantly management of the metabolic risk and weight management

Secondary role geared towards advanced disease ?place of resmetiron

Serial assessment of fibrosis is required