The Barbers' Company Award 2023 for Trainees in Gastroenterology: Summary Report (Theresa Hydes)

What was the aim of the research project?

The Barbers' Company Award was used to establish the 'Knowsley Healthy Liver Clinic'. The clinic aims to address unmet need for patients with Metabolic dysfunction Associated Steatotic Liver Disease (MASLD): (i) The need the establish services in primary care given the population prevalence, (ii) A model for the introduction of targeted liver fibrosis screening for patients with obesity and type 2 diabetes as per EASL guidance, (iii) The need to assess and optimise cardiometabolic morbidity for patients with MASLD, and (iv) the need to improve patient education and support healthy behaviours particularly in regions of high deprivation such as that seen locally. The aim of the research project was to assess the feasibility of the introduction of the 'Knowsley Healthy Liver Clinic' and to assess the benefit to patients.

What did the Barbers' Company Award funding allow us to set up?

The funds were used to cover the time to upskill and re-deploy three primary care health care assistance (HCAs) to perform Fibroscan® examination and deliver education related to liver disease, time for administration staff to identify and invite appropriate patients to the clinic and time for patients and the public to help co-develop supporting materials.

What did we do?

The project received ethical approval (24/NI/0034) and recruitment was supported by the North NIHR West Coast CRN. Adults with obesity of type 2 diabetes identified via read codes were invited to attend the clinic via text message. Primary care HCAs were trained to deliver a 30-minute appointment in which patients received screening for liver fibrosis using Fibroscan and FIB-4 testing in addition to full cardiometabolic risk assessment (BMI, waist circumference blood pressure, lipid profile, HbA1c, QRISK3, eGFR/UACR) followed by education, referral to Tier 2 services (vouchers to use weight loss classes or the leisure centre), and pharmacological optimisation supported by a GP prescriber. Patients with a liver stiffness measurement >8kPa or a FIB-4 >2.67 were referred to secondary care. The clinic was supported by management guidelines developed by primary care with input from diabetes and hepatology specialists, an individualised leaflet co-produced with patients providing education on personalised risk and support, and a community cookbook.

What was the outcome?

To date 214 patients have attended the Knowsley Healthy Liver Clinic and recruitment and follow-up appointments are ongoing. An interim analysis is presented. The cardiometabolic risk burden at baseline was substantial (*Table 1*). In total 154 (73.0%) patients had a Controlled Attenuation Parameter score >238 dB/m consistent with steatotic liver disease. Overall 54 (26.1%) referrals were made to secondary care hepatology for further investigation of previously undiagnosed potential significant liver fibrosis (27/211 (12.8%) had a FIB-4 score >1.30 (2.0 if >65 years old) and 40/211 (18.9%) had a liver stiffness measurement at Fibroscan 8.0kPa). In addition to liver disease, 3 possible new cases of type 2 diabetes were identified (1.9%) and 27 cases of new pre-diabetes (17.0%) prompting confirmatory testing. Optimisation of diabetes agents was required in 38/51 patients (74.5%) due to poor HbA1c control (HbA1c >58mmol/mol) or a cardiorenal indication for an SGLT2 inhibitor. Six patients had an AUDIT-C score >8 prompting referral to alcohol support services. Overall, 44.9% of patients accepted referral to tier 2 weight loss/leisure centre services.

In terms of feasibility primary care HCAs were able to deliver all aspects of the multi-morbidity assessment within the 30-minute appointment and in 82% of cases achieved a good quality fibroscan reading (interquartile range <30%) despite being new to this skill and the high prevalence of central obesity in this cohort.

Challenges encountered included lower self-referral rates for men, discordance between FIB-4 and Fibroscan results, a less than 50% uptake of tier 2 referrals due to a multitude of factors (including failure to benefit from this in the past and multimorbidity preventing exercise) and ability to deliver lifestyle advice and education within the timeframe. The latter issue was addressed by the introduction of a local cookbook https://www.kirkbykitchen.co.uk/ co-developed by local patients, community groups and nutrition students to support patients living on a low income to eat a Mediterranean diet. The cookbook is handed out in the clinic and recently received recognition in the regional press.

Further funding from other sources will allow us to recruit nearly 500 patients in total and perform follow-up visits at 6 months to assess change in lifestyle, cardiometabolic and liver related risk, in addition to a patient satisfaction survey and quality of life scores before and after clinic attendance.

Table 1. Baseline demographics and cardiometabolic risk	
Women, n (%)	126 (58.9)
Age (yrs), median (range)	57 (20-71)
Known Type 2 Diabetes, n (%)	51 (23.8)
HbA1c (mmol/mol), median (range)	55 (44-120)
Body mass index categories	
Under/normal weight	7 (3.3)
Overweight (BMI 25-30 kg/m^2)	33 (15.5)
Obesity 1 (BMI 30-35 kg/m^2)	89 (41.8)
Obesity 2 (BMI 35-40 kg/m^2)	40 (18.8)
Obesity 3 (BMI$\geq$40 kg/m^2)	44 (20.7)
Waist circumference categories	
Low risk (men < 94cm, women < 80cm)	2 (1.2)
Medium risk (men 94-102cm, women 80-88cm)	15 (8.9)
High risk (men > 102cm, women > 88cm)	152 (89.9)
Lipid profile	
Total cholesterol : HDL > 5.0	40 (18.7)
Triglycerides > 1.0 mmol/L	182 (85.0)
Known Hypertension, n (%)	82 (38.7)
QRISK3 score >10 (if no prior acute coronary syndrome)	74 (39.4)

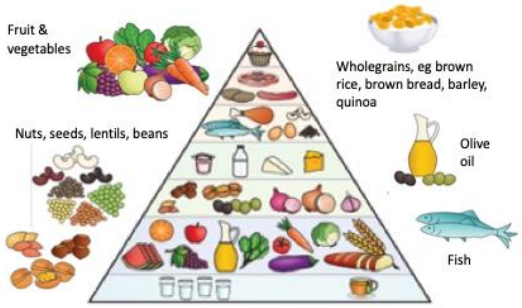
Appendix: Co-developed individualised patient education leaflet

MANAGEMENT

Weight loss target (stone)	
Aim over 5% weight loss over 12 months if overweight Aim over 10% weight loss over 12 months if obese Aim 3-5% weight reduction if fatty liver disease & normal weight	
Weight loss is the most effective intervention for fatty liver disease and can reverse disease https://www.nhs.uk/better-health/lose-weight/	

Download our free local cookbook to support you to eat a Mediterranean diet

AIM FOR A MEDITERRANEAN DIET



DIETARY ADVICE

- Home cooked meals are generally healthier
- Eat low fat meat (e.g., chicken, pork, game) and fish over red meat or processed meat
- Follow a Mediterranean style diet (see picture)
- Drink a good amount of water
- Eat a large amount of fruit & vegetables
- Use olive / rapeseed oil over sunflower / vegetable oil
- Minimise 'fast foods', e.g., ready meals & take aways
- Reduce added sugar, e.g., sweets & processed foods

PHYSICAL ACTIVITY

- Aerobic exercise (e.g., running) 3 or more days a week (aim for at least 2 hour 30 min in total per week of moderate intensity exercise)
- Resistance exercise for 2 days or more per week (e.g., lifting weights, push-ups, squats)
- Reduce the amount of time spent sitting still

Exercise is excellent for mental well-being too

FIND OUT MORE ABOUT FATTY LIVER DISEASE:
https://britishlivertrust.org.uk/information-and-support/liver-conditions/non-alcohol-related-fatty-liver-disease/

CLINIC OUTCOMES (NURSE)

1.
2.
3.
4.

CLINIC OUTCOMES (PATIENT)

1.
2.
3.
4.

*Figures from NAFLD: A patient guideline. Francque et al. *J Hep Rep*, 2021

MILLBROOK MEDICAL CENTRE

NHS
Liverpool University Hospitals
NHS Foundation Trust

Liverpool Centre for Cardiovascular Science

KNOWSLEY HEALTHY LIVER CLINIC

ASSESSMENT

Smoking
Help to stop or reduce smoking
https://www.smokefreeknowsley.org.uk/

Alcohol
Units per week

Both men & women should not drink more than 14 units per week
1 pint = 2.5 units, 500ml can lager = 2 units, medium glass wine = 2.5 units, large glass wine = 3 units, single spirit shot = 1 unit

Audit score (alcohol dependency)

0-4 = low risk, 5-7 = increasing risk, 8-10 = higher risk, 11-12 = possible alcohol dependence

Diet

Do you regularly have three meals a day, including breakfast?	
Do you eat take-aways or ready meals twice or more per week?	
Do you regularly eat crisps, chocolate, cakes or biscuits between meals or in the evenings?	
Do you have fizzy drinks or full sugar squash/cordial?	
Do you have processed foods such as sausages, pies, chips, pizza or burgers three or more times per week?	

Physical activity

	None	< 1 hour	1-3 hours	> 3 hours
Physical exercise (eg swimming, jogging, aerobics, football, gym etc)				
Cycling (includes cycling to work or leisure time)				
Walking (includes walking to work or leisure time)				
Housework/childcare				
Gardening/DIY				

PHYSICAL EXAMINATION

Weight (stone & pounds)

Body mass index (kg/m^2)
Normal: BMI 20-24.9
Overweight: BMI 25-29.9
Obese I: BMI 30-34.9; **obese II** BMI 35-39.9; **obese III** BMI > 40

Waist circumference (cm)
Healthy: < 94cm men, < 80 cm women
Medium risk: 94-102cm men, 80-88cm women
High risk: > 102cm men, > 88cm women

Blood pressure (mmHg)
Aim for 140/90 mmHg or less

BLOOD TESTS

	Your result	Normal range
Diabetes		
HbA1c (measure of sugar levels over last 3 months)	mmol/mol	< 42: normal 42-48: pre-diabetes > 48: diabetes > 53: poor control
Cholesterol		
Total cholesterol	mmol/L	Less than 5.0
HDL cholesterol (Good cholesterol)	mmol/L	1.0 or more
LDL cholesterol (Bad cholesterol)	mmol/L	Less than 4.0
Triglycerides (another type of bad cholesterol	mmol/L	Less than 1.0
Kidneys		
eGFR	ml/min/1.73m^2	More than 60
Urine albumin creatine ratio	mg/mol	Less than 3

LIVER EXAMINATION

Liver fat (CAP score, dB/m)
Aim < 275

Liver fibrosis (early liver scarring)

(1) Fibrosis-4 score (blood test)
Low risk liver fibrosis: < 1.3 (<2.0 if over 65 years)
Risk unclear: 1.3-2.67 (2.0-2.67 if over 65 years)
High risk liver fibrosis: > 2.67

(2) Liver fibroscan (liver stiffness measurement)
Low risk liver fibrosis: < 8kPa
Probable significant liver fibrosis: 8-12 kPa
Probable advanced liver fibrosis: > 12 kPa

HEART ATTACK / STROKE RISK

QRISK®3 score

Low risk: QRISK2 < 10% (you have a < 1 in 10 chance of having a stroke or heart attack in next 10 years)

Moderate risk: QRISK2 10-20% (you have a 1-2 in 10 chance of having a stroke or heart attack in next 10 years)

High risk: QRISK2 > 20% (you have at least a 2 in 10 chance of having a stroke or heart attack in next 10 years)