**Title**: Exploring changing attitudes to non-invasive liver fibrosis tests in secondary care pathways: comparison of two national surveys.

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# Author contributions (CRedit Statement):

KWMA: conceptualization, methodology, validation, formal analysis, data curation, writing – original draft, review & editing; AS: conceptualization, methodology, validation, writing – review & editing; IAR: writing – review & editing; HJ: writing –review & editing; SR: writing – review & editing; JFD: writing –review & editing; WR: conceptualization, methodology, writing – review & editing, supervision.

**Keywords**: non-invasive liver tests, fibrosis assessment, FIB-4, enhanced liver fibrosis test, transient elastography

# Supplementary material: Figure S.1 Survey 1

Non invasive tests Na	ational Survey	
Q1: What is your primary speciality?		
O Hepatology O General/Internal Medicine	O Gastroenterology O Other (please specify)	O Primary Care
If you have chosen "other", please spec	ify:	
Q2: What is your role? Consultant/ General Practitioner Other (please specify)	O Specialist Registrar Trainee	O Nurse specialist
If you have chosen "other", please spec	ify:	
Q3: Please name the hospital or the N not to specify)	iHS foundation trust that you curren	tly work for? (please leave blank if you prefer
Q4: In what proportion of your patie	nts with liver disease do you assess th	e fibrosis stage? (please select one)
<ul> <li>Never (0%)</li> <li>Up to half of cases (26-50%)</li> <li>Nearly all cases (76-99%)</li> </ul>	O Up to t	a quarter of cases (1-25%) hree quarters of cases (51-75%) es (100%)
Q5: What are the clinical reasons for	liver biopsy in your clinical practice	? (please tick all that apply)
	Indication for liver biopsy	
Assessment of fibrosis stage as 'standard of care'		
To allow prognosis assessment		

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To guide treatment decisions	
To assess response to treatment	
To diagnose aetiology of liver disease (acute or chronic)	
Other (please specify)	

### Any additional comments:

Q6: Do you think non-invasive liver fibrosis tests are a suitable alternative to liver biopsy in the following scenarios? (please select one option per row)

	Non invasive tests a suitable alternative to biopsy	Non invasive tests useful only as an adjunct to biopsy	Non-invasive tests not useful
Assessment of fibrosis stage as 'standard of care'	0	0	0
To allow prognosis assessment	0	0	0
To guide treatment decisions	0	0	0
To assess response to treatment	0	0	0
To diagnose aetiology of liver disease (acute or chronic)	0	0	0
Other (please specify)	0	0	0

#### Any additional comments:

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	Never heard of test	Not useful for liver fibrosis assessment	Useful for liver fibrosis assessment but do not use in clinical practice	Use in Clinical Practice for fibrosis assessment
Clinical Examination	0	0	0	0
Standard Liver Function Tests (LFT's)	0	0	0	0
Liver synthetic function tests (i.e. INR, albumin)	0	0	0	0
AST to Platelet Ratio (APRI)	0	0	0	0
Fibrosis 4 score (FIB-4)	0	0	0	0
NAFLD fibrosis score	0	0	0	0
Enhanced Liver Fibrosis Panel (ELF)	0	0	0	0
Fibroscan	0	0	0	0
Ultrasound Liver	0	0	0	0
Computed Tomography (i.e. CT Liver)	0	0	0	0
Magnetic Resonance Imaging (i.e. MRI Liver)	0	0	0	0

Q7: In patients with chronic liver disease, which methods to accurately stage liver fibrosis are you aware of and/ or use in clinical practice? (please select one option per row)

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Liver Biopsy	0	0	0	0
Any additional comments including	e other tests of liver fibr	osis that you use or are a	aware of:	

Q8: Do you use a primary or secondary care pathway using non-invasive tests of liver fibrosis to guide management of patients with, or at risk of, liver disease?

O Yes O №

If yes, please can you provide a brief description of the pathway and also provide your contact email if you are happy to be contacted to discuss further.

Q9: What are the limiting factors that prevent use of non-invasive liver fibrosis tests in your practice? (please tick all that apply)

- Availability of Test
- Cost of Test
- Diagnostic accuracy of current tests
- Lack of need of non-invasive tests in current clinical practice
- Other (please specify)

If you have chosen "other", please specify:

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	Serum fibrosis tests	Imaging fibrosis tests i.e. fibroscan	Liver Biopsy	No fibrosis assessment	Not Applicable
Hepatitis B	0	0	0	0	0
Hepatitis C	0	0	0	0	0
Alcoholic Liver Disease	0	0	0	0	0
Non alcoholic fatty liver disease	0	0	0	0	0
Haemochromatosis	0	0	0	0	0
Autoimmune Liver Disease	0	0	0	0	0
Primary Sclerosing Cholangitis	0	0	0	0	0
Primary Biliary Cirrhosis	0	0	0	0	0
Other (please specify)	0	0	0	0	0

Q10: Which method of fibrosis assessment do you use primarily in the following liver diseases (please select one option for each row)?

If any additional comments, please specify:

Q11: Please document any additional comments you have regarding the use of non-invasive tests of liver fibrosis in clincal practice, including their advantages and disadvantages. Thank you.

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Q1: What is your primary speciality
O Hepatology
O Gastroenterology
General/Internal Medicine
O Other:
<b>-</b>
Q2: What is your role?
O Consultant/General Practitioner
O Specialist Registrar Trainee
O Nurse specialist
O Other:
Q3: Please name the hospital or the NHS foundation trust that you currently work for? (please leave blank if you prefer not to specify)
Your answer
Q4: In what proportion of your patients with liver disease do you assess the fibrosis stage?
stage?
stage?
stage? Never (0%) Up to a quarter of cases (1-25%)
stage? Never (0%) Up to a quarter of cases (1-25%) Up to half of cases (26-50%)
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stage?   Never (0%)   Up to a quarter of cases (1-25%)   Up to half of cases (26-50%)   Up to three quarters of cases (51-75%)   Nearly all cases (76-99%)   All cases (100%)     Q5: What are the clinical reasons for liver biopsy in your clinical practice?   Assessment of fibrosis stage as 'standard of care'   To allow prognosis assessment   To guide treatment decisions

Q6: Do you think non-invasive liver fibrosis tests are a suitable alternative to liver biopsy in the following scenarios? (please select one option per row)

	Non invasive tests a suitable alternative to biopsy	Non invasive tests useful only as an adjunct to biopsy	Non invasive tests not useful
Assessment of fibrosis stage as 'standard of care'	0	0	0
To allow prognosis assessment	0	0	0
To guide treatment decisions	0	0	0
To assess response to treatment	0	0	0
To diagnose aetiology of liver disease (acute or chronic)	0	0	0
Other (please specify in box below)	0	0	0

Q6: Any additional comments?

Your answer

Q7: In patients with chronic liver disease, which methods to accurately stage liver fibrosis are you aware of and/or use in clinical practice? (please select one option per row)

	Never heard of test	Not useful for liver fibrosis assessment	Useful for liver fibrosis assessment but do not use in clinical practice	Use in clinical practice for fibrosis assessment
Clinical examination	0	0	0	0
Standard Liver Function Tests (LFTs)	0	0	0	0
Liver synthetic function tests (i.e. INR, albumin)	0	0	0	0
AST to Platelet Ratio (APRI)	0	0	0	0
Fibrosis 4 score (FIB-4)	0	0	0	0
NAFLD fibrosis score	0	0	0	0
Enhanced Liver Fibrosis (ELF) panel	0	0	0	0
Transient elastography	0	0	0	0
ARFI	0	0	0	0
Liver ultrasound	0	0	0	0
Computed tomography (i.e.	0	0	0	0
Magnetic resonance imaging (i.e. MRI Liver)	0	0	0	0
Liver biopsy	0	0	0	0

Q7: Any additional comments including other tests of liver fibrosis that you use or are aware of?

Your answer

Q8: Do you use a primary or secondary care pathway using non-invasive tests of liver fibrosis to guide management of patients with, or at risk of, liver disease?

Ο	Yes
0	No

Q8: If yes, please could you provide a brief description of the pathway and also provide your contact email if you are happy to be contacted to discuss further?

Your answer

Q9: What are the limiting factors that prevent use of non-invasive liver fibrosis tests in your practice? (please tick all that apply)

Not applicable - have suitable access to non-invasive liver fibrosis tests

Availability of test

Cost of test

Diagnostic accuracy of current tests

Lack of need of non-invasive tests in current clinical practice

Q10: Which method of fibrosis assessment do you use primarily for the following liver diseases (please select one option for each row)?

	Serum fibrosis tests	Imaging fibrosis tests e.g. transient elastography	Liver biopsy	No fibrosis assessment	Not applicable
Hepatitis B	0	0	0	0	0
Hepatitis C	0	0	0	0	0
Alcohol-related liver disease	0	0	0	0	0
Non-alcoholic fatty liver disease	0	0	0	0	0
Haemochromatosis	0	0	0	0	0
Autoimmune hepatitis	0	0	0	0	0
Primary sclerosing cholangitis	0	0	0	0	0
Primary biliary cholangitis	0	0	0	0	0

Q10: If any additonal comments, please specify:

Your answer

Q11: If using transient elastography for fibrosis assessment, have you had to reduce capacity to accomodate social distancing measures?
O No - service running at full capacity
O Yes - reduced to 75-99% capacity
O Yes - reduced to 50-74% capacity
O Yes - reduced to 25-49% capacity
O Yes - reduced to <25%
O Yes - we have changed our fibrosis assessment strategy
O N/A - do not have access to transient elastography (or equivalent)
Q11: Please provide any additional comments about access to transient elastography and how this may have impacted waiting times?
Your answer
Q12: Please document any additional comments you have regarding the use of non-invasive tests of liver fibrosis in clinical practice, including their advantages and disadvantages. Thank you
Your answer
Submit Clear form

Table S.1	UK Trusts represente	ed amongst responde	nts to Survey 1

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Table S.2 UK Trusts represented amongst re           Belfast Health and Social Care Trust	Spondents to Survey 2 Royal United Hospitals Bath NHS Foundation Trust
Buckinghamshire Healthcare NHS Trust	Sheffield Teaching Hospitals NHS trust
Aneurin Bevan Health Board	Somerset NHS Foundation Trust
Ashford and St Peter's NHS trust	South Tyneside and Sunderland NHS FT
Barts Health NHS Foundation Trust	South Warwickshire NHS Foundation Trust
Bradford Teaching Hospitals Foundation Trust	St Helens and Knowsley Teaching Hospitals NHS Trust
Chelsea and Westminster Hospital NHS Foundation Trust	Surrey and Sussex Healthcare NHS Trust
Dartford and Gravesham NHS Trust	Torbay and South Devon NHS Foundation Trust
Dudley Group NHS Foundation Trust	UHBW NHS Foundation Trust
East Kent Hospitals University NHS Foundation Trust	United Lincolnshire Hospitals NHS Trust
Frimley Health NHS trust	University Hospital Hairmyres - NHS Lanarkshire
Gateshead NHS Foundation Trust	University Hospital of North Midlands
Glasgow Royal Infirmary - NHSGGC	University Hospital Southampton
Gloucestershire Hospitals NHS Foundation Trust	University Hospitals Birmingham
Great Western Hospital NHS foundation trust	University Hospitals Coventry & Warwickshire
Guy's and St Thomas' NHS Foundation Trust	University Hospitals of Derby and Burton NHS
Hampshire Hospitals NHS Foundation Trust	University Hospitals Plymouth NHS Trust
Heart of England NHS Foundation Trust	University Hospitals Sussex NHS Foundation Trust
Hull University Teaching Hospitals	Wye Valley NHS Trust
King's College Hospital NHS Foundation Trust	Yeovil Hospital NHS Foundation Trust
Lewisham and Greenwich NHS Trust	
London North West University Healthcare NHS Trust	
Maidstone and Tunbridge Wells NHS Trust	
Manchester University NHS Foundation Trust	
Mid and South Essex NHS Foundation Trust	
Newcastle upon Tyne Hospitals NHS Foundation Trust	
NHS Dumfries & Galloway	
NHS Forth Valley	
NHS Lothian	
Norfolk and Norwich University Hospitals NHS Foundation Trust	
North Bristol NHS Trust (Southmead)	
North Cumbria Integrated Care NHS Foundation Trust	
North Tees and Hartlepool NHS Foundation Trust	
Nottingham University hospitals NHS Trust	
Oxford University Hospitals	
Portsmouth Hospitals University NHS Trust	
Royal Berkshire Hospitals NHS Foundation Trust	
Royal Devon and Exeter NHS Foundation Trust	
Royal Free Hospital	
Royal Liverpool and Broadgreen University Hospitals NHS Trust	

 Table S.3 UK Trusts represented amongst respondents to both Survey 1 and 2

Barts Health NHS Foundation Trust
Belfast Health and Social Care Trust
Berkshire Healthcare NHS Foundation Trust
Chelsea and Westminster Hospital NHS Foundation Trust
Frimley Health Foundation Trust
Gateshead Health NHS Foundation Trust
Gloucestershire Hospitals NHS Foundation Trust
Guy's and St Thomas' NHS Foundation Trust
Hull and East Yorkshire NHS Hospitals Trust
Kings Healthcare NHS Foundation Trust
London North West University Healthcare NHS Trust
Maidstone and Tunbridge Wells NHS Trust
Manchester University NHS Foundation Trust
Mid and South Essex NHS Foundation Trust
NHS Greater Glasgow AND Clyde
NHS Lothian
Norfolk and Norwich University Hospital NHS Trust
North Bristol NHS Trust
North Cumbria Integrated Care NHS Foundation Trust
North Tees and Hartlepool NHS Foundation Trust
Nottingham University Hospitals NHS Trust
Portsmouth Hospitals NHS Trust
Royal Free London Foundation Trust
Royal Liverpool
Royal United Hospital
Sheffield teaching hospitals
South Warwickshire NHS Foundation Trust
The Newcastle Upon Tyne Hospitals NHS Foundation Trust
UH Bristol NHS Foundation Trust
United Lincolnshire NHS trust
University Hospital Birmingham
University Hospitals Coventry & Warwickshire
University Hospitals Plymouth NHS Trust
Western Sussex Hospitals NHS Foundation Trust
Weston General Hospital
Yeovil District Hospital