New Dimensions for Hospital Services and Early Detection of Disease
A report from the Lancet Commission into Liver Disease in the UK

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Executive Summary

The report, in addressing the unacceptable high mortality of acute liver admissions to hospital, reinforces the need for integrated clinical services. The masterplan described is based on regional, geographically sited liver centres, each linked to four to six surrounding district general hospital (DGHs) - a pattern of care similar to that successfully introduced for stroke services. The plan includes establishment of a Lead and Deputy Lead Clinician in each acute hospital, preferably a hepatologist or gastroenterologist with liver interest, who will have prime responsibility for organising care of acute liver admissions on a 24/7 basis. Essential for the plan is greater access to Intensive Care Unit/High Dependency Unit (ITU/HDU) facilities in line with Covid-19 experience and associated reconfiguration of emergency care. The report strongly recommends full implementation of the Alcohol Care Teams (ACT) programme in hospitals and improved working links with the acute medical services. The Commission also endorses recommendations from paediatric liver services to improve overall survival figures by earlier diagnosis of biliary atresia based on stool colour chart, and by better care of impaired cognitive ability and developmental mental health problems.

Pilot studies of earlier diagnosis have shown encouraging progress, with 5-6% of previously undiagnosed cases of severe fibrosis/cirrhosis identified through use of a portable FibroScan in primary care. Similar approaches to the detection of early asymptomatic disease are described in accounts from the devolved nations, and the potential of digital technology in improving the value of clinical consultation and screening programmes in primary care is highlighted.

The striking contribution of co-morbid factors to the mortality of Covid-19, particularly obesity and diabetes - with excess alcohol consumption known to be a major factor in obesity - reinforces the need for fiscal and other long delayed regulatory measures to reduce prevalence of obesity. These include the food sugar levy, as well as the introduction of the Minimum Unit Price (MUP) policy in reducing alcohol consumption. Improving public health, the Commission emphasises, will not only mitigate the severity of further waves of Covid-19 infection but is critical to reducing an unacceptable disease burden from liver disease in the UK.

Introduction

The remit from the Lancet, following its report in 2019, was to address the continuing high mortality figures for sick liver patients admitted to acute hospitals, figures seven to eight times higher than for stroke and myocardial infarction. The Commission was also asked to examine earlier detection of liver disease through screening of high-risk subjects in primary and community care. The importance of co-morbidity factors, particularly obesity and diabetes, in fatal cases of Covid-19 demonstrates the need to improve public health before further waves of infection and to reduce the current disease burden of liver disease. A new enthusiasm in Her Majesty's Government to actively tackle obesity gives us encouragement that effective measures endorsed by the Commission may be finally adopted.

Any plan for hospital services must consider the large number of unfilled hepatology consultant posts and the likely reconfiguration of acute hospital services following Covid-19, including increased ITU capacity left in place for potential outbreaks of Covid-19 and the necessary resilience to maintain other clinical priorities. We must build on the success of hospital Alcohol Care Teams, supported in the Government's long-term plan for the NHS, to improve the care of patients with Alcohol Related Liver Disease (ARLD) and to integrate these with community care to reduce readmissions.

Earlier detection of liver disease must include effective alcohol risk assessment in primary care – a legal duty on Local Authorities since 2013(1), but a recent analysis of the national dataset has shown a low proportion of people recall advice about safe alcohol consumption compared to other elements of the Healthcheck(2). It must embrace the non-invasive technique of transient elastography (FibroScan) and start to use new digital technology in consultations and data handling. Finally, we need to share experience and progress with the UK devolved nations on their respective liver plans.

Co-Morbidity of Covid-19 Infection and Improvement of Population Health

There are co-morbidities in 90% of fatal Covid-19 cases, most frequently obesity and type II diabetes. Obese patients are 40% more likely to die or deteriorate rapidly when admitted to hospital (3, 4). Diabetes is present in around 28% of fatal cases compared to a background prevalence of 5·9% in England. A report from the Intensive Care National Audit and Research Centre (ICNARC) using data up to 21 May 2020 showed that 7·7% of critically ill patients with confirmed Covid-19 in intensive care units (ICU) were morbidly obese compared with 2·9% of the general population (after adjusting for age and sex). This disparity was also seen when looking at white and non-white patients separately(5). An early study from Beijing(6) reported that progression to severe disease was more likely in those with underlying Non-alcoholic Fatty Liver Disease (NAFLD). Viral shedding was also prolonged, making them more infectious for longer. Other data from China confirm the severity of Covid-19 increases with a body mass index (BMI) of >23kg/M^2 (7). Metabolic consequences of weight gain affect ethnic minorities at a lower BMI(8).

In Covid-19 infection, UK data are emerging of the hazards of liver disease, identified as an independent risk factor for mortality in a study of more than 17 million adult NHS patients (fully adjusted RR 1·61 (1·33-1·95) including age, gender and ethnicity). Moreover, moderate/severe liver disease has emerged as a comorbidity along with cardiorespiratory and diabetes mellitus for ITU admission, predicting around a 50% mortality if present(9). Systematic reviews of the global data also showed that patients with severe Covid-19 had higher rates of liver injury (2·20 [1·60-3·02]; p<0·00001) compared with those with non-severe disease(10). These findings strongly reinforce the need to tackle the prevalence of lifestyle factors (11, 12). Obesity and alcohol consumption are recognised as substantial risk factors for many common cancers including breast and colon, as well as for age-related complications including strokes, cardiac events and dementia. Enhancing population health should increase societal resilience against future waves of Covid-19 infection.

To tackle obesity, changes to urban infrastructure are needed to encourage both walking and cycling, the benefits of physical activity adding to those of healthier diet and calorie restriction. Proposals in the Government Child Obesity Plan(13), most of which have been stalled at the consultation stage, need implementation and restrictions on promotion and advertising of unhealthy foods extended to adults. A tax on dietary sugar and saturated fat are needed to encourage reformulation of products by industry. Bariatric surgery rates are lower in UK than others, such as France and Sweden, where obesity prevalence is lower. It is essential to catch up with the backlog of cases as elective surgery resumes, with those with severe obesity benefitting most (14). Facilities in the UK to help patients with a significant weight problem are inadequate, with low uptake of effective calorie restricted diets.

For excess alcohol consumption, a policy of Minimum Unit Price (MUP) needs implemented in England. Data from Scotland confirm a reduction of 4-5% in per adult off-sales of alcohol since the introduction of MUP and Australian data provide further support(15, 16). A study of 11 interventions showed health gains and cost-savings, with price increase through tax changes producing the largest health gains(17). In the Northern Territory of Australia, an MUP of $1·30/standard drink (10g) was introduced in October 2018 as part of measures that included a banned drinker register, the aim being to reduce alcohol related harm with a minimum impact on moderate drinkers. The preliminary findings after one year were of a sharp decline in harms associated with alcohol related violence, and significant reductions in hospital admissions and ambulance attendances. In the Northwest Territories of Canada, large coloured pictorial labels with cancer warnings were introduced in 2017 and reduced sales of alcohol by around 7%, evidence of behaviour change as well as improving risk awareness (18).

The Independent Commission on Alcohol Harm set up by the Alcohol Health Alliance, is currently detailing the extensive damage, not just to persons dependent on alcohol but also to partners, families and communities around them. A supporting editorial in the BMJ (19) detailed the risks of heavy drinking not just during lockdown but in the aftermath of financial stress and redundancies. The Government must commit to an Alcohol Strategy to mitigate the damage and protect public health.

Masterplan for Improving Survival Rates in Acute Hospitals

The Chair of the 2013 NCEPOD report (20), in looking at those who died from ARLD, commented '*The first thing I found surprising was how many of these extremely ill people were admitted under doctors who claimed no specialist knowledge of their disease, and how many of them were not then seen by an appropriate specialist within a reasonable period.*

The situation is little different now. In March 2018-19, 24% of all patients admitted acutely to hospitals in England with severe liver disease died within 60 days, a rate largely unchanged from that for the eight years to 2012(21). Better survival continues to be associated with treatment in London, treatment in a transplant centre, and specialist gastroenterological rather than generalist care in other hospitals. Life-expectancy with severe liver disease is much reduced(20); in England and Wales in 2018 the average ages at death from liver disease were 61 years for men, and 63 years for women, whereas the average ages at death for all-causes were 80 and 83 years, respectively. Since 1970, population mortality rates for liver disease in people aged younger than 65 years have risen almost 500%(22) and in 2018, liver disease was the leading cause of death for those aged 35-49 years, accounting for more than 10% of deaths(22).

In 2018/19 only 61% of patients with liver disease admitted acutely were seen by a specialist in gastroenterology or hepatology. The annual Royal College of Physicians (RCP) census(23) shows that although the numbers of consultants are increasing, in 2018 there were only 153 hepatologists, compared with 1417 gastroenterologists. Of the hepatologists, 64 (42%) were working in the seven transplant centres, 70 (46%) in 46 Teaching Hospitals; and 18 (12%) in the remaining 99 hospitals.

The better survival for patients managed by gastroenterologists/hepatologists demonstrates the need for more specialist care. This cannot be achieved by creating a specialist hepatology service in every hospital, nor by transferring every unwell liver patient to a specialist referral centre. Instead, the number of gastroenterologists with a special interest in liver disease and/or hepatologists, particularly in the hospitals that currently have no input, has to be increased. However, over the last five years 50% of advertised gastroenterology/hepatology consultant posts, particularly in the DGHs, have been unfilled because of a lack of trainees, and this needs to be taken into account in the changes to specialist medical training currently underway. The annual RCP census for each of the last 5 years has shown that around 50% of consultant physician appointments have been unfilled because of a lack of trainee physicians, and this includes gastroenterology which hepatology trainees derive from. In turn, there is a shortage of junior physicians in training. Government must prioritise the expansion of medical student numbers, but even then it will take around 15 years to see an increase in hepatologists. Currently shortfalls are filled, where possible, with locums, often commanding higher salaries, so expanding training posts could result in savings. It is likely that including a commitment to acute medicine in job descriptions also hampers recruitment.

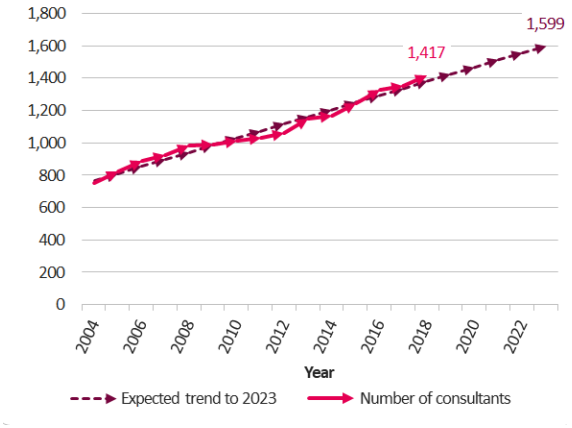

Figure 1: RCP Census of Gastroenterology consultants

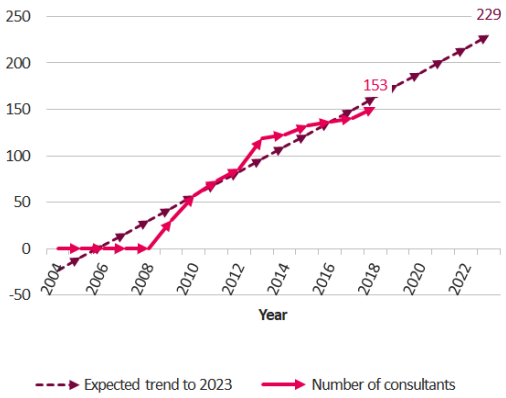

Figure 2: Hepatology consultants. ('Hepatology' only became an option as a primary specialty from 2008)

Until the numbers of liver-trained physicians is increased, the Commission recommends developing 30 specialist regional centres providing more complex assessment and treatment, each linked to and supporting 4-6 District Hospitals. This should be according to geographical and local needs instead of the current haphazard distribution of services. Many specialist liver centres are appropriately located but some areas remain ill-served and additional centres will be required. The minimum standard of care for every UK hospital that admits patients with liver conditions is a designated Liver Lead clinician to provide oversight of the service as well as ensuring all admitted patients are seen by an appropriately trained specialist within 24 hours of admission. The local Liver Lead should be provided with support as set out in the Improving Quality in Liver Services (IQILS) accreditation scheme of the RCP(24) and would be responsible for creating appropriate care pathways and audits to reduce avoidable deaths. The Lead would play a central role in developing community services for patients with liver disorders (including alcohol rehabilitation, community HCV therapy, primary care diagnostics and lifestyle support for those with NAFLD). Establishing local Liver Leads could be met largely through the existing workforce. BSG/BASL survey data has identified a potential liver lead, as a gastroenterologist with an interest in hepatology, in 78% of Trusts. Currently, 52 hospitals have registered (including 28 DGHs) with the IQILs accreditation programme and this number needs to be substantially increased. The framework supports patient centred reorganisation of services and workforce.

Regionally, standardised care bundles, as advocated in previous Lancet Commission reviews, have been shown to reduce variation between hospitals in mortality rates for patients admitted with ARLD (25). Medical directors should work alongside specialist commissioners to identify appropriate locations and the PHE atlas of variation [needs reference? https://fingertips.phe.org.uk/profile/atlas-of-variation] in liver outcomes provides a framework to identify areas with highest need. Overall, it is estimated that 6% of the total number of cases currently being admitted to acute hospitals are severely ill and require specialist care. A regional liver centre might expect 8-12 referrals per week, a manageable number. Funding should be provided through the specialist commissioning service, which should also take responsibility for monitoring outcomes.

Until now, the challenge in implementing the development of a DGH and regional centre masterplan has been the lack of HDU/ITU bed capacity, but the increase mandated by the Covid-19 pandemic provides new opportunities. Additional ITU capacity is likely to be maintained to deal with a future 'surge' in Covid-19 cases and could be deployed for severe liver disease in the periods when there is less Covid-19 requirement. Whether a referral originates from the ED, primary care or another hospital department, a standardised protocol needs to be agreed for sick liver patients requiring ICU admission. Those fulfilling the criteria care will need transfer to the regional centre in a timely fashion and usually within 24 hours. 'Smart ambulance' technology, effectively deployed for the management of strokes and myocardial ischaemia where outcomes have been greatly improved by specialist centres, needs to be developed to ensure that wherever possible patients are admitted immediately

to regional units where specialist care can be delivered. Weekly MDTs, for example by video platform, should be part of establishing better communication and dialogue between DGH and regional centres.

Improving hospital outcomes for patients with severe liver disease also requires new measures to circumvent/avoid early, unplanned re-admissions of those with decompensated cirrhosis, the commonest factors being recurrent ascites, hepatic encephalopathy and alcohol dependency(26). A scheduled outpatient visit at Day 7 post-discharge to optimise further outpatient care was shown to reduce hospital readmissions and emergency department attendances(27). The visit could also ensure patients with cirrhosis/severe fibrosis are entered into a surveillance programme for early detection of hepatocellular carcinoma (HCC), with the steadily rising death rates for this complication.

Improving Outcomes of Childhood Liver Disease

Late diagnosis of neonatal liver disease remains the main cause of chronic liver disease, necessitating paediatric liver transplantation(28). In Taiwan and in Canada, the use of stool colour charts has effectively abolished late presentation of biliary atresia. This has led to a significant fall in mortality and a reduction in the numbers and costs of early transplants by ensuring surgery took place before 90 days (29-31). The inclusion of a stool colour chart in the Personal Child Health Record (PCHR, the 'Red Book' that is given to all parents) would alert health visitors to refer infants for measurement of conjugated bilirubin level in blood to confirm the diagnosis. The impact of liver disease on the developing brain in infants and children also needs to be addressed. Deficits in all areas of neurodevelopment, including cognitive, behavioural and motor development, are described and up to 42% of children post liver transplantation have additional educational needs(30, 31). Similar to NICE guidance for children born preterm, those with liver disease require enhanced developmental surveillance including formal assessments by a multidisciplinary team of health professionals at set times during infancy and longer-term (32)(NICE guideline 13). Collaboration with educational psychologists will be important in achieving the goal of "meaningful survival" (11).

The high prevalence of non-adherence to treatment - particularly following transplantation – has also highlighted the need for dedicated specialist care during the period of transition from paediatric to adult services, with the appointment of a dedicated young person's champion in each centre. In a National Survey, out of 18/26 secondary/tertiary adult liver centres that responded to an online questionnaire, only 50% had a liver transition service(33). In these centres, young adults were more likely to have adequate knowledge about their condition, better adherence to treatment, and were less dependent on the paediatric provider.

Alcohol Care Teams (ACTs) in Integration of Alcohol and Liver Care

Around 30% of wholly alcohol-attributable admissions are due to ARLD(34) and ACTs must have close links with acute liver services to ensure expert care of both alcohol addiction as well as of liver disease. An estimated 1 in 10 patients in acute hospitals are alcohol dependent, and a further 20% are harmful drinkers(35). The key components of effective ACTs include a clinician-led multidisciplinary team, a 7-day alcohol specialist nurse (ASN) service integrated addiction and liaison psychiatry services, and medical consultants with expertise in liver disease(36). A Quality, Innovation, Productivity and Prevention (QIPP) case study describes how ACTs have significantly reduced avoidable bed days and readmissions(37). Modelling suggests that an ACT in a non-specialist acute hospital will save 254,000 bed days and 78,000 admissions annually by year three, with a cost saving of £3·85 for each £1 invested by year one of full optimisation(37). In spite of this compelling evidence, full implementation of ACTs has not been achieved. There remains a lack of clarity over funding responsibility since local authorities took over commissioning alcohol treatment services following the Health and Social Care Act of 2012, and recent widespread cuts to the Public Health Grant to local authorities (see below).

In 2019, The NHS Long Term Plan for England(38) aimed to expand the capacity of ACTs and identified the CCGs' health inequalities funding supplement as a legitimate source of funding(38). The following year, NHS England & NHS Improvement and PHE published a core service descriptor for ACTs with national funding planned for additional or improved ACT services in areas of high prevalence of alcohol dependence(39). The need for this programme to be implemented remains a priority, particularly with the increase in high risk

drinking during the Covid-19 pandemic(40). There also needs to be a greater focus on improving the clinical competencies of staff working in ACTs and hepatology, with appropriate training programmes(41).

Alcohol assertive outreach treatment

Frequent alcohol-related attenders to hospital place a disproportionate burden on the NHS, accounting for 59% of all alcohol-attributable admissions. Clustered in areas of high deprivation (42), they often do not engage with community addiction services and many have ARLD, as well as untreated mental health co-morbidities. Alcohol Assertive Outreach Treatment (AAOT), involving assertive engagement and intensive case management, has been shown to reduce re-hospitalisation by up to 50%(42). The 2017 national survey in England identified 37 acute NHS trusts (24%) providing elements of AAOT(43). However, only 6 of these services (16%) provided all 6 components of effective AAOT, and the majority lacked a multidisciplinary team provision and/or were not resourced sufficiently. Implementation of AAOT has been hampered by the same policy and funding barriers identified for ACTs.

A service evaluation of an AAOT in South London in 2018 showed that compared to standard care, AAOT saved £13,548 per patient in the first year in reduced inpatient bed days alone. Considering the cost of intervention, £2,979 per patient, there was a net short-term cost saving of £10,569(42). If AAOT was rolled-out nationally in England to the estimated 54,369 alcohol-related frequent hospital attenders, savings of about £575m could be achieved within a year for an implementation cost of £161m, a return of investment of £3·42 for each £1 spent(42).

Specialist Community Alcohol Treatment

The success of hospital-based alcohol care is crucially dependent upon a continuing care pathway in the community. The 18% (£162m) cut to the funding for Local Authority community addictions services in England has led to a 22% reduction in the number of people entering specialist alcohol treatment. In 2018/19, 82% of people with alcohol dependence in England did not access specialist alcohol treatment. Specialist NHS addiction consultants have been reduced by 48%, with a 60% reduction in the number of specialist addiction trainees in the last 10 years(11). Table 1 shows, for the four nations of the UK, the specialist alcohol treatment access ratios ie the number of alcohol use disorder (ICD-10 F10) admissions to NHS hospitals relative to the number of people accessing alcohol treatment in a given year. Between 2016/17 and 2018/19, the ratios have remained relatively stable in Scotland and Wales, but have increased in England and Northern Ireland, which now have approximately a third and a fifth of the level of access in Scotland respectively. This means that community-based specialist alcohol treatment services in England and Northern Ireland are increasingly ill-equipped to respond to the prevailing level of need in the community, including the aftercare needs of patients discharged from hospital with ARLD.

Table 1: Specialist alcohol treatment access ratios across the United Kingdom in 2018/19 compared to 2017/18 and 2016/17

Country	Number accessing treatment for alcohol only in 2018/19[1]	Number of F10 alcohol hospital admissions in 2018/19[2]	Treatment access ratio (F10 admissions/ treatment access) 2018/19[3]	Treatment access ratio (F10 admissions/ treatment access) 2017/18[3]	Treatment access ratio (F10 admissions/ treatment access) 2016/17[3]
Scotland	26,536	27,474	1·0	1·0	1·1
Wales	8,344	12,266	1·5	1·5	1·5
England	75,555	220,731	2·9	2·6	2·4

Northern Ireland	2,560	12,548	4·9	3·9	3·9
United Kingdom	**112,995**	**273,019**	**2·4**	**2·2**	**2·1**

[1]Excludes concurrent drug misuse as a reason for treatment.

*[2]Primary or secondary diagnosis of ICD*10 F10 'Mental and Behavioural Disorders due to Use of Alcohol'. This is a proxy measure of the prevalence of alcohol dependence in the general population(44). (* International Statistical Classification of Diseases and Related Health Problems)*

[3]The treatment access ratio is the number of F10 admissions to NHS hospitals divided by the number of people accessing specialist alcohol treatment. The lower the ratio the more favourable the level of access to treatment

Early Detection of Liver Disease in Primary Care and High-Risk Groups

Early identification and management of liver disease is an essential pre-requisite to improve outcomes and avoid complications in NAFLD and ARLD. Primary care must play a central role in identifying patients at risk and initial interventions, although it remains challenging to mobilise primary care at scale, given other perceived priorities. Nevertheless, the Covid-19 pandemic has had the unexpected effect of accelerating utilisation of digital solutions and pathways in primary care and the interface with hospital care. This has the potential to transform care by allowing more consistent early identification of people at risk as well as for better management and follow up of those with established disease. Examples of excellent practice already exist in pockets and need to be replicated widely. Evidence suggests that introducing a two-tier system to screen patients in primary care for liver fibrosis is the most cost effective strategy(45). This comprises an initial simple screening test with a high negative predictive value (eg FIB-4 or NAFLD Fibrosis Score, NFS), with a second test reserved for detecting advanced fibrosis in those with a high or indeterminate score. Second line tests with suitable accuracy include the Enhanced Liver Fibrosis (ELF) blood test, the Acoustic Radiation Force Impulse (ARFI) technique, and transient elastography (FibroScan) (46).

In 2014, an integrated primary-secondary care pathway was established in Portsmouth to assess and manage patients with NAFLD across three CCGs with a combined adult population of over 650,000. If the NFS indicated low risk, patients are issued with standardised advice regarding cardiovascular risk and weight management in primary care. High risk patients are referred to a consultant-led hepatology clinic for further management. Those with an indeterminate risk are seen in a nurse-led NAFLD clinic that includes FibroScan. Patients with a FibroScan reading <7·9 kPa are returned to primary care and those above referred for consultant assessment. An evaluation of the first 900 patients seen in the nurse-led NAFLD clinic showed 70% could be discharged to primary care on the first visit(47). Similarly, in a North London population, improvements in fibrosis detection and quality of referrals were seen using a two-step algorithm of FIB-4 followed by ELF. The pathway led to a four-fold improvement in detecting advanced fibrosis and an 88% reduction in unnecessary referrals(45).

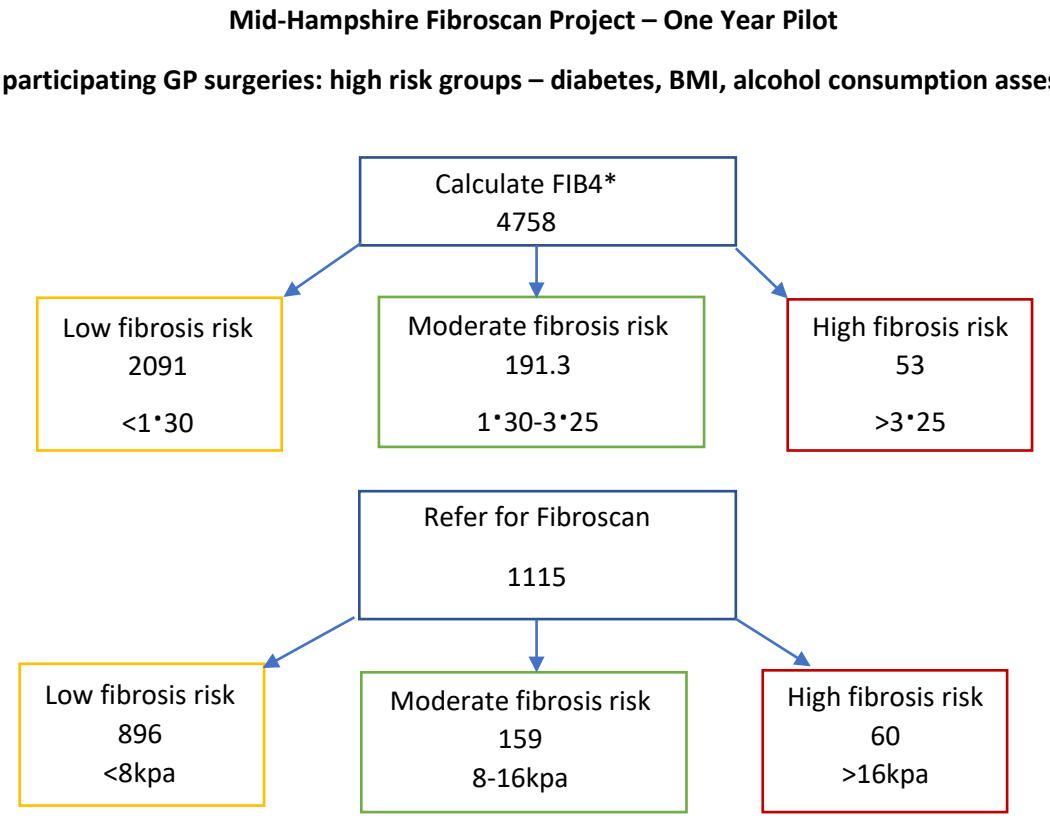

Figure 3: The Mid-Hampshire FibroScan project

A more portable, mini FibroScan machine has allowed greater access to GP surgeries and community centres. An unpublished pilot study initiated in early 2019 in the Mid-Hampshire CCG (Figure 3), the first to make Fibroscan available for GPs to use in primary care, has allowed a better calibration of the high-risk category referred to hospital, and costs are £24 per community scan. It is estimated that prevention of progression to cirrhosis and ultimately transplant represents a saving of at least £12,000 per patient, with an ICU bed priced at £1328 /day and a general hospital bed £195. The mid-Hampshire pilot of 1115 scans in 2019 cost £26,760, equivalent to 20 ICU days (personal communication, Dr Harriet Gordon).

Most approaches to early diagnosis have used abnormal liver enzymes as the entry point to a diagnostic pathway, whereas the Scarred Liver Project in Nottinghamshire uses risk identification (obesity, diabetes or alcohol excess) as the primary trigger for investigation, which includes FibroScan. In four Nottinghamshire CCGs (700,000 population) over 12 months, 222 (23%) of 968 patients assessed had an elevated liver stiffness (≥8kPa) and in 60 (27%) liver stiffness was indicative of advanced chronic liver disease. If a traditional approach based on raised liver enzymes had been followed, 39% of those with significant liver disease (≥8kPa) would have gone undetected(48).

The use of electronic medical records (EMR) in most NHS primary care offers untapped opportunities for identification of patients at risk. Algorithms in development could identify such cohorts directly from their electronic records. Once identified, these can be directed for referral by automated digital referral processes. Clinical decision support can also be deployed within the EMR to assist practitioners in their management of patients along appropriate pathways, further accelerating the referral process and improving outcomes. These opportunities to deploy a national co-ordinated response to prevention and intervention in those with risk factors for liver disease, integrated within the current mandated Healthcheck, should be a national priority.

ARLD generates challenges around early detection as there is significant under-reporting of alcohol use within medical records. This may well lessen the potential of algorithmic digital approaches to case finding, further compounded by the greater proportion of patients who fail to complete investigation or treatment pathways. However, there are other routes for detection of heavy drinkers, for example through drink driving or domestic violence records. A more consistent coordinated multidisciplinary community and hospital approach is needed to increase the likelihood that patients and their families get the treatment they require and improve outcomes in this major cause of preventable death.

Hospital Plans in Scotland, Wales and Northern Ireland

Scotland

Recent figures show that in the year following the introduction of MUP, the consumption of cider, previously the cheapest form of off-sales alcohol, fell by 18·6%, in contrast to a rise of 8·2% in England & Wales(49). In the financial year 2018-19, which includes 10 months post-MUP, the European Age-Sex Standardised Rates (EASR) for hospital stays due to ARLD fell from 139·9 in 2017-18 to 129·3, having been rising or static for each of the previous five years(50). However, the longstanding and recurring staff shortages facing DGHs is of concern, and few have formal ACTs.

As in other parts of the UK, there is increasing interest in pre-symptomatic detection of liver disease, such as the opportunistic detection of abnormal LFTs. 'Intelligent Liver Function Tests' (iLFTs), the automated analysis and interpretation of abnormal LFTs in primary care, have been developed and piloted in Tayside(51), improve diagnosis and are being extended to other parts of Scotland. Also, as many patients with even advanced liver disease have normal LFTs(48), additional approaches to pre-symptomatic diagnosis based on the use of liver fibrosis markers, including FIB-4 score, are being piloted. The potential target in Scotland is the 40,000 at risk drinkers in primary care identified annually by the national Alcohol Brief Intervention (ABI) programme(52). A pilot project in Edinburgh demonstrated that FibroScan use in an alcohol treatment setting is feasible and worthwhile(53).

Wales

The Gwent Liver Unit was commissioned to undertake a pilot study of routine testing for the AST liver enzyme and referral for FibroScan if the AST:ALT ratio is >1. In two years, 18,000 people were risk-assessed and 192 identified with advanced fibrosis. This resulted in an 81% increase in the diagnoses of cirrhosis (unpublished data. Personal communication Andrew Yeoman). This pilot has formed the backbone of a new Welsh national liver blood test pathway, incorporating assertive fibrosis testing launched in summer 2020. A free, comprehensive, online education resource has been produced for all primary care clinicians in Wales to improve understanding of liver blood test assessment, rationale for fibrosis testing and management of risk factors. The Wales Liver Plan is also funding a Liver Disease Support Worker in each Health Board for two years to increase FibroScan capacity, take testing into the community and, in future, extend testing to those with NAFLD and alcohol misuse.

A national ACT working group has been convened to engage with the Values Based Healthcare framework in producing a "Benefits Realisation" report for the Chief Medical Officer (CMO) of Wales. This will complement the impact of the introduction of MUP in Wales, which came into force on 2nd March 2020. Finally, a Welsh Parliament Cross-Party Working Group has been convened to focus to engage politicians in driving progress in the three key Lancet Commission priorities of hospital care, alcohol care teams and early detection.

Northern Ireland

Consultant-led ACTs are in place in three of the five trusts in Northern Ireland. The remaining two trusts have lost their alcohol specialist nurse (ASN) posts through implementation by the Department of Health of the Rapid Assessment, Interface and Discharge (RAID) model of liaison psychiatry services. Many ASNs were not considered sufficiently trained in mental health for redeployment as RAID practitioners, but the services are complementary and the aim remains to create ACTs in all Trusts.

Data from 2016/17 to 2018/19 in the Province show marked health inequalities in alcohol harm. In the 20% most deprived areas, the standardised alcohol related admission rate was four times that in the 20% least deprived areas (1,410 and 353 admissions per 100,000 population respectively)(54). In addition, the alcohol specific standardised mortality rate was four times higher (31·7 and 7·6 deaths per 100,000 population, respectively)(54). These data strengthen the call for the introduction of MUP, which targets poorer communities but was delayed by the suspension of the devolved Northern Ireland Government until recently. It is now being considered again as part of a new substance misuse strategy.

Conclusions:

Implementation of the main recommendations of this report would result in improved outcomes and survival rates for patients with both acute and chronic liver disease requiring hospital admission. It would provide greater expertise in all acute hospitals, with Lead and Deputy Lead positions optimising 24/7 emergency cover, alongside active links to 30 specialist regional centres in England. As well as ensuring better cover for deprived areas, it represents an integrated, high quality service that can work alongside the likely reconfiguration of hospitals, particularly HDU and ITU facilities, consequent on the Covid-19 pandemic. Fully staffed ACTs in every hospital dealing with liver patients will also aid in the care of the commonest group of admissions, namely those with ARLD. Close links with hospital liver services will be essential and there also need to be joint follow-up arrangements between ACTs and hepatologists for patients after discharge from hospital, to reduce the current high readmission rates. The Commission strongly recommends that cuts in addiction services should be reversed, and AAOTs established to maintain long-term care outside the hospital to realise substantial financial savings to the NHS Development of AAOTs to reduce pressure created by repeat attenders and their implementation on a national level, would cost £161m but release savings to the NHS of £575m(41). These savings would sit alongside those produced by full implementation of ACT in all hospitals, which would deliver an average net saving of £448,000 for an implementation cost of £157,000 per hospital in the first year.

Technologies for pre-symptomatic diagnosis of liver disease, such as transient elastography (FibroScan) and serum fibrosis markers, are now ready for wide implementation in primary and community care throughout the UK as part of clear and locally owned care pathways. They should sit alongside assessment of alcohol consumption, required by the adult Healthcheck in primary care, to harness the greater use of tools of proven benefit such as brief interventions. The potential value of digital technology in improving consultations in general practice, which has come to the fore during recent Covid-19 experience and increased the involvement of patients in their own care pathways, is also detailed and strongly recommended in the report.

Finally, the importance of tackling public health hazards of alcohol, obesity and diabetes in reducing the burden of liver disease in the UK is further strengthened by the striking effects of such co-morbidity on the mortality of Covid-19 infection, especially given the possibility of further waves of the infection. It is only by a comprehensive public health approach, including the long-overlooked alcohol strategy, that Westminster Government can turn the tide of liver deaths, especially in younger people of working age. An extension of the levy on sugar content in drinks to foodstuffs should be part of the more active measures now being considered by Government. The further evidence from Scotland and internationally of the effectiveness of MUP add to an unassailable case for its urgent implementation, as well as proper labelling of alcohol products to include calorie content and health warnings. The need to address deficiencies in the liver and addiction plans of the devolved nations similar to those in England is highlighted and the box summary of main recommendations includes measures to improve long-term outcomes in children with liver disease.

Box 1: Summary of main recommendations

1	Establish a Lead and Deputy Liver Lead in each acute hospital, to take responsibility for 24/7 care of acute admissions and closely linked to one of 30 regional hubs. These regional centres require HDU/ITU capacity and facilities for specialist treatment.
2	Increase the number of training posts in Hepatology. Currently hospitals are advertising funded posts but there are insufficient trainees to fill them, leading to higher staff costs for locum posts. There is also urgent need to reverse the fall in training posts in addiction psychiatry
3	Extend 7-day alcohol care team to all acute hospitals, with appropriate links to liver services.
4	Utilise aggressive outreach services in the community to support frequent hospital attenders with alcohol use disorders. Reverse the decline of alcohol treatment services
5	Expand primary care access to FibroScan for detection of severe fibrosis/cirrhosis in asymptomatic individuals within high risk groups. Assess liver health as part of the adult HealthCheck.
6	Prioritise public health by extending soft drinks levy to foods, introduce meaningful alcohol labelling and intensify Government recommendations on physical activity to reduce levels of obesity and diabetes.
7	Facilitate translation of best practice across and between health systems of the four nations
8	Increase survival and improve outcomes for young people through earlier diagnosis of biliary atresia by adopting stool colour charts as part of neonatal screening and enhanced neurocognitive developmental surveillance

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