Lancet Commission on Liver Disease in the UK IV: Increased disease burden and costs from excess alcohol consumption, obesity and viral hepatitis.

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Abstract

This report contains new and follow-up metric data relating to the eight main recommendations of the Lancet Commission to reduce the current unacceptable harmful consequences of excess alcohol consumption, obesity and viral hepatitis. For alcohol, these include data on alcohol dependence, damage to families and the documented rise in alcohol consumption since removal of the above inflation alcohol duty escalator. Alcoholic liver disease will shortly overtake ischaemic heart disease in years of working life lost. Similarly, the rising levels of obesity affecting more than 60% of adults are leading to an increasing disease burden. Favourable responses by industry to the Government's Soft Drinks Industry Levy are being seen but the Government cannot go on ignoring all the adults being affected by diabetes and hypertension, as well as liver disease. The new directly acting antiviral agents (DAAs) for the treatment of chronic hepatitis C virus infection (HCV) have reduced mortality and the number of patients requiring liver transplantation but more screening campaigns are needed for identifying infected persons in high risk migrant communities, prisons and addiction centres. Provision of care continues to be worst in the regions with the greatest socio-economic deprivation and deficiencies in the current training programmes in hepatology for the specialist registrars are highlighted. Firm guidance is needed for primary care on the use of liver blood tests in detection of early disease and the need for specialist referral. The report also brings together all the evidence on costs to the NHS and wider society, with figures for alcohol misuse in England and Wales of £21billion a year (possibly up to £52billion) and obesity of £27billion a year (Treasury estimates put this as high as £46billion), in addition is the loss of tax revenue. Voluntary restraints by the food and drinks industry have been shown to have little effect and concerted regulatory and fiscal action by the UK Government is essential if the scale of medical problems, with an estimated 63,000 preventable deaths over the next five years, is to be tackled.

Introduction

This fourth report of the Lancet Commission on Liver Disease in the UK provides yet more factual evidence of the harm being done to the nation's health by excess alcohol consumption, obesity and viral hepatitis and the continuing failure to introduce effective measures of control (1-3). These lifestyle causes as well as smoking, have a major influence in exacerbating poor health in aging and have been implicated in 30% of dementia cases(4). Furthermore, the recent published 2nd Atlas of Variation – Public Health Profiles by Public Health England (PHE)(5), show that the previous steady rise in overall life expectancy has stalled and the gap between healthy and overall life expectancy is now 16.1 years for men and 19.0 years for women .With ten million adults regularly drinking more than 14 units of alcohol each week - the upper limit of safe drinking for males set by the Chief Medical Officer (6), the extent of resulting morbidity and mortality is not surprising, particularly with the added effects of obesity and smoking in co-morbidity. The Atlas also reveals the poor provision of health services including deficiencies in the provision of diagnostic tests for liver disease in certain regions of the country in association with poverty and social inequality.

An important initiative of the Commission this year was the bringing together of the costs from the three main lifestyle causes and the escalation that is anticipated on the basis of current trends. Entitled *'The Financial Case* for Action on Liver Disease – the escalating cost of alcohol misuse, obesity and viral hepatitis'(7), the prediction is that over the next five years there will be an additional £17billion cost to the NHS. Failure to take action on adult obesity alone could result in an additional £1.9-£2billion each year. The document, released on July 24th 2017, attracted considerable media attention(8) and the launch event in Parliament included the release of new factfiles on lifestyle costs developed for local authorities.

Touched on only briefly in the report but of considerable relevance to the Commission's recommendations are the Sustainability and Transformation Plans (STPs) of NHS England and the Accountable Care Systems being developed. Only six of the forty-four provisional STP sites have plans that mention liver disease specifically although there is mention of some action on alcohol in others. How closely these new arrangements mirror PHE's best practice guidance, will need careful examination(9).

Recommendation 1: Improving expertise and facilities in primary care to strengthen detection of early disease and its treatment, and screening of high-risk patients in the community.

Metrics 1·1-1·5:

The Royal College of General Practitioners Research & Surveillance Centre (RCGP RSC) has access to anonymised data from over two million primary care clinical records(10). The information in Table 1 comes from an analysis of adult patient records within the databases. The figures are disturbing, showing in the last year only 26% of BMI readings and 18% of alcohol consumption were recorded, and with 3% of patients having an AUDIT and 0% determination of HCV status in injecting drug users.

Table 1: RCGP RSC data on Patient Numbers and Primary Care Activity (total number of patients in database 1,595,450)

	Numerator	Read coded
Diagnosis of NAFLD	15,984	1.00%
BMI recorded previous 12 months BMI recorded previous 5 years	421,785 932,618	26.44% 58.45%
Patient's alcohol units recorded 12 months Patient's alcohol units recorded 5 years	281,309 723,279	17.63% 45.33%
Alcohol AUDIT carried out in 12 months Alcohol AUDIT recorded carried out in previous 5 years	48,880 164,743	3.06% 10.33%
No. injecting drug users with HCV 12 months No. of injecting drug users with HCV 5 years	50 118	0.00% 0.01%

The numbers diagnosed with NAFLD and of chronic HCV infection in injecting drug users, are considerably lower than the known prevalence of these conditions. Despite all the current pressures on GP time, accurate recording of liver disease data is vital if three of the five recommendations relating to primary care in the recently published NICE Quality Standards on Liver Disease(11), are to be implemented:

1. Advice on physical activity, diet and alcohol to people with NAFLD
2. In NAFLD patients, regular testing for advanced liver fibrosis
3. Non-invasive testing of those with risk factors for cirrhosis

A comprehensive list of recommended Read codes that cover investigations for liver diseases in primary care will be published when the British Liver Trust/RCGP Clinical Priority Programme launches a comprehensive web-based liver disease toolkit in September 2017. Starting in April 2018 however, there will be a move away from Read codes to a different clinical coding system - the Systematised Nomenclature for Medicine – Clinical Terms (SNOMED CT)(12) which in familiarisation will represent a considerable further call on GP time.

Recommendation 2: Establishment of acute liver services in district general hospitals linked with 30 regional specialist centres for more complex investigations and treatment, and increased provision of medical and nursing training in hepatology.

Metrics 2·1-2·6:
Unfortunately follow-up metric data on provision of liver services in hospitals will not be available until the next survey of hospitals is carried out in 2018. There is also information within the STPs on possible hospital reconfigurations and how these will link with the recommended regional centres for specialist liver work and the operational delivery networks (ODNs) set up to deliver the anti-HCV drugs.

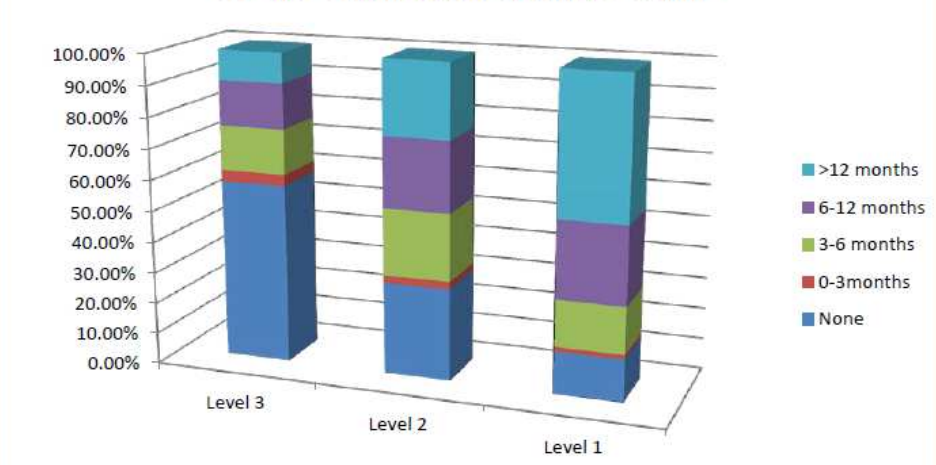
After a pilot study, the Royal College of Physicians (RCP) has officially launched its new exemplar liver accreditation programme, Improving Quality in Liver Services (IQILS), with access to a new online tool and up to date guidance on improving standards of hospital care.

Hepatology Training and Capacity
The biannual surveys performed by the Trainees section of the British Society of Gastroenterology (BSG) have consistently reported low levels of confidence in managing certain aspects and conditions within Hepatology, even among senior trainees. A common theme is a lack of confidence in managing outpatient Hepatology, particularly viral hepatitis, autoimmune liver disease and liver transplants (timing of referral and indications). This is a major concern with the shortage of consultant hepatologists in the district general hospitals described in earlier Commission reports, particularly when up to 30% of trainees are reporting a desire to sub-specialise in Hepatology, with an additional 15% considering such a career move. The main barriers reported were a lack of local training opportunities and difficulties in changing regions to obtain liver training.

At present, all trainees in Gastroenterology are expected to receive 6 months training in a Level 2 or Level 3 unit. Level 2 is one that provides: ≥2 Whole Time Equivalent (WTE) consultant Hepatologists, out-of-hours endoscopy, specialist treatments including transjugular intrahepatic porto-systemic shunts (TIPSS), and HCC multidisciplinary meetings, liver histopathology, dedicated liver clinics, and a specialist nurse team, Level 3 unit having in addition a liver transplant programme.

Figure 1 shows that <50% of trainees gained experience of Level 2 hepatology and 40% Level 3 training. Furthermore, the Deanery Training Programme Directors consider that forty-seven units are providing Level 2 training whereas the UK Survey of Liver Services carried out in 2015-16 identified only nineteen units, so that currently even fewer of the trainees are receiving adequate Level 2 training. To make up for these deficiencies, it is recommended that trainees should spend a period of six months in an enhanced Level 1 unit incorporating some Level 2 facilities. A review of training capacity showed that there are deaneries without sufficient capacity currently for "Enhanced" Level 1 training, namely London NE and the North East, and seven deaneries unable to accommodate enough trainees for Level 2 and 3 training.

Figure 1: Senior Trainees (ST6/7/8 & SpR) were asked to identify duration of Level 1, 2 & 3 Hepatology training



New Metric for Primary Hepatocellular Carcinoma

Figure 3 shows the considerable variation in mortality rates (a 2·6 fold difference) for primary hepatocellular carcinoma between the regions, as mapped by the STPs, a reflection again of the greater burden of disease and lack of specialist services in the more deprived areas and of the failure generally to institute surveillance programmes for cirrhosis patients. The steady increase in primary HCC, as described in last year's Commission report, is a reflection of the continuing two most frequent causes, namely excess alcohol consumption and obesity (often in combination).

The percentage of persons aged 15 years and over with HCC receiving treatment with curative intent (liver transplantation or major liver resection or ablation) is depressingly low at 15·7% (Table 2), with a considerable variation between regions of 11·4% to 17·3%.

Table 2: Percentage of cases aged 15 years and over with hepatocellular carcinoma receiving treatment with curative intent (liver transplantation, major liver resection or ablation) within 6 months of diagnosis, by region (2010-2014) (Data from PHE)

	Diagnosed	**Number treated (%)**	
East Midlands	710	112	(15.8%)
East of England	1,038	167	(16.1%)
London	1,323	204	(15.4%)
North East	676	77	(11.4%)
North West	1,667	270	(16.2%)
South East	1,342	188	(14.0%)
South West	1,059	173	(16.3%)
West Midlands	1,043	180	(17.3%)
Yorkshire and The Humber	1,119	193	(17.2%)
England	**9,977**	**1,564**	**(15.7%)**

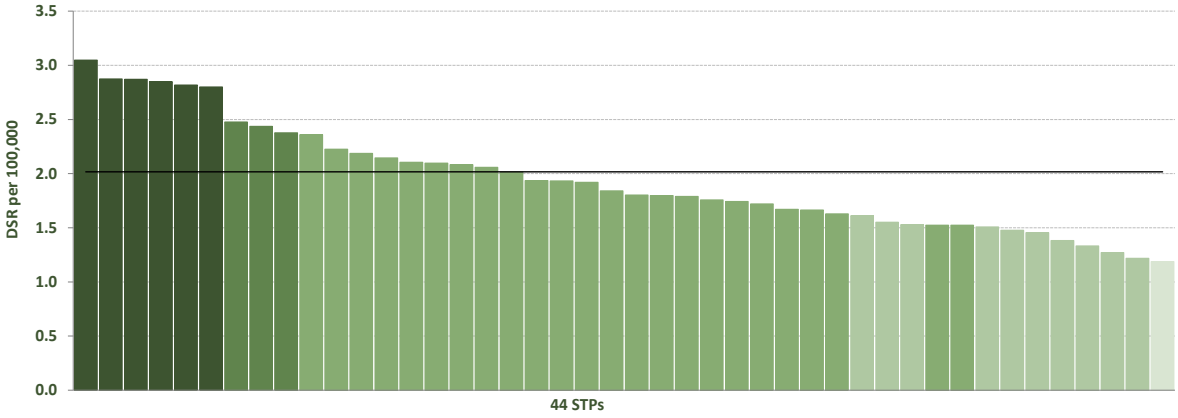


Figure 2: Box plot showing variation in mortality rate under 75 years due to Hepatocellular Carcinoma by Sustainability Transformation Plan (2011-2015); standardised mortality per 100,000 Population

Recommendation 3: A national review of liver transplantation to ensure better access for patients and to increase capacity

Metrics 3·1 – 3·5

The 1003 transplants carried out in 2016 (children included) represents a significant increase over previous years though still less than the new registrants added to the waiting list – 1169, and with seventy-two on the waiting list dying or being removed (168) as too sick. Although survival rates for elective transplantation are 95-100%, five year survival rates vary considerably across the transplant centres. The introduction of normo-thermic machine perfusion, which should decrease the proportion of potential grafts considered unsuitable for implantation (15% of donated organs in 2016/17), is strongly recommended by the Commission, as is the introduction of Presumed Consent in England based on results in Wales, where a quarter of donations came from Presumed Consent during the first twelve months after its introduction, along with an increase in the number of all transplants.

The aim of the new national offering sequence for donation which is scheduled to start from December 2017, with the first offer of an organ no longer being directed to the centre but to the highest ranked suitable patient, is to improve equity of access and maximise patient benefit. The marked variation between centres currently in the acceptance of donated organs should also be decreased.

With the almost certain increase in donor organs as a result of these outcome measures, the strategic review by NHS England due to be carried out in 2018 will consider the provision of increasing capacity either within current centres or the setting up of new centres, as was strongly endorsed in last year's Commission report, with the South West (Plymouth) and North West (Liverpool) being the most obvious places to be considered.

Recommendation 4: Specialist paediatric services and continuity of care in transition arrangements for children with liver disease reaching adult life.

Metrics 4·1-4·3

Data on the number of children born with persistent conjugated jaundice lasting longer than 14 days in term babies and 21 days in pre-term, referred to the three national paediatric liver units, is shown in Table 3 (comprising Metric 1·6 in the 2015 Lancet report). The majority diagnosed with extra hepatic biliary atresia (EHBA) were referred before 56 days of age, but the range was wide (0-242 days) and 56 children were only seen after that time, too late for a benefit to be obtained from early surgery(13). This is unacceptable and further support needs to be devised for the specialist centres in their efforts to improve early diagnosis.

Table 3: Conjugated jaundice (aged <6 months) and diagnosis of extra hepatic biliary atresia in referrals to the three National Paediatric Liver Units 2012-2017.

Centre	Referrals (number)	EHBA (number)	Median age and range (days)	EHBA > 56d
BCH	661	69	49 (10-104)	15 (0.7%)
KCH	902	126	50 (0-242)	31 (1.4%)
Leeds	554	63	34 (4-126)	10 (0.5%)
Total	2117	258	45 (0-242)	56 (2.6%)

BCH: Birmingham Children's Hospital, KCH: King's College Hospital

On the training front, an electronic questionnaire on transition arrangements for children with liver disease reaching adult life, prepared in collaboration with the British Society for Gastroenterology, and a draft document specifying training requirements for Physicians caring for young adults, have been submitted to the Specialist Advisory Committee in Gastroenterology(14). No information is currently available on what arrangements are currently in place.

Recommendation 5: Measures to reduce overall alcohol consumption in the country

Metric 5·1-5·2: Alcohol Policy, Alcohol Consumption and Alcohol Use Disorders
A report by PHE on an evidence based alcohol policy which was published in the Lancet(15) was submitted to Ministers in late 2016. It confirms findings of previous reports, most recently by the OECD(16), that fiscal policy is by far the most cost-effective policy option for reducing alcohol consumption, along with regulation of alcohol marketing to reduce the exposure of children to market pressures.

The situation in Scotland is more promising with the Government anticipating being able to implement Minimum Unit Pricing (MUP) early in 2018, subject to the Supreme Court decision. Wales is following a similar path and on 23rd October 2017 the Welsh Government introduced The Public Health (Minimum Price for Alcohol) (Wales) Bill. The comprehensive new alcohol strategy of the Northern Irish government includes MUP and strong regulation of marketing with a variant of the French Loi Evin(17). UK alcohol consumption, which peaked at around 5,642,000 hl (hectolitres) in 2008/9, dropped when the duty escalator was introduced to around 4,843,000 hl in 2013/4 and since the duty escalator was withdrawn, has increased again to 5,126,000 hl in 2016/7. These changes illustrate how responsive population alcohol consumption is to small changes in taxation and further supports the Commission's recommendation for an increase in overall alcohol taxation.

Key numbers to consider on the estimation of alcohol dependence in England(18), are as follows:-

- 595,131 adults with alcohol dependence in need of specialist alcohol treatment. Of these, an estimated 173,399 displayed moderate severity and 107,979 had severe dependence
- 57% of alcohol dependent adults had a desire to cut down their drinking

According to the Adult Psychiatric Morbidity Survey(19) in 2014, 7.1million (16.6%) adults in England were drinking at hazardous levels and a further 813,000 (1.9%) at harmful levels. Although the proportion of men and women who were harmful or mildly dependent drinkers did not change between 2000–2014, there were important changes in different age groups with a reduction in young adults aged 16 to 24, (6.8% to 4.2% in 2014) though the exact reasons for this were not identified.

Metric 5·3: Treatment Access Rates in Hospital and Community Alcohol Services
Ensuring access to specialist alcohol treatment in the community is a key element of the WHO Global Alcohol Strategy which advocates "Individuals and families affected by the harmful use of alcohol should have access to affordable and effective prevention and care services."(20). One UK study of psychosocial treatment for alcohol dependence showed savings to the public sector of £5 for every £1 spent(21). A recent economic analysis by PHE also concluded that alcohol screening and brief interventions, together with Alcohol Care Teams and Alcohol Assertive Outreach teams proactively engaging with social care services, will return exponential savings over the cost of delivery(15).

The number of people accessing specialist alcohol treatment in England as recorded by the National Drug Treatment Monitoring System has increased slightly from 107,218 in 2008/09 to 113,222 in 2015/16(22). In Scotland, estimates of the number of people accessing treatment(23) show proportionately a greater level of access (from 16,952 in 2008/09 to 28,500 in 2015/16), which coincided with an additional annual investment in treatment services of £28million. The ratio of treatment access to alcohol dependence hospital admissions, which serves as a proxy indicator of the prevalence in the general population, reduced slightly from 1.56 to 1.40 between 2008/09 and 2015/16 in England, whereas in Scotland the ratio increased considerably from 1.75 to 2.69, providing additional evidence of the need to upgrade and fund measures for reducing the present levels of dependence and increasing treatment access in England.

In 2017/18, a national prevention Commissioning for Quality and Innovation scheme (CQUIN) including alcohol was implemented in mental health and community trusts, with secondary care to follow in 2018/19. Hospital trusts who deliver identification and brief advice (IBA) to 80% of patients will receive financial reimbursement. To support local planning and commissioning, PHE have published guidance(9) which includes recommendations:

1. To establish and/or optimise alcohol care teams in district hospitals and assertive outreach teams
2. To ensure prompt access to treatment services of parents identified as harmful/dependent drinkers and agreed pathways to reduce risks to children.

It is to be hoped that the situation will be improved by the recently announced Government Drug Strategy 2017(24) highlighting the importance of preventing drug and alcohol misuse and with an emphasis on investing in a range of evidence based programmes.

Metric 5·4-5·5: Alcohol Related Mortality, Years of Life Lost and Hospital Admissions

Alcohol related deaths in England and Wales fell from a peak of 7,312 in 2008 when the alcohol duty escalator was introduced, to 6,999 by 2012 and after abolition of the escalator in 2013 increased to 7,630 in 2016(25). As shown in the heat-map (Figure 3), there is close correlation between liver disease mortality and the socio-economic deprivation index. Mortality is mainly seen in the young and middle aged group. In 1999, liver disease outstripped lung cancer and breast cancer and is finally set to outstrip ischaemic heart disease as the leading cause of working years of life lost (Figure 4).

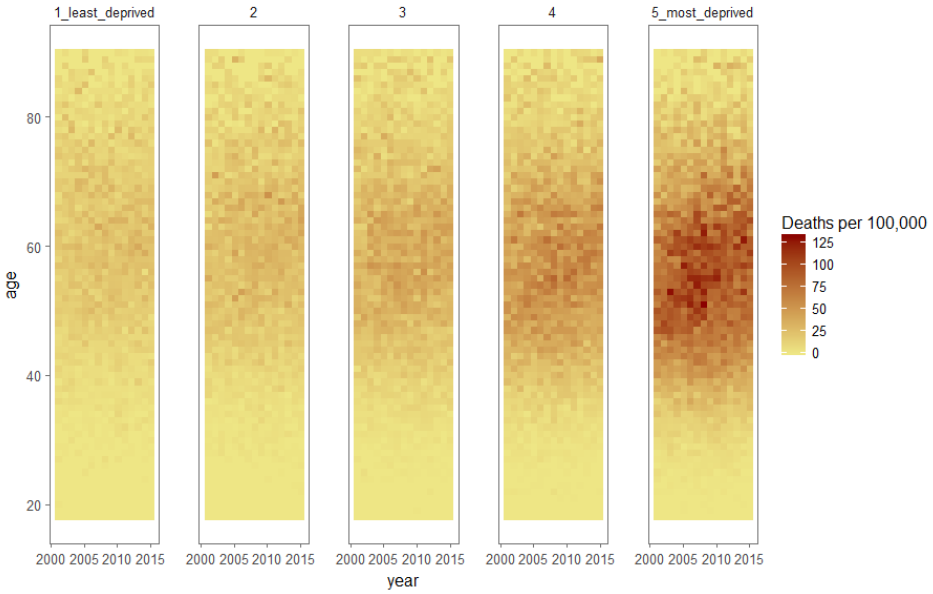


Figure 3: Heat map showing mortality rates per 100,000 of population attributable to alcoholic liver disease by age and IMD (Index of Multiple Deprivation) quintile. Stark socioeconomic inequalities are shown, with the highest density of deaths indicated by dark colours, in the middle-aged deprived population. Data analysis Petra Meier and Colin Angus.

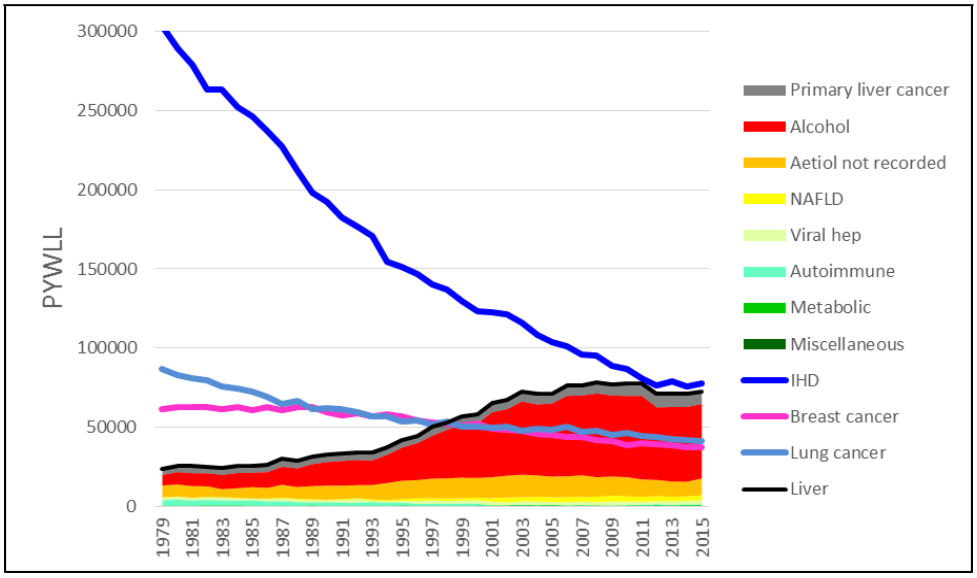


Figure 4: Potential years of working life lost (prior to age 65) estimated using ONS mortality 1979-2015(26, 27) categorised into 5 year age bands. (Analysis by Nick Sheron).

Of the two official measures of alcohol related hospital admissions, the broad measure includes both primary and secondary diagnoses and is a more accurate reflection of the total burden of alcohol related harm. The newer, narrow measure introduced in 2014 to compensate for changes in coding includes only primary diagnoses and is substantially lower than the broad measure(28). During 2015/6 there were 1·1 million broad measure admissions representing 7% of total hospital admissions, an increase of 4% compared with the previous year and the narrow measure increased by 3% to 339,000 admissions(29). The peak age group for admission was 45-54yrs, and 61% were male. Blackpool had the highest number (3,540/100,000 population) and Kingston upon Thames the lowest (1,400/100,000).

Recommendation 6: Promotion of healthy lifestyles to reduce obesity and the burden of NAFLD

Metrics 6·1-6·4, relating to prevalence of child and adult obesity and prevalence of NAFLD/non-alcoholic steatohepatitis in secondary care

New data has been added for each of the metrics in this section. Figures for body mass index $\geq$ 30kg/m^2 in England, Wales, Scotland and Northern Ireland, using data from the Health Survey for England and equivalent surveys in Wales, Scotland and Northern Ireland, show a rising trend in the prevalence of obesity in adults. The lower reported prevalence from the Welsh Health Survey may reflect the use of self-reported data(30), whereas the other surveys use measured height and weight. Comparable data on childhood obesity from across the UK is lacking, with Wales concentrating on a different age group from England and Scotland, and Northern Ireland using a different definition (International Obesity Task Force thresholds rather than the UK90 cut-offs)(31). Such data as is available appears to show a levelling off in the prevalence of childhood obesity, although the average figures are likely to conceal widening inequalities in socio-economic distribution, by ethnicity, and in severity(32, 33).

The Government's Child Obesity Plan of 2016(34) instituted a Soft Drinks Industry Levy (SDIL)(35) of 18p/l for drinks with an added sugar content above 5g/100ml, and 24p/l for those above 8g/100ml. There is growing evidence of the effectiveness of this approach(36-40) with a number of soft drinks manufacturers starting to reformulate their products. The update in August 2017, which proposes calorie reduction targeted on the kinds of foods that children consume, is not included in a levy approach and the lack of a Government obesity plan for adults remains of major concern.

The annual number of finished consultant episodes (FCEs) for NAFLD shows steady increases in hospital activity across the four nations (Figure 5). The lack of studies defining those with NAFLD at risk of progression to liver disease, is once again emphasised.

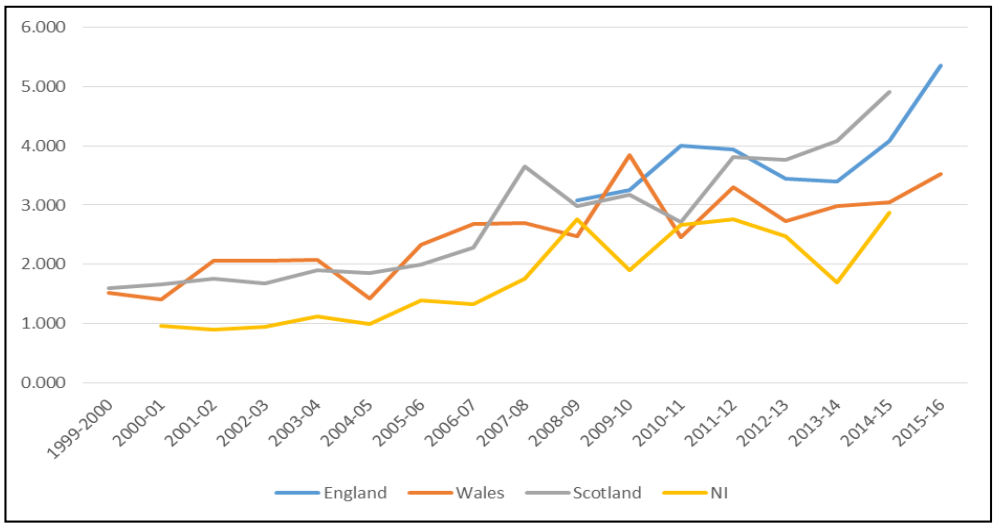


Figure 5: Finished Consultant Episodes (FCEs) per 100,000 population in England, Wales, Scotland and Northern Ireland 1999-2016 (Data sources: England, from Hospital Episode Statistics, NHS Digital: Scotland, SMR01 dataset from ISD Scotland: Wales, Patient Episode Database for Wales: NI Hospital Inpatient System, Department of Health, Northern Ireland)

The growing liver disease burden from NAFLD is also reflected by the numbers of patients being listed for transplantation, with NAFLD now the second commonest indication for transplantation (Figure 6).

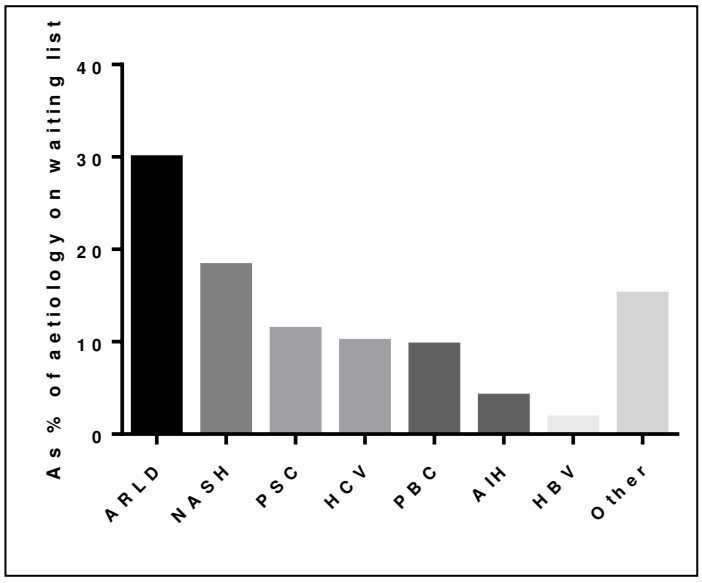


Figure 6: Aetiology of liver disease patients on liver transplant waiting list as of January 2017

ARLD - Alcohol related liver disease; NASH - Non-alcoholic steatohepatitis; PSC - Primary sclerosing cholangitis; HCV - Hepatitis C infection; PBC - Primary biliary cirrhosis; AIH - Autoimmune hepatitis; HBV - Hepatitis B infection

Metric 6·4: Number of primary bariatric surgery operations

Around 2 million people in the UK fulfil NICE eligibility criteria for bariatric surgery, namely a BMI ≥ 35 kg/m^2 together with an obesity-associated co-morbid condition, or a BMI≥40 kg/m^2. Liver disease (NAFLD) is often either the indication for bariatric surgery or a co-morbid diagnosis. But despite the effectiveness of the surgical procedure in terms of diabetes and co-morbid disease reversal with significant weight loss, fewer than 6,000 operations were undertaken in 2016 which is less than 0.3% of the eligible population. The most recent data from the Health and Social Services Information Centre indicate an almost 10% fall in the number of procedures since last year. Such marked under provision of bariatric surgery is unacceptable in terms of the current obesity epidemic.

Recommendation 7: Elimination of chronic HCV infection from the country by 2030 and a major reduction in the burden of disease for hepatitis B

Metric 7·1: Number of HCV infected patients treated with new HCV direct-acting antivirals.
The effectiveness, ease of use and overall safety of the new directly acting antiviral agents (DAAs) against HCV infection have enabled real progress to be made in the UK towards the goal of elimination of this infection and reduction of the associated burden of liver disease. NHS England data shows the 22 HCV Operational Delivery Networks (ODNs) have been able to treat 9,440 cases between April 2016 and March 2017(41) and plans are now in place to treat 12,500 in 2017/18. An interim analysis of Sustained Viral Response (SVR) data from the national programme in England, completed in November 2016, revealed that of patients who were alive three months after cessation of therapy, 92·4% had achieved an SVR (Foster G. Preliminary figures. Email to Matthew Cramp, August 2017).

Similarly for Scotland, 1,685 patients were treated between April 2016 and March 2017 (35% with Fibrosis stage 3-4) (Dillon J. Preliminary figures. Email to Matthew Cramp, August 2017). In Wales, the 781 patients treated had a predicted/estimated SVR of 95% and in Northern Ireland, SVR was achieved in 95% of the 105 patients treated between March 2015 and July 2016.

Metric 7·2: Diagnosis of HCV and HBV infections
HCV: With a background of a steadily increasing number of laboratory confirmed reports in England since the 1990s, there were in 2015, 11,605 laboratory reports of individuals testing positive for HCV. Consistent with this, testing from twenty-three sentinel laboratories showed a rise in the number of tests undertaken of 18·6% between 2011 and 2015 although the proportion of positive results declined from 2·6% in 2011 to 1·5%. The inference from these figures is that if the numbers treated with the DAAs is to be sustained(42), there will have to be an increase in new diagnoses from the pools of unrecognised infection in the country. These include drug addiction clinics with high levels of HCV infection, where only around half of those who inject drugs (PWID) are aware of their HCV antibody status, a figure which has remained relatively stable over the last 6 years. Surveys do not show any reduction in the number of new HCV infections and the estimated prevalence of HCV infection in recent initiates to drug use was 27% in 2016 compared to 23% in 2006(43). Moreover, the proportion of PWID reporting adequate needle/syringe provision is sub-optimal, with about half only reporting adequate provision. The WHO Global Health Sector Strategy(44) call to reduce new cases of chronic HCV by 30% by 2020 and 80% by 2030 will be a significant challenge for the NHS and in England, is unlikely to be met.

Figures for the devolved nations are more encouraging in showing a significant reduction in number of new diagnoses. In Scotland, new cases of Hepatitis C antibody positivity fell to 1,594 in 2016, from 1,815 in 2015. In Wales, provisional data from laboratory reports showed a reduction in new cases positive for HCV antibody: 531 diagnosed in 2016 compared to 612 in 2015, and in Northern Ireland the new laboratory confirmed antibody positive reports for 2016 were down 13% on the figure for 2015.

HBV: No new data is available on the number of HBV diagnoses for England since the 2015 data given in the last Lancet report. Figures for Scotland are also awaited, as are those for Wales. In Northern Ireland, a total of 101 Hepatitis B infections were reported in 2016, including 18 new antenatal cases, compared to a total of 91 in 2015 of which 11 were new antenatal cases. The Unlinked Anonymised Monitoring Survey shows the prevalence in PWID of antibodies to the hepatitis B core antigen (anti-HBc, a marker of past or current infection) across England, Wales and Northern Ireland, has declined since 2006, from 26% down to 13% in 2015, although the uptake of the hepatitis B vaccine has not increased. At least 20% of subjects are still not being protected and despite present patterns of immigration, HBV blood samples are not being tested routinely for Hepatitis Delta infection.

Metric 7·3: Mortality from HCV and HBV
A recent report compiling data from different sources for England, Scotland, Wales and Northern Ireland shows that the number of new cases of HCV-related end-stage liver disease (ESLD) or hepatocellular carcinoma (HCC) remained fairly stable at around 1,875 per year (range 1,809-1,933) from 2011 to 2015. Deaths where HCV was mentioned on the death certificate rose steadily from 215 in 2005 to 456 in 2014 but dropped in 2015, the first year in which the new DAAs were used in advanced liver disease(42). Preliminary data initially suggested an 11% fall in deaths for 2015 but this figure was subsequently revised to 3% due to high numbers of late reports of HCV-related ESLD/HCC. The provisional figures for 2016 suggest a further 7% fall. The number of liver transplants had also decreased from 122 transplants in 2014 to 83 in 2015, further evidence that the new

drugs are already having an impact on mortality from HCV-related ESLD and primary HCC. The World Health Organisation Global Health Sector Strategy on Viral Hepatitis 2016-2021(44) is aiming for a reduction in HCV related mortality of 10% by 2020 and 65% by 2030. Achieving this for England will be dependent, as indicated above, on the diagnosis of new cases whose infection is currently unrecognised.

Mortality figures from chronic HBV infection, though greatly reduced following introduction of nucleoside analogue drugs which inhibit viral replication, are still being affected by instances of viral reactivation and the risk long-term of primary HCC. With new curative drugs for chronic HBV infection in the pipeline, wider screening procedures are needed to address the currently unrecognised pools of chronic HBV infection in the community, including through A&E departments, prisons and homeless services.

Metric 7·4 and 7·5: numbers of infants completing a course of HBV vaccination
Figures for 2016-2017 in England are encouraging, with data from the COVER programme(45) showing that of a total of 2,245 infants born to HBsAg positive mothers, 85% completed a course of three vaccinations by twelve months and 69% had completed the full course by the age of two years(45). Similar data from Wales shows 94% completion of a course of three vaccinations by 12 months of age(46). At long last universal vaccination for HBV is in place and later this year a new hexavalent vaccine is to be introduced for primary baby immunisations across the UK, providing protection against diphtheria, tetanus, pertussis, polio and Hib as well as HBV.

Recommendation 8: Increasing awareness of liver disease in the general population and within the NHS; work of liver patient support groups.

Metric 8·1-8·4: Public Health Campaigns and Patient Representation
Ongoing health campaigns include the Children's Liver Disease Foundation Yellow Alert which aims to highlight the signs and symptoms of neonatal liver disease in order to prompt early diagnosis. Over the last five years 14,000 protocol packs have been distributed to health care professionals with a further 35,000 being downloaded from the website. The British Liver Trust's Love Your Liver campaign comprises an easy to use screener for the three preventable lifestyle causes of liver disease, with more than 80% of the 98,237 completed over the last three years showing risks that could cause liver disease. Of 2,669 people who attended a screening event, 2,126 were found to be at risk of liver disease, with 496 being referred for further tests.

Progress Reports from the Devolved Nations
Metric data relating to alcohol, obesity and viral hepatitis has been given in the relevant sections and the following concerns new strategy and planning.

Scotland
The Scottish Government will be publishing a refresh of its Alcohol Strategy later this year to improve earlier identification of liver damage and to focus treatment services more effectively on those at greatest risk. A programme of research has been commissioned to establish the impact of implementing Minimum Unit Pricing subject to the decision of the Supreme Court. With about 80% of the estimated number of cases of HCV diagnosed, bringing the remainder to treatment is involving innovative pathways of care, including delivery of treatment by community pharmacists. A pilot study of automated reflex aetiological screening for liver disease immediately on detection of abnormality in the index blood sample, has shown the process to be cost-effective in achieving earlier diagnosis and it is currently being implemented in the health boards.

Northern Ireland
The NICE guidelines on NAFLD and the diagnosis of cirrhosis have been accepted but not fully implemented, partly due to the lack of resources for measurements of fibrosis by transient elastography. The single Regional Liver Unit in Belfast is planning to expand to five hepatologists in 2018 and most of the nine hospitals outside Belfast now have at least one gastroenterologist with an interest in liver health. The adult liver transplant service for Northern Ireland, based in Belfast and in collaboration with Kings College Hospital, London, is delivering an appropriate number of transplants per head of population compared to rest of UK (20-24 per year).

An Alcohol Use Disorder care pathway was launched by the Public Health Authority in 2017 and has been adopted by all the Trusts and there are plans to appoint more substance misuse liaison nurses before the end of 2017. A regional report on Alcohol Related Brain Damage is due to be published imminently. On the debit side, funding for an Alcohol Assertive Outreach Liaison successfully established in Belfast Health and Social Care Trust has not been renewed and there has been no further expansion in numbers (currently 98) of alcohol specialist nurses across the five Trusts.

Wales

The Public Health (Wales) Bill, passed on the 17th May, commits the Welsh Government to an obesity prevention strategy and following a series of round table events in the Senedd, cross party support was obtained to commit to the WHO target date of 2030 for elimination of Hepatitis C. Ongoing commitment to enhancing alcohol care teams has led to an increase in the number of Alcohol Liaison Nurses from thirteen to twenty-one and four of six Health Boards now have an Alcohol Clinical Lead. Following on from a pilot study, "reflex" AST testing when the ALT is abnormal has now been identified as a clinical priority area within the GP contract for Wales for 2017-2018. A GP Liver Disease Champion has been appointed in each Health Board for two years, supported by the National Strategy and with a specific remit to improve adherence to the BSG guidelines on abnormal LFTs and the development of a NAFLD pathway. Finally, funding has been set aside for a data officer dedicated to improving the clinical coding of liver disease via the use of the Welsh Clinical Portal.

Contributors

RW was responsible for planning and content for the Introduction and for writing, editing and direction of the paper as a whole. ND was responsible for coordinating content for the paper as a whole and editing. RP, JT, NS, KM, PN and SdL contributed content to the section on primary care services. GA, MH, JD and KM contributed content to the sections on hospital services and training. JOG, GA, DT and MH contributed content to the section on liver transplantation. AD, DK and AT contributed content to the section on paediatric liver services. IA, NB, CD, IG, PM, KM and NS contributed content to the section on alcohol services. PN, HR, JW and GCW contributed content to the section on obesity. GF and MEC contributed content to the section on viral hepatitis. AL, AT, JV, LR and GCW contributed to the section on awareness of liver disease. AY contributed content to the section on services in Wales. JD and PR contributed content to the section on services in Scotland. NM contributed content to the section on Northern Ireland.

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