

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

Authorship

Roger Williams, Graeme Alexander, Iain Armstrong, Neeraj Bhala, Ginny Camps-Walsh, Ana Correa, Matthew Cramp, Natalie Day, Anil Dhawan, John Dillon, Colin Drummond, Graham Foster, Ian Gilmore, Mark Hudson, Deirdre Kelly, Andrew Langford, Neil McDougall, Petra Meier, Kieran Moriarty, Philip Newsome, John O'Grady, Rachel Pryke, Liz Rolfe, Peter Rice, Harry Rutter, Nick Sheron, Alison Taylor, Jeremy Thompson, Douglas Thorburn, Julia Verne, John Wass, Andrew Yeoman.

Executive Summary

This report should be read as an extension to the third publication of the Lancet Commission(1), containing new and follow-up metric data around reach of the eight main recommendations to reduce the current unacceptable mortality and other harmful consequences of excess alcohol consumption, obesity and viral hepatitis.

The new metrics for alcohol include depressing data on alcohol dependence, damage to families and the significant rise in alcohol consumption documented since the removal of the tax escalator. Alcoholic liver disease is likely to exceed ischaemic heart disease in terms of years of life lost in the near future. This is despite the detailed guidance provided by Public Health England (PHE) on optimum alcohol care including brief interventions for which a CQUIN has been brought in this year.

Similarly for obesity, the figures show an increasing disease burden in association with rising levels of obesity, more than 60% of adult subjects being overweight or in the obese category. Attention is drawn to the small number of bariatric operations being carried out despite excellent outcomes in correction of diabetes as well as liver disease. Some responses by industry to the Government's Soft Drinks Industry Levy, which will formally come into effect in April 2018, are being seen, with leading retailers and manufacturers already reducing sugar content in key foods and a widening of Government plans to reduce sugar content in food stuffs is, again, strongly recommended. The Commission also welcomes the recent announcement by the Department of Health and PHE of the next stage of the Childhood Obesity Programme, the aim being to remove excess calories from the foods children consume the most such as pizzas, savoury snacks and ready meals.

The one success this year follows the introduction of the new directly acting antiviral agents (DAAs) for the treatment of chronic hepatitis C virus infection (HCV). For the first time, mortality figures for the disease are reduced as well as the number of those with end-stage liver disease requiring liver transplantation. More of the presently unrecognised cases of chronic HCV in the community will need to be detected if the 2030 elimination goal is to be achieved. Similarly, for chronic hepatitis B infection (HBV) the pool of unrecognised infections is a major problem. Universal vaccination of newborns for hepatitis B is now in place, along with introduction of a new hexavalent vaccine but vaccination uptake amongst the sexual clinics remains less than 80%.

New metrics for hospital care include an analysis of survival figures for primary hepatocellular carcinoma, only a small percentage of cases being diagnosed early enough for possible curative therapy. As with other hospital services, provision of care continues to be worst in the regions of the country with the greatest socio-economic deprivation. Similarly, deficiencies in current training programmes for the specialist registrars (SpRs) are also highlighted. Insufficient experience is being obtained by the trainees in units appropriately staffed and with the full range of diagnostic and treatment facilities.

For primary care, the recommendations put forward by the Commission have, encouragingly, been taken up the Royal College of General Practitioners (RCGP) and the appointed champion for liver disease. New guidance will be published shortly by the British Society of Gastroenterology (BSG), on the management of abnormal liver blood tests, with an emphasis on potential aetiologies and in establishing severity of fibrosis. Its uptake will need to be audited, as will the new disease coding system which is being introduced.

Finally, the report includes in the centre pages an abridged executive summary from the document prepared by the Commission entitled "*Financial case for action on liver disease: escalating costs of alcohol misuse, obesity and viral hepatitis*"(2). This brings together all the evidence available on costs to the NHS and wider society, with alcohol misuse in England and Wales costing over £21billion a year, possibly £51billion and with the costs of obesity of the order of £27billion a year (although Treasury estimates put it as high as £57billion). This is in addition to loss of tax revenue and with the extent of further escalation, the case for major control measures becomes ever more telling.

The overall conclusion has to be that the scale of the medical problems, with an estimated 63,000 preventable deaths over the next five years along with the costs to wider society, public education and voluntary restraints by the food and drinks industry will not be enough. Only concerted regulatory and fiscal action by Government will have sufficient effect. The number of expert reports during the past year in addition to the Commission's recommendations, leave little doubt over the measures needed. Furthermore, the devolved nations - Northern Ireland, Wales and Scotland -as described in this report, are showing what can be achieved through strategic planning and selective funding.

Introduction

This fourth report of the lancet Commission brings 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 particularly in England as opposed to the devolved nations (1, 3, 4). A particularly telling piece of new data came with the recent publication of *The 2nd Atlas of Variation – Public Health Profiles* by Public Health England (PHE)(5), showing that the previous steady rise in overall life expectancy has stalled and the gap currently between healthy and overall life expectancy is now 16.1 years for men, 19.0 years for women (Table 1). Lifestyle causes including smoking have a major influence in exacerbating poor health and have been implicated in 30% of dementia cases, and alcohol-related liver disease is likely to edge out heart disease as the first cause of preventable mortality in the middle age group. 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 influence that excess drinking has on obesity and its spectrum of disease complications.

Other important reports on public health have appeared during this past year including *The 2nd Atlas of Variation in NHS Diagnostic Services in England*(5), showing deficiencies in provision of diagnostic tests for liver disease including Fibroscan®, liver imaging and upper GI endoscopy, contributing to the poor provision of health services associated with poverty and social inequality in certain regions of the country.

Table 1: Life expectancy data for males and females at birth, England 2013 to 2015
(Reproduced from data and with permission of Public Health England)

	Males	Females
Life expectancy	79.5	83.1
Healthy life expectancy	63.4	64.1
% of life in poor health	20.3	22.9

An important initiative of the Commission this year was in bringing together in a single document all the costs of the lifestyle causes including the escalation that can be anticipated. The document entitled *'The Financial Case for Action on Liver Disease – the escalating cost of alcohol misuse, obesity and viral hepatitis'*(2) was expertly produced by Incisive Health. Unless the trend is reversed, the prediction over the next five years is that an additional £17billion to the current cost of £20billion will be incurred and the added cost from failure to take action on obesity could result in an additional £1.9-£2billion each year. The document,

released on July 24th 2017, attracted considerable media attention(7) and a Parliamentary event held in October which included the release of new factfiles on lifestyle costs developed for local authorities, saw many Parliamentarians of both Houses attending. Because of the importance of the findings, an abridged summary of the document has been included in this report.

Another major effort this year has been to bring together all those who are involved in the lifestyle causes of disease in the country, so that a single, powerful voice could be put forward to Government. Of note is the involvement of the Alcohol Alliance, the Obesity Alliance, the Institute of Alcohol Studies and Cancer Research UK together with representatives from the London School of Hygiene and Tropical Medicine, the Sheffield Alcohol Research Group and the Royal Colleges, along with the Health Departments of the devolved nations.

Of considerable relevance to the Commission’s work are the Sustainability and Transformation Plans (STPs) of NHS England being developed to achieve a sustained improvement in health and social care, around the needs of local populations. As yet little information is available on how the forty-four ‘footprints’ that have been set up will complement the recommendations put forward by the Lancet Commission.

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 1.1-1.4:

The Royal College of General Practitioners Research & Surveillance Centre (RCGP RSC) network has provided data on prevalence and preventative clinical activity within primary care. The RCGP RSC is one of Europe’s oldest sentinel networks and has access to anonymised data from over two million primary care clinical records(8). The information in Table 2 comes from an analysis of adult patient records within its database.

Table 2: RCGP RSC data on Primary Care Activity (patient numbers shown)

	Numerator	Denominator	Read coded
Diagnosis of NAFLD	15,984	1,595,458	1.00%
BMI recorded in previous 12 months	421,785	1,595,458	26.44%
BMI recorded in previous 5 years	932,618	1,595,458	58.45%
Patient’s alcohol units recorded 12 months	281,309	1,595,458	17.63%
Patient’s alcohol units recorded 5 years	723,279	1,595,458	45.33%
Alcohol AUDIT recorded in 12 months	48,880	1,595,458	3.06%
Alcohol AUDIT recorded in previous 5 years	164,743	1,595,458	10.33%

No. injecting drug users with HCV 12 months	50	1,595,458	0.00%
Injecting drug users with HCV 5 years	118	1,595,458	0.01%

The numbers diagnosed with NAFLD and chronic HCV infection in injecting drug users are considerably lower than the known prevalence of these conditions in the population. Potential explanations for this include the diagnoses being recorded in ways that are not easily searchable in the RCGP RSC database and further investigation is needed to identify barriers to the systematic recording and retrieval of liver disease data.

In the future, the RCGP RSC may be able to provide data relating to preventative health interventions in signposting patients who misuse alcohol and those who are obese. Data relating specifically to the recently published NICE Quality Standards on Liver Disease(9) should also become available in the future, with three of the five recommended quality statements given below:

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

Metric 1.5:

New coding for liver disease in primary care, necessary for a strategic approach to management of established disease, is also the subject of ongoing work. A comprehensive list of recommended Read codes that cover investigations for liver diseases including Alcohol Related Liver Disease (ARLD), NAFLD and viral hepatitis, have been drafted and will be published when the British Liver Trust/RCGP Clinical Priority Programme launches a comprehensive web-based liver disease toolkit for primary care in September 2017. Starting in April 2018, in primary care there will move away from Read codes to a different clinical coding system - the Systematised Nomenclature for Medicine – Clinical Terms (SNOMED CT)(10).

In addition to a Read code/SNOMED CT glossary, the BLT/RCGP toolkit will have in-depth articles on the major causes of liver disease. It will also contain a database of examples of good or innovative practice in preventing or managing liver disease in primary care and in collaboration with secondary care facilities. An additional development proposed for the database systems is to automatically populate algorithm-based diagnostic systems such as Fib-4 (a measure of liver fibrosis) and NFS (non-alcoholic fatty liver disease fibrosis score).

Box 1: Liver disease in primary care – an example of best practice.

Dr Mead Mathews, GP Partner in Southampton with special interest in liver disease.

The St Marys' surgery in Southampton took part in the LOCATE study and as a result concluded that the management of liver disease needed updating. Although Locate had defined an at risk population there was difficulty getting them to engage with only a 7% response rate to invitations to a nurse led liver clinic. This work was felt to be important as St Mary's is a large inner city practice, with much deprivation, immigration and potentially undiagnosed liver disease.

Using the Lancet proposed primary care pathway as a starting point, a clinical pathway was developed with the local hepatology department and a short term agreement made for direct fibroscan access. An at-risk population was defined and a flag added to the primary care records. On opening the notes a protocol is triggered that says "this patient is at risk of liver disease please consider a liver conversation". The aim behind this was to fully integrate the risk alert and consultation in to the primary care consultation making a "liver status check" as commonplace as discussing blood pressure.

To raise GP awareness and engage enthusiasm the surgery liaised with the British Liver Trust, who lent promotional material, and in September 2016 the practice launched its first liver campaign – the surgery was decorated, the waiting room promotional material directed patients to ask for a liver check and a new template was installed so that doctors could code and track patients along the pathway. The development of the template and recall process was the most difficult part of the project due to the lack of suitable Read codes.

The practice trained two nurses in liver disease, with anecdotal evidence of good initial changes in behaviour modification even pre-fibroscan. Of the 2700 patient at risk population 430 have been placed on the pathway to date. Early on in the data collection, it was found that patients who had failed to attend hepatology appointments in the past were re-engaging.

The project has led to more appropriate referrals and a reduction in unnecessary repeated blood/ultrasound ordering and it has now moved on with the development of a joint run practice based fibroscan clinic. A presentation of the pilot trial led to the local CCG asking to use the pathway to update local guidance.

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:

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 but important new metrics have been obtained on primary hepatocellular carcinoma. Information on how hospital reconfiguration within the Sustainability and Transformation Plans to have adequate facilities and staffing for liver care (and equitable distribution around the country), is awaited. Linking with the recommended thirty regional centres for more specialist work also remains to be determined. The operational delivery networks (ODNs) that have been set up to deliver the very costly of anti-

HCV drugs (see later in this report) represent a new approach to delivery of care for liver disease patients.

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 in all the recent surveys is a lack of confidence in managing outpatient Hepatology, particularly viral hepatitis, autoimmune liver disease and liver transplant patients (timing of referral, indications for transplantation and post-transplant management). This is a major concern 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 by them were a lack of local training opportunities and not wishing to change 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 including management of varices, transjugular intrahepatic porto-systemic shunts (TIPSS), an hepatocellular carcinoma/hepatobiliary (HCC/HPB) multi-disciplinary meeting, loco-regional ablation treatments for HCC, antiviral treatment for hepatitis C as part of an Operational Delivery Network (ODN), liver histopathology, dedicated liver clinics, and a specialist nurse team including alcohol liaison. A Level 3 unit has in addition a liver transplant programme.

In fact, as shown in Figure 2, most of the trainees are spending the majority of their time in Level 1 units and with $< 50\%$ having experience of Level 2 hepatology training and just 40% gaining experience of Level 3. Furthermore, information from the Deanery Programme Directors revealed a marked difference between the number of centres in the UK currently being used for Level 2 training (n=47) and the number (n=19) having the necessary range of staffing and services, as identified in the UK survey of Liver Services carried out in 2015-16. There are also missed opportunities for training in the distribution of training units, as shown in Figure 2.

To correct the potentially dangerous present situation and ensure that trainees do gain appropriate experience, only designated Level 2 units should be used. It is also recommended that a period of six months be spent in an enhanced Level 1 unit providing experience in out of hours endoscopy, with links to a major centre for HCC/HPB management, dedicated liver clinics, a specialist nurse team, and ≥ 1 WTE Consultant Hepatologist.

Training capacity In England has also been examined. This assumes that each centre can accommodate two trainees per six months over the five years of the training programme i.e. a deanery with Level 2 or 3 centre can accommodate twenty trainees. Currently, there are deaneries without sufficient capacity for “Enhanced” Level 1 training, namely London NE

and the North East and there are potentially seven deaneries without sufficient capacity for Level 2 and Level 3 training.

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

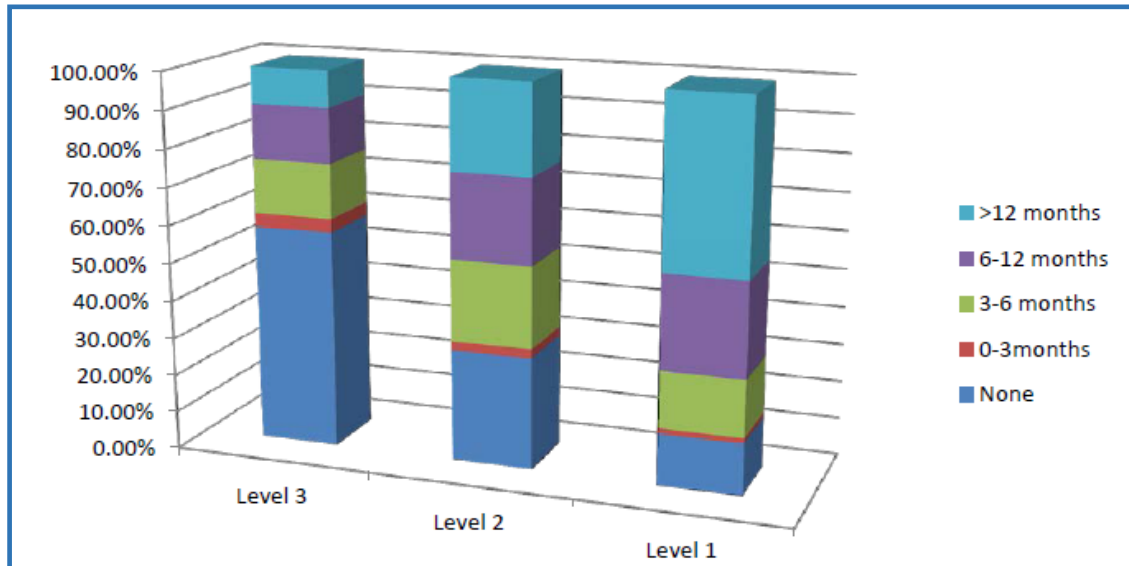


Figure 2: Current distribution of agreed training centres in England in relation to hospital admissions for liver disease of all ages (standardised rates per 100,000 population, 2014-15) showing poor provision in some areas of high prevalence.

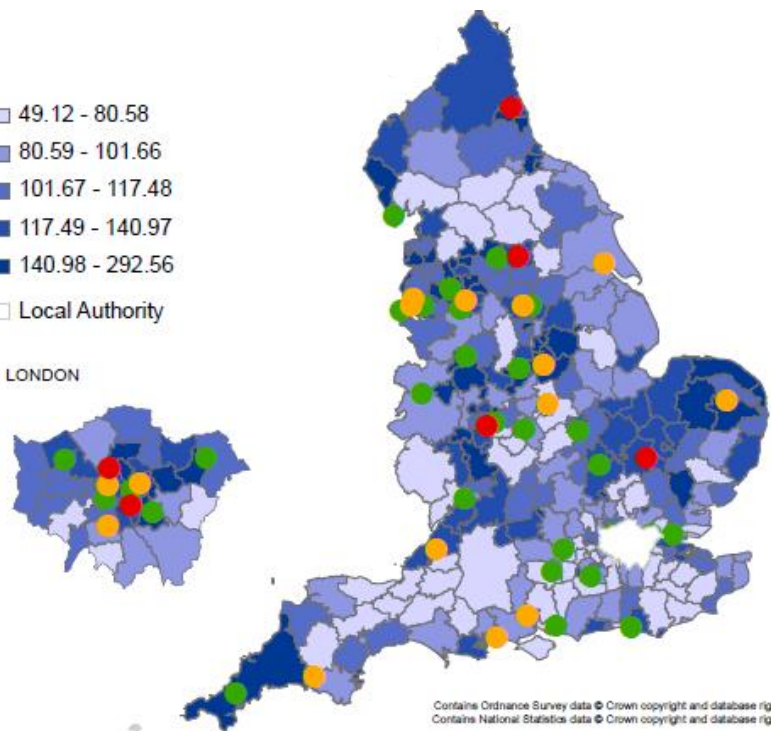
Map prepared under licence by Public Health England. © Crown copyright and database right 2017.
Indicator source: PHE, Liver Disease Profiles, Indicator 90892; **Numerator source:** Hospital Episode Statistics; **Denominator source:** ONS 2011 Census based mi-year population estimates.

Training centres

- Enhanced Level (27)
- Level 2 (15)
- Level 3 (6)

- 49.12 - 80.58
- 80.59 - 101.66
- 101.67 - 117.48
- 117.49 - 140.97
- 140.98 - 292.56
- Local Authority

LONDON

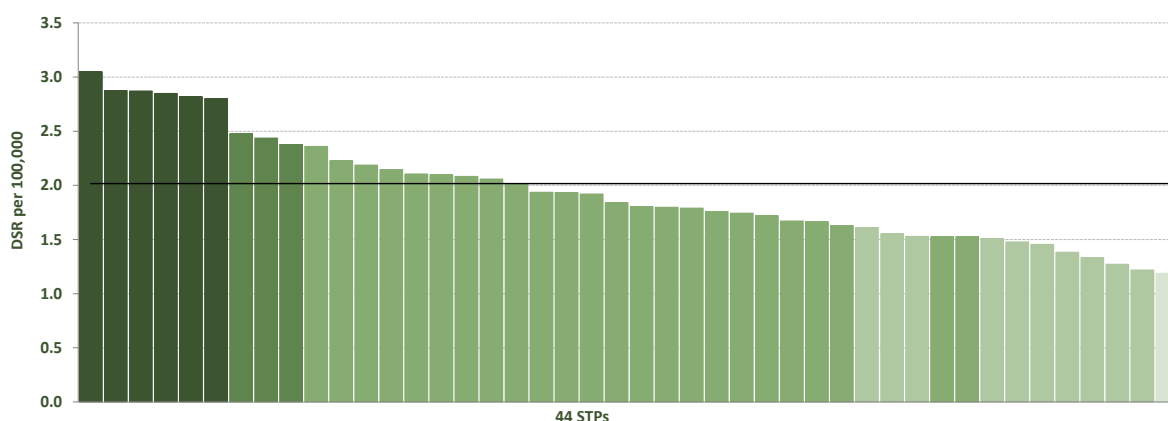


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New Metric for Primary H

Figure 3 shows a considerable variation in mortality rates 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. For 2011-15, values ranged from 1.2 to 3.0 per 100,000 population - a 2.6-fold difference in the mortality rate between STPs. The median value increased significantly from 1.4 per in 2005-09 to 1.8 per 100,000 population in 2011-15.

Figure 3: 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



The percentage of persons aged 15 years and over with hepatocellular carcinoma that are receiving treatment with curative intent (liver transplantation or major liver resection or ablation) is depressingly low at around 16% (Table 3). There is also considerable variation (1:5 fold) between the geographical regions from 11.4 to 17.3%.

Table 3: 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 and %	
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: 4 Executive Summary of the Financial Case for Action on Liver Disease(2)



! Current trends could result in added health costs to the UK of £1.9-2bn each year and £14bn to businesses annually by 2035.

RECOMMENDATIONS

- **Implement further fiscal measures on foods high in sugar, salt and fat:** NICE forecasted savings of £576m each year by year five if sugar was reduced to 5% of total daily energy intake
- **Close the loopholes in advertising to ban adverts for junk food and sweets before 9pm:** A review of 22 studies worldwide found a link between children's exposure to junk food adverts and consumption
- **Introduce mandatory controls on supermarket price promotions for unhealthy food and drink:** Public Health England estimated that if future promotions were banned, 6.1% would be cut in overall sugar volume
- **Offer weight loss surgery to obese people with diabetes:** The initial cost of £6,000 pays for itself within 2 – 3 years by reducing the health burden



COST CHALLENGES

NHS
£6.1bn
per year
in England



SOCIAL CARE
£352m
per year
in England



LOST PRODUCTIVITY
£7.3bn over
2 years in
the UK



WELFARE
Up to £6bn
per year
in the UK



Viral hepatitis

Progress to overcome viral hepatitis is hampered by gaps in data on the prevalence, health burden and financial costs of hepatitis B (HBV) and C (HCV).

The number of individuals chronically infected with HCV in the UK was estimated to be 216,000, although other studies have suggested the true figure could be as high as 466,000 with 86% unaware they are infected. HBV has also become a major challenge for the UK, with a similarly large pool of people affected by the disease. Marginalised populations face a greater risk, notably individuals who inject drugs, prisoners and immigrant populations.

Further efforts must be made to collate the necessary data to understand the total financial cost of viral hepatitis to society, but for HCV alone, it is thought that lost productivity is worth up to £367m per year.

Between 2010 and 2015, preliminary estimates of cases of HCV-related cirrhosis or hepatocellular carcinoma increased from 1,336 to 1,692 in England.

Whilst there is a cost associated with recent novel oral antiviral treatments for HCV into the NHS, NICE deems their use as cost-effective, mitigating even higher costs of complications of advanced liver disease. A study of five European countries found that HCV treatment resulted in savings of £435m annually due to improvements in work productivity.

! Disease detection and treatment of patients affected by viral hepatitis in the UK remains often sub-optimal.

The full paper including referencing can be found on the Foundation for Liver Research's website: www.liver-research.org.uk

The Foundation for Liver Research received an unrestricted educational grant from Norgine in support of this engagement programme. Norgine has no editorial control over this activity.

RECOMMENDATIONS

- **Immunisation for all individuals with risk factors for HBV:** Immunisation for babies born after 2018 should be extended to all individuals with risk factors
- **Improve access to testing and diagnosis of hepatitis:** Public health budgets must be boosted to offer effective diagnosis in the community, with a particular focus on high risk groups and/or not in regular contact with health services
- **Protect harm reduction services:** Funding must be protected, and access enhanced



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

Metrics 3.1 – 3.5:

1003 transplants were carried out in 2016 (children included) representing a significant increase over previous years. The breakdown into donation from donors after brain or cardiac death and after living donation, is also illustrated in Figure 5. The number of transplants carried out is still less than the number of new registrants added to the Waiting List – 1169, with 600 previously registered. 13% (72) of those on the waiting list died or were removed (168) as they had become too sick. The 30-day survival rates for elective transplantation, the traditional metric used in Qsum analyses to monitor performance, are excellent at 95-100%. However, 5-year survival rates are not consistent across the transplant centres.

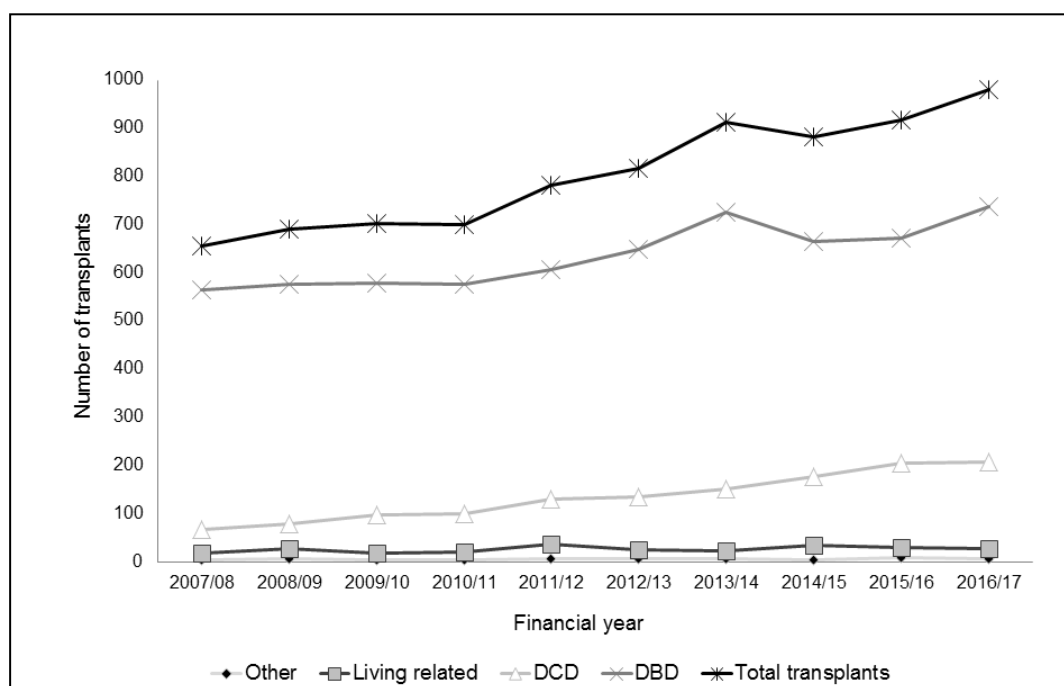
Of the new initiatives being developed to expand the donor pool, normo-thermic machine perfusion is particularly promising. This should decrease the proportion of potential grafts considered unsuitable for implantation (15% of donated organs in 2016/17) and is likely to have most impact on donation after cardiac death. A pilot study is under consideration to extend to those in urgent need of transplantation, the use of organs from Hepatitis C positive donors, this being linked to guaranteed access after surgery to the new, effective directly acting antiviral agents.

Encouraging also is the increase in organ donation rate in Wales during the first twelve months after introduction of presumed consent, with an increase in all transplants from 120 in 2014 to 160 at year end 2016, accompanied by a rise in the family consent rate from 49 to 59%. Living donors increased by 20% compared with 2% fall across UK. A quarter of the donations in Wales came from "presumed consent" dispelling doubts that this would discourage good will towards donation.

The new national offering sequence for donation is scheduled to start operating from December 2017 for donors after brain death, with extension to donors after circulatory death thereafter. With the first offer of an organ no longer being directed to the centres but to the highest ranked suitable patient in the UK, transplant benefit should be maximised as well as equity of access for patients. It should also provide information on the current variation between centres in the acceptance rate of donated organs.

Essential within the strategic review NHS England is due to carry out in 2018, will be an examination of increasing capacity within current centres, as opposed to the setting up of new centres to provide more equitable and better access for the patients.

Figure 5: Annual number of liver transplants in the UK, 2007/8-2017/17 (data from NHS Blood and Transplant)



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 at term 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 before 8 weeks old, is shown in Table 4 (comprising Metric 1-6 in the 2015 Lancet report).

Table 4: 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

Over the five year period 258 (12%) children were diagnosed with extra hepatic biliary atresia (EHBA). The majority were referred before 56 days of age, at a median age of 45 days but the range was wide (0-242 days) and 56 children were referred after 56 days. This is too

late for a benefit to be obtained from early surgery(11) and demonstrates the need for continued education and awareness of the importance of early diagnosis of neonatal liver disease.

An electronic questionnaire on continuity of care in transition arrangements for children with liver disease reaching adult life, prepared in collaboration with the British Society for Gastroenterology, will be sent to adult gastroenterology and hepatology units who have >3 WTE hepatologists or who meet Level 2 training criteria. A draft document specifying training requirements for Physicians caring for young adults with liver disease has also been submitted to the Specialist Advisory Committee in Gastroenterology and the management of childhood liver disease including the transition period featured in a recent publication in the Journal of Hepatology(12) but no metric data is available at present on what arrangements are in place.

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

Metric 5.1: Alcohol policy

Since 2013, when the 2% above inflation alcohol duty escalator was abolished, death rates have increased again. A report by PHE on an evidence based alcohol policy was published as a peer reviewed paper in the Lancet(13) and is currently with ministers for review, having been submitted to them in late 2016. It confirms findings of previous reports, most recently by the OECD(14), that fiscal policy is by far the most effective and cost-effective policy option, with effective regulation of alcohol marketing an important step in reducing the exposure of children to marketing pressures.

The situation in Scotland is more promising with a final Supreme Court decision on Minimum Unit Pricing (MUP) expected in October 2017 and with the Scottish government anticipating being able to action the law early in 2018. Wales is following a similar path and the comprehensive new alcohol strategy of the Irish government includes MUP and strong regulation of marketing with a variant of the French Loi Evin(15). The scenario is therefore set for the most important natural experiment on alcohol policy in decades, with England in the role of placebo control.

Metric 5.2: UK Alcohol Consumption and Dependency

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. Since it stopped, consumption increased again to 5,126,000 hl in 2016/7. Total alcohol clearances have been estimated using a figure of 5% for cider and 13% for wine (data from the HMRC Alcohol Bulletin, May 2017). These changes illustrate how responsive population alcohol consumption is to small changes in taxation.

Key numbers in a recent study on prevalence of alcohol dependence in England by local area(16) defining the extent of the problem, were as follows:-

- 595,131 adults with alcohol dependence in England, which represents 1.39% of the 18+ population

- 313,753, the majority, display mild dependence, followed by 173,399 with moderate severity and 107,979 with severe dependence
- 120,419 alcohol dependent adults are estimated to have children living with them in the household, totalling 207,617 children
- 57% of alcohol dependent adults have a desire to cut down their drinking and 41% intend to do so “in the near future”

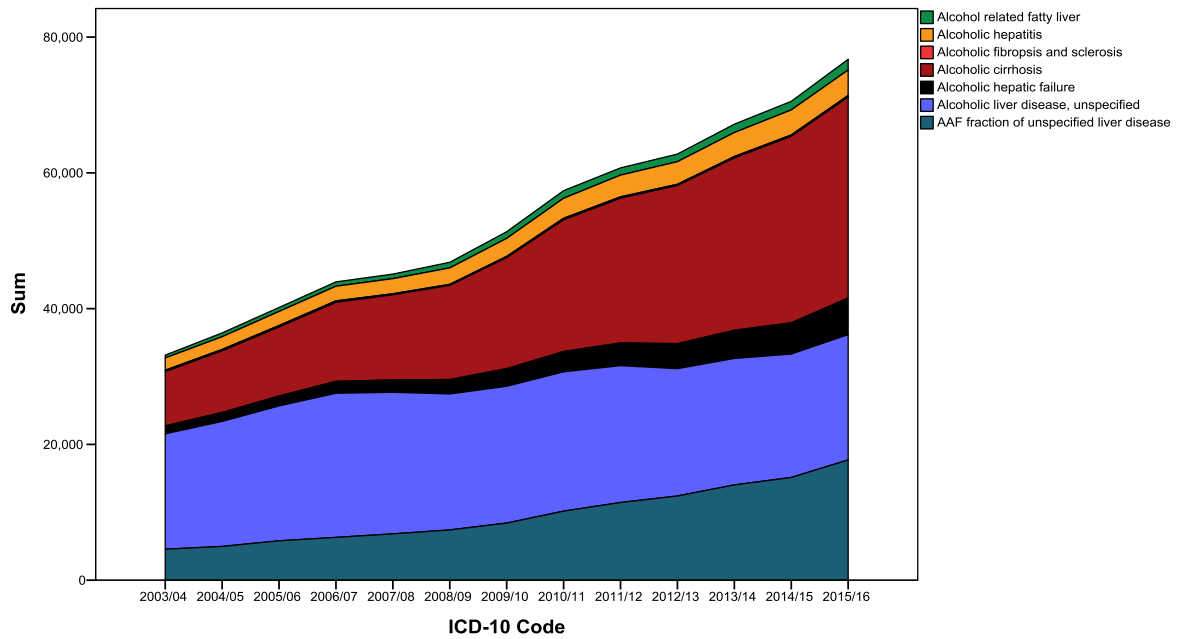
These figures are to be compared with the number of people accessing specialist alcohol treatment, as recorded in England by the National Drug Treatment Monitoring System. Since 2008 this has increased slightly from 107,218 in 2008/09 to 113,222 in 2015/16 (Table 5)(17). Scotland does not have an equivalent monitoring system, but treatment access surveys on waiting times in Scotland provide estimates of the number of people accessing treatment(18) and show proportionately a greater number: from 16,952 in 2008/09 to 28,500 in 2015/16. This increase in alcohol treatment numbers coincided with an additional annual investment in treatment services of £28million, taking the total alcohol treatment budget from approximately £61million to £89million. There was no equivalent increase in the alcohol treatment budget in England over the same period.

Furthermore, the ratio of treatment access to alcohol dependence 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 to 2015/16, whereas in Scotland the ratio increased considerably from 1.75 to 2.69, amounting to a two-fold difference, providing additional evidence of the need to upgrade measures to reduce the present levels of consumption and dependence in England.

Metric 5·3: Hospital admissions

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 of an alcohol related cause and is substantially lower than the broad measure(19). 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(20). The peak age group for admission was 45-54yrs, and 39% of patients were aged 45-64yrs. 61% were male. Blackpool had the highest number (3,540/100,000 population) and Kingston upon Thames the lowest (1,400/100,000). The narrow measure increased from 69,270 in 2014/5 to 75,160 admissions in 2015/6, an increase of 8.5% (Figure 5). In-hospital liver mortality continues to fall, possibly as a result of improved inpatient care, but there are worrying signs that this has not translated into an improvement in long term survival(20).

Figure 6: Alcohol related hospital admissions in England(13)



Metric 5·4: Alcohol related mortality and years of life lost

As shown in the heatmap (Figure 8), 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 1979 ischaemic heart disease (IHD) resulted in 12.6 times as many years lost as liver disease, lung cancer 3.2 times and breast cancer 2.4 times. 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 7: Potential years of working life lost (prior to age 65) estimated using ONS mortality 1979-2015(21, 22) categorised into 5 year age bands. (analysis by Nick Sheron).

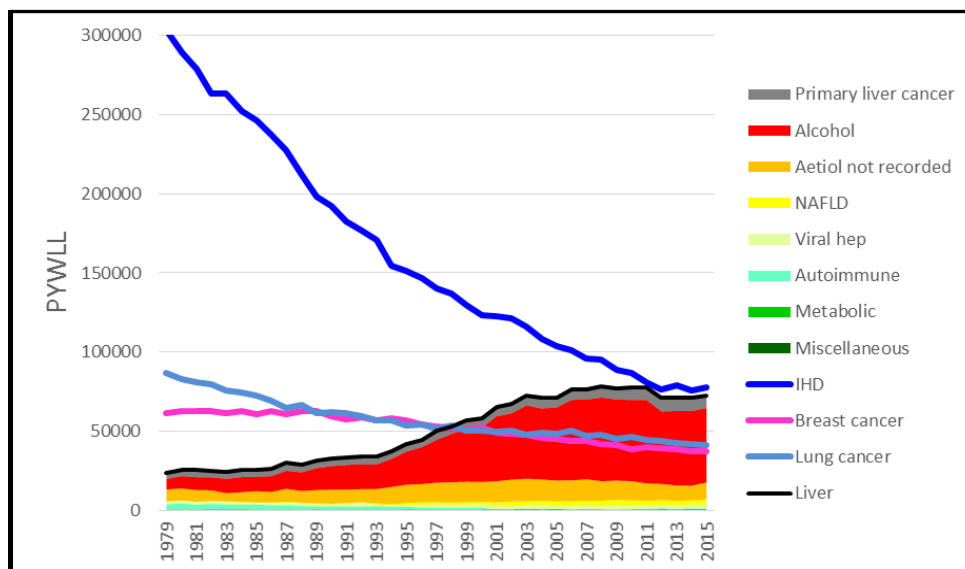
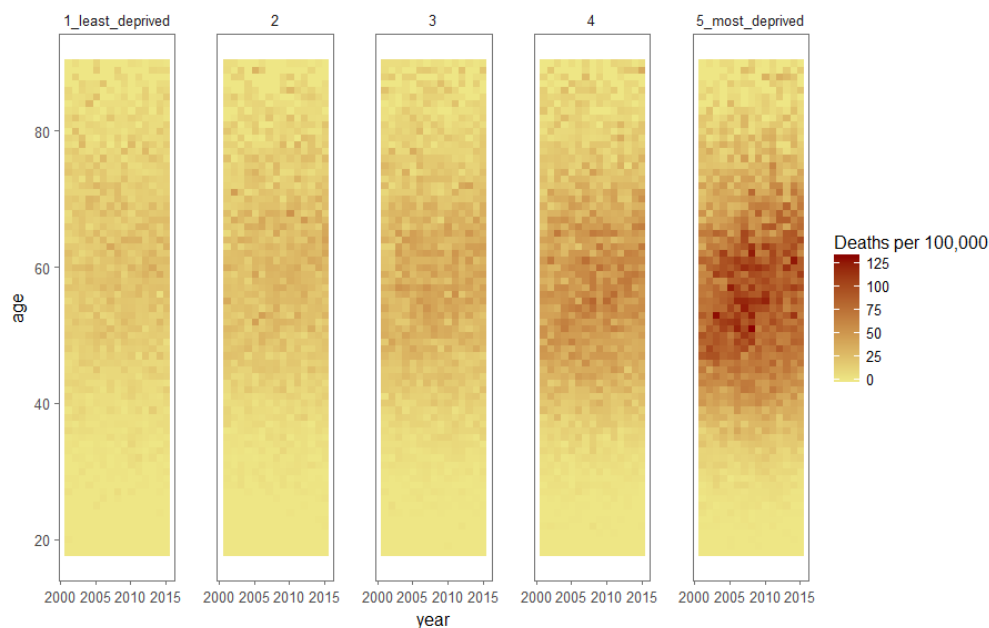


Figure 8: Heat map showing mortality rates per 100,000 of population attributable to alcoholic liver disease by age and IMD (Index of Multiple Deprivation) quintile. Stark

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.



Metric 5.5: Hospital and Community Alcohol Services

A total of 144,908 individuals exhibiting problematic or dependent drinking presented to specialist alcohol treatment in England in 2015/16 (Public Health England 2016). Of these, 85,035 were treated for alcohol only and 59,873 for alcohol problems together with other substances. The overall number of individuals in treatment for alcohol alone fell by 4% compared to 2014-15, with the numbers for alcohol and other substances decreasing by 5% since then(23).

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.”(24). One UK study of psychosocial treatment for alcohol dependence showed savings to the public sector of £5 for every £1 spent(25). A recent economic analysis by PHE also concluded that alcohol screening and brief interventions, together with Alcohol Care Teams and Alcohol Assessment Outreach teams proactively engaging with social care services, will return exponential savings over the cost of delivery(13).

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 in relation to the CQUIN, PHE published local guidance(26) which includes the following recommendations:

1. establish and / or optimise alcohol care teams in district hospitals
2. provide alcohol IBA in primary and secondary care settings
3. establish alcohol assertive outreach teams
4. establish clear care pathways for sustained engagement with high volume users
5. Prompt access to treatment services for parents identified as harmful/dependent drinkers with agreed pathways to reduce risks to children.

Although published plans for STPs mention some action on alcohol, it is not possible to know if this relates to the optimisation of existing services or the implementation of a new service, or how closely the proposed arrangements mirror PHE’s best practice guidance alone(26).

Whether the situation will be improved by the recently announced Government Drug Strategy 2017(27), which highlights the importance of preventing drug and alcohol misuse, with an emphasis on investing in a range of evidence based programmes, remains to be seen.

Table 5: Access to specialist alcohol treatment, alcohol dependence hospital admissions and treatment access ratios in England and Scotland 2012/13 to 2015/16.

Year	England			Scotland		
	Treatment access	Hospital admissions*	Access ratio	Treatment access	Hospital admissions*	Access ratio
2012/13	115,171	77,820	1.48	32,000	10,320	3.10
2013/14	120,522	79,920	1.51	30,601	10,885	2.81
2014/15	117,235	80,220	1.46	29,515	10,749	2.75
2015/16	113,222	81,080	1.40	28,500	10,581	2.69

*ICD-10 F10.2, F10.3, F10.4

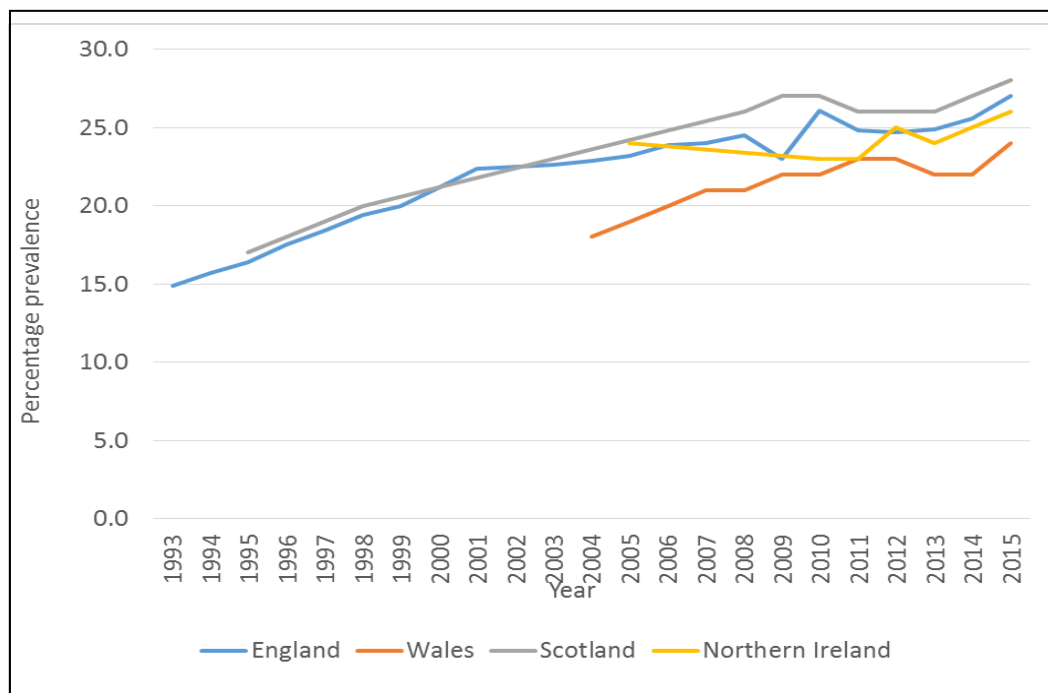
Recommendation 6: Promotion of healthy lifestyles to reduce obesity and the burden of NAFLD

Metrics 6.1:

New data has been added for each of the metrics in this section. The trend in prevalence of adult obesity (body mass index $\geq 30\text{kg/m}^2$) in England, Wales, Scotland and Northern Ireland is shown in Figure 8 below, using data from the Health Survey for England and equivalent surveys in Wales, Scotland and Northern Ireland. All countries show a rising trend in prevalence. The Welsh Health Survey uses self-reported data, that tend to understate the prevalence of obesity(28), while the other surveys use measured height and weight data. This may account for the lower reported prevalence in Wales.

There is a lack of comparable data on childhood obesity from across the UK, with Wales publishing data 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)(29). Data that are available appear to show a tendency towards 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(30, 31).

Figure 9: Adult (aged 16+) obesity (body mass index $\geq 30\text{kg/m}^2$) prevalence in England, Wales, Scotland and Northern Ireland 1993-2015



Metric 6.2 Progress against Health Select Committee recommendations

The Government’s child obesity plan from 2016 remains unchanged as the primary statement of policy in this area(32). Developments in terms of the industry’s responses to the Government’s Soft Drinks Industry Levy (SDIL) are expected to take effect from April 2018(33). Levy rates of 18p/l for drinks with an added sugar content above 5g/100ml, and 24p/l for drinks with an added sugar content above 8g/100ml, were set out in the Finance Act 2017(34) and a number of soft drinks manufacturers have already started to reformulate their products to the extent that the Treasury now anticipates reduced revenue from the levy(35). Along with a growing evidence base on the effectiveness of taxing sugar sweetened drinks(36-38) which is also underway, it will be important to evaluate how the UK approach plays out over the medium to long term, taking into account the complexity of public, political and industry responses(39) and whether the current exclusion of foodstuffs from the levy will be lifted.

In addition, during 2017 Public Health England have published guidelines for industry on reducing the amount of sugar in children’s diets(40), guidance for Local Authorities on

commissioning adult weight management services (41) and on encouraging healthier out of home food provision (42), and guidance on healthy spatial planning(43).

Box 2: The Bolton Experience

Dr Stephen Liversedge from Bolton reports on working with patients found to have a HbA1C in the pre-diabetic range. They were entered into a programme with his Health Improvement Practitioners based on diet and exercise. The patients had never taken dieting for their obesity seriously before but when worried about diabetes, they lost an average of 9.5 kg in 1 year. Funding for Health Improvement Prevention was by CCGs after Local Authority cut backs.

6.3 Prevalence of NAFLD/non-alcoholic steatohepatitis in secondary care

The number of finished consultant episodes annually as a marker of hospital activity, which were given in last year’s report, have shown a further rise in the latest figures from NHS Digital: from 4,085 and 3,040 in 2015-15 for England and Wales, to 5,361 and 3,534 respectively in 2015-16(44).

The growing disease burden in hospitals from NAFLD is also reflected by the numbers of patients being listed for transplantation. NAFLD is now the second commonest indication for liver transplantation in the UK, behind only alcohol-related liver disease (Figure 10). The figures are a summation of those coded as NASH (14.4%) and as cryptogenic cirrhosis (3.8%).

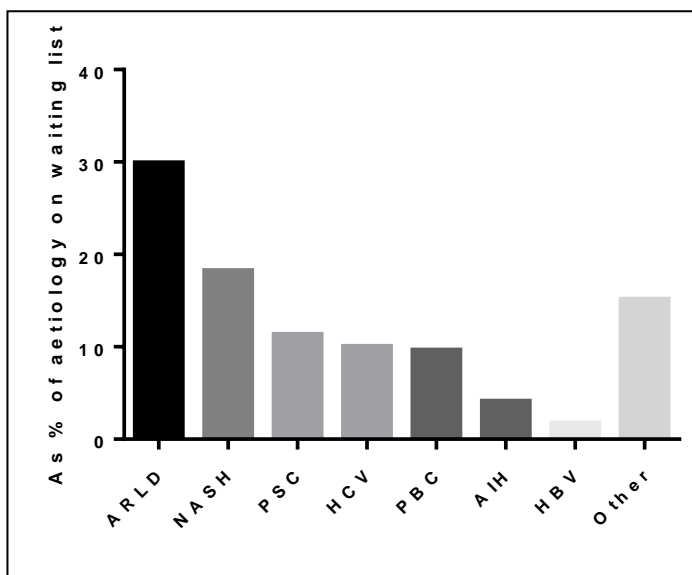


Figure 10: Aetiology of liver disease patients on liver transplant waiting list as of January 2017

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

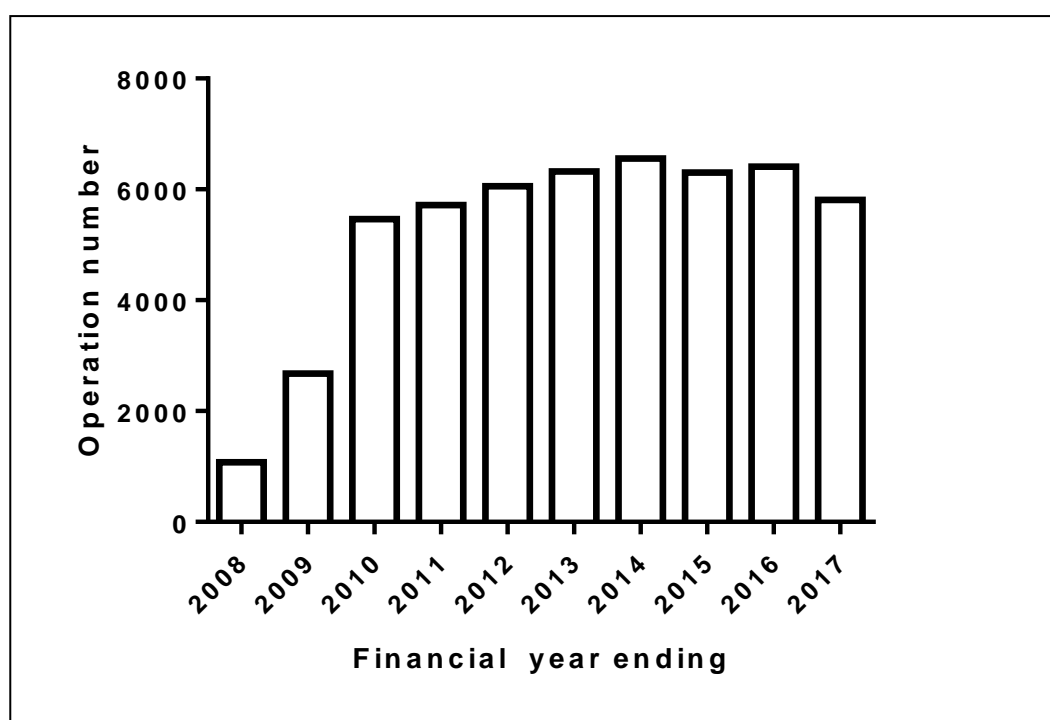
Metric 6.4: Number of primary bariatric surgery operations

Around 2 million people in the UK, it is estimated, fulfil NICE eligibility criteria for bariatric surgery (BMI ≥ 35 kg/m² with an obesity-associated co-morbid condition or BMI≥40 kg/m²). Liver disease (NAFLD) is either the indication for bariatric surgery or a co-morbid diagnosis

and in the most recent financial year, 9% of all patients undergoing bariatric surgery had a diagnosis of liver disease.

Despite the effectiveness of the procedure in terms of diabetes and disease reversal, quite apart from desired loss of weight, less than 6,000 operations were undertaken in 2016 which is fewer than <0.01% of the eligible population. The more recent data from the Health and Social Services Information Centre indicate an almost 10% fall in the number of bariatric surgery procedures (Figure 11) and was highlighted in last year's report, there can be no justification for this marked under provision of bariatric surgery in the UK.

Figure 11: Number of primary bariatric operations performed annually in the UK



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 and number achieving cure or SVR12 (linked with WHO indicator 8).

The efficiency, ease of use and overall safety of the new directly acting antiviral agents against HCV infection have enabled real progress to be made in the UK in 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 have been able to treat 10,054 cases between April 2016 to March 2017, 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 showed that of patients who were alive

three months after cessation of therapy and for whom data was available, 92.4% of patients had achieved SVR(45).

Similarly for Scotland, 1,685 patients were treated between April 2016 and March 2017 (35% with Fibrosis stage 3-4) (46) and in Wales, the 781 treated patients had a predicted/estimated SVR of 95%. In Northern Ireland, of the 105 patients treated between March 2015 and July 2016, an SVR was achieved 95% of cases.

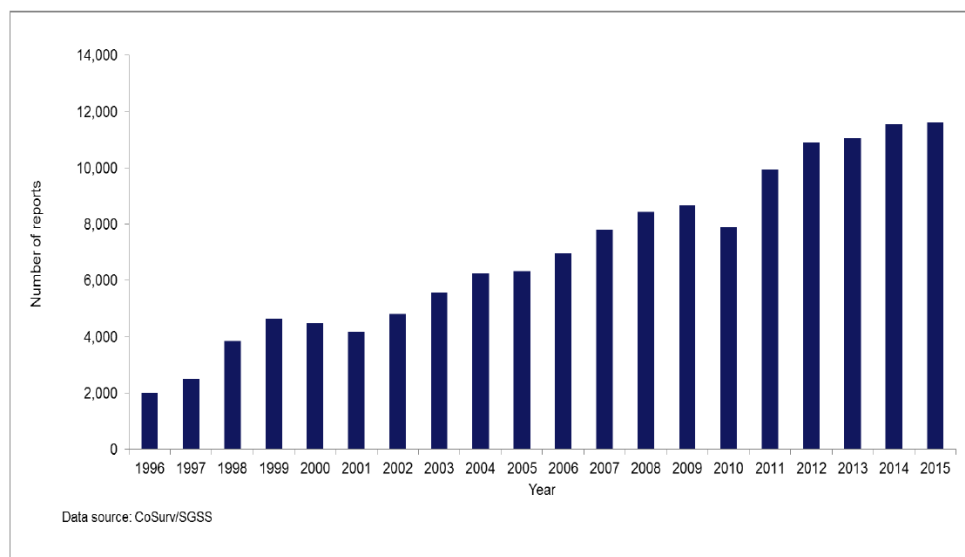
Metric 7·2: Number of patients diagnosed with HCV and HBV

HCV: on the background of a steady increase in the number of laboratory confirmed reports of HCV in England since the 1990s, there were in 2015 11,605 laboratory reports of individuals testing positive for antibodies to HCV. Consistent with this, testing from twenty-three sentinel laboratories showed a rise in tests undertaken of 18.6% between 2011 and 2015 (Figure 12), although the proportion of positive results declined from 2.6% in 2011 to 1.5% in 2015. The inference from this is that the number of new diagnoses made will have to increase considerably if the planned rise in treatment numbers is to be sustained(47).

The situation in the drug addiction clinics where most cases of HCV infection are encountered is far from satisfactory. Only around half of patients who inject drugs (PWID) sampled in UK surveys are aware of an HCV antibody positive status and this figure has remained relatively stable over the last 6 years. Surveys do not show any reduction in the numbers of new HCV infections over recent years. The estimated prevalence of HCV infection in recent initiates to drug use (started within the last three years) was 27% in 2016 compared to 24% in 2008 and moreover the proportion of PWID reporting adequate needles/syringe provision was found to be sub-optimal, with only about one half of those surveyed reporting adequate provision for their needs. These findings suggest that the WHO Global Health Sector Strategy(48) call to reduce new cases of chronic HCV by 30% by 2020 and 80% by 2030, represents a significant challenge for the UK health services.

Figures for the devolved nations show a significant reduction in number of new diagnoses following the introduction of the DAAs. In Scotland, the number of new cases of Hepatitis C antibody positivity fell to 1594 between January and December 2016, compared to a figure of 1815 for 2015. In Wales, provisional data from laboratory reports showed a reduction in new HCV antibody positive cases - 531 were diagnosed in 2016 compared to 612 in 2015, and in Northern Ireland, the number of new laboratory confirmed antibody positive reports for 2016 was down 13 % on the figure for 2015. Previously, for all three countries numbers had been rising steadily.

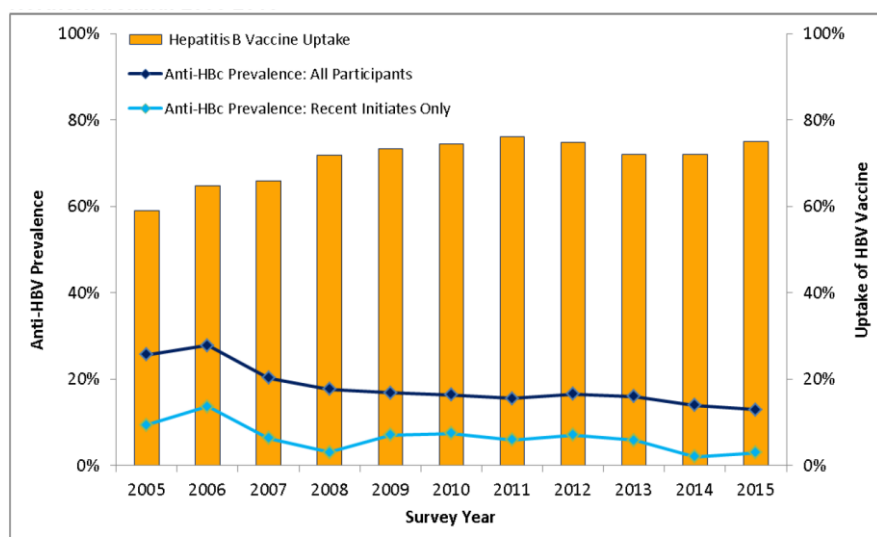
Figure 12: Number of laboratory reports of hepatitis C from England: 1996 to 2015



HBV infection

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, of which 18 were new antenatal cases, compared to a total of 91 Hepatitis B infections reported in 2015 of which 11 were new antenatal cases. In people who inject drugs (PWID), the Unlinked Anonymised Monitoring Survey(49) shows the prevalence of antibodies to the hepatitis B core antigen (anti-HBc, a marker of past or current infection) across England, Wales and Northern Ireland, has significantly declined since 2006 from 26% down to 13% in 2015 (Figure 13). Figure 13 also shows that uptake of the hepatitis B vaccine is stuck at around 75%, with at least 20% not being protected.

Figure 13: Prevalence of anti-HBc and uptake of the vaccine against hepatitis B among participants in the Unlinked Anonymous Monitoring Survey of PWID: England, Wales and Northern Ireland 2005-2015

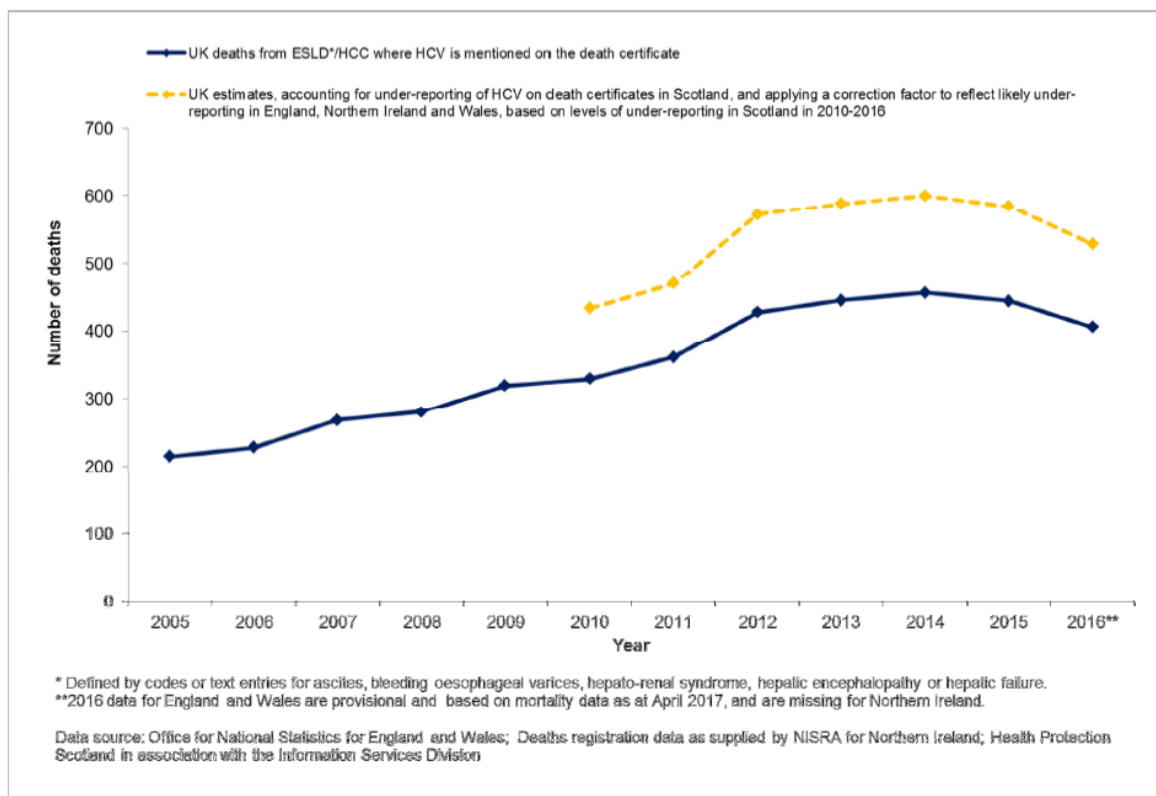


Note: A recent initiate is someone who first injected during the preceding three years.

Metric 7-3: mortality from HCV and HBV

A recent report(47) compiling data from different sources or England, Scotland, Wales and Northern Ireland suggests that the number of new cases of HCV-related end-stage liver disease (ESLD) or hepatocellular carcinoma (HCC) remained fairly stable at around 1875 new cases/year (range 1809-1933) from 2011-2015. Similarly, the number of liver transplants undertaken for HCV which had remained relatively stable between 2008 and 2014, decreased by 32% - from 122 transplants in 2014 to 83 in 2015. This was the first year in which the new DAAs were used in advanced liver disease. Deaths from ESLD or HCC rise steadily from 215 in 2005 to 456 in 2014 but have dropped in both 2015 and 2016. The preliminary data for 2015 initially suggested an 8% fall in deaths but this figure was subsequently revised to 3%. The preliminary figures for 2016 suggest a further 7% fall in England, Scotland and Wales but again these figures remain provisional. This suggests that new drugs may already be having an impact on mortality from HCV-related ESLD and primary HCC. With the World Health Organisation GHSS global health strategy for a reduction in HCV related mortality of 10% by 2020(48) and a reduction of at least 65% by 2020, seems achievable.

Figure 14: Deaths from HCV-related ESLD* or HCC in the UK: 2005 to 2016



Mortality figures from chronic HBV infection though greatly reduced following introduction of nucleoside drugs which inhibit viral replication, are still being affected by instances of

viral reactivation and the risk of primary HCC long term is not completely eliminated. With the new curative drugs for HBV under clinical trial being developed, it is strongly recommended that funding and administrative arrangements be put in place, as has been so successful for the new anti-HCV agents. Similarly, the substantial current undiagnosed pools of chronic HBV infection in the community need to be addressed through screening procedures at general practice level.

Metric 7·4: numbers of infants starting and numbers completing a course of HBV vaccination

The figures for 2016-2017 in England are encouraging, with data from the COVER programme(50) showing that of a total of 2245 infants born to HBsAg positive mothers, 85% completed a course of three vaccinations by twelve months of age and 69% had completed the full course with a fourth dose by the age of two years, compared to 2010 when there was 88% at one year and 72% at two years reported in 2015-16(50). Similar data from Wales shows 94% completion of a course of three vaccinations by 12 months of age and 90% completing the full course with a fourth dose by the age of two years(51).

Metric 7·5: Universal vaccination for HBV (Yes or No?)

This, at long last, it can be reported is now in place and later this year a new hexavalent vaccine will be introduced for primary baby immunisations across the UK, providing protection against diphtheria, tetanus, pertussis, polio and Hib as well as the hepatitis B virus. All babies born on or after 1st August 2017 will become eligible for the vaccine Infanrix hexa® (DTaP/IPV/Hib/HepB) starting from late September/early October 2017, at the ages of eight, twelve and sixteen weeks as part of the routine childhood immunisation schedule.

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

The year covered by this report has seen even greater media involvement and continual campaigns by the Children's Liver Disease Foundation (CLDF) and the British Liver Trust (BLT). The CLDF Yellow Alert Campaign aims to highlight the signs and symptoms of neonatal liver disease in order to prompt early diagnosis, has over the last five years distributed 14,000 yellow alert protocol packs to health care professionals with a further 35,000 being downloaded from the website. The British Liver Trust's campaign, known as *Love Your Liver* (www.loveyourliver.org.uk), comprises an easy to use screener for the three main preventable causes of liver disease. Over the last three years more than 80% of 98,237 completions of the online screener showed risks that could cause liver disease. 2126 of 2669 people who attended a screening and scanning event over the past five years were found to be at risk of liver disease and 496 were referred for further tests. The annual *Love Your Liver* week also includes a screening and scanning roadshow. Of note too is the Welsh Liver Plan's implementation committee which has representation from the CLDF and BLT, and funding to run twenty screening and scanning events over the next two years. PHE have also been active with public awareness campaigns on obesity and alcohol although not one specifically for liver disease.

After a small pilot study involving a limited number of hospitals, the Royal College of Physicians (RCP) has officially launched its new exemplar liver accreditation programme, Improving Quality in Liver Services (IQILS), led by Dr James Ferguson. Open to all liver services across the UK, it gives them access to a new online tool and up to date guidance on improving standards. In addition, NICE has this year published a quality standard for liver disease(9) which sets out what is expected of service providers in caring for patients with liver diseases.

Progress Reports from the Devolved Nations

New data relating to alcohol, obesity and viral hepatitis has been largely given in the relevant sections of this report and the following is concerned more with strategy and new planning.

Scotland

The Scottish Government will be publishing a refresh of its alcohol strategy later this year in tandem with this Scottish Health Action on Alcohol Problems (SHAAP) and with the support of the Scottish Royal Colleges which will recommend methods to improve early identification of alcohol related liver damage to focus alcohol treatment services more effectively on those at greatest risk of alcohol related liver disease. The Scottish Government has also commissioned a programme of research to establish the impact of implementing minimum unit pricing subject to the outcome of ongoing legal challenge. With about 80% of the estimated prevalent cases of HCV diagnosed, bringing the remainder to cure is involving innovative pathways of care, including delivery of treatment and care by community pharmacists. The University of Dundee is leading a regional trial of “treatment as prevention” for HCV to develop a blue print to achieve elimination of HCV, fulfilling Scotland’s commitment to the WHO elimination targets. A pilot study of automated reflex aetiological screening for liver disease, where screening tests are performed on the index blood sample immediately an abnormality is detected, has shown the process to be highly effective in diagnosis and cost-effective. It is currently being implemented in some of the health boards in Scotland.

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 markers of fibrosis and transient elastography. With respect to provision of services (Recommendations 2 and 3 of the previous report) a single Regional Liver Unit in Belfast, currently with four hepatologists (0.22 per 100,000 population) is planning to expand to five hepatologists in 2018. Most of the nine hospitals outside Belfast have at least one gastroenterologist with an interest in liver health as a result of appointments over the past five years. The adult liver transplant service for NI, which is based in Belfast and supported by Kings College Hospital, London, is delivering an appropriate number of transplants per head of population compared to rest of UK (20-24 per year) and has achieved the best one and five year survival figures amongst all UK transplant units.

An Alcohol Use Disorder care pathway was launched by the Public Health Authority in 2017 and has been adopted by all Trusts across the region, which is helping with Recommendation 5 of the Lancet Commission. There are also plans to appoint more substance misuse liaison nurses across NI before end of 2017. A regional report on Alcohol Related Brain Damage is due to be published imminently and a specialist ARLD unit has been established in the South Eastern Health and Social Care (HSC) Trust. Funding for an Alcohol Assertive Outreach Liaison which had been successfully established in Belfast HSC Trust has unfortunately 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 produce an obesity prevention strategy. A series of round table events in the Senedd led to engagement with Assembly members over the importance of Hepatitis C as a public health concern. Cross party support was achieved for the Welsh Government to commit to the WHO elimination target date of 2030 and a strategy framework is now in development. Having treated all patients with Hepatitis C known to secondary care services, attention is now being focussed on improving testing rates, especially in hard to reach groups including a pilot project for blood born virus (BBV) testing in needle exchange pharmacy settings.

In addition, the national liver strategy is investing in a burgeoning wellness services targeted at those who rarely contact health care services. The BBV module of the Wales Harm Reduction Database (used by community substance misuse services) has now been introduced across the country, covering consent, screening, testing, diagnosis and referral to specialist treatment services. An opt-out has been introduced for BBV testing in prisons, leading to testing and completion of HBV vaccination rates doubling since introduction.

The ongoing commitment to enhancing alcohol care teams in Welsh Hospitals has led to an increase in the number of Alcohol Liaison Nurses from thirteen to twenty-one and four of six Welsh Health Boards now have an alcohol clinical lead. Following on from the pilot study of “reflex” AST testing when the ALT is abnormal, this 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 guideline on abnormal LFT and the development of a NAFLD pathway. A programme of work with IQILS has also been commissioned that will see all health boards go through this service improvement and accreditation process over the next three years.

The national clinical leads for liver disease, diabetes, cardiac disease, stroke and cancer have identified obesity as a high priority area for collaborative working and the current utility of the National Exercise Referral Scheme (NERS) will also be evaluated as part of a wider approach to obesity management. Finally, funding has been set aside for a data officer dedicated to improve the clinical coding of liver disease which will cover GP coding methods and in the outpatient setting via the use of the Welsh Clinical Portal.

Contributors

RW was responsible for planning and content for the executive summary and introduction and for writing, editing and direction of the paper as a whole. GA (*to be completed based on author declarations*)

Declaration of interests

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References:

1. Williams R, Alexander G, Aspinall R, Bosanquet J, Camps-Walsh G, Cramp M, et al. New Metrics for the Lancet Standing Commission on Liver Disease in the UK. *The Lancet*. 2017;389(10083):2053-80.
2. Foundation for Liver Research. Financial Case for Action on Liver Disease: Escalating costs of alcohol misuse, obesity and viral hepatitis <http://www.liver-research.org.uk/liverresearch-assets/financialcaseforactiononliverdiseasepaper.pdf2017>
3. Williams R AR, Bellis M, et al. Addressing Liver Disease in the UK: a blueprint for attaining excellence in health care and reducing premature mortality from lifestyle issues of excess consumption of alcohol, obesity and viral hepatitis. *Lancet*. 2014;384:1953-97.
4. Williams R AK, Aspinall R et al. Implementation of the Lancet Standing Commission on Liver Disease in the UK. *Lancet*. 2015;386.
5. Public Health England. The 2nd Atlas of Variation in NHS Diagnostic Services in England. [file:///C:/Users/k1508281/Downloads/DiagnosticAtlas_FINAL%20\(7\).pdf2017](file:///C:/Users/k1508281/Downloads/DiagnosticAtlas_FINAL%20(7).pdf2017).
6. Department of Health. UK Chief Medical Officers' Alcohol Guidelines Review: Summary of the proposed new guidelines. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/489795/summary.pdf2016
7. Denis Campbell. Heavy drinking will kill 63,000 people over next five years, doctors warn. *The Guardian*. 2017.
8. Correa A HW, McGovern A et al. Royal College of General Practitioners Research and Surveillance Centre (RCGP RSC) sentinel network: a cohort profile. *BMJ Open*. 2016;20(6(4)):e011092.doi.
9. National Institute for Health and Care Excellence. Liver disease: Quality standard [QS152]. <https://www.nice.org.uk/guidance/qs1522017>.
10. de Lusignan S. Codes, classifications, terminologies and nomenclatures: definition, development and application in practice. *Inform Private Care*. 2005;13(1):65-70.
11. Davenport M, Ong E, Sharif K, Alizai N, McClean P, Hadzic N, et al. Biliary atresia in England and Wales: results of centralization and new benchmark. *J Pediatr Surg*. 2011;46(9):1689-94.
12. Joshi D, Gupta N, Samyn M, Deheragoda M, Dobbels F, Heneghan MA. The management of childhood liver diseases in adulthood. *J Hepatol*. 2017;66(3):631-44.
13. Burton R, Henn C, Lavoie D, O'Connor R, Perkins C, Sweeney K, et al. A rapid evidence review of the effectiveness and cost-effectiveness of alcohol control policies: an English perspective. *Lancet*. 2017;389(10078):1558-80.
14. OECD. Tackling Harmful Alcohol Use <http://www.oecd.org/health/tackling-harmful-alcohol-use-9789264181069-en.htm> [updated 12/05/2015]
15. Department of Health I. The Public Health (Alcohol) Bill 2015 <http://health.gov.ie/blog/publications/public-health-alcohol-bill-2015/2015> [
16. Pryce R BP, Gray L et al. Estimates of Alcohol Dependence in England based on APMS 2014, including Estimates of Children Living in a Household with an Adult with Alcohol Dependence - Prevalence, Trends, and Amenability to Treatment [http://www.nta.nhs.uk/uploads/estimates-of-alcohol-dependency-in-england\[0\].pdf2017](http://www.nta.nhs.uk/uploads/estimates-of-alcohol-dependency-in-england[0].pdf2017)
17. Public Health England. Adult Substance Misuse Statistics from the National Drug Treatment Monitoring Service (NDTMS), 1st April 2015 to 31st March 2016 <https://www.ndtms.net/Publications/downloads/Adult%20Substance%20Misuse/adult-statistics-from-the-national-drug-treatment-monitoring-system-2015-2016.pdf2017>
18. Information Services Division Scotland. National Drug and Alcohol Treatment Waiting Times Report April 2013 - March 2017 DATWT Full Year Tables <http://www.isdscotland.org/Health-Topics/Drugs-and-Alcohol-Misuse/Publications/data-tables2017.asp?id=19312017>

19. Perkins C HM. Understanding alcohol-related hospital admissions
<https://publichealthmatters.blog.gov.uk/2014/01/15/understanding-alcohol-related-hospital-admissions/2014>
20. NHS Digital. Statistics on Alcohol, England 2017.
<https://www.gov.uk/government/statistics/statistics-on-alcohol-england-20172017>.
21. Office for National Statistics. 20th Century Mortality 1901-2000.
<http://www.ons.gov.uk/ons/rel/subnational-health1/the-20th-century-mortality-files/index.html> [updated November 2011].
22. Office for National Statistics. The 21st Century Mortality Files - deaths dataset, England and Wales
<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/the21stcenturymortalityfilesdeathsdataset> [updated 14/11/2016].
23. National Drug Treatment Monitoring Service. Annual Publications from NDTMS - Statistics
<https://www.ndtms.net/Publications/AnnualReports.aspx> [
24. World Health Organisation. Global Strategy to Reduce the Harmful Use of Alcohol
http://www.who.int/substance_abuse/publications/global_strategy_reduce_harmful_use_alcohol/en/2010
25. UKATT Research Team. Cost-effectiveness of treatment for alcohol problems: Findings of the UK Alcohol Treatment Trial. *British Medical Journal*. 2005;331((7516)):544-7.
26. Public Health England. Local Health and Care Planning: Menu of preventative interventions.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/565944/Local_health_and_care_planning_menu_of_preventative_interventions.pdf; 2016.
27. HM Government Home Office. Drug Strategy 2017.
<https://www.gov.uk/government/publications/drug-strategy-20172017>.
28. Gorber SC, Tremblay M, Moher D, Gorber B. A comparison of direct vs. self-report measures for assessing height, weight and body mass index: a systematic review. *Obesity Reviews*. 2007;8(4):307-26.
29. Northern Ireland Executive. Health Survey (NI) 2015/16.
<https://www.northernireland.gov.uk/news/health-survey-ni-2015162016>.
30. NHS Digital. National Child Measurement Programme: England, 2015/16 school year
<http://content.digital.nhs.uk/catalogue/PUB22269/nati-chil-meas-prog-eng-2015-2016-rep.pdf2016>
31. Ells LJ, Hancock C, Copley VR, Mead E, Dinsdale H, Kinra S, et al. Prevalence of severe childhood obesity in England: 2006-2013. *Arch Dis Child*. 2015;100(7):631-6.
32. HM Government. Childhood obesity: a plan for action.
<https://www.gov.uk/government/publications/childhood-obesity-a-plan-for-action2016>.
33. HM Revenue and Customs. Policy Paper: Soft Drinks Industry Levy.
<https://www.gov.uk/government/publications/soft-drinks-industry-levy/soft-drinks-industry-levy2016>.
34. HM Government. Finance Act 2017.
<http://www.legislation.gov.uk/ukpga/2017/10/contents/enacted>: TSO (The Stationery Office); 2017.
35. Daneshkhu S. Budget 2017: Revenues from UK's incoming sugar tax to fall short. *Financial Times* [Internet]. 8 March 2017. Available from: <https://www.ft.com/content/1e9703e0-0401-11e7-aa5b-6bb07f5c8e12?mhq5j=e2>.
36. Silver LD, Ng SW, Ryan-Ibarra S, Taillie LS, Induni M, Miles DR, et al. Changes in prices, sales, consumer spending, and beverage consumption one year after a tax on sugar-sweetened beverages in Berkeley, California, US: A before-and-after study. *PLOS Medicine*. 2017;14(4):e1002283.

37. Cochero MA, Rivera-Dommarco J, Popkin BM, Ng SW. In Mexico, Evidence Of Sustained Consumer Response Two Years After Implementing A Sugar-Sweetened Beverage Tax. *Health Affairs* [Internet]. 2017 February 22, 2017.
38. Lal A, Mantilla-Herrera AM, Veerman L, Backholer K, Sacks G, Moodie M, et al. Modelled health benefits of a sugar-sweetened beverage tax across different socioeconomic groups in Australia: A cost-effectiveness and equity analysis. *PLOS Medicine*. 2017;14(6):e1002326.
39. Rutter H, Savona N, Glonti K, Bibby J, Cummins S, Finegood DT, et al. The need for a complex systems model of evidence for public health. *The Lancet* [Internet]. 2017. Available from: [http://dx.doi.org/10.1016/S0140-6736\(17\)31267-9](http://dx.doi.org/10.1016/S0140-6736(17)31267-9).
40. Public Health England. Sugar reduction: Achieving the 20% 2017 [Available from: <https://www.gov.uk/government/publications/sugar-reduction-achieving-the-20>.
41. Public Health England. Adult weight management: guidance for commissioners and providers <https://www.gov.uk/government/collections/adult-weight-management-guidance-for-commissioners-and-providers2017>
42. Public Health England. Encouraging healthier 'out of home' food provision <https://www.gov.uk/government/publications/encouraging-healthier-out-of-home-food-provision2017>
43. Public Health England. Spatial planning for health: evidence review <https://www.gov.uk/government/publications/spatial-planning-for-health-evidence-review2017> [
44. Dr Harry Rutter. Personal communication. In: Professor Philip Newsome, editor. By email, August 2017.
45. Professor Graham Foster. Personal Communication. In: Professor Matthew Cramp, editor. personal communication ed. By email.
46. Dillon PJ. Personal Communication. In: Cramp PM, editor. By email 2017.
47. Public Health England. Hepatitis C in England 2017 report: Working to eliminate hepatitis C as a major public health threat https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/599738/hepatitis_c_in_england_2017_report.pdf 2017 [updated March 2017].
48. World Health Organisation. Global Health Sector Strategy on Viral Hepatitis 2016-2021. <http://www.who.int/hepatitis/strategy2016-2021/ghss-hep/en/>; 2016 June.
49. Public Health England. Data tables of the Unlinked Anonymous Monitoring Survey of HIV and Hepatitis in People Who Inject Drugs. *Surveillance Update* <file:///C:/Users/k1508281/Downloads/Data%20tables%20of%20the%20Unlinked%20Anonymous%20Monitoring%20Survey%20of%20HIV%20and%20Hepatitis%20in%20People%20Who%20Inject%20Drugs.pdf> [updated July 2016].
50. Public Health England. Cover of vaccination evaluated rapidly (COVER) programme 2016 to 2017: quarterly data. <https://www.gov.uk/government/statistics/cover-of-vaccination-evaluated-rapidly-cover-programme-2016-to-2017-quarterly-data> 2016
51. Public Health Wales. National immunisation uptake data <http://www.wales.nhs.uk/sites3/page.cfm?orgid=457&pid=541442017> [updated March 2017].