Disease burden and costs from excess alcohol consumption, obesity, and viral hepatitis: fourth report of the Lancet Standing Commission on Liver Disease in the UK


This report contains new and follow-up metric data relating to the eight main recommendations of the Lancet Standing Commission on Liver Disease in the UK, which aim to reduce the unacceptable harmful consequences of excess alcohol consumption, obesity, and viral hepatitis. For alcohol, we provide data on alcohol dependence, damage to families, and the documented increase in alcohol consumption since removal of the above-inflation alcohol duty escalator. Alcoholic liver disease will shortly overtake ischaemic heart disease with regard to years of working life lost. The rising prevalence of overweight and obesity, affecting more than 60% of adults in the UK, is leading to an increasing liver disease burden. Favourable responses by industry to the UK Government’s soft drinks industry levy have been seen, but the government cannot continue to ignore the number of adults being affected by diabetes, hypertension, and liver disease. New direct-acting antiviral drugs for the treatment of chronic hepatitis C virus infection have reduced mortality and the number of patients requiring liver transplantation, but more screening campaigns are needed for identification of infected people in high-risk migrant communities, prisons, and addiction centres. Provision of care continues to be worst in regions with the greatest socioeconomic deprivation, and deficiencies exist in training programmes in hepatology for specialist registrars. Firm guidance is needed for primary care on the use of provision of care continues to be worst in regions with the greatest socioeconomic deprivation, and deficiencies exist in training programmes in hepatology for specialist registrars. Firm guidance is needed for primary care on the use of

Introduction

This fourth report of the Lancet Commission1 on Liver Disease in the UK provides up-to-date evidence on 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.2 Lifestyle issues, as well as smoking, have a major part in exacerbating poor health with age and have been implicated in 30% of dementia cases.3 Public Health England’s 2nd Atlas of Variation in NHS Diagnostic Services in England4 shows that the previous steady increase in overall life expectancy has stalled and that the gap between healthy and overall life expectancy is now 16-1 years for men and 19-0 years for women. With 10 million adults regularly drinking more than 14 units of alcohol each week—the upper limit of safe drinking for men set by the Chief Medical Officer”—the extent of the resulting morbidity and mortality is not surprising, particularly with the added effects of obesity and smoking, which frequently occur together with high alcohol consumption. The Atlas5 also describes the poor provision of health services, including deficiencies in provision of diagnostic tests for liver disease, in certain regions of the country, which occurs alongside poverty and social inequality.

An important initiative of the Commission in 2017 has been to bring together costs resulting from alcohol, obesity, and viral hepatitis infection and the escalation of health-care costs that is anticipated on the basis of current trends. In their report,7 the Foundation for Liver Research predict that the National Health Service (NHS) will incur £17 billion in costs related to alcohol misuse over the next 5 years. Failure to take action on adult obesity alone could result in an additional £1.9–2.0 billion in costs each year.

Briefly mentioned in this report, but of considerable relevance to the Commission’s recommendations, are the sustainability and transformation plans (STPs) of NHS England and the development of accountable care systems. Only six of the 44 provisional STP sites have plans that mention liver disease specifically, although some do mention action on alcohol. How closely these new arrangements reflect Public Health England’s best practice guidance8 need careful examination.

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 (RCGP) Research and Surveillance Centre has access to anonymised...
data from more than 2 million primary care clinical records. The figures for the past year are alarming: of 1595450 adult patients in the RCGP Research and Surveillance Centre database of primary care clinical records, only 421785 (26·44%) had body-mass index (BMI) readings, 281309 (17·63%) had records of alcohol consumption, and 48880 (3·06%) had received an alcohol use disorders identification test (table 1). Additionally, only 50 (<0·001%) people—all injecting drugs—were assessed for hepatitis C virus (HCV) infection status in the past 12 months.

The number of patients diagnosed with non-alcoholic fatty liver disease (NAFLD) and the number of people who inject drugs who have chronic HCV infection are considerably lower than the known prevalence of these conditions. Despite pressures on the time of general practitioners (GPs), accurate recording of liver disease data is vital if three of the five recommendations relating to primary care in the National Institute for Health and Care Excellence (NICE) quality standards on liver disease are to be implemented: provision of advice on physical activity, diet, and alcohol to people with NAFLD; regular testing for advanced liver fibrosis in patients with NAFLD; and non-invasive testing of patients with risk factors for cirrhosis.

A comprehensive list of recommended Read codes that cover investigations for liver diseases in primary care was published when the British Liver Trust, RCGP Clinical Priority Programme launched a comprehensive web-based liver disease toolkit in September, 2017. However, in April, 2018, there will be a move away from Read codes to a different clinical coding system, the Systematized Nomenclature of Medicine—Clinical Terms, which in familiarisation will represent a considerable demand on GP time.

Metric 1.6 in the previous report is discussed in Recommendation 4.

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Table 1: Royal College of General Practitioners Research and Surveillance Centre data on primary care activity for 1 595 450 patients

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 done in 2018. Information is available in the STPs about possible hospital reconfigurations and how these will link to the recommended regional centres for specialist liver work and the operational delivery networks set up to deliver the anti-HCV drugs.

After a pilot study, the Royal College of Physicians officially launched its new exemplar liver accreditation programme—Improving Quality in Liver Services—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 done by the trainees section of the British Society of Gastroenterology (BSG) have consistently reported low levels of confidence in the management of certain aspects and conditions within hepatology, even among senior trainees. A common theme is low confidence in management of outpatient hepatology, particularly viral hepatitis, autoimmune liver disease, and liver transplantsations (timing of referral and indications). This finding is concerning given the shortage of consultant hepatologists in district general hospitals, particularly considering that up to 30% of trainees have reported a desire to sub-specialise in hepatology and an additional 15% have considered such a career move. The main barriers to pursuing training were a scarcity of local training opportunities and difficulties in changing regions to obtain hepatology training.

At present, all trainees in gastroenterology are expected to receive 6 months of training in a level 2 or level 3 unit. A level 2 unit has two or more whole-time-equivalent consultant hepatologists, out-of-hours endoscopy, specialist treatments such as transjugular intrahepatic porto-systemic shunts, hepatocellular carcinoma multi-disciplinary meetings, liver histopathology, dedicated liver clinics, and a specialist nurse team. In addition to these features, level 3 units have a liver transplantation programme. When senior trainees were asked, as part of the BSG Trainees Survey 2014, to provide information about duration of training in levels 1, 2, and 3 hepatology, less than 50% had gained 6 months or more experience in level 2 hepatology and less than 40% had gained 6 months or more experience in level 3 training (figure 1). Furthermore, the deanery training programme directors reported that 47 units were providing level 2 training in 2015–16, whereas the UK Survey of Liver Services done in 2015–16 identified only 19 units; thus, fewer trainees than expected are receiving adequate level...
2 training. To make up for these deficiencies, the Commission recommended that trainees spend a period of 6 months in an enhanced level 1 unit, which has some level 2 facilities. A review of training capacity showed that some training rotations, namely London North East and North East England, do not have sufficient capacity for enhanced level 1 training, and seven training rotations are unable to accommodate enough trainees for level 2 and level 3 training.

New metric for primary hepatocellular carcinoma

Figure 2 shows the considerable variation in mortality (2·6 times) of primary hepatocellular carcinoma between different regions of the country (mapped by STPs), a reflection of the increased burden of disease, the scarcity of specialist services in the more deprived areas, and the general failure to institute surveillance programmes for patients with cirrhosis. The steady increase in frequency of primary hepatocellular carcinoma reflects continuation of the two most frequent causes of the disease, namely excess alcohol consumption and obesity (often in combination).

The proportion of people aged 15 years or older with hepatocellular carcinoma who are receiving treatment with curative intent (liver transplantation, major liver resection, or ablation) is alarmingly low at 15·7% (table 2), with considerable variation between regions.

Recommendation 3: a national review of liver transplantation to ensure better access for patients and to increase capacity (metrics 3.1–3.5)

1003 liver transplantations were done in 2016 (children included), which is a substantial increase from previous years, although still fewer than the number of new registrants added to the waiting list (1169 new registrants added to the 600 pre-existing registrants, with 72 patients on the waiting list dying and 168 being removed because of sickness). Although 95–100% of patients survive elective transplantation, 5 year survival rates vary considerably between transplantation centres. The introduction of normothermic 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. We also recommend the introduction of presumed consent in England on the basis of results in Wales, where a quarter of donations came from presumed consent during the first 12 months after its introduction, alongside an increase in the number of all transplantations.

The aim of the new national offering sequence for donation—which is scheduled to start in December, 2017, and will mean that the first offer of an organ will no longer be 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 in acceptance of donated organs is anticipated to also decrease.

With an almost certain increase in donor organs as a result of these outcome measures, the strategic review by NHS England to be done in 2018 will consider increasing capacity either within existing centres or by establishment of new centres, as was strongly endorsed in the 2016 Commission report, with the southwest (Plymouth) and the northwest (Liverpool) being the most obvious places for consideration.

Recommendation 4: specialist paediatric services and continuity of care in transition arrangements for children with liver disease reaching adult life (metrics 1.6 and 4.1–4.3)

Table 3 shows data on the number of children born with persistent conjugated jaundice lasting longer than 14 days (in babies born at term) or 21 days (in babies born preterm) who were referred to the three national paediatric liver units between 2012 and 2017. Most babies diagnosed with extrahepatic biliary atresia were referred
before age 56 days, but the range was wide (0–242 days) and 56 children were seen after that time, too late for a benefit to be obtained from early surgery. This variation in time to referral is unacceptable, and specialist centres need more support in their efforts to improve early diagnosis.

With regard to training of physicians in continuity care for children with liver disease, 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 for Gastroenterology. No information is available about existing arrangements.

Recommendation 5: measures to reduce overall alcohol consumption in the country (metrics 5.1–5.5)

Alcohol policy, consumption, and use disorders

In England, 595,131 adults with alcohol dependency are in need of specialist alcohol treatment. Of these, an estimated 173,399 have dependency of moderate severity and 107,979 have severe dependency. 57% of adults with alcohol dependency in 2014 wanted to reduce their alcohol consumption. According to the Adult Psychiatric Morbidity Survey in 2014, 7.1 million (16.6%) adults in England were consuming alcohol at hazardous levels (>14 units per week) and a further 813,000 (1.9%) at harmful levels (>35 units per week for women and >50 units per week for men). Although the proportion of men and women who were harmful or mildly dependent drinkers did not change between 2000 and 2014, important changes were observed in different age groups, with a reduction in consumption seen in young adults aged 16–24 years (6.8% in 2000 vs 4.2% in 2014), although the exact reasons for this change were not identified.

A report by Public Health England on an evidence-based alcohol policy, which was submitted to ministers in late 2016, confirmed the findings of previous reports, most recently by the Organisation for Economic Co-operation and Development, that fiscal policy is by far the most cost-effective option for reduction of alcohol consumption, along with regulation of alcohol marketing to reduce exposure of children to market pressures. The situation in Scotland is more promising than in England, with the UK Supreme Court’s ruling on Nov 15, 2017, that Scotland can set a minimum unit price for alcohol, rejecting a challenge from the Scotch Whisky Association. The Scottish Government has indicated that minimum unit pricing will be implemented early in 2018. Wales is following a similar path, and on Oct 23, 2017, the Welsh Government introduced the Public Health (Minimum Price for Alcohol) (Wales) Bill. The comprehensive new alcohol strategy of the Irish Government includes minimum unit pricing and strict regulation of marketing, with a variant of the French loi Evin. With the Republic of Ireland and Wales moving forwards on the introduction of minimum unit pricing, England cannot be too far behind.

Alcohol consumption in the UK, which peaked at around 5,642,000 hL (hectolitres) in 2008–09, decreased when the duty escalator was introduced to around 4,843,000 hL in 2013–04, and increased again to 5,126,000 hL in 2016–17 after the duty escalator was
withdrawn.\textsuperscript{22} These changes show how responsive population alcohol consumption is to small changes in taxation and further support the Commission’s recommendation for an increase in overall alcohol taxation.

**Treatment access 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 states that “individuals and families affected by the harmful use of alcohol should have access to affordable and effective prevention and care services”.\textsuperscript{23} One study\textsuperscript{24} of psychosocial treatment for alcohol dependence in the UK showed savings to the public sector of £5 for every £1 spent. An economic analysis by Public Health England 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.\textsuperscript{19}

The number of people accessing specialist alcohol treatment in England, as recorded by the National Drug Treatment Monitoring System, has increased slightly from 107218 in 2008–09 to 113222 in 2015–16.\textsuperscript{25} In Scotland, estimates of the number of people accessing treatment show an increase in access (from 16952 in 2008–09 to 28500 in 2015–16),\textsuperscript{26} which coincided with an increase in annual investment in treatment services of £28 million. The ratio of treatment access to hospital admissions for alcohol dependency, which serves as a proxy indicator of the prevalence in the general population, decreased slightly from 1·56 in 2008–09 to 1·40 in 2015–16 in England. By contrast, in Scotland, the ratio increased considerably from 1·75 to 2·69 in the same period.\textsuperscript{27} These findings highlight the need to upgrade and fund measures for reducing levels of dependency and increasing treatment access in England.

For 2017–18, the national Commissioning for Quality and Innovation scheme,\textsuperscript{28} which includes an alcohol metric that incentivises identification of alcohol use disorders, was implemented in mental health and community trusts, with secondary care to follow in 2018–19. Hospital trusts will receive financial reimbursement when they deliver screening of 50% of adult inpatients, with 80% of those identified as above low risk receiving appropriate intervention. To support local planning and commissioning, Public Health England has published guidance,\textsuperscript{29} which includes recommendations to establish or optimise alcohol care teams in district hospitals and assertive outreach teams, to ensure prompt access to treatment services for parents identified as harmful or dependent drinkers, and to ensure agreed pathways to reduce the risks to children. It is to be hoped that the situation in England will be improved by the government’s 2017 drug strategy.\textsuperscript{30}

**Alcohol-related mortality, years of life lost, and hospital admissions**

Alcohol-related deaths in England and Wales decreased from a peak of 7312 in 2008, when the alcohol duty escalator was introduced, to 6999 by 2012, but increased to 7630 in 2016 after abolition of the alcohol duty escalator in 2013.\textsuperscript{31} Liver disease mortality and the socioeconomic deprivation index are closely associated (figure 3). Mortality is mainly seen in the middle-aged group. In 1999, liver disease surpassed lung cancer and breast cancer as the leading cause of years of working life lost, and is set to overtake ischaemic heart disease within 2–3 years (figure 4).\textsuperscript{31,32}

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 narrow measure, introduced in 2014 to compensate for changes in coding, includes only primary diagnoses and provides a lower estimate than the broad measure.\textsuperscript{33} In 2015–16, 1·1 million broad-measure admissions were recorded, representing 7% of total hospital admissions, an increase of 4% compared with the previous year. In the same period, the narrow measure increased by 3% to 339000 admissions.\textsuperscript{15} The main age group for alcohol-related hospital admissions was 45–54 years, and 61% of admissions were male. Blackpool had the highest number of alcohol-related hospital admissions (3540 per 100000 population) and Kingston upon Thames had the lowest (1400 per 100000 population).

![Heat map showing mortality per 100000 population attributable to alcoholic liver disease by age and Index of Multiple Deprivation quintile](http://dx.doi.org/10.1016/S0140-6736(17)32866-0)

The highest density of deaths is indicated by dark colours.
Recommendation 6: promotion of healthy lifestyles to reduce obesity and the burden of NAFLD (metrics 6.1–6.5)

Prevalence of child and adult obesity

New data have been added for each of the metrics in this section. Figures for the number of individuals with a BMI of 30 kg/m² or greater in England, Wales, Scotland, and Northern Ireland—derived from the Health Survey for England35 and equivalent surveys in the other three countries36–38—show a trend of increasing prevalence of obesity in adults. The prevalence of obesity in the Welsh Health Survey was lower than the prevalence in the other surveys, which might reflect use of self-reported data instead of measured height and weight in that survey.39 Comparable data on childhood obesity from across the UK are scarce, with Scotland and Northern Ireland using a different definition of obesity in their official statistics to that used by England and Wales.40 However, the available data appear to show a levelling off in the prevalence of childhood obesity, although the average figures probably conceal widening inequalities in socioeconomic distribution, by ethnicity, and in severity.41,42

The government’s childhood obesity plan,43 published in 2016, instituted a soft drinks industry levy of 18 p per litre for drinks with an added sugar content of greater than 5 g per 100 mL and 24 p per litre for those with an added sugar content of above 8 g per 100 mL.44 Evidence of the effectiveness of this approach is growing,45–49 with several manufacturers of soft drinks starting to reformulate their products. The update to the UK childhood obesity plan,50 released in August, 2017, which proposed calorie reduction in types of foods consumed by children, has not been included in a levy approach, and the absence of an obesity plan for adults remains a major concern.

NAFLD in secondary care

The annual number of finished consultant episodes for NAFLD shows steady increases in hospital activity across the four nations (figure 5). There remains a paucity of studies defining those with NAFLD at risk of progression to liver disease. The increase in liver disease burden from NAFLD is also reflected by the number of patients being listed for transplantation, with NAFLD now the second most common indication for transplantation (figure 6).

Number of primary bariatric surgery operations

Around 2 million people in the UK fulfil NICE eligibility criteria for bariatric surgery: a BMI of 35 kg/m² or higher together with an obesity-associated comorbid condition or a BMI of 40 kg/m² or higher.51 Liver disease, particularly NAFLD, is often either the indication for bariatric surgery or a comorbid diagnosis. However, despite the effectiveness of the surgical procedure in terms of reversal of diabetes and comorbid disease with substantial weight loss, fewer than 6000 operations were...
done in 2016, which was less than 0.3% of the eligible population. The most up-to-date data from the Health and Social Services Information Centre indicate an almost 10% decrease in the number of procedures since 2016.31 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 (metrics 7.1–7.5)

Number of HCV-infected patients treated with direct-acting antiviral therapies

The effectiveness, ease of use, and overall safety of new direct-acting antiviral drugs against HCV infection have enabled 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 show that the 22 HCV operational delivery networks treated 9440 cases between April, 2016, and March, 2017,33 and plans are now in place to treat 12 500 cases in 2017–18. An interim analysis of sustained virological response data from the national programme in England, completed in November, 2016, found that 92.4% of patients who were alive 3 months after cessation of therapy had a sustained virological response (Foster G, unpublished). In Scotland, 1685 patients were treated with the new direct-acting antiviral drugs between April, 2016, and March, 2017 (35% with fibrosis stage 3–4; Dillon J, unpublished). Based on preliminary data, 742 (95%) of 781 patients treated with direct-acting antiviral drugs between April, 2016, and March, 2017, in Wales had a sustained virological response (Healy B, University Hospital of Wales, personal communication). In Northern Ireland, 101 (96%) of 105 patients treated between March, 2015, and July, 2016, had a sustained virological response (McDougall N, unpublished).

Diagnosis of HCV and HBV infections

The number of laboratory-confirmed reports of HCV infection in England has been steadily increasing since the 1990s, and, in 2015, 11605 individuals tested positive for HCV.3 Consistent with this finding, test statistics from 23 sentinel laboratories showed an increase of 18.6% in the number of tests done between 2011 and 2015, although the proportion of positive results declined from 2.6% in 2011 to 1.5% in 2015.34 Surveys do not show any reduction in the number of new HCV infections, and the estimated prevalence of HCV infection in people new to drug use was 2.7% in 2016 compared with 2.3% in 2006.35 These figures suggest that, if the number of patients treated with direct-acting antiviral drugs is to be sustained, an increase in new diagnoses from pools of unrecognised infection in the country will be needed. These pools include drug addiction clinics with high levels of HCV infection, in which only around half of people who inject drugs are aware of their HCV antibody status, a figure that has remained reasonably stable over the past 6 years. Moreover, the proportion of people who inject drugs who report adequate needle or syringe provision is suboptimal, with only about half reporting adequate provision.32 The call from the WHO Global Health Sector Strategy36 to reduce new cases of chronic HCV infection by 30% by 2020 and by 80% by 2030 will be a challenge for the NHS and is unlikely to be met.

Figures for the devolved nations are more encouraging, showing substantial reduction in the number of new diagnoses. In Scotland, the number of new cases of HCV antibody positivity decreased from 1815 in 2015 to 1594 in 2016 (Dillon J, unpublished). In Wales, provisional data from laboratory reports showed a reduction in new
cases positive for HCV antibody: 531 cases were positive for HCV antibody in 2016 compared with 612 in 2015 (Healy B, University Hospital of Wales, personal communication). In Northern Ireland, reports of new laboratory-confirmed antibody positivity for 2016 were down by 13% compared with the figure for 2015 (McDougall N, unpublished).

No new data are available on the number of hepatitis B virus (HBV) infections in England since the data shown in the 2015 Lancet report. Figures for Scotland and Wales are also awaited. In Northern Ireland, 101 HBV infections were reported in 2016, including 18 new antenatal cases, compared with 91 infections in 2015, of which 11 were new antenatal cases (McDougall N, unpublished). The Unlinked Anonymous Monitoring Survey showed that the prevalence of antibodies to the HBV core antigen (anti-HBc, a marker of past or current infection) in people who inject drugs across England, Wales, and Northern Ireland declined from 26% in 2006 to 13% in 2015, although uptake of the HBV vaccine has not increased. At least 20% of people who inject drugs who have not been vaccinated for HBV are still unprotected, and, despite current patterns of immigration, HBV blood samples are not being tested routinely for hepatitis D infection.

Mortality from HCV and HBV
A 2017 report compiling data from different sources for England, Scotland, Wales, and Northern Ireland showed that the number of new cases of HCV-related end-stage liver disease or hepatocellular carcinoma remained stable at around 1875 per year (range 1809–1933) from 2011 to 2015. Deaths for which HCV was mentioned on the death certificate increased steadily from 215 in 2005 to 456 in 2014, but decreased in 2015, the first year in which new direct-acting antiviral drugs were used in advanced liver disease associated with HCV-related end-stage liver disease. Preliminary data initially suggested an 11% decrease in deaths for 2015, but this figure was subsequently revised to 3% because of high numbers of late reports of HCV-related end-stage liver disease and hepatocellular carcinoma. The provisional figures for 2016 suggested a further 7% decrease. The number of liver transplantations had also decreased, from 122 transplantations in 2014 to 83 in 2015, which is further evidence that the new drugs are already having an effect on mortality from HCV-related end-stage liver disease and primary hepatocellular carcinoma. The WHO Global Health Sector Strategy on Viral Hepatitis for 2016–21 aims to reduce HCV-related mortality by 10% by 2020 and by 65% by 2030. Achievement of this target in England will be dependent on the diagnosis of undiagnosed infections.

Mortality from chronic HBV infection, although greatly reduced after the introduction of nucleoside analogues inhibiting viral replication, is still affected by instances of viral reactivation and the long-term risk of primary hepatocellular carcinoma. With new curative drugs for chronic HBV infection in the pipeline, wider screening procedures are needed to address the unrecognised pools of chronic HBV infection in the community, including in accident and emergency departments, prisons, and services for people who are homeless.

Number of infants completing a course of HBV vaccination
Figures for 2016–17 in England are encouraging, with data from the Cover of Vaccination Evaluated Rapidly programme showing that 1908 (85%) of 2245 infants born to HBsAg-positive mothers completed a course of three vaccinations within 12 months and 1549 (69%) had completed the full course by age 2 years. Similar data from Wales showed that 50 (94%) of 53 infants had completed a course of three vaccinations by age 12 months. Universal vaccination for HBV is in place, and in July, 2017, it was announced that a new hexavalent vaccine will be introduced across the UK for babies born after Aug 1, 2017, providing protection against diphtheria, tetanus, pertussis, polio, Haemophilus influenzae type b infection, and HBV infection.

Recommendation 8: increasing awareness of liver disease in the general population, within the NHS, and, vitally, within governments; increasing the inclusion and involvement of liver patients and patient groups in new developments and ongoing work with national and local initiatives (metrics 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 to prompt early diagnosis. Over the past 5 years, 14000 protocol packs have been distributed to healthcare professionals, with an additional 35000 being downloaded from the foundation’s website. The British Liver Trust’s Love Your Liver campaign comprises an easy to use screen for the three preventable lifestyle causes of liver disease, with more than 80% of the 98237 screens completed over the past 3 years showing the presence of risks that could cause liver disease. Of 2669 people who attended a screening event, 2126 (80%) were found to be at risk of liver disease, with 496 (19%) being referred for further tests.

Progress reports from the devolved nations
Scotland
Later this year, the Scottish Government will publish an update of its alcohol strategy to improve early 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 effect of implementing minimum unit pricing, subject to the decision of The Supreme Court. With about 80% of...
the estimated number of cases of HCV infection having been diagnosed, bringing the remaining cases to treatment will involve implementation of innovative pathways of care, including delivery of treatment by community pharmacists. A pilot study (Dillon J, unpublished) of automated reflex testing of the causes of liver disease immediately on detection of abnormality in the index blood sample showed the process to be cost-effective in achieving earlier diagnosis, and this strategy is being implemented in the 14 regional NHS boards responsible for the protection and improvement of their population's health and for the delivery of frontline health-care services.

**Northern Ireland**

NICE guidelines on NAFLD and diagnosis of cirrhosis have been accepted but not fully implemented, partly due to the scarcity of resources for measurement of fibrosis by transient elastography. The regional liver unit in Belfast plans 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 transplantation service for Northern Ireland, which is based in Belfast and is in collaboration with King's College Hospital, London, is delivering 20–24 transplantations per head of the population per year, which is proportionally in line with the rest of the UK.

A care pathway for alcohol use disorders was launched by the Public Health Authority in 2017 and has been adopted by all five Health and Social Care Trusts in Northern Ireland. Additionally, plans exist 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. Funding for an alcohol assertive outreach liaison, established in the Belfast Health and Social Care Trust, has not been renewed, and no further expansion in numbers (currently 98) of alcohol specialist nurses across the five trusts has been observed.

**Wales**

The Public Health (Wales) Bill, passed on May 17, 2017, committed the Welsh Government to an obesity prevention strategy. After a series of round table events in the Senedd (National Assembly for Wales), cross-party support was obtained to commit to the WHO target date of 2030 for elimination of HCV infection. Ongoing commitment to enhancing alcohol-care teams has led to an increase in the number of alcohol liaison nurses, from 13 to 21 over the past 18 months, and four of six health boards now have an alcohol clinical lead. In response to a pilot study (unpublished), reflex testing of aspartate aminotransferase concentration when the alanine aminotransferase concentration is abnormal has been identified as a clinical priority within the GP contract for Wales for 2017–18. A GP Champion of Liver Disease, supported by the National Strategy and with a specific remit to improve adherence to the British Society of Gastroenterology guidelines on abnormal liver function tests and the development of an NAFLD pathway, has been appointed to each health board for 2 years. Finally, funding has been set aside for a data officer dedicated to improving the clinical coding of liver disease via use of the Welsh Clinical Portal.

**Conclusion**

The further increase in disease burden from excess alcohol consumption, obesity, and viral hepatitis reported in this fourth annual report of the Lancet Commission on Liver Disease in the UK is unacceptable because so little is being done to avert it. All of the measures proposed by the Commission were carefully considered, in particular the minimum unit pricing and sugar levy, which would target people at most risk of serious disease and improve their chances of good quality of life. With the support of the many institutions we have brought together in our work this year and the activity of parliamentarians, as judged by the number of questions raised in the House of Commons, it is difficult to understand how the government cannot bring in the necessary regulations to alleviate the present level of disease burden in the UK.

**Contributors**

RW was responsible for planning and providing content for the Introduction and for the writing, editing, and direction of the paper. ND was responsible for coordinating content for the paper and editing. RP, JT, NS, KM, PN, and SD contributed content to the section on primary care services. GA, MH, JDy, 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 GC-W contributed content to the section on obesity. MEC and GF contributed content to the section on viral hepatitis. AL, AT, JY, LR, and GC-W contributed to the section on awareness of liver disease. AY contributed content to the section on services in Wales. JDi and PR contributed content to the section on services in Scotland. NM contributed content to the section on Northern Ireland. AB collected all data for neonatal cholestasis from King's College Hospital and processed it for comparison with the other two centres. AB also contributed to the planning and coordination meetings of the paediatric working group.

**Declaration of interests**

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