Public Health England

Protecting and improving the nation's health

Improving liver health in the East Midlands

A call to action

About Public Health England

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Public Health England
Wellington House
133-155 Waterloo Road
London SE1 8UG
Tel: 020 7654 8000
www.gov.uk/phe
Twitter: @PHE_uk
Facebook: www.facebook.com/PublicHealthEngland

Prepared by: Ben Anderson, Ann Goodwin, Sean Meehan and Natalie Cantillon – Public Health England East Midlands
In collaboration with: Dr Stephen Ryder – Consultant Hepatologist, Nottingham University Hospitals and Chair of East Midlands Clinical Liver Network, Jonathan Gribbin – Consultant in Public Health, Nottinghamshire County Council, East Midlands Directors of Public Health including Elaine Michel, DPH Lead for Alcohol and DPH Derbyshire County Council and Mike Sandys, DPH Lead for Obesity and DPH Leicestershire County Council.

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Introduction

Liver disease is the third most common cause of premature mortality in the UK. Unlike all other major causes of mortality in the UK, liver disease mortality rates have shown a continued rise over the past half century. The liver disease mortality rate in the UK has increased by more than 400% since 1970 in contrast to a decline in mortality rate in all other chronic diseases over the same period. Comparative data from across Europe shows that this rise has not been seen in other European countries, highlighting the need to take action in the UK.

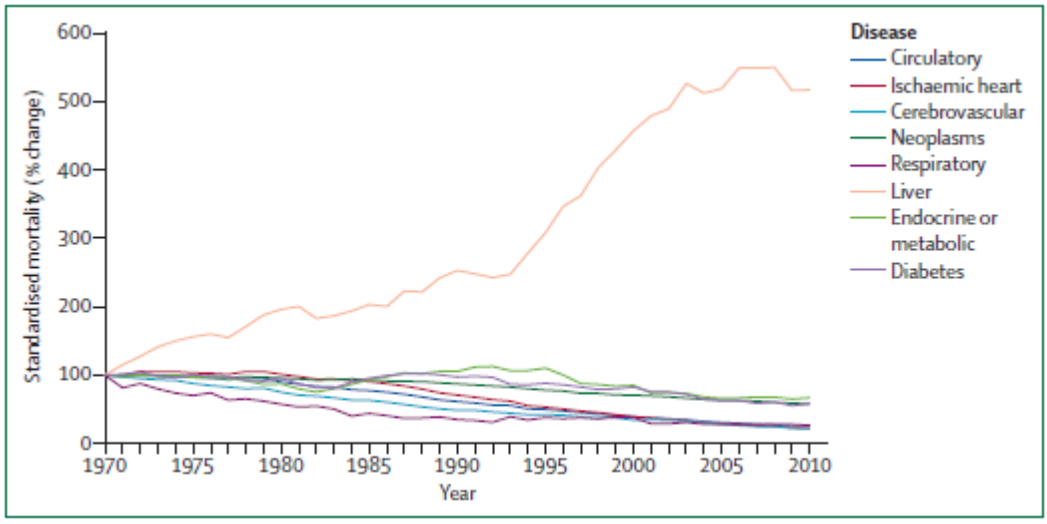


Fig 1: Standardised UK mortality rate data since 1970 for key chronic diseases – From Lancet Commission (2014)

Over the past decade the East Midlands has seen a steeper rise in premature mortality from liver disease than England as a whole with a 51% increase between 2001/03 and 2011/13. This fact is stark on its own, but when consideration is also given to the fact that 90% to 95% of liver disease is preventable the urgent need for action becomes clear.

This paper calls for action across the East Midlands to improve liver health, and draws on the evidence from the recent Lancet Commission on liver disease to identify the key actors in this fight and the key actions that they could take.

The liver is a complex organ, affected by a wide range of disease processes, however the vast majority of preventable liver disease relates to just three key risk factors:

- excessive alcohol consumption
- obesity
- viral hepatitis

While recognising the impact of genetic and autoimmune liver diseases this paper focuses on improving liver health through tackling these three preventable causes. This approach offers the greatest potential to reduce morbidity and mortality from liver disease across the East Midlands and thereby reduce demand on NHS and social care resources. In doing so, it outlines the greatest opportunity to ensure sustainable high quality liver services continue to exist in the East Midlands for those with non-preventable liver disease.

Prevention is better than cure

The cost of poor liver health to the local health and care system is significant, and the continued rise in the incidence of liver disease creates concerns with regard to rising demand and the sustainability of services. The costs of liver disease and its causes to the NHS are well documented with the British Liver Trust highlighting a doubling of alcohol related admissions since 1995 to over 800,000 per year, and an overall cost to the NHS each year of £2.7bn for care related to alcohol misuse and £4.2bn for obesity related care.

The costs to local authorities is less well documented, but data from the British Liver Trust highlights the significant burden of morbidity related to liver disease, and the fact that many patients will be living with severe disability, requiring the support of carers and social care services. When considering the responsibilities for obesity prevention and drug and alcohol treatment that transferred to local authorities with the implementation of the Health and Social Care Act coupled with the long standing responsibilities for social care and community safety it is clear that the costs to local authorities and the local economy relating to the three preventable causes of liver disease are significant.

Reducing the costs of liver disease to local health and care economies can only be achieved by turning the tide on the rising incidence of liver disease within the population.

Like the costs of liver disease and its underlying causes, the opportunities to tackle it are also shared across the health and care system. This paper sets out a number of wide ranging recommendations for action, but due to the complexity of the situation it is imperative that health and wellbeing boards take a lead role in coordinating that action for us to be able to deliver real reductions in the incidence and impact of liver disease across the East Midlands.

The NHS 5 Year Forward View (5YFV), published last year, outlines a clear need for changes within the NHS delivery model to enable management of the rising demand of preventable illness and reduce its impact on healthcare spend. With local authorities facing similar issues in providing social care, the 5YFV highlights the need for local

systems to ‘Get serious about prevention’ and work towards achieving the ‘fully engaged’ scenario described by Derek Wanless 12 years earlier. The 5YFV commits the NHS to delivering on this agenda within its own services, where it can, and working with partners where change is needed outside the areas of its responsibility.

Tackling liver disease

The following three sections focus on each of the three major preventable causes of liver disease, highlighting the scale of the challenge and the opportunities for change in each area. To maximise the impact on liver disease it will be important that coordinated action is taken across all three risk factors.

Alcohol

Scale of the challenge

Of the adult population, 85% drink alcohol, which equates to 3,092,079 adults in the East Midlands (based on 2013 population estimates). Many adults are neither aware nor understand the impact of alcohol on health and the risk of future harm it exposes them to. Of adults in the East Midlands, 73.3% (2,747,292) regularly drink above the lower risk levels, 6.7% (250,469) drink at higher risk levels, and 20% (749,909) are estimated to 'binge brink'.

Nationally 1.6 million adults show some signs of alcohol dependence. It is the third highest preventable risk factor for ill health, and it costs society £21 billion annually (health, crime, lost productivity and so on). The hospital admission rate for alcoholic liver disease in the East Midlands is 28.96 per 100,000 population or 1,287 people. The mortality rate in the East Midlands from alcoholic liver disease for people under 75 years of age is 8.81 per 100,000 population or 1,072 people.

The harm caused by alcohol is preventable through action on both a national and local level.

Alcohol remains the main cause of liver disease in the East Midlands and therefore further action is required to really turn the tide on the disease.

The Government's Alcohol Strategy includes a number of actions that will have a significant impact but more interventions are required to educate drinkers and healthcare professionals of the impact of harmful levels of consumption on the liver. This will require a joint effort between local authorities, National Health Service (NHS) providers and commissioners, and Public Health England (PHE).

What works?

Primary prevention

Managing the availability of alcohol to members of the public has been shown by academic evidence to be one of the most effective ways of managing alcohol-related harm in a population.
Of the actions to directly reduce excessive consumption of alcohol, there is a large body of evidence which states the largest effect will be achieved by tackling the consumption of cheap alcohol by setting a minimum unit price of at least 50p per unit.

Amendments to the Licensing Act 2003 made in the Police Reform and Social Responsibility Act 2011 mean that directors of public health are now a responsible authority and have a role in responding to licensing decisions in their area. Licensing is one of a range of tools that health can use to address the issues of alcohol related harm. The involvement of health within licensing work is an emerging area of practice where the evidence base informing effective practice is just starting to be developed and will continue to be grown and enhanced over time. However, unlike in Scotland, health is not a licencing objective in England.

Identification and brief advice (IBA)

Evidence supports the greater roll-out of alcohol identification and brief advice (IBA) to help reduce the health risks in people who drink above the lower-risk guidelines. This is happening through the enhanced service in primary care, the NHS Health Check and the 'making every contact count' opportunities. Research indicates that:

- higher risk and increasing risk drinkers who receive IBA are twice as likely to moderate their drinking six to 12 months after an intervention when compared to drinkers receiving no intervention
- IBA can reduce weekly drinking by 13% to 34%, resulting in an average of 2.9 to 8.7 fewer drinks per week with a significant effect on risky alcohol use
- a reduction from 50 units per week to 42 units per week will reduce the relative risk of alcohol-related conditions by some 14%, the attributable fractions (indicates the proportion of disease or injury that could be prevented if exposure to alcohol was eliminated) by some 12%, and the absolute risk of lifetime alcohol-related death by some 20%
- for every eight people who receive IBA, one will reduce their drinking to within lower-risk levels

Hospital based alcohol services

It is important that alcohol services are available in hospitals, aimed at people with substantial alcohol problems, and that clear pathways link this in-hospital care with services that continue treatment in the community.

Evidence shows that having alcohol liaison nurses and alcohol care teams in hospitals can effectively reduce readmissions by reducing alcohol consumption and improving outcomes for patients.

Specialist alcohol treatment

Dependent drinkers represent a very high-risk group for alcohol-related health harm and hospital admissions. Providing evidenced based, effective treatment for dependent drinkers may offer the most immediate opportunity to reduce alcohol-related harm and admissions. Reviewing care pathways, access times and blockages to treatment offers an opportunity to improve the local treatment system.

Alcohol dependence is a long-term condition that may involve recurring relapses even after good quality treatment. Sufferers typically also experience multiple health problems and are heavy users of health services. Treating alcohol dependence, where successful, has been shown to prevent future illnesses and reduce health service use. NICE has reviewed the clinical evidence and cost-effectiveness information, and released guidance on alcohol dependence and harmful alcohol use (http://www.nice.org.uk/guidance/CG115). This guidance outlines the need to provide a comprehensive package of treatment for dependent drinkers that includes assessment and engagement, care co-ordination, withdrawal management, psychosocial interventions, pharmacotherapy, and recovery services.

NICE has also issued clinical guidance on the diagnosis and clinical management of alcohol-related physical complications (http://www.nice.org.uk/guidance/CG100).

Non-alcoholic fatty liver disease

Overview

Almost a quarter of the population are obese and obesity levels are rising. Central obesity causes the metabolic syndrome which is characterised by diabetes (or pre-diabetes), hypertension, hyperlipidaemia and fatty infiltration of the liver. The impact of obesity on the NHS will therefore be severe as deaths and disability from vascular causes and liver disease are expected to rise substantially.

Fatty liver or non-alcoholic fatty liver disease (NAFLD) encompasses a range of clinical disorders, from fatty liver (steatosis) without major liver damage to the more serious non-alcoholic steatohepatitis (NASH). In NASH, the accumulation of fat in the liver cells is accompanied by inflammation and fibrosis that might eventually progress to cirrhosis and complications of cirrhosis including hepatocellular cancer.

Medical professionals are largely ignorant of the potential significance of and poor outcomes in people with NAFLD and that fatty liver is a marker of poorer outcome (both liver and cardiovascular) in individuals with metabolic syndrome. Furthermore, only a small proportion of the general public know that being overweight or obese increases the risk of developing liver disease.

Scale of the challenge

Estimates of the prevalence of NAFLD vary widely by study. There is some evidence to suggest disparities in prevalence rates by gender, ethnicity and BMI, but there seems to be no doubt that increasing BMI correlates with a higher risk of developing NAFLD. On a population level, estimates from recent large studies suggest that the UK prevalence of NAFLD is approximately 25% while only approximately 2% to 3% (of the general population) are thought to have progressed to NASH. This would accord with the findings of the Lancet Commission which suggests that most of the 25% of the UK population that is obese will have NAFLD, as will a small percentage of people with normal BMIs.

Prevalence in the East Midlands

The population of the East Midlands was approximately 4.5 million on the 2011 census, projected to have risen to 4,717,800 by 2015 [ONS 2012]. Applying the Lancet prevalence estimate to that total would suggest that over a million people (approximately 1,179,500) could be expected to meet the criteria for a NAFLD diagnosis

in the region, about 100,000 of whom would have the associated liver damage characteristic of NASH.

However, obesity and morbid obesity are known to be higher in the East Midlands than the national averages with 65.6% of adults classified as overweight (BMI 25-30) or obese (BMI 30-40) compared to 63.8% nationally. The higher proportion of the East Midlands population who are at risk of either having or developing NAFLD would suggest an equivalently higher prevalence (and future incidence) of NAFLD compared to national averages. However, given the degree of approximation involved in these estimates, this difference is probably not a significant one.

What works?

There is strong evidence that lifestyle change with increased physical activity and weight loss result in improvement in all the features of the metabolic syndrome including fatty liver.

Behaviour Change

Since this disease is closely associated with obesity, a more widely prevalent lifestyle-related risk factor than alcohol abuse or IV drug use the majority of those who have NAFLD will also have significant comorbidities which would benefit from behaviour-change interventions to reduce their risk of cardiovascular disease, and these interventions (exercise, weight loss, etc) will also be likely to improve the condition of their livers. To tackle liver disease and the other obesity related diseases already mentioned it will be important for all health and care providers to identify obesity and provide brief advice and motivational support, with accompanied referral to lifestyle support services where appropriate.

Environmental Change

The strong links between NAFLD and obesity highlight the benefits that could be achieved through efforts to tackle the obesogenic environment. Promoting healthier lifestyles through increased physical activity and reduced intake of foods with a high calorie density has the potential to reduce the prevalence of obesity and obesity related disease. The adoption of a whole systems approach to tackling obesity that incorporates individual identification, advice and behavioural support approaches with wider efforts to tackle the obesogenic environment is recommended.

Networking and partnerships

The recently launched East Midlands healthy weight network could play a key role in both sharing the evidence, and showcasing best practice in supporting long term behaviour change. Educating and informing the network membership would be a good start to awareness raising – firstly among public health professionals, but then potentially beyond that cohort to elected members and health and wellbeing boards. There is a need to increase understanding across all health and wellbeing agendas so that commissioning might be influenced to support the reduction of both NAFLD and NASH.

There are other partnerships that might also support this work, both the Platform for Health and Wellbeing through its East Midlands sustainable food project, and the East Midlands Health, Planning and Environment learning forum (which will be launched in April 2015).

The aim will be to place ‘reducing obesity levels’ at the centre of many activities to create an environment that supports increased physical activity and clarifies the messaging around the combined health benefits of reducing overweight and obesity.

Identifying risk factors

In view of the strong relationship between NAFLD and the combination of diabetes, high blood pressure and obesity (metabolic syndrome), screening for associated risk factors rather than detectable signs of disease has been suggested. The most important risk factors for NAFLD are male gender, age, obesity, insulin resistance/diabetes and high blood pressure. In children, confirmed NAFLD has been shown to be associated with significant risk factors for later cardiac disease, including carotid artery intima-media thickening and elevated cholesterol levels.

Taking the risk factor approach would tie the response to the challenge of NAFLD in to wider health improvement strategies, particularly that of cardiovascular disease prevention, allowing a potentially more integrative approach for an existing cohort of people who are already identified as being high risk for increased morbidity and mortality.

In the high risk group with features of the metabolic syndrome diagnosis of liver disease is poorly undertaken, this is partly due to lack of awareness of liver disease as a component of metabolic syndrome in primary care and previously routine tests with poor sensitivity and specificity for confirmation of liver disease. Enhancing awareness of this association in primary care and promoting universal use of the aspartate aminotransferase to alanine aminotransferase ratio as a marker for those with a risk of

advanced liver fibrosisfollowed by a confirmatory test for liver fibrosis has been shown to double the detection of cirrhosis in primary care settings in the East Midlands.

Awareness raising

Only a small proportion of the general public know that being overweight or obese increases the risk of developing liver disease and because of the common association of liver disease with alcoholism in the public consciousness, people diagnosed with any form of liver disease may experience lifestyle-related stigma whether or not they actually drink alcohol. Better public understanding of the complex aetiology of disease in general would obviously be desirable to reduce this kind of stigma, but given the societal prevalence of alcohol in the UK, differentiating NAFLD from fatty liver disease of other aetiologies might be somewhat akin to establishing a separate category of ‘non-smoker’s lung cancer’ in the 1950s.

Conclusion

The greatest effect on non-alcoholic fatty liver disease will come from reducing levels of obesity across the population, which in recent years has been driven by changes to the social, cultural, economic and physical environments. Changing the so-called obesogenic environment to reduce the energy consumed from food and increase opportunities for regular physical activity will need concerted action at all levels from local to national, individual to population, and across all ages.

How to tackle obesity and all its effects on health, including liver disease, presents an enormous set of challenges, but there seems to be an increasing public and political will to do so. A sufficiently powerful response, with determined action from individual level treatment (weight management programmes, bariatric surgery) to upstream population level determinants (making active travel the norm), should prevent what could be an otherwise inexorable rise in the health burden and would produce major health benefits.

Clinical guidelines that set out standards of care for non-alcoholic fatty liver disease are needed to support commissioning by health and wellbeing boards and clinical commissioning groups.

These standards should be developed together with the commitment of local budget allocations and commissioning of weight management services, and should include both early intervention programmes and provision for severe and complicated obesity, including bariatric surgery.

The early intervention programmes will begin in primary care. Patients will be triaged for the likelihood of significant liver fibrosis, by including an aspartate aminotransferase to

alanine aminotransferase ratio followed, when indicated, by a more accurate staging of liver fibrosis using transient liver elastography and the diagnostic pathway.

In complicated cases, patients identified with non-alcoholic steatohepatitis and mild or moderate liver fibrosis will be referred to designated multidisciplinary metabolic liver clinics, and possibly included in clinical trials.

Viral hepatitis

Scale of the challenge

In the two year period 2011 to 13 there were 89 premature deaths (deaths to those under the age of 75) in the East Midlands from viral hepatitis-related end stage liver disease (15 hepatitis B, 74 hepatitis C).

Of the adult population, 0.4% are estimated to be infected with hepatitis C, equating to 14,550 adults within the East Midlands. Due to the 'silent' nature of Hep C disease progression many of these individuals remain undiagnosed and, without testing, will only present once liver disease has progressed.

The Hepatitis C infection rate among people who inject drugs (PWIDs) is estimated to be between 40% and 50%, equating to 3,123 to 3,904 individuals among the 7,808 known PWIDs in the East Midlands

Of those in structured drug treatment programmes in the East Midlands in 2012/13, 18.6% were offered and received hepatitis B vaccination and 77% received hepatitis C testing.

Within the 14 East Midlands prisons in 2013, 4,249 hepatitis B vaccinations and ,688 hepatitis C tests were delivered.

Hepatitis B virus (HBV) and hepatitis C virus (HCV) are blood borne viruses (BBVs) transmitted through contaminated blood and bodily fluids. Chronic infection with either HBV or HCV over a number of years can cause significant liver damage leading to cirrhosis and in some cases liver cancer. An effective vaccine is available against hepatitis B but not hepatitis C. Intravenous drug use is a significant risk factor for both infections alongside other exposures to infected blood (such as tattooing with non-sterile needles and receipt of unscreened blood products). Hepatitis B can also be transmitted during unprotected sex and from mother to child during pregnancy and birth.

For those who do become chronically infected early identification is essential to ensure appropriate treatment. In the case of hepatitis C effective treatments exist which can clear the virus from the system. This not only prevents further liver damage for the patient, but also stops further transmission of the disease. The majority of people infected with hepatitis B will clear the infection themselves within the acute phase. For

those with chronic infection however treatment may be required to minimise the viral load and in so doing minimise liver damage and the risk of infection to others.

Through the prevention of infection and the treatment of chronic infections the vast majority of long term liver damage caused by viral hepatitis is preventable. The Lancet Commission suggests that liver disease related to viral hepatitis could be eradicated in the UK within 20 to 30 years through improved case finding, vaccination and treatment.

Achieving the ambition to eradicating liver disease caused by viral hepatitis within the East Midlands will require the coordinated efforts of local authorities, CCGs, NHS providers, the criminal justice system and the voluntary sector.

What works?

Identification, vaccination and testing for those at high risk of hepatitis B

Universal vaccination against hepatitis B is not currently deemed cost effective in the UK due to its low prevalence within the population. However, within certain sub-populations where there is a higher prevalence there is a strong case for both testing and vaccination to be performed. New migrants from high prevalence countries should be targeted before entry by visa screening and when registering with primary care, and offered HBV testing and vaccination. Similarly, hepatitis B testing and vaccination should be offered through drug and alcohol treatment services to those who are known to be at high risk of HBV infection.

Hepatitis B screening in pregnancy and prophylactic vaccination of at-risk children

Routine HBV screening has been part of the Infectious Diseases in Pregnancy Screening Programme (IDPS) since 2000. All pregnant women are offered the screening with the aim of identifying infected mothers and reducing the risk of transmission to the child.

Concerns remain that not all parents and vaccinators recognise that vaccination in these cases is being given post exposure and that the children therefore need to be followed up and the vaccination schedule closely adhered to, to deliver the best outcomes. This is demonstrated by the fact that rates of completion of a full course of vaccination among those children born to mothers identified as being HBV positive are varied across the East Midlands (77.3% to 100%).

Ensuring that all children born to hepatitis B positive mothers are identified and offered vaccination as post-exposure prophylaxis is important. With the first dose of vaccine usually offered within maternity services it is important to have a clear handover of care, and appropriate follow up in the community to ensure that further doses are

administered as per the schedule, and that anti-body testing is offered at 12 months to ascertain the child's infection status and inform further management.

Active hepatitis C case finding within high risk groups

The Lancet Commission report sets the ambition to eradicate hepatitis B and C in the UK in the next 20 to 30 years. To achieve this, a combination of treatment programmes to reduce infection prevalence and harm reduction programmes to prevent transmission of the virus by infected individuals is required. To reduce the prevalence of HCV disease within a population the successful treatment rate must exceed the rate of new infections.

The active identification of HCV positive individuals is important for both harm reduction and treatment programmes to be effective. In recent years HCV testing in drug treatment programmes has become much more widespread and systematic. The use of dried blood spot testing has made the test more acceptable and accessible, and it has now become usual to adopt a 'presumed consent' approach where patients are required to opt out of testing rather than having to opt in. For those continuing to inject drugs, regular repeat testing is necessary to reflect the continued exposure to risk.

Due to the slow progression of HCV related liver disease it may be many years between infection with the virus and the onset of symptomatic liver disease. It is estimated therefore that there is a large pool of infected individuals who are not aware of their infection status, meaning that harm reduction messages are not heeded and consideration is not given to HCV treatment programmes. Proactively identifying those with a past risk of infection is key to enabling them to access harm reduction advice to protect their families and other contacts, and also to allow them to consider treatment options.

Treatment of viral hepatitis

Hepatitis C treatment has advanced rapidly in recent years, with highly effective well tolerated treatments coming on line in recent months. These treatments are now able to offer a 90% and above cure rate, and unlike older treatments have fewer side effects and shorter treatment durations. Curing HCV infection not only prevents the progression of liver disease for that individual, but also reduces the pool of infection and the potential risk of infection for others within the same community. Despite the current high cost of treatment, this makes it a highly cost effective treatment.
Curative treatments for chronic hepatitis B infection are not yet available, but treatments do exist to control viraemia, and in doing so can lead to a reversal in liver disease and a reduced risk of infecting others.

Development of a hepatitis C disease register

Undiagnosed hepatitis C virus (HCV) infection is a continuing threat to public health and efforts to improve testing and detection rates among those at highest risk, such as injecting drug users, must continue. Our current understanding of how people diagnosed with hepatitis C progress through the care pathway is limited. With the advent of new and more effective antiviral treatments, monitoring outcomes at a population level becomes a greater priority. While there are excellent surveillance systems that capture data on new cases, there is not a universal system for collecting information on clinical treatment outcomes. Furthermore, there is no linkage between surveillance systems and the few clinical treatment databases that exist. A disease register provides a potential solution for following patients from diagnosis to completion of treatment and there are good examples of how it can significantly improve our understanding of disease trends and the impact of interventions, such as for tuberculosis and cancer. PHE and local clinicians are leading discussions on establishing a pilot for a disease register for hepatitis C in the East Midlands.

Organisational responsibility

Tackling the rise in liver disease requires action to be taken across all three risk factors discussed in this paper. Health and wellbeing boards have an important role to play in coordinating local action, with each individual member organisation also required to play their part. The following table outlines some of the key actions identified in this paper, the organisations which have roles to play in implementing the action, and the health and care settings within which that action may be required.

	Health and wellbeing boards	Local authorities	CCGs	NHS England	Public Health England	Primary care	Secondary and tertiary care
Provide leadership and coordinate action to tackle liver disease	✶	✶	✶			✶	
Alcohol							
Advocate for national measures to manage the availability of cheap alcohol, eg MUP	✶	✶	✶	✶	✶	✶	✶
Use local powers to ensure that health issues are considered in alcohol licensing	✶	✶	✶				
Ensure identification and brief advice interventions for alcohol use are	✶	✶	✶	✶	✶	✶	✶

systematically delivered in frontline health and care settings							
Ensure hospital based alcohol services such as alcohol liaison nurses and alcohol care teams are available to alcohol misusers	✶		✶	✶			✶
Ensure that specialist alcohol treatment services meeting NICE guidance are available to meet the needs of dependent drinkers	✶	✶	✶	✶	✶	✶	✶
Obesity							
Advocate for national measures to manage the availability of	✶	✶	✶	✶	✶		

high fat and high sugar content foods, eg responsibility deal, food regulation and taxation of sugar sweetened drinks							
Use local planning powers to support play and active travel and manage the availability of calorie dense fast foods	✶	✶	✶				
Ensure identification and brief advice interventions for obesity, diet and physical activity are systematically delivered in front line health and care settings	✶	✶	✶	✶	✶	✶	✶

Ensure that weight and obesity management services meeting NICE guidance are available to meet the needs of those identified as overweight and obese	✶	✶	✶				
Ensure that health, care and education professionals have access to training to support the delivery of identification and brief advice services for obesity, alcohol and drug issues		✶	✶	✶		✶	✶
Work to raise awareness of the links between obesity and liver disease	✶	✶	✶	✶	✶	✶	✶

within the population							
Develop and deliver education programmes to improve the recognition and diagnosis of fatty liver in primary care for those with elevated cardiovascular risk			✶			✶	
Develop and evaluate the use of AST/ALT ratio and other markers of fibrosis for diagnosis of NAFLD in at risk groups			✶			✶	
Viral hepatitis							
Advocate for hep B testing to be included as part of pre-entry screening for new migrants from medium	✶	✶	✶	✶			

and high prevalence countries							
Ensure that hep B screening is delivered as part of the new patient registration visit within primary care for migrants from high prevalence countries			✶			✶	
Ensure that hep B vaccination is offered to individuals at high risk of exposure, including migrants from high prevalence countries and their children			✶			✶	✶
Ensure robust pathways are in place for the provision of hep B vaccination as	✶		✶		✶	✶	✶

post exposure prophylaxis to children born to hep B positive mothers, including serology testing at 12 months of age.							
Develop active approaches to hepatitis C case finding targeted towards high risk groups to enable appropriate harm reduction and treatment	✶	✶	✶			✶	✶
Ensure hepatitis C treatment services are available at sufficient scale to reduce the pool of infection in the local	✶			✶			✶

population, and that treatment is targeted to achieve the greatest reduction in morbidity and risk of transmission							
Develop and evaluate a hepatitis C disease register for the East Midlands to connect data on case finding and treatment outcomes			✶	✶	✶		✶

Appendix 1: the burden of liver disease in the East Midlands − a briefing

Death rates from liver disease are increasing in England, in contrast to most European Union countries where liver disease death rates are falling. Between 2001 and 2012 the number of people who died with an underlying cause of liver disease in England rose from 7,841 to 10,948. This represents a 40% increase.

Liver disease is largely preventable, most liver disease is due to three main risk factors: alcohol, obesity and viral hepatitis.

East Midlands facts

There has been a 51% rise in the number of premature deaths due to liver disease in the East Midlands between 2001 to 03 and 2011 to 13, rising at a steeper rate than England.

In the East Midlands, 774,299 (16.95%) people live in the most deprived fifth of the population of England, ranging from 0 (0%) in Rutland to 161,318 (52%) in Nottingham City.

There were 4,858 hospital admissions due to liver disease in the East Midlands in 2012/13, which equates to 93 admissions per week or 13 admissions per day.

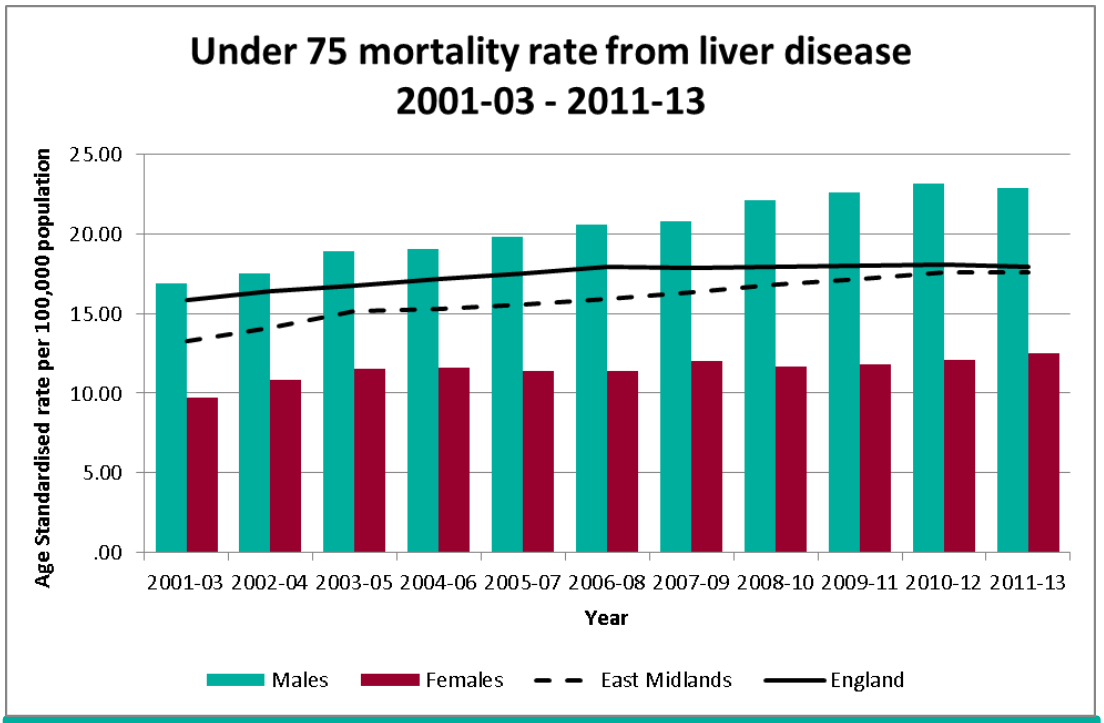
Since 2001, 19,743 people in the East Midlands died prematurely from liver disease; the trend has been rising since 2001 in all local authorities.

The burden of liver disease is increasing in the East Midlands; there were 713 more deaths due to liver disease in 2011 to 2013 compared with 2001 to 2003.

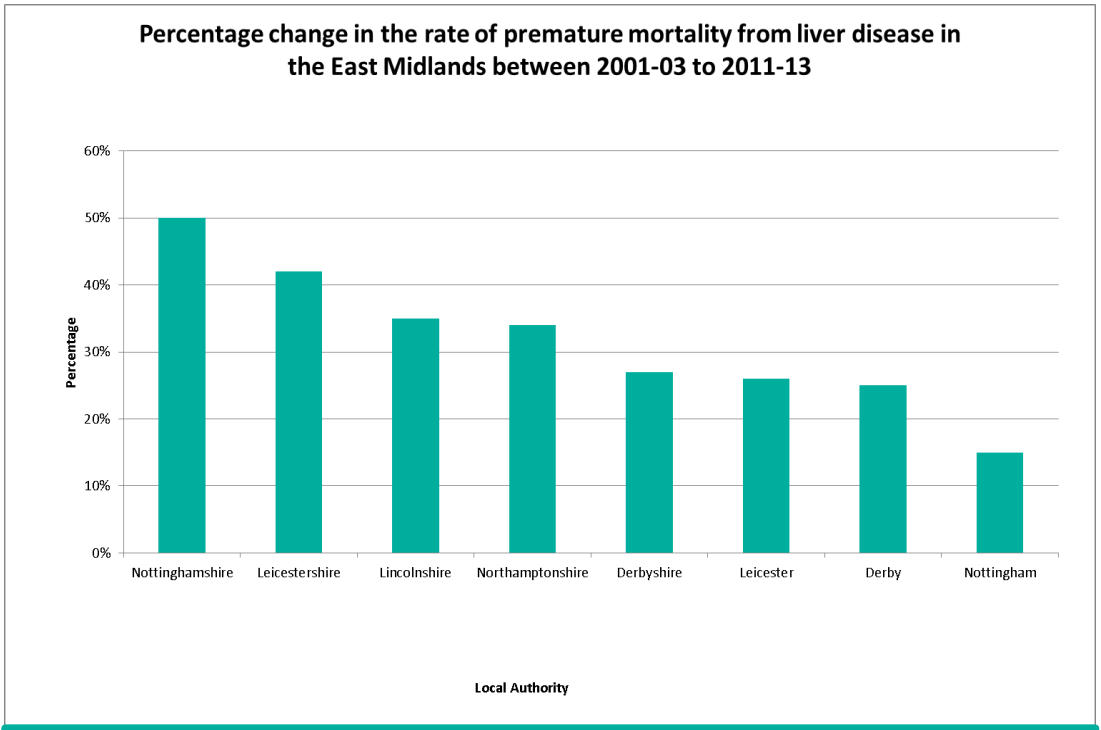
In the last ten years there has been a 33% increase in the mortality rate. Most liver disease deaths are from cirrhosis (a hardening and scarring of the liver) or its complications; people die from liver disease at a young age with 90% dying under 70 years of age and more than one in 10 dying in their 40s.

Liver disease is the third biggest cause of premature mortality and lost working life behind ischaemic heart disease and self-harm.
Most liver disease is preventable, Only about 5% of deaths are attributable to autoimmune and genetic disorders while over 90% are due to the three main risk factors: alcohol, viral hepatitis and obesity.

Liver disease, and death from it, is associated with stigma mainly because of the risk factors. This sometimes makes it hard for the patients to access care and hard for the families, especially in bereavement. Seven in ten patients with liver disease die in hospital and, while one in five of those who die have had five or more admissions to hospital in the last year of life, one in five are admitted only once and die in that first admission and 4% die in A&E without getting admitted to hospital. This reflects the often dramatic complications accompanying death from liver disease.



Premature mortality from liver disease is rising at a faster rate in the East Midlands than in England as a whole, although it is still below the national average.



Although the East Midlands cities have the highest rate of premature mortality due to liver disease, the counties have shown the greatest increase between 2001-03 to 2011-13.

Indicator	Period	England	East Midlands region	Derby	Derbyshire	Leicester	Leicestershire	Lincolnshire	Northamptonshire	Nottingham	Nottinghamshire	Rutland
Hospital admission rate due to liver disease (Male)	2012/13	142.8	136.8	171.4	119.0	156.2	92.7	117.7	129.9	321.9	149.0	47.5
Hospital admission rate due to liver disease (Female)	2012/13	85.1	86.0	99.8	78.0	93.4	70.9	73.1	75.2	183.4	94.0	56.4
Hospital admission rate due to liver disease (Persons)	2012/13	113.0	110.9	134.8	98.1	124.9	81.7	94.8	101.6	252.1	120.9	52.3
Under 75 mortality rate from liver disease (Male)	2011 - 13	23.6	22.9	31.9	20.5	40.3	18.0	20.4	22.5	37.6	21.4	*
Under 75 mortality rate from liver disease (Female)	2011 - 13	12.5	12.5	14.8	11.9	13.5	11.0	10.2	14.0	19.4	12.9	*
Under 75 mortality rate from liver disease (Persons)	2011 - 13	17.9	17.6	23.2	16.2	26.7	14.4	15.2	18.2	28.6	17.1	*

Nottingham city has the 2nd highest rates of admission due to liver disease in England, at over twice the national rate (252.1 per 100,000 in Nottingham compared to 113.0 per 100,000 in England).

Nottingham city has the 8th highest rate of premature mortality from liver disease nationally at 28.6 per 100,000.

Hepatitis

Hepatitis B is a virus which is transmitted through contact with infected blood or other body fluids. Most acute infections are acquired through adult risk behaviours such as injecting drug use and sexual contact. The risk of developing chronic hepatitis B infection depends on the age at which infection is acquired; chronic infection occurs in up to 90% of children who acquire the infection under the age of five years and up to 10% of people infected as adults.

Those who are chronically infected are at risk of developing chronic liver disease and liver cancer. In the UK, annually the majority (95%) of newly identified chronic hepatitis B infections are acquired overseas at birth or at a young age. The prevalence of chronic hepatitis B infection in the UK is estimated to be 0.3%. Hepatitis B vaccines are available and highly effective, and immunisation is recommended for high risk groups.

Hepatitis C virus transmission is mainly through contaminated blood. Injecting drug use is the most important risk factor for infection within the UK. Hepatitis C is often asymptomatic, and symptoms may not appear until the liver is severely damaged. Around 20% to 30% of infected people clear their infection naturally within the first six months. For the remainder, hepatitis C is a chronic infection which can lead to liver disease.

The overall prevalence of chronic hepatitis C infection in England is estimated to be around 0.4% in adults. NICE-approved therapies exist for the treatment of hepatitis C that will clear the virus in the majority of cases.

Key facts in the East Midlands:

- 7,808 people inject drugs.
- 18.6% of those on structured drug treatment in 2012-13 completed a course of hepatitis B vaccination
- 15 people died prematurely from hepatitis B related end stage liver disease in 2011-13
- 74 people died prematurely from hepatitis C related end stage liver disease in 2011-13
- the proportion of people in 2012-13 who inject drugs, who are in their latest treatment episode at specialist drug services, and who are being offered and taking up a hepatitis C test is 77% − the highest in the country.
- the hospital admission rate for hepatitis B (0.48 per 100,000) and C (2.12 per 100,000) related end-stage liver disease is significantly lower than in England (hepatitis B 0.96, hepatitis C 3.53 per 100,000)

- in the 14 prisons in 2013 4, 249 prisoners were vaccinated against hepatitis B and 1,688 prisoners were tested for hepatitis C

Indicator	Period	England	East Midlands	Derby	Derbyshire	Leicester	Leicestershire	Lincolnshire	Northamptonshire	Nottingham	Nottinghamshire	Rutland
Population vaccination coverage - Hepatitis B (2 years old)	2012/13	*	*	93.3*	64.1*	*	*	9.1*	88.9*	81.3*	*	*
Persons in structured drug treatment - Percentage completing a course of hepatitis B vaccination	2012/13	17.9	18.6	27.4	27.1	4.3	12.9	6.6	13.3	21.1	21.2	*
Hospital admission rate for hepatitis B related end-stage liver disease/hepatocellular carcinoma	2012/13	0.96	0.48	*	*	*	0.00	*	1.00	*	0.00	0.00
Under 75 mortality rate from hepatitis B related end-stage liver disease/hepatocellular carcinoma	2011 - 13	0.147	0.119	0.144	0.047	0.639	0.055	0.000	0.256	0.000	0.046	0.000
Persons who inject drugs - Percentage who have received a hepatitis C test	2012/13	70.3	77.1	56.3	66.5	86.2	88.3	85.8	50.4	81.2	87.0	70.0
Hospital admission rate for hepatitis C related end-stage liver disease/hepatocellular carcinoma	2012/13	3.5	2.1	5.6	1.7	1.8	*	1.0	3.3	5.8	1.4	0.0
Under 75 mortality rate from hepatitis C related end-stage liver disease/hepatocellular carcinoma	2011 - 13	0.59	0.59	0.58	0.42	0.85	0.39	0.56	1.02	0.69	0.41	0.00
People who inject drugs	2011/12	2.49*	2.62*	4.89*	2.71*	2.72*	0.96*	2.48*	1.99*	3.53*	3.58*	0.26*

**data supressed for disclosure control due to small numbers*

Alcoholic liver disease

Alcohol is the most common cause of liver disease in England. Alcoholic liver disease accounts for over a third (37%) of liver disease deaths nationally. The more someone drinks, the higher their risk of developing liver disease. The UK is one of the few European countries where alcohol consumption has risen in the last 50 years.

Key facts in the East Midlands

- 13,464 alcohol specific hospital admissions in the East Midlands, 259 per week
- 1,287 hospital admissions due to alcoholic liver disease in the East Midlands, 3.5 per day, 25 per week
- 1,072 people died prematurely from alcoholic liver disease in the East Midlands in 2011−2013
- Nottingham city has the third highest rate of admissions for alcoholic liver disease nationally
- premature mortality from alcoholic liver disease in males is significantly worse in our East Midlands cities than the England average with Nottingham and Leicester in the worst 10 nationally (8th and 9th respectively) .

Indicator	Period	England	East Midlands	Derby	Derbyshire	Leicester	Leicestershire	Lincolnshire	Northamptonshire	Nottingham	Nottinghamshire	Rutland
Alcohol specific hospital admissions (Male)	2012/13	507	447	520	432	571	280	391	329	709	415	252
Alcohol specific hospital admissions (Female)	2012/13	232	218	242	227	183	149	182	173	324	212	159
Alcohol specific hospital admissions (Persons)	2012/13	365	330	379	326	374	212	283	249	515	311	205
Hospital admission rate for alcoholic liver disease (Male)	2012/13	44.3	44.6	57.2	34.2	53.9	27.0	25.7	31.6	146.4	41.8	*
Hospital admission rate for alcoholic liver disease (Female)	2012/13	19.8	19.5	26.3	18.8	20.3	8.8	9.4	19.0	41.6	21.1	0.0
Hospital admission rate for alcoholic liver disease (Persons)	2012/13	31.8	31.8	41.5	26.4	37.0	17.7	17.3	25.2	94.5	31.3	*
Under 75 mortality rate from alcoholic liver disease (Male)	2011 - 13	11.8	11.8	20.5	10.0	22.3	9.6	9.2	12.5	22.5	9.3	1.9
Under 75 mortality rate from alcoholic liver disease (Female)	2011 - 13	5.9	5.9	8.4	6.0	6.5	5.1	4.1	7.0	7.9	5.7	0.0
Under 75 mortality rate from alcoholic liver disease (Persons)	2011 - 13	8.7	8.8	14.4	8.0	14.3	7.3	6.6	9.7	15.2	7.5	0.9

Non-alcoholic fatty liver disease

Obesity is an important risk factor for liver disease because of its links to non-alcoholic fatty liver disease (NAFLD). The rate of fatty liver disease is projected to increase as the rates of obesity increase.

Key facts in the East Midlands:

- 165 people in the East Midlands were admitted to hospital with non-alcoholic fatty liver disease in 2012-13
- 73 people died prematurely from non-alcoholic fatty liver disease in the East Midlands in 2011-13
- almost two thirds of adults in the East Midlands are overweight or obese (65.6%)
- almost one third of 10-11-year-old children in the East Midlands are overweight or obese (32.73%)
- Derby city has the 6th highest rate of admission for NAFLD nationally (7.18 per 100,000 population) and Nottingham City the 9th highest rate (6.15 per 100,000 population)

Indicator	Period	England	East Midlands	Derby	Derbyshire	Leicester	Leicestershire	Lincolnshire	Northamptonshire	Nottingham	Nottinghamshire	Rutland
Excess Weight in Adults	2012	63.8	65.6	64.1	66.9	57.0	65.4	68.2	67.5	60.7	66.4	65.6
Excess weight in 4-5 and 10-11 year olds - 10-11 year olds	2013/14	33.5	32.2	34.6	31.0	35.5	30.1	33.4	30.9	37.8	31.0	29.2
Hospital admission rate for non-alcoholic fatty liver disease (NAFLD)	2012/13	2.9	3.6	7.2	4.4	*	2.1	4.5	1.3	6.2	4.6	0.0
Under 75 mortality rate from non alcoholic liver disease (NAFLD)	2011 - 13	0.84	0.78	0.87	1.04	0.75	0.72	0.97	0.92	0.69	1.38	0.00

The National Liver Profiles

The Liver Disease Profiles, provide an invaluable resource relating to one of the main causes of premature mortality nationally; a disease whose mortality rates are increasing in England, while decreasing in most EU countries.

Incorporating disease-specific key factual information, evidence-based, practical prevention strategies which can be implemented locally, questions for you to ask at a local level to help assess local provision, and a useful set of resources and links for more in-depth study of the topics prevented.

*All data taken from the Liver Profiles datagateway.phe.uk
It covers the East Midlands former Government Office Region. Admission data 2012-13, mortality data 2011-13

Resources

- Health First: An evidence-based alcohol strategy for the UK. http://www.stir.ac.uk/media/schools/management/documents/Alcoholstrategy-updated.pdf
- Local Alcohol Profiles for England http://www.lape.org.uk/
- Longer Lives: http://longerlives.phe.org.uk/
- National Institute for Health and Care Excellence. Public health guidance Alcohol-use disorders – preventing harmful drinking. http://www.nice.org.uk/guidance/PH24
- National Confidential Enquiry into Patient Outcome and Death: Alcohol Related Liver Disease: Measuring the Units: http://www.ncepod.org.uk/2013arld.htm
- The Alcohol Learning Centre http://www.alcohollearningcentre.org.uk/
- Obesity Knowledge and Intelligence Team: http://www.noo.org.uk/
- National Institute for Health and Care Excellence: Obesity: Guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children: http://publications.nice.org.uk/obesity-cg43
- Healthy weight, healthy lives: A toolkit for developing local strategies http://www.fph.org.uk/healthy_weight,_healthy_lives%3A_a_toolkit_for_developing_local_strategies
- Academy of Medical Royal Colleges Measuring Up: The Medical Profession's Prescription For The Nation's Obesity Crisis: http://www.aomrc.org.uk/doc_download/9673-measuring-up
- NICE public health guidance PH 43. Hepatitis B and C: ways to promote and offer testing to people at increased risk of infection. http://www.nice.org.uk/guidance/ph43
- NICE clinical guidelines CG165. Hepatitis B (chronic): Diagnosis and management of chronic hepatitis B in children, young people and adults. http://www.nice.org.uk/guidance/cg165/resources/guidance-hepatitis-b-chronic-pdf

- Department of Health. Immunisation against Infectious Disease (The Green Book) 2013. Hepatitis B: chapter 18: https://www.gov.uk/government/publications/hepatitis-b-the-green-book-chapter-18
- NICE quality standards QS65. Quality standards for hepatitis B: http://www.nice.org.uk/guidance/qs65
- Hepatitis C in the UK - 2014 report. https://www.gov.uk/government/publications/hepatitis-c-in-the-uk
- Commissioning template for estimating HCV prevalence and numbers eligible for treatment by Drug Action Team Area. https://www.gov.uk/government/publications/hepatitis-c-commissioning-template-for-estimating-disease-prevalence
- NICE public health guidance PH 43. Hepatitis B and C: ways to promote and offer testing to people at increased risk of infection. http://www.nice.org.uk/guidance/ph43
- NICE public health guidance PH52. Needle and syringe programmes. http://www.nice.org.uk/guidance/PH52