Hepatitis C Good Practice Roadshow

Friday 23 October 2015
Birmingham
Welcome and introduction and setting the scene

*Dr Fu-Meng Khaw, Chair, Viral Hepatitis Leads Group and East Midlands Centre Director, Public Health England*

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Hepatitis C: the disease

- 80% people with acute HCV infection have no symptoms.
- 20% with symptoms may experience
  - loss of appetite
  - abdominal pain
  - Fatigue
  - Nausea
  - dark urine
  - jaundice
- 80% of those infected will develop chronic HCV, the most common symptom being fatigue;
- 10-20% of those with chronic infection will develop severe liver disease (cirrhosis & hepatocellular carcinoma)
Hepatitis C: epidemiology

- About 2%-3% (130-170 million) world population infected
- 3-4 million new infections per year
- >350,000 deaths per year from hepatitis C related liver disease
Global distribution: WHO estimates

- African region: prevalence up to 10%
- Americas: between 7 & 9 million exposed (Ab +)
- Eastern Mediterranean region: 1-4.6% prevalence but >20% in Egypt and Pakistan (overall about 17 million)
- **European region:** from 0.4% (Sweden, England) to >2%-3% in some Mediterranean countries
- South East Asia region: 30 million with chronic infection
- Western Pacific region: from 1%-2% to as high as 4.4% (Taiwan) and 2%-3% (Vietnam)
Hepatitis C Global Distribution

MAP 3-5. DISTRIBUTION OF HEPATITIS C VIRUS INFECTION

Hepatitis C in England

- Around 160,000 adults with chronic infection (prevalence in adult population: 0.4%)
- Around 90% of new infections are amongst people who inject drugs (PWID)
- Around half of people who inject psychoactive drugs are thought to be infected, with around 1 in 7 sharing needles/syringes
- **Around 3% (5,000) of people with chronic infection are treated each year**

PHE hepatitis C in the UK, 2014 report
Rising trend in liver disease mortality

Lancet Commission – Liver Disease
France and Italy have seen a **dramatic reduction in liver mortality** whereas the UK and Finland have seen liver deaths **rise more than fivefold**.

A steady fall in cirrhosis deaths in France over the last 30 years corresponds to a proportionate **fall in alcohol consumption** over the period.

Conversely, a 33% reduction in Finnish alcohol taxation in 2004 resulted in soaring rates of liver disease.
Hospitalisations

UK data on HCV end stage liver disease

Deaths

Hepatitis C in the UK 2014

188 UK liver transplant first registrations in 2013 with post HCV cirrhosis. This has risen from 45 in 1996

2390 The number of UK hospital admissions in 2012 with HCV related end stage liver disease

428 Hepatitis C related deaths have risen from 98 in 1996 to 428 in 2012
How are we doing in tackling hepatitis C?

- Nearly 10,850 individuals are currently living with HCV-related cirrhosis or HCC in England.
- Modelling predicts that this figure will rise to 13,590 in 2025 with existing treatment rates.
Tackling hepatitis C

Four action areas

• Prevention of new infections
• Increasing awareness of infection
• Increasing testing and diagnosis
• Getting diagnosed individuals into treatment and care

Progress

↓ Mortality from liver disease
↓ Mortality from causes considered preventable
↓ Mortality from cancer
↓ Mortality from communicable diseases
↑ Successful completion of drug treatment
↑ Early diagnosis of cancer
↓ Inequalities
↑ Quality of life for those with long-term conditions
↑ Recovery from ill health
↓ Prevention of premature mortality
↑ Positive experience of care
Tackling Hep C: Impact of scaling up treatment on the predicted burden of ESLD/HCC

![Graph showing impact of different treatment scenarios on the predicted burden of ESLD/HCC over the next 10-15 years.](image-url)
Tackling hepatitis C: What can be achieved with new therapies?

- Improved outcomes
  - Improved SVR (cure), particularly in many previously considered hard-to-treat groups including genotype 1 infections, those with advanced disease, older patients, and those who have failed previous treatment.

- Fewer hospitalisations/deaths for ESLD/HCC
  - Being able to treat those in advanced disease states is key (previously low SVR rates in cirrhotics)

- Widespread uptake
  - Greater patient acceptability and easier to roll out in community settings (accessibility) as drugs have fewer side effects, shorter courses and are easier to administer (all-oral, interferon free)

- Reductions in prevalence of HCV

- Interrupting transmission
Tackling hepatitis C: Treatment alone is not enough

• Prevention services need to be maintained alongside scale up of treatment
  • Coverage with opiate substitution therapies (OST) and needle and syringe programmes (NSP) need to be maintained to prevent new infections in PWID

• Improved testing and diagnosis to identify those who will benefit from treatment and other interventions
  • NICE recommends targeted testing of hepatitis C in primary care, prisons and immigration removal centres, sexual health and GUM clinics as these are likely to be cost-effective public health interventions*

* NICE guidelines [PH43] Hepatitis B and C - ways to promote and offer testing to people at risk of infection, Dec 2012
Tackling hepatitis C: Challenges…

• No vaccine (and no prospective of a vaccine either).
• New therapies may be cost effective but are expensive.

• Hep C treatment services
  • Improve Access
  • To all those who need them

• Increase detection
  • Increase awareness,
  • Increase testing rates
  • Improve early detection

• Under existing systems, investment in hep C prevention, diagnosis and treatment services in England is largely determined locally and money is tight

• Improve surveillance to monitor progress and take action
  • Disease registration may help
Conclusions

• Important social determinants which need to be taken into consideration when re-design services
• Opportunities for collaborative action to lead to significant public health gain
• Role of local government critical to the success of control activities
• PHE will act locally and support nationally in tandem with our key partners
Sometimes, even if I stand in the middle of the room, no one acknowledges me.
Click here to read my hepatitis C story

Name: Dean
Genotype: Unknown
Contracted HCV: Injecting drug use
Treatment: When interviewed, was five months into treatment with pegylated interferon and ribavirin.
Outcome: Still in treatment at time of story

"It's good for people to know things aren't always what they look like."
Hepatitis C Epidemiology in the West Midlands

Dr Mamoona Tahir
Consultant in Communicable Disease Control
West Midlands East Health Protection Team
Public Health England
Hepatitis C: the disease - 80/20 rule

- 80% people with acute HCV infection have no symptoms. 20% might experience a-specific symptoms: loss of appetite, abdominal pain, fatigue, nausea, dark urine, and jaundice.

- 85%-80% of infected people will develop chronic HCV, the most common symptom being fatigue.

- Severe liver (cirrhosis & hepatocellular carcinoma) disease develops in about 10%-20% of chronically infected people.
Global Epidemiology

- 130 - 150 million world population infected

- WHO estimates that about 3% of the world’s population has been infected

- Approximately 500,000 deaths/year from hepatitis C related liver disease (cirrhosis & hepatocellular cancer)

Source: World Health Organization
http://www.who.int/mediacentre/factsheets/fs164/en/
Global distribution: WHO estimates

- African region: prevalence up to 10%
- Americas: between 7 & 9 million exposed (Ab +)
- Eastern Mediterranean region: 1-4.6% prevalence but >20% in Egypt and Pakistan (overall about 17 million)
- European region: from 0.4% (Sweden, England) to >2% - 3% in some Mediterranean countries
- South East Asia region: 30 million with chronic infection
- Western Pacific region: from 1%-2% to as high as 4.4% (Taiwan) and 2%-3% (Vietnam)
Hepatitis C in the UK

- Around 214,000 individuals are chronically infected
- Deaths from hepatitis C related end stage liver disease and liver cancer have doubled in the last decade
- Injecting drug use is the most important risk factor; in England and Wales 50% of PWID are thought to be infected
- Data on treatment initiation shows that the majority of chronically infected people are not treated successfully in spite of new, highly effective drugs which have the potential to cure most infected people

HCV At Risk Groups

**PARENTERAL**
Recipients of infected blood products
Invasive procedures with poor infection control

**VULNERABLE GROUPS**
PWID
Intranasal drug use.
Current/ex-prisoners, young offenders, homeless, living in hostels, sleeping on the streets.
people with HIV

**GEOGRAPHY**
People born or brought up in a country with an intermediate or high prevalence (2% or greater) of chronic hepatitis C.

**VERTICAL**
Babies of HCV +ve mothers

**HORIZONTAL**
Close contacts of known HCV sufferer

**SEXUAL**
People with HCV +ve sexual partners
Men who have sex with men
Laboratory reports

Number of laboratory reports of hepatitis C, West Midlands residents, 2005-2014

Data are assigned to PHE centre by patient postcode where present; if patient postcode is unknown, data are assigned to PHE centre of registered GP practice; where both patient postcode and registered GP practice are unknown data are assigned to PHE centre of laboratory. Source: Public Health England, Hepatitis Department Database
Laboratory reports

Laboratory reports of hepatitis C per 100,000 population, residents of West Midlands and England, 2005-2014

Data are assigned to PHE centre by patient postcode where present; if patient postcode is unknown, data are assigned to PHE centre of registered GP practice; where both patient postcode and registered GP practice are unknown data are assigned to PHE centre of laboratory. Source: Public Health England, Hepatitis Department Database
Laboratory reports

Directly standardised rate of laboratory reports of hepatitis C per 100,000 population by upper tier local authority of residence, 2013 and 2014

Source: Public Health England, Hepatitis Department Database
Number of South Asians individuals tested and % testing positive for anti-HCV in the West Midlands sentinel laboratory, 2010-2014

Note: NamPehchan was used to identify individuals of South Asian origin as ethnicity is not routinely available from the participating laboratory information systems. Source: Public Health England, Sentinel Surveillance of Hepatitis C Testing.
Age and gender

Age-group and gender of individuals testing positive for anti-HCV in the West Midlands sentinel laboratory. 2010-2014

Estimated burden in the West Midlands

17,823 estimated total infected population

- 60% of whom estimated already diagnosed
- 31% previously injected drugs but no longer do
- 35% currently inject drugs
- 34% never injected drugs (64% of whom are Indian, Pakistani or Bangladeshi)

12,298 (69%) estimated HCV RNA positive

Hospital admissions

Individuals with hepatitis C, HCV-related ESLD and HCV-related HCC, West Midlands residents, 2008-14 (note different scales on each chart)

Diagnosis of hepatitis C

Diagnosis of HCV-related end-stage liver disease

Diagnosis of HCV-related hepatocellular carcinoma

Source: Health and Social Care Information Centre, Hospital Episode Statistics (HES)
Transplants

First registrations for a liver transplant where post-hepatitis C cirrhosis was the primary, secondary or tertiary indication for transplant, West Midlands residents, 2000-2014

Note: Figures are based on registry data as at 9th April 2015. Source: NHS Blood and Transplant, UK Transplant Registry.
Mortality

Rate of deaths from ESLD or HCC in those with HCV mentioned on their death certificate by PHE centre per 100,000 population, 2008-2014
Trends in testing and positivity

Number of individuals tested and % testing positive for anti-HCV in the West Midlands sentinel laboratory, 2010-2014

Anti-HCV testing in the West Midlands sentinel laboratory

• 61% of testing takes place in primary services including General Practice (29%) and GUM clinics (25%)

• 39% of testing takes place in secondary services

• Positivity is highest in Drug Dependency Services (7.4%)

Testing of people who inject drugs (PWID)

Hepatitis C test uptake amongst people who inject drugs and their awareness of infection, West Midlands, 2003/4-2014

Source: Public Health England, Unlinked Anonymous Monitoring Survey of HIV and Hepatitis in PWID
Testing of people who inject drugs (PWID)

Percentage of eligible drug treatment service clients who received a HCV test, West Midlands, 2014-15

Source: Public Health England, National Drug Treatment Monitoring System
Testing in prisons

Percentage of receptions tested for hepatitis C within 31 days, prisons in the West Midlands, 2013

Source: NHS Trust Development Authority, Prison Health Reporting System.
Harm reduction

Level of direct and indirect sharing amongst people who inject drugs, West Midlands region, 2003/4-2014

Source: Public Health England, Unlinked Anonymous Monitoring Survey of HIV and Hepatitis in PWID
Tackling hepatitis C

Four action areas

• Prevention of new infections
• Increasing awareness of infection
• Increasing testing and diagnosis
• Getting diagnosed individuals into treatment and care

Progress

Mortality from liver disease
Mortality from causes considered preventable
Mortality from cancer
Mortality from communicable diseases
Successful completion of drug treatment
Early diagnosis of cancer
Inequalities
Quality of life for those with long-term conditions
Recovery from ill health
Prevention of premature mortality
Positive experience of care
Tackling hepatitis C

What can be achieved with new therapies?

• Improved outcomes - SVR
• Fewer hospitalisations/deaths for ESLD/HCC
• Widespread uptake due to fewer side effects
• Reductions in prevalence of HCV
• Interrupting transmission
Tackling hepatitis C

Treatment alone is not enough

- Prevention services need to be maintained alongside scale up of treatment Coverage with opiate substitution therapies (OST) and needle and syringe programmes (NSP) need to be maintained to prevent new infections in PWID
- Improved testing and diagnosis to identify those who will benefit from treatment and other interventions
  NICE recommends targeted testing of hepatitis C in primary care, prisons and immigration removal centres, sexual health and genito-urinary medicine clinics as these are likely to be cost-effective public health interventions*

*NICE guidelines [PH43] Hepatitis B and C - ways to promote and offer testing to people at risk of infection, Dec 2012
Challenge

• Asymptomatic infection
• Population affected are marginalised and lack a voice
• Awareness levels are poor amongst population
• Managing the affect of inaction in previous years with continued transmission
• Preventive services – financial constraints
• Patient identification will impact on costs
• Increasing Liver mortality
Tackling hepatitis C

Challenges

• No vaccine

• New therapies may be cost effective but are expensive

• Hep C treatment services need to be re-structured country-wide so they are accessible to all those who need them.

• Asymptomatic nature means large numbers are undiagnosed: increased awareness, testing & diagnosis are required.

• Under existing systems, investment in hep C prevention, diagnosis and treatment services in England is largely determined locally and money is tight.

• Surveillance needs to improve to allow monitoring of progress
Conclusions

• Important social determinants which need to be taken into consideration when re-design services

• Opportunities for collaborative action to lead to significant public health gain

• Role of local government and NHS critical to the success of control activities
Treatment of Hepatitis C and possibilities for elimination

Andy Holt  Ph.D FRCP
Consultant Hepatologist
Clinical Service Lead, Dept. Hepatology and Liver Transplantation
The Liver Unit,
Queen Elizabeth Hospital
Liver disease is the 3rd most common cause of premature death in the UK (<75)
HCV impacts significant patient numbers in the UK\textsuperscript{1}

<table>
<thead>
<tr>
<th>Location</th>
<th>Total HCV Infection</th>
<th>New diagnosis per year (2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Ireland</td>
<td>4,000\textsuperscript{3}</td>
<td>134\textsuperscript{1}</td>
</tr>
<tr>
<td>Wales</td>
<td>12,000\textsuperscript{4}</td>
<td>480\textsuperscript{1}</td>
</tr>
<tr>
<td>Scotland</td>
<td>37,600\textsuperscript{1}</td>
<td>1,991\textsuperscript{1}</td>
</tr>
<tr>
<td>England</td>
<td>160,000\textsuperscript{1}</td>
<td>10,873\textsuperscript{1,5}</td>
</tr>
</tbody>
</table>

‘Hot-spots’ for HCV include\textsuperscript{2}

- London
- Manchester
- Bristol
- Lancashire
- Blackburn
- Blackpool
- Liverpool
- Birmingham

90% G1 or G3

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Deaths from HCV in the UK

ESLD* or HCC mentioned on the death certificate in the UK: 1996–2013

ESLD = end-stage liver disease; HCC = hepatocellular carcinoma
* Defined by codes or text entries for ascites, bleeding oesophageal varices, hepatorenal syndrome, hepatic encephalopathy or hepatic failure

HCV mortality and registrations for transplantation

**Number of deaths from ESLD* of HCC in those with HCV mentioned on their death certificate by PHE Centre 2008 - 2013** per 100,000 population**

- 2.010596 - 2.694348
- 2.694349 - 3.372099
- 3.372100 - 4.049849
- 4.049850 - 4.727599
- 4.727600 - 5.405349

**These figures are based on registry data as at 2nd July 2014.**

Data source: NHS Blood and Transplant UK Transplant Registry

HPA: Hepatitis C in the UK: 2014 report
Estimated number of people living with HCV-related cirrhosis or decompensated cirrhosis/HCC in England: 2005-2030

HPA: Hepatitis C in the UK: 2014 report
TREATMENT TIMELINE OF CHRONIC HEPATITIS C

Adapted from Cornberg et al Hepatology 2013

IFN trials
USA trial: McHutchison NEJM 1998
International trial: Poynard Lancet 1998

PEG-IFN trials
PEG-IFN2b: Manns Lancet 2001

PI trials
Boceprevir: Poordad NEJM 2011 (non-black cohort)
Telaprevir: Jacobsen NEJM 2011
<table>
<thead>
<tr>
<th></th>
<th>platelets &gt; 100</th>
<th>platelets &lt; 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>albumin &gt; 35 g/L</td>
<td>3.4% (10/298)</td>
<td>4.3% (3/69)</td>
</tr>
<tr>
<td>albumin &lt; 35 g/L</td>
<td>7.1% (2/28)</td>
<td>44.1% (15/34)</td>
</tr>
</tbody>
</table>

Hezode et al J Hepatology 2013;59:434-41
“The past is a foreign country: they do things differently there...”

L.P. Hartley

The Go Between: 1953
Hepatitis C: the evolution of the treatment landscape

- 1957: Discovery of IFN
- 1989: Discovery of HCV
- 1991: FDA approves injectable IFN
- 1998 IFN: 24 weeks, 48 weeks
- 2000: PegIFN + RBV
- 2001-2004: PegIFN + RBV
- 2011: PegIFN + RBV + DAA
- >95% in 2020

Adapted from Comberg M et al. in Hepatology: A Clinical Textbook; 2013. Flying Publisher
<table>
<thead>
<tr>
<th>pharma</th>
<th>Protease Inhibitor</th>
<th>NS5A inhibitor</th>
<th>Polymerase Inhibitor</th>
<th>ribavirin</th>
<th>duration (weeks)</th>
<th>cure rate</th>
<th>comments</th>
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</thead>
<tbody>
<tr>
<td>MSD</td>
<td>MK 5172</td>
<td>MK 8742</td>
<td></td>
<td>not needed</td>
<td>12</td>
<td>&gt;90%</td>
<td>including prior IFN non-responders</td>
</tr>
<tr>
<td>Gilead ION-1</td>
<td>Ledipasvir</td>
<td>Sofosbuvir</td>
<td></td>
<td>not needed</td>
<td>12</td>
<td>&gt;90%</td>
<td>treatment-naïve</td>
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<tr>
<td>Gilead ION-2</td>
<td>Ledipasvir</td>
<td>Sofosbuvir</td>
<td></td>
<td>not needed</td>
<td>12 - 24</td>
<td>80-100%</td>
<td>including prior PI non-responders</td>
</tr>
<tr>
<td>AbbVie</td>
<td>ABT450/ritonavir</td>
<td>Ombitasvir</td>
<td>Dasabuvir</td>
<td>always included</td>
<td>12</td>
<td>&gt;90%</td>
<td>including prior IFN non-responders</td>
</tr>
<tr>
<td>Gilead Janssen</td>
<td>Simeprevir</td>
<td></td>
<td>Sofosbuvir</td>
<td>not needed</td>
<td>12</td>
<td>&gt;90%</td>
<td>including prior IFN non-responders</td>
</tr>
</tbody>
</table>
Study 2025: no recurrence vs recurrence in GT 1–4

Days continuously target not detected (TND) prior to transplant: PTVR vs recurrence in GT 1–4

- No recurrence (n=28)
- Recurrence (n=10)

*3 patients with recurrent HCV had 0 consecutive days TND before transplant

Curry MP et al. AASLD 2013, oral 213
HCV Treatment Post-LT

Patient survival vs treatment outcome

Proportion Surviving

SVR = yes

SVR = no

months

(Birmingham unpublished data)
Birmingham (and the West Midlands) is regarded as a powerhouse of HCV therapy.
Commissioners must invest financial resources into centres that deliver good care…

Lancet Commission 2014
How much are outcomes improved by SVR?

<table>
<thead>
<tr>
<th>Group</th>
<th>Clinical outcome</th>
<th>Treatment failure risk (%p.a.)</th>
<th>SVR risk (%p.a.)</th>
<th>ARR (%p.a.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liver-related mortality</td>
<td>0.81</td>
<td>0.23</td>
<td>0.58</td>
<td></td>
</tr>
<tr>
<td>Decompensation</td>
<td>0.54</td>
<td>0.16</td>
<td>0.38</td>
<td></td>
</tr>
<tr>
<td>HCC</td>
<td>1.84</td>
<td>0.21</td>
<td>1.63</td>
<td></td>
</tr>
<tr>
<td>Advanced fibrosis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liver-related mortality</td>
<td>2.73</td>
<td>0.19</td>
<td>2.54</td>
<td></td>
</tr>
<tr>
<td>Decompensation</td>
<td>2.92</td>
<td>0.13</td>
<td>2.79</td>
<td></td>
</tr>
<tr>
<td>HCC</td>
<td>3.22</td>
<td>0.32</td>
<td>2.9</td>
<td></td>
</tr>
</tbody>
</table>

In the future it should be considered a failure for a patient with HCV to need a transplant...

HCV diagnosis and treatment rates in UK are low

38% of patients are diagnosed in Scotland (2006)¹

36% of patients are diagnosed in England and Wales (2004)¹

In 2008 no PCT treated more than 2.8% of It’s prevalent population in any one year

Individual’s with chronic HCV

Treated 3.3%-15%²*

Untreated 85%- 96.7%²

* Applicable when looking at Belgium, France and UK; the rate may be higher amongst other EU countries

1. Cornberg M. et al., A systematic review of hepatitis C virus epidemiology in Europe, Canada and Israel, Liver International ISSN 1478-3223
• Almost 1:2 people in Birmingham belong to an ethnic minority group

• 22% of Birmingham residents were born overseas. Birmingham (pop. 1.085 million) is growing at 1% per year, with the fastest growth in ethnic minority groups

Source: www.birmingham.gov.uk
Birmingham City Council population census data
Reporting of patient residence information is incomplete; from 2008 to 2012 around half of laboratory reports included the patient’s postcode.

Where patient residence information was reported, the wards with the highest rates per 100,000 population were Bordesley Green, Washwood Heath and Sparkbrook.

If you’re a counsellor or commissioner this is a good news story waiting to happen...

Source: Health Protection Agency, Birmingham
Injecting drug use continues to be the most important risk factor for HCV infection in the UK. 2013/14, 57% of PWID surveyed in Scotland were HCV+. In England and Wales, 3.6% people who inject image and performance enhancing drugs, tested HCV positive.
Laboratory reports of hepatitis C by age group and gender, West Midlands residents, 2013

• 70% were males, 30% were females.
• Over half (57%) were aged between 25 and 44 years of age.

Source: Public Health England, Hepatitis Department Database
Data are summarised by region of residence, not region of laboratory. Data are assigned to region by patient postcode where present; if patient postcode is unknown, data are assigned to region of registered GP practice; where both patient postcode and registered GP practice are unknown data are assigned to region of laboratory.

Includes individuals with a positive test for hepatitis C antibody (a marker of past infection) and/or detection of hepatitis C RNA (a marker of persistent infection). Due to the variability in the quality of laboratory reports, we are unable to estimate the actual proportion of cases with evidence of past infection or persistent infection.
Percentage of HCV testing in People Who Inject Drugs (PWID) by PCT

2011/12

Domain 1: Preventing people from dying prematurely
Domain 2: Enhancing quality of life for people with long-term conditions
Domain 3: Helping people to recover from episodes of ill health or following injury
Domain 5: Treating and caring for people in a safe environment and protecting them from avoidable harm

Viral hepatitis in people born in Pakistan

- 4,998 immigrants from the Indian sub-continent screened for HCV and HBV

### Age range (years)

**Female**

<table>
<thead>
<tr>
<th>Age range (years)</th>
<th>% HCV</th>
<th>% HBV</th>
</tr>
</thead>
<tbody>
<tr>
<td>16–29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30–49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50–69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥70</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

**Male**

<table>
<thead>
<tr>
<th>Age range (years)</th>
<th>% HCV</th>
<th>% HBV</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–29</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>30–49</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>50–69</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>≥70</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

~70% males >70 have cirrhosis

Uddin et al. J Viral Hepatol 2010;17:327–35
• 2.3% of people of Asian or Asian British ethnicity tested positive.

• From 2009-2012 5.1% of people of Eastern European ethnicity tested HCV positive
How do we go about improving detection and treatment?

1. Focus resource where we know the highest prevalence of disease is…prisons, post-codes, PWID programmes

2. Sites of highest HCV prevalence always correlate with the highest prevalence of liver disease from all causes

3. The tools to do this already exist

4. Only the integration of care pathways is lacking
HPA: Hepatitis C in the UK: 2014 report
What next..?

1. Establish liver networks across primary and secondary care
2. HCV is a useful catalyst for action in other liver disease groups e.g. HBV
3. Integration of care pathways always improves quality
4. Birmingham already has an established reputation for excellence in management of liver disease – we just need to get more organised!

Source: Health Protection Agency, Birmingham
HCV Action: Sharing good practice

Charles Gore, Chief Executive, The Hepatitis C Trust

Friday 23 October 2015
Birmingham
“No health without justice, no justice without health.”

BBV Opt Out Testing in Prisons

Susanne Howes
Health & Justice Public Health Specialist, East Midlands
BBV in the Offender Population

- Persons who have committed an offence generally come from the poorest parts and the most socially disadvantaged segments of society with deficiencies in education and employment experience.

- The burden of infection with blood borne viruses (BBVs), hepatitis B, hepatitis C and HIV are particularly higher in this group than the general population due to participation in high risk behaviours such as drug and alcohol misuse, homelessness, unprotected sex with multiple partners and engagement in commercial sex activities.

- People in prisons and other closed settings, including people working in prisons, are particularly at risk for hepatitis B, hepatitis C and HIV, due to their own vulnerability compounded by the characteristics of the environment.

- Persons remanded in custody or deprived of their liberty following conviction retain all human rights other than their freedom. Their right to health should in no way be diminished by their detention and the provision of health care in prisons has significant importance to public health in general.
What we can do for people in prisons.

- **PWID**s frequently come into contact with the **criminal justice system** including multiple periods of incarceration;

- **Prisons are places where so-called ‘hard-to-reach groups’ are easy to reach**: testing of a high-risk population in this setting can address under-ascertainment (Hepatitis B and C: ways to promote and offer testing to people at increased risk of infection NICE guidelines [PH43] Published date: December 2012 [https://www.nice.org.uk/guidance/ph43](https://www.nice.org.uk/guidance/ph43))

- **But levels of testing among people in prison was traditionally low**- as little as 4% of prison population annually.

- **Lessons learned from HIV**: ‘opt-out testing’ increased rate of testing in previously ‘under-tested’ population attending ante-natal services in the UK in the late 1990s.
  - Agreed in **July 2013** to implement ‘opt-out testing for BBVs among consenting adults in prisons in England in phased-implementation programme’.

Care pathways are being developed but we need to do more…

In the 2011 survey of hepatitis C services in English prisons,* 82/110 responding prisons (74%) had a written pathway in place to describe what happens following a positive hepatitis C result.

National audit** suggests that the most common model of service delivery in English prisons is hospital outpatient care (52% of prisons), followed by hospital in-reach (43%) and GP led care (5%)


Variation is the only constant…

• Variation across the estate:
  • On numbers of people being offered testing;
  • On numbers of people accepting testing;
  • On means of testing (venous blood vs DBST vs oral fluids);
  • On when offer of testing made/re-made;
  • On who made offer/re-offer of testing;
  • On testing of antibody positive samples for HCV PCR;
  • On concomitant testing for other BBVs including HIV;
  • On referral for specialist assessment;
  • On delivery of care for those who were eligible and consenting for care: in-reach/out-reach/ mixed economy;
  • And on completion of treatment in prison/ in community/lost to follow-up;
But constant, consistent commitment...

- By NHS England, NOMS and PHE to deliver on priority to increase delivery of opt-out testing programme;

- By partner organisations to support implementation BBV opt-out testing for people in prisons (especially from The Hepatitis C Trust and National AIDS Trust).
To recommend to all **eligible** prisoners/detainees a test for HIV, hepatitis B and hepatitis C (using DBST or venous sampling) at or near reception;

- Prisoners who refuse a test should be re-offered throughout their period of incarceration at appropriate intervals and across services e.g. primary care, substance use, sexual health etc.

- Healthcare staff should be recommending testing to current prisoners not just new receptions;

- There should be a clear and accessible pathway in place for those testing positive for infection.

**Eligible patients:**

- BBV testing should be recommended to all prisoners, including those already in prison **unless:**
  
  - They have been tested in the last 12 months and have NOT subsequently put themselves at risk of infection (may be difficult to confirm);
  
  - They have been tested and are positive for infection (but if positive for only one infection e.g. HCV, then still may be valuable in testing for new co-infection e.g. HIV, especially if still having risk behaviours.

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**Public Health England**

**World Health Organization**

**BBV opt-out testing policy in prisons**
Pathfinder prisons

- ‘Pathfinder prison’ sites were identified because they were already at, or near, implementing the recommended opt-out policy so their key challenges and successes could be used to help implement the policy in other prisons.

- Pathfinders are defined as those prisons who are recommending BBV testing to people in prison and have a well-defined care pathway for individuals testing positive as per national guidance.

- Pathfinder prisons enable ‘learning through doing’ to be disseminated across the estate, including identification of barriers;
Impact of BBV opt-out testing on HCV

- PHE data (from ‘old PHPQIs’) shows a national increase in hepatitis C tests being performed since 2010-11 where it has steadily increased from just 4% of new receptions in quarter 1 2010/11 to 10% in quarter 4 2013/14.

- This is likely to be largely attributable for the introduction of opt-out BBV testing across the estate, not only in ‘pathfinder prisons’.

- Preliminary data suggests a near doubling of BBV testing following the introduction of the opt-out testing policy.

- April-September 2014, 21% of new receptions were tested for HCV and HIV, and 22% for HBV.
- Prior to the programme only 11% of new receptions were tested for HCV and HIV, and 12% for HBV.
- 8/11 prisons believe that they have identified people who would otherwise have remained undiagnosed.
- The numbers being referred for hepatitis C treatment have increased significantly since the introduction of the opt-out testing policy.
- Of those being referred for hepatitis C treatment, around 1 in 3 (69/226) commenced treatment in the 12 month period before the opt-out policy was introduced and around 1 in 4 (42/185) in the 6 month period after.
Where we are now ….

- At end May 2015, 21 pathfinder prisons were implementing the policy;
- An additional 32 prisons not part of the pathfinder programme are reporting to be providing (or near to providing) the BBV opt-out testing policy.
- This makes up nearly half of the estate (53/116 prisons);
- Guidance for stakeholders re: testing, treatment and continuity of care;
- A system to enable the sharing of good practice / lessons learned.
- Second phase pathfinders currently in delivery phase- formal evaluation with will conducted during autumn/winter 2015/16;
- Third phase pathfinders have been recruited over summer 2015 and will be evaluated during Q1/2 2016-17.
- 2016/17 – our ambition to have full implementation across the adult estate in England;
Introduction of Dried Blood Spot Testing (DBST) in East Midlands Prisons

With national increasing BBV rates, limited funding and ever increasing national reference and recommendations regarding the need to increase and improve BBV testing in prisons

DBST removes the need for venepuncture is ideal for prisoners with poor venous access or damaged peripheral veins, is a safer testing method for staff and can be performed by any healthcare staff.
Implementation of DBST

- Agreement that a local NHS lab would provide the testing at a very cost effective rate
- Close partnership working & support sought from county Consultant Hepato/Gastro
- Comparisons between costing’s of venous V DBST submitted to NHS England
- Phased process based on prisons readiness
- Assurance of treatment pathways (HCV in-reach treatment service)
- Training offered/delivered, algorithms & instructions developed
- Relationships built between lab staff & prison BBV/DBST lead
- All prisoners are offered ‘opt out’ DBST at or near to reception
- DBST cards are labelled correctly & posted in bulk to the local DBS testing laboratory
- Results are via systm one 7 days after receipt
- Any prisoner testing +ve for HBV, HCV or HIV will need a confirmatory venous sample, this sample is sent to the prisons local testing laboratory
- Awaiting this result does not delay referral for treatment or interfere with the pathway
Concerns raised by pathfinders

• **Funding** of additional tests;

• **Time constraints** during second reception screening and challenges with DBST, e.g. having somewhere appropriate to dry cards and having to repeatedly prick patient’s fingers to obtain sufficient blood;

• **Lack of staffing resource** due to staff vacancies;

• **Additional training required** and improvement in communication between teams to ensure testing not repeated;

• Changing how staff approach **interview questioning in reception** and ensuring staff have **sufficient knowledge** to answer questions relating to BBV testing at reception.
Lessons to learn

• Introduction of DBST allows non-clinical staff to provide the testing;
• Need for accurate and consistent **READ coding** on SystmOne;
• Robust referral pathway for treatment and care;
• Give presentations to healthcare staff and also prison staff to raise awareness;
  – All members of the team should understand the importance of their role in this process;
  – Include the work as part of clinical and service meetings;
  – Continual education and updates for all staff working with the wider teams e.g. mental health and GUM health promotion
Conclusions

• **Local leadership and partnership amongst key players** is essential to the successful introduction of the programme;

• Despite the short time frame, there are initial indications of the **benefits** of the BBV opt-out testing programme in **addressing health inequalities and improving quality of services**;

• The persistently **low number of people accessing treatment** for **hepatitis C** following diagnosis through the programme is a concern.
Recommendations

• **All local commissioning specifications** for prison healthcare providers should aim to **include BBV opt-out testing** and associated referral and care pathways for patients testing positive for infection in prisons by 2016/17.

• Local service specifications should be **consistent with NICE guidelines** and any national guidance provided by NHS England and/or PHE.

• **Laboratory services** should be commissioned so that appropriate testing is conducted for BBVs including **PCR testing** on all samples testing positive for hepatitis C Ab as per national guidance.

• Healthcare providers in prisons need to **improve their data collection** so we have better information on testing and treatment.

• **A second evaluation covering Phase 2** of the implementation of the opt-out programme will be conducted during Q1-Q3 2015-16 and a report published in Q4 of that financial year.
What does the future hold?

- **Testing:** Increased testing of people in prison almost a certainty- improving data on this from new H-JIPs;

- **Case ascertainment:** Increased identification of cases previously unknown likely but as coverage increases, proportion of new positive cases likely to decrease;

- **Treatment**- in theory, access to Directly Acting Antivirals (DAAs) could increase opportunities to start and complete treatment in prisons BUT:
  - Prediction that many people tested in prison will chose to commence treatment in the community for reasons of personal choice, access to care/support networks, concerns about stigma/vulnerability in prisons and/or addressing other priorities (physical health needs, substance use, mental health as well as social needs);
  - Commissioning arrangements for DAAs and associated care pathways for wider community as well as prisons still under discussion/pending agreement;
  - Cost-effectiveness proven but whether realise full benefits, including treatment as prevention, will depend on coverage of treatment programme.
Further information and support

Health&justice@phe.gov.uk

Guidance documents & Research


- Addressing hepatitis C in prisons and other places of detention: Recommendations to NHS England by a prison health expert group convened by The Hepatitis C Trust May 2013

- An audit of hepatitis C services in a representative sample of English prisons, 2013

- An audit of hepatitis C services in a representative sample of English prisons, May, 2013 Clare Humphreys, Cathie Railton, Autilia Newton, Éamonn O'Moore, Martin Lombard
Hepatitis C patient perspective

Friday 23 October 2015
Birmingham
Outreach service: Good practice case study presentation

Dr Judith Yates
GP
@judithyates1
dryates@btinternet.com

If you are medical doctor please join (free) now at:

www.idhdp.com

Physicians globally unite for health based drug policy
Outreach service: Good practice case study presentation

1. Ridgacre Surgery Outreach Hepatitis C Clinic

2. Windmill Surgery Nottingham Outreach Hepatitis C clinic

3. Stoke on Trent Community Viral Hepatitis Service

4. Birmingham Peer to Peer (P2P) HepC support
Ridgacre Outreach Hepatitis C Clinic

With: University Hospital Birmingham NHS Foundation Trust
And: CRI “Reach out Recovery” Birmingham

Dr Judith Yates  GP  October 2015
Birmingham New St to Ridgacre surgery: bus routes.
Two years of struggle

Dr Ahmed Elsharkawy
University Hospital Birmingham NHS Foundation Trust

Dr Martyn Hull
GP Ridgacre Surgery

Drug treatment services: Swanswell Inclusion BSMHFT CRI
The Windmill Practice
Sneinton
Nottingham, NG2 4PJ

Poor outcomes via the hospital clinic:

<table>
<thead>
<tr>
<th>61</th>
<th>New diagnoses Hepatitis C</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Seen at hospital clinic</td>
</tr>
<tr>
<td>1</td>
<td>treated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>People who use drugs</th>
<th>Screened in the GP surgery</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>350</td>
<td></td>
<td></td>
</tr>
<tr>
<td>174</td>
<td>Tested positive for antibodies</td>
<td></td>
</tr>
<tr>
<td>124</td>
<td>Hepatitis C PCR +ve</td>
<td></td>
</tr>
<tr>
<td>50+</td>
<td>Treated in the surgery clinic</td>
<td></td>
</tr>
</tbody>
</table>

Dr Stephen Willot: Clinic is starting up again in 2 weeks time after a break. 
“with a consistent personal therapeutic relationship anything’s possible. We got some of our most challenging / damaged folk through even 48 weeks of interferon...”
### Stoke on Trent Community Viral Hepatitis Service

<table>
<thead>
<tr>
<th>1400 people offered testing</th>
<th>1304 Accepted dried blood spot testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>221 people tested positive</td>
<td></td>
</tr>
<tr>
<td>141 people</td>
<td>treated</td>
</tr>
<tr>
<td>86%</td>
<td>Completed treatment</td>
</tr>
</tbody>
</table>
Martyn and Ahmed’s journey began in 2013

First Ridgacre clinic October 2015

This month: First four patients have been seen and fibroscanned in the surgery.
- 2 out of four have cirrhosis (neither was aware of this)
- 3 out of four starting treatment
- 1 postponing till after Christmas.
Patient 1: Randolf
Randolf

- Aged 36
- In full time work on an IT helpdesk
- No longer uses heroin. Stable on 4.8 mgs buprenorphine daily
- Has been drinking daily for many years

- Hepatitis C +ve Genotype 3
- Fibroscan 35.3 (cirrhosis)
- Endoscopy two days ago showed oesophageal varices
I just take the tablets. Side effects, what side effects?

Sofosbuvir
Daclatasvir
Ribavirin
No Interferon
Patient 2: Simon
Simon:

- Stable on 20mgs methadone.
- Not drinking
- No cirrhosis
- (fibroscan 5.9)
- Very keen to be treated, despite potential side effects of Interferon.
- Mother very supportive (now that he has told her)

Has been waiting for a year for this chance.

Gave himself his first dose of interferon at the clinic yesterday.
Patient 3: Rupert

• Had HepC for 15 years
• Is abstinent from opioids and from alcohol
• Diabetic on insulin.
• Lives in a supported “dry” house.
• Takes Black Mamba most days (legal isn’t it)
• Fibroscan showed cirrhosis (21.1)
# The Future

<table>
<thead>
<tr>
<th>Genotype</th>
<th>Without cirrhosis</th>
<th>With cirrhosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genotype one</td>
<td>Sean</td>
<td>Mark</td>
</tr>
<tr>
<td>Genotype two</td>
<td>Norman</td>
<td></td>
</tr>
<tr>
<td>Genotype three</td>
<td>Simon Angela</td>
<td>Randolf Rupert</td>
</tr>
<tr>
<td>Genotype four</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OUR MISSION

Hep C Positive aims to provide support and information to those people whose lives are affected by the Hepatitis C virus.

2015: Birmingham HepC peer support group
Thank you

Dr Judith Yates
@judithyates1
dryates@btinternet.com
Panel discussion: Problems and solutions for tackling hepatitis C locally

Friday 23 October 2015
Birmingham
Commissioning landscape for hepatitis C

Catherine O’Connell,
Regional Director Specialised Commissioning (Midlands and East)

23 October 2015
Overview

• NHS England – commissioner of services
• Commissioning of Hepatitis C services
• Treatment
• Achievements
• Challenges
• Ambitions
Specialised Commissioning NHS England

- Five Year Forward view - vision for transformation in prevention
- Integrated and networked care models to improve patient experience
- Collaborative commissioning approaches in specialised commissioning to improve commissioning
- Care pathways in partnership with CCGS and LA’s
- Strong national support implemented locally
- 6 programs of care, over 70 CRGs, 200+ service specifications - £13bn
Commissioning Hep C Services

- Complex pathway: variance in settings, infectious diseases, substance misuse and liver services

- Drug costs – NHS England specialised services

- Attendance – falls to different commissioning bodies

- Improve access to treatment in view of the current model of care delivery
Treatment for patients with Hep C in England

Who makes treatment decisions?

- Health and Justice: Prison health services
- LAs
- NHS England: Infectious Dis / Gastro / Liver services
- Clinical Commissioning Groups: DGH / Community Services
- All via HEP C ODNs (hubs and spokes)

Cost of drug treatment – NHS England
Challenges

- Patient populations
- Engaging users – designing the service
- Diagnosis
- Pattern of disease progression
- Treatment
- Service impact – prevalence, new diagnosis rate, treatment options
- The ambition – to reduce liver cancer, cirrhosis and end stage liver disease
MDT support in treating HCV – Model of Care

• Establishment of Operational Delivery Networks – working in partnership with care services to combine access to medical expertise locally

• Effective treatment targeted within pathway

• MDT decision making on treatment by clinicians with Hepatology expertise

• Patient treatment historically low – 3% (new treatments to improve this)
Ambitions

• Step change in treatment of HCV related liver disease
• Ensure patients with cirrhosis are identified
• Treatment of cirrhosis
• New treatment technologies: improving side effect profile (will lead to increased demand)
Achievement to date

• ODNs up and running (since 1 August 2015)
• New antivirals being prescribed appropriately (Blueteq)
• Planned data collection will allow us to monitor access, treatment and outcomes
• Ongoing positive interaction with ODN leads to identify and address issues in the patient pathway
• Early access scheme – oral treatment for patients – 1000 people registered
Questions
Hepatitis C Good Practice Roadshow

Friday 23 October 2015
Birmingham