Llywodraeth Cynulliad Cymru
Welsh Assembly Government

Blood Borne Viral Hepatitis Action Plan for Wales 2010-2015

Health Challenge Wales
Her Iechyd Cymru

NHS WALES GIG CYMRU

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Contents

Figures

List of Abbreviations

Anti-HCV	Antibodies to hepatitis C virus
BBV	Blood borne virus (largely HBV, HCV and HIV)
CMO	Chief Medical Officer, Welsh Assembly Government
DANOS	Drug and alcohol national occupational standards
DBS	Dried blood spot
DoH	Department of Health
GPC	General Practitioner Committee
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HPA	Health Protection Agency
HIV	Human immunodeficiency virus
IDU	Injecting drug user
JCVI	The Joint Committee on Vaccination and Immunisation
HB	Health Board
MSM	Men who have sex with men
NAT	National Aids Trust
NICE	National Institute for Health and Clinical Excellence
PHWT	Public Health Wales Trust
NSE	Needle and syringe exchange service
NTA	National Treatment Agency
OST	Opioid substitution treatment
PCR	Polymerase chain reaction
Quads	Quality in alcohol and drugs services
RCGP	Royal College of General Practitioners
SMS	Substance misuse service
UAPMP	Unlinked Anonymous Prevalence Monitoring Programme
WAG	Welsh Assembly Government

Incidence: The incidence of a disease is the rate at which new infections occur. Often expressed as per 100 person years

Prevalence: The prevalence of a disease is the proportion (%) of a population with the disease or with a particular marker of disease exposure

95% Confidence Intervals (95%CI): Presuming that the sample taken is representative of the wider population, then the 95% CI show a range of values that we can estimate, with a 95% probability, that the 'true' population value lies within

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Executive Summary

Hepatitis C (HCV) and hepatitis B (HBV) are viruses that spread from person to person by contact with infected blood and other body fluids. Hepatitis viruses primarily affect the liver. HCV and HBV can cause serious disease and even death, yet are treatable and preventable.

An estimated 12,000 to 14,000 people in Wales are chronically infected with HCV, the majority of which are unaware of their infection. Currently within Wales and England only acute HBV infection is recorded so no estimates exist for chronic infection of HBV within Wales. However, within some groups HBV infection is relatively common, particularly amongst ethnic minority groups originating from high prevalence countries (South East Asia, Africa, the Middle and Far East, Southern and Eastern Europe). The number of people infected with HBV and the number infected with HCV increases each year because of continued high risk behaviour.

Action for change is needed because:

- Transmission of blood borne viruses (BBV) can be prevented, yet in Wales transmission is common amongst high risk groups. Failure to implement prevention measures will add to the disease burden in Wales
- HBV infection is preventable with an effective vaccine
- With modern therapy, depending on the genotype of HCV infection, between 40% - 85% of patients with chronic HCV can be cleared of the virus. The treatment is cost effective and has been recommended by the National Institute of Health and Clinical Excellence (NICE) in a technology appraisal
- Treatment for chronic HBV infection has been recommended by NICE in a technology appraisal
- Less than 2000 people are currently being monitored or treated for hepatitis C by specialist services across Wales. Failure to improve uptake of treatment will lead to an increase in liver disease and the number of untimely deaths in Wales

Implications if no action taken:

Hepatitis B

- The number of people exposed to, and infected by, HBV will rise
- The number of people with liver disease due to chronic HBV infection will rise

Hepatitis C

- The number of people exposed to, and infected by, HCV will rise
- 60% of those infected with HCV will go on to develop some level of liver damage
- Up to a third will develop advanced liver disease over 30 years of infection
- With cirrhotic patients, every year 3-8% will develop liver cancer, 1-2% will develop liver failure and liver transplantation will be required in a further 5-10%

An effective response must:

- prevent transmission
- diagnose infection in people who have virus in their blood
- treat disease in those with chronic infection and where possible eradicate the virus from their blood thus effecting a cure

The benefits of prevention will become manifest over decades rather than months, however, this should not distract from the commitment in the short term to addressing blood borne virus (BBV) infection. The challenge of reducing ongoing transmission and reducing the disease burden of viral hepatitis is compounded by issues of social exclusion and marginalisation amongst some of the groups at highest risk of infection in Wales.

The delivery of an effective response now and in the years to come, depends on commitment from both the Welsh Assembly Government and a range of agencies and partners. A response is needed that is evidence based, patient-centred and adequately resourced. Progress towards the actions required must be monitored.

What actions are needed and by whom?

Welsh Assembly Government (WAG)

- Ensure sign up to the action plan by all relevant partners
- Monitor the delivery and effectiveness of the action plan
- Negotiate with General Practitioner Committee (GPC) Wales (possibly through a Welsh Enhanced Service Provision agreement) the provision for remuneration for hepatitis B vaccination given to all high risk groups in primary care in accordance with joint Committee on Vaccination and Immunisation (JCVI) guidance
- Provide clear, culturally specific and regularly updated information on the consequences and options facing individuals diagnosed with BBV hepatitis

Health Service Planners

- Direct the resource for clinical networks and support services
- Ensure services that are delivered comply with NICE guidance and are adequately resourced to deliver
- In the planning of prison health services, sexual health services and substance misuse services ensure compliance with action plan
- Support an all Wales awareness raising campaign

Health Boards

- Provide effective Needle Exchange services (NSE), in line with the recommendations of the WAG substance misuse strategy 'Working together to reduce harm – 2008 - 2018', and ensure all relevant staff have both access to, and complete, high quality education and training programmes
- Ensure that clinical networks are adequately resourced to comply with the action plan and NICE guidance, and to meet local demands for treatment and care

- Through provision of local care pathways, provide care, support and treatment to all affected individuals from diagnosis through to follow up which must include access to alcohol support services
- Provide timely and accurate information to monitor disease trends and effectiveness of interventions as agreed with WAG and Public Health Wales Trust (PHWT)
- Ensure HBV vaccination of staff at risk of exposure

Primary Care

- Provide high quality shared care provision of substitute drug treatment
- Improve uptake of testing for BBVs targeting those on their patient lists who are most at risk
- Support delivery of the antenatal screening programme for HBV
- Negotiate with WAG the provision of HBV vaccination to all high risk groups in primary care
- Contribute to the delivery of care pathway providing community based support to those affected

Local Authorities

- Ensure provision of appropriate training to all relevant staff – social workers, primary mental health workers etc
- Ensure evidence based, appropriate and targeted educational tools are available and used in all school settings
- Recognise the greatly increased risk from substance misuse and HCV infection experienced by the most vulnerable children in Wales, and implement local strategies including harm reduction strategies for those who are excluded from schools and those who are dependant on local authorities for their care
- Have effective mechanisms in place for dealing with drug related litter
- Monitor compliance with safe practice within commercial tattooing and body piercing
- Provide timely and accurate information to monitor disease trends and effectiveness of interventions
- Ensure HBV vaccination of staff at risk of exposure

Prisons

- Provide standardised rolling educational programme for all staff and prisoners
- Deliver blood borne virus health services in accordance with National Aids Trust (NAT) prison health guidelines
- Work with the prison based BBV clinical nurse specialist to provide high quality diagnosis, treatment and support for prisoners
- Provide timely and accurate information to monitor disease trends and effectiveness of interventions

- Ensure HBV vaccination of staff and prisoners at risk of exposure

Public Health Wales Trust

- Develop dried blood spot (DBS) testing for HCV and HBV across Wales
- Develop enhanced surveillance and monitoring database for HCV and chronic HBV infection across Wales
- Monitor disease trends, effectiveness of interventions and support Health Service Planners in the design of current and future services
- Strengthen the current antenatal screening, immunoglobulin and vaccination programme
- Provide structured guidance for diagnostic testing for GPs and support implementation
- Ensure specialist services and GPs offer opportunities for testing to those with a history of exposure to blood borne hepatitis viruses, in addition to those identified as at current risk of exposure
- Provide guidance and clear care pathways for referral from GPs to specialist services
- Support the production of education material and training to all relevant partners

Section 1 Background

1.1 Aims and remit

This document sets out the WAG blood borne viral hepatitis action plan for Wales for the period April 2010 - April 2015. It is proposed that during this period, services in Wales will be continually re-evaluated and markers of success (reduction in transmission rates and significant increases in numbers diagnosed and treated) and barriers to progress identified. Further action to tackle chronic HBV and HCV in Wales will be identified for action from 2015.

This action plan aims to provide a clear, costed and time defined framework for the planning and provision of key services in Wales that;

- Reduce the transmission of blood borne hepatitis infection in Wales
- Reduce the pool of undiagnosed infection
- Improve the provision of treatment and support to infected individuals
- Monitor and evaluate treatment and prevention programs

The response to these challenges, and responsibilities for implementation, will cut across the remit of different partners in health, social care and criminal justice.

It is anticipated that Health Boards and Health Service Planners will, where appropriate:

***For actions requiring no additional funding*; have responded to and met recommended actions defined in this document within six months of launch of action plan.**

***For actions requiring additional funding*; have identified shortfalls in current provision in relation to defined outcomes and have placed bids for additional funding to provide additional or enhanced services as required within six months of launch of action plan.**

Actions fundamental to achieving the overall goal of reducing the burden of disease caused by blood borne hepatitis viruses also fall within the remit of other strategies (see Section 4.10).

1.2 Monitoring progress

A BBV Programme Board will be established and report directly to WAG and the office of the Chief Medical Officer (CMO) for Wales. Identified subgroups and working groups will, in turn, report up to the Programme Board. The process of monitoring progress towards actions, and membership of these groups is outlined in more detail in section 5.3. Progress on a local level against the various actions outlined in the plan will be monitored by three sub groups (prevention, diagnosis and treatment).

1.3 Structure of the action plan

This action plan has been laid out in the following manner:

- Section 1 provides an overview of blood borne hepatitis in Wales

- Sections 2 and 3 outline what needs to be done to meet the challenges presented by HCV and HBV. Key interventions that are currently in place are included under the heading of ongoing actions
- Section 4 describes for Health Service Planners, Health Boards, PHWT, Local Authorities, voluntary sector providers and WAG departments, what action needs to be taken and outlines the evidence base behind the proposed actions. The time frame and estimated costs for recommended actions are defined
- The appendix contains evidence statements to support the recommended actions

1.4 Evidence base

This action plan has been informed by recent research carried out by PHWT, commissioned by WAG and undertaken between 2004 and 2007. The research clearly identifies areas which must be addressed if BBV hepatitis transmission is to be halted. A comprehensive review of current service provision in primary, secondary and tertiary services was completed in 2005/6 and provides a baseline from which patient experience over time can be monitored.
(Full details of the PHWT research and findings are available online at http://www.wales.nhs.uk/sites3/page.cfm?orgid=457&pid=25483.[1] A stakeholder conference, held in October 2006, provided a robust and valuable forum for discussion of the findings and prioritisation of the actions required. Additional information has been drawn from peer reviewed sources, UK and devolved government strategies and the Health Protection Agency most recent '*Shooting up*' report.[2]

1.5 The burden of blood borne viral hepatitis in Wales

What blood borne viruses are considered in this action plan?

Blood borne viruses are those that are spread from person to person by contact with infected blood and other body fluids. For this reason these diseases should be preventable. Hepatitis viruses primarily affect the liver. This action plan addresses HCV and HBV, the two blood borne hepatitis viruses with the greatest public health significance in the UK.

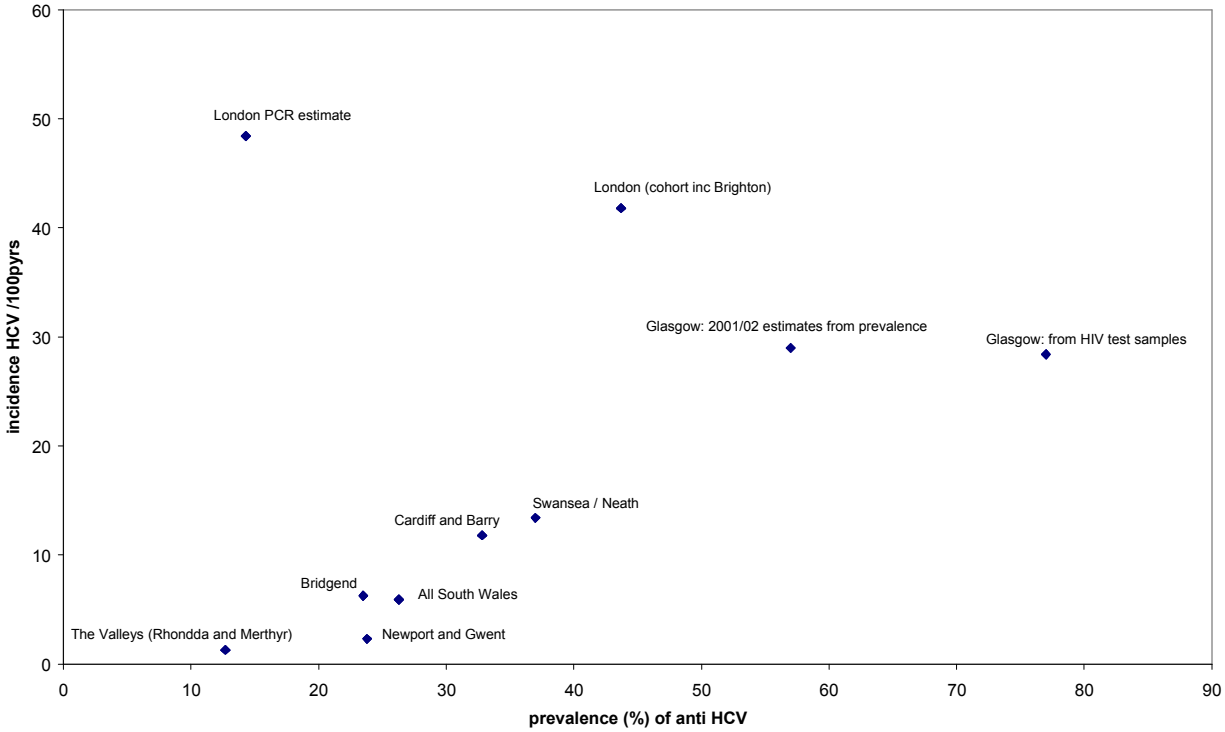
The challenge faced in Wales

Blood borne viral hepatitis infection presents a major challenge to health service planners and providers in Wales. The burden of HCV infection is largely carried by current and ex injecting drug users (IDUs). HBV infection is common in this group however, ethnic minority groups, men who have sex with men (MSM), sex workers and incarcerated individuals are also at elevated risk. Historically small numbers of individuals are known to have been exposed via contaminated blood products and nosocomial infections.

An effective response to blood borne virus infection must have three key aims; (1) prevention of further infection (2) diagnosis of infection and (3) treatment or management of infection.

Figure 1 clearly demonstrates that in Wales there is much to be gained from effective prevention and treatment. Research shows that injecting risk behaviour is high, so we can expect ever increasing numbers of infected individuals if effective interventions are not put into place.

Figure1. The prevalence and incidence of HCV amongst injecting drug user populations across sites in south Wales and elsewhere in the UK



Source: PHWT BBV Team

From research in Wales it is evident that among injecting drug users:

- Homelessness is contributing to the risk of infection
- Infection occurs frequently in the first few years of injecting
- Prison is a common experience; over 70% amongst drug injectors interviewed in background research had been in prison
- The majority of infection is undiagnosed; at least two thirds of injectors with HCV infection were unaware of their disease status, the proportion with undiagnosed HBV infection is likely to be similar
- The majority of individuals with HCV are untreated
- HBV vaccination coverage is poor among many risk groups

Blood borne viral hepatitis in Wales in the context of HIV

Whilst the focus of this action plan is on viral hepatitis it is important to recognise that there is significant cross over with the prevention, diagnosis and treatment of HIV infection. HIV can be transmitted via injecting practices and the incidence of HIV appears to be rising amongst drug injectors in the UK[2]. Diagnostic tests for viral

hepatitis and HIV are generally offered together. Co-infection with HIV, HBV and HCV has additional clinical implications and requires treatment at a specialist centre. Further evidence is required on the rates of co-infection in Wales; however UK evidence would suggest that up to 9% of HIV positive individuals are co-infected with HCV[3].

Hepatitis B

Hepatitis B virus is a blood borne virus that can cause serious liver disease, however a safe and effective vaccine is available to protect individuals from infection. Identifying, treating and protecting the contacts of individuals who have acquired infection is an important priority for addressing HBV infection.

How is it acquired and transmitted?

- Unprotected sex
- Sharing injecting equipment
- Medical and dental treatment when un-sterile equipment has been used
- Infected mother to baby before or during birth
- Needle stick injuries
- Tattooing or body piercing with un-sterile equipment
- Possibly the sharing of razors toothbrushes and other potentially blood contaminated personal items
- Blood transfusion (prior to 1991) and receipt of blood products and blood coagulation factors (prior to 1985)

Natural history of HBV

The natural history of HBV infection varies greatly with age of infection; individuals infected as children are more likely to progress to chronic infection and liver disease than are individuals infected later in life.

What are the patterns of infection across the UK and in particular in Wales?

Wales is a very-low prevalence country for HBV however certain groups are at higher risk of infection. Minority ethnic communities in Wales that have strong links with parts of the world with high rates of HBV infection (sub-Saharan Africa, most of Asia, the Pacific, the Amazon, the southern parts of Eastern and Central Europe and the Middle East) are particularly vulnerable to ongoing risk of HBV transmission.[4] The prevalence of infection may be higher in populations of migrant workers, asylum seekers and refugees. The most current data suggest that in Wales, the majority of asylum seekers originate from countries with a high prevalence of HBV (Pakistan, Iran, Iraq, Somalia and Sudan)[5]. IDUs, commercial sex workers and MSMs are also at increased risk of infection. Approximately 10% of IDUs in south Wales show evidence of infection.[1]

Hepatitis C

Hepatitis C (HCV) is a blood-borne virus that can cause serious liver disease. The first HPA annual report on HCV in England, and a recent British Medical Journal editorial, provide an up to date summary of current knowledge on disease progression within the UK[6,7]. Estimates of progression rates vary dramatically between research study cohorts, study recruitment having a large impact on findings, with the chance of developing cirrhosis after 20 years (following infection with chronic HCV) ranging between 6% and 23%. Data from the national register at 16 year follow up showed a significant increase in mortality due to liver disease amongst HCV positive individuals; alcohol consumption was implicated in these

outcomes[8]. Research utilising patients who were infected whilst acting as plasma donors (infected at an early age, thus similar to the age profile of infection seen amongst IDUs) suggested that after 31 years of infection, advanced liver disease had developed in a third of patients[9].

How is it acquired and transmitted?

- Injecting drug use
- Medical and dental treatment where un-sterile equipment has been used
- Needle stick injuries
- Tattooing or body piercing with un-sterile equipment
- Sharing razors, toothbrushes and other potentially blood contaminated personal items
- Potentially through sharing paraphernalia used in the snorting or smoking of drugs, where blood may be present
- Infected mother to baby before or during birth
- Unprotected sex in MSMs or those undertaking risky sexual practices
- Rates of sexual transmission amongst MSM and heterosexuals are increased if an individual is already HIV positive
- Blood transfusion (prior to 1991) and receipt of blood products and blood coagulation factors (prior to 1985)

What are the patterns of infection across the UK and in particular in Wales?

The central role of injecting drug use in the transmission of BBVs within the UK is well established. Injecting drug use (IDU) is the probable cause of the majority of reported HCV infections. Recent data from the Unlinked Anonymous Prevalence Monitoring Programme (UAPMP) across the UK suggests variation in HCV prevalence within populations of IDUs; HCV prevalence ranged from 20% in the north east of England to 55% in London and 59% in the north west.[10] Research from north Wales reported an anti-HCV seroprevalence of 23% among IDUs and from south Wales reported an overall seroprevalence of 26% among IDUs with considerable variation between towns and cities (see Figure 1)[11,12]. The majority (75%) of the infected individuals did not know that they had been infected with HCV.

Recent research, carried out by PHWT between 2004 and 2006, estimates incidence of HCV amongst IDUs across south Wales to be between 3.4 and 9.4 cases per 100 person years[11]. There was evidence of considerable regional variation of HCV incidence within south Wales (Figure 1), with a higher incidence seen in the larger cities than in other areas. In comparison estimates of 31.9 to 54.7 cases per 100 person years were reported from London in 2001 and 15.7 to 51.2/100 person years reported from Glasgow in the mid 1990s[13,14,15].

The association of homelessness with infection

From the PHWT research, the incidence of HCV amongst homeless injectors was significantly higher than among housed IDUs. 71% of the incident infections within the 2004-2006 cohort study in south Wales were amongst individuals who had been homeless in the previous 12 months; these individuals represented 39% of the sample. Amongst males 83% of the incident infections were among homeless individuals[12].

1.6 Links to other WAG and UK Government strategies and guidelines

This action plan supports the overarching health aim of 'preventing disease and improving substantially the health and well being of people in Wales' as outlined in the Welsh Assembly Government Strategic Framework *Better health better Wales.*[16]

- This action plan will work in partnership with 'Working Together to Reduce Harm – the Substance Misuse Strategy for Wales 2008 – 2018' which was launched in 2008. The substance misuse strategy focuses on harm reduction, "enabling, encouraging and supporting substance misusers to reduce the harm they are causing to themselves …".[17]

This action plan does not seek to address primary prevention of injecting drug use. Primary prevention will have an important role to play in the long term prevention of blood borne viral infection and will be addressed in Welsh Assembly Government substance misuse strategies.

Other strategies which have aims and objectives with overlap to those outlined in this action plan are:

- *National homelessness strategy, 2006* [18]
- *Ten Year Homelessness Plan 2009 – 2019*[19]
- *Tackling blood borne viruses in prisons, 2007* [20]
- *The All Wales youth offending strategy, 2004* [21]
- *Health care associated infections, a strategy for hospitals in Wales, 2002* [22]
- *The strategic framework for promoting sexual health in Wales (part of Better health, better Wales, 2000* [23]

Guidelines concerning treatment of HCV infection have been issued by NICE. [24]

Guidelines regarding HBV vaccination are described in *Immunisation against Infectious Disease* and guidelines for treatment of chronic HBV infection have been issued by NICE.[25,26]

Guidelines concerning opioid substitute treatment are described in guidelines issued by the NICE and the National treatment Agency (NTA) models of care[27,28].

Guidelines concerning community based interventions to reduce substance misuse among vulnerable and disadvantaged children and young people are described in guidelines issued by NICE.[29]

Section 2: Hepatitis B

This section broadly outlines the key actions for prevention, diagnosis of, treatment for infected individuals and surveillance of chronic HBV in Wales. It is important to acknowledge that the points outlined below are relevant both to individuals in the community as well as those in prison settings.

2.1 Prevention

What works?

- Pre exposure vaccination with a minimum of three doses is highly effective in preventing HBV infection and remains the core public health response to preventing infection
- Sexual transmission can be reduced by safe sex practices in particular consistent condom use and by vaccination of sexual partners of infected individuals
- HBV acquisition via injecting drug use can be reduced by increasing vaccination of IDUs and other high risk individuals in Wales, reducing frequency of injecting drug use, reducing injecting risk behaviours, and increasing the diagnosis of infection amongst infected individuals
- Identification of babies born to HBV surface antigen positive mothers allowing for vaccination and when appropriate HB immunoglobulin treatment
- Post exposure prophylaxis when indicated after any relevant exposure
- Education of infected individuals to reduce further transmission and follow up and vaccination of their contacts

<u>Prevention through vaccination</u>
The JCVI recommend vaccination of the following individuals:

- All current IDUs, as a high priority
- Those who inject intermittently
- Those who are likely to 'progress' to injecting, for example those who are currently smoking heroin and/or crack cocaine, and heavily dependent amphetamine users
- Non-injecting users who are living with current injectors
- Sexual partners of injecting drug users
- Children of injectors
- Inmates of custodial institutions
- Individuals who change sexual partners frequently, particularly MSM and male and female commercial sex workers
- Close family contacts of a case or individuals with chronic HBV infection
- Families adopting children from countries with high or intermediate HBV prevalence
- Foster carers
- Individuals receiving regular blood or blood products and their carers
- Patients with chronic renal failure or chronic liver disease
- Individuals in residential accommodation for those with learning difficulties
- Travellers to areas of high or intermediate prevalence
- Individuals at occupational risk

Welsh vaccination policy is guided by the JCVI. See *Immunisation against infectious disease* (the green book) for a more detailed breakdown of who should be vaccinated and vaccination schedules.[25]

Ongoing action:

- All target groups to have high levels of HBV vaccination. Regularly check current JCVI policy regarding vaccination of ethnic minority children. Provision for remuneration for GPs managing the vaccine programme in primary care needs to be addressed

Prevention through post exposure prophylaxis

Post exposure prophylaxis is recommended for a) babies born to mothers who are chronically infected or have had acute HBV infection during pregnancy b) sexual partners of individuals with acute HBV infection seen within a week of last contact c) sexual contact of newly diagnosed chronic infections if unprotected sexual contact occurred in the past week and d) persons who are accidentally inoculated or contaminated.

Ongoing action:

- Availability of rapid post-exposure prophylaxis to be available across Wales for all recommended groups

Prevention in the hospital setting

Prevention of infection amongst health care workers and patients in the hospital setting is covered by *Health care associated infections, a strategy for hospitals in Wales.*[21] Guidelines for the immunisation against HBV for hospital patients are covered in *Immunisation against infectious disease*.[25]

Ongoing action:

- Ensure guidelines are followed in the hospital setting

Reducing the sexual transmission of HBV

Condom use is central to the prevention of sexual transmission to the sexual contacts of HBV infected individuals. Condoms should be readily available to sexually active individuals in Wales, particularly attention should be given to provision to vulnerable groups who may have difficulties purchasing condoms. Sex workers and prison inmates will require targeted provision. Guidance from the National Aids Trust (NAT) on tackling BBVs in prisons, clearly outline the responsibilities of prison services to provide condoms to inmates.[20]

Ongoing action:

- Ensure condoms are easily available in prisons. Ensure agencies working with vulnerable groups are resourced to provide condoms to their clients

Ensuring tattooing and body piercing is hygienically practiced in Wales

Unsterile tattooing and piercing techniques are a potential route of infection.

Ongoing action:

- Environmental health departments to continue monitoring, registration and inspection of practitioners in Wales

- Education of inmates on risks associated with tattoos and piercings obtained in prison

2.2 Diagnosing chronic infection

Certain groups carry a higher risk of having chronic hepatitis B (Individuals originating from high prevalence countries including south east Asia, Africa, the Middle and Far East and southern and eastern Europe). The prevalence in adults in these populations can be up to 4%.[45]

Ongoing action:

- Primary care to be informed supported and actively encouraged to test those at high risk
- Comprehensive uptake of HBV antenatal screening program: The HBV antenatal screening program enables early management of babies born to HBV infected mothers because of increased risk of chronic carriage with early infection. The program is based on informed choice practice, all cases that are passed to health protection teams across Wales are followed up. Full cross-border follow-up must be carried out with mothers and infants who move in and out of Wales

2.3 Management, testing and care pathways for chronic Hepatitis B infection

What works?

- Guidelines for treatment of chronic HBV infection have been issued by NICE which recommend the use of adefovir, dipivoxil and peginterferon alfa-2a to treat chronic hepatitis B[26].

Ongoing action:

- Chronic HBV infection managed in line with latest guidelines

2.4 Surveillance and follow up

Accurate and timely measures of disease incidence and disease prevalence together with outcomes of disease management are essential to monitor the impact of improved models of care and service delivery

Action for change:

- Develop comprehensive surveillance database for chronic BBV hepatitis across Wales

Section 3: Hepatitis C

This section broadly outlines the key actions required for prevention, diagnosis of, and treatment for infected individuals and surveillance of chronic HCV in Wales. It is important to acknowledge that the points outlined below are relevant both to individuals in the community as well as those in prison settings.

3.1 Prevention

Since almost all known current transmission of infection is found among current drug injectors, prevention must be focused on this group.

What works?

- Reducing the frequency of injecting drug use
- Reducing the risks associated with injecting drug use
- Increasing the diagnosis of infection amongst those with a history of risk for acquisition of the virus

Drawing on research evidence and expert advice this action plan identifies the following necessary interventions.

Reducing the frequency of injecting drug use:

Actions for change (under the remit of WAG Substance Misuse Strategy and Implementation Plans)

- Increase the proportion of individuals accessing and being retained in quality substitute drug treatment
- Ensure drug treatment is available for homeless drug injectors
- Ensure drug treatment is available for young people and recent onset injectors
- Implement intervention programs to reduce initiation into injecting amongst vulnerable individuals (vulnerable groups include disadvantaged children and young people)

Reducing the risks associated with injecting drug use

Actions for change (under the remit of WAG Substance Misuse Strategy and Implementation Plans)

- Reduce the frequency of 'direct' needle and syringe sharing and 'indirect' paraphernalia sharing through availability of high quality NSE services throughout Wales
- Ensure high quality opioid substitution treatment (OST) is available, this requires optimal dosing to maximise retention in treatment
- Implement intervention programs to reduce injecting risk behaviour amongst current injectors

Ensuring tattooing and body piercing is hygienically practiced in Wales

Ongoing action:

- Environmental health departments to continue the monitoring, registration and inspection of practitioners in Wales
- Education of inmates on risks associated with tattoos and piercings obtained in prison

3.2 Diagnosing infection

Actions for change:

- Ensure all IDUs and those with a past history of exposure to the virus are offered testing in appropriate settings (specialist services, primary care and prisons). In particular, case finding amongst GPs should be promoted to ensure that the needs of all identified risk groups are met
- Dried blood spot testing should be available across Wales as a testing option

3.3 Management, treatment and care pathways

What works?

- Effective planning for services
- NICE guidelines support the use of combination therapy for treatment of HCV positive individuals with mild, moderate or severe liver disease, patients may require ongoing support throughout the treatment process.[24] Changes in lifestyle, in particular in relation to alcohol consumption can have a major impact on disease progression
- Effective treatment provision will require collaboration between different partners including primary care healthcare professionals, drug treatment services, specialist BBV treatment services, support groups (see Figure 3). Many individuals eligible for treatment will have needs requiring additional support, for example, mental health needs, social services
- Clear, culturally specific and regularly updated information on the consequences and options facing individuals diagnosed with blood borne viral hepatitis should be readily available
- Clearly defined care pathways are essential to the clinical management of infectious disease. These should be produced at local level to reflect service structure

Actions for change:

- Adequately resourced hepatitis treatment services must be made available across Wales supported by alcohol and mental health support services
- Health Service Planners must address the issues in this action plan in a specific and comprehensive manner
- Health Boards to have in place agreed clinical networks (Figure 3) that clearly map process from diagnosis to clinical management for the locally affected populations

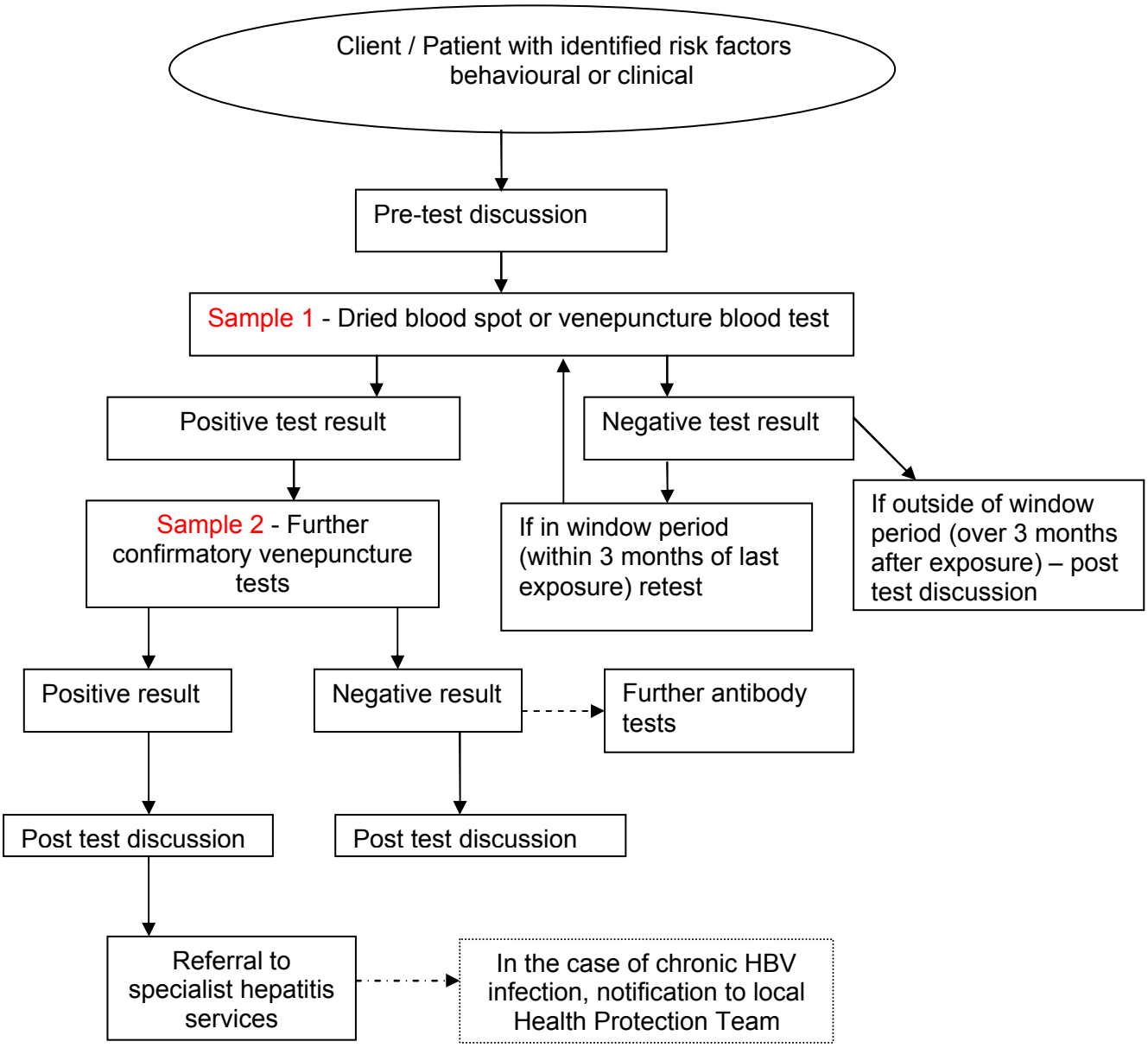
3.4 Surveillance and follow up

Accurate and timely measures of disease incidence and disease prevalence together with outcomes of disease management are essential to monitor the impact of improved models of care and service delivery

Action for change:

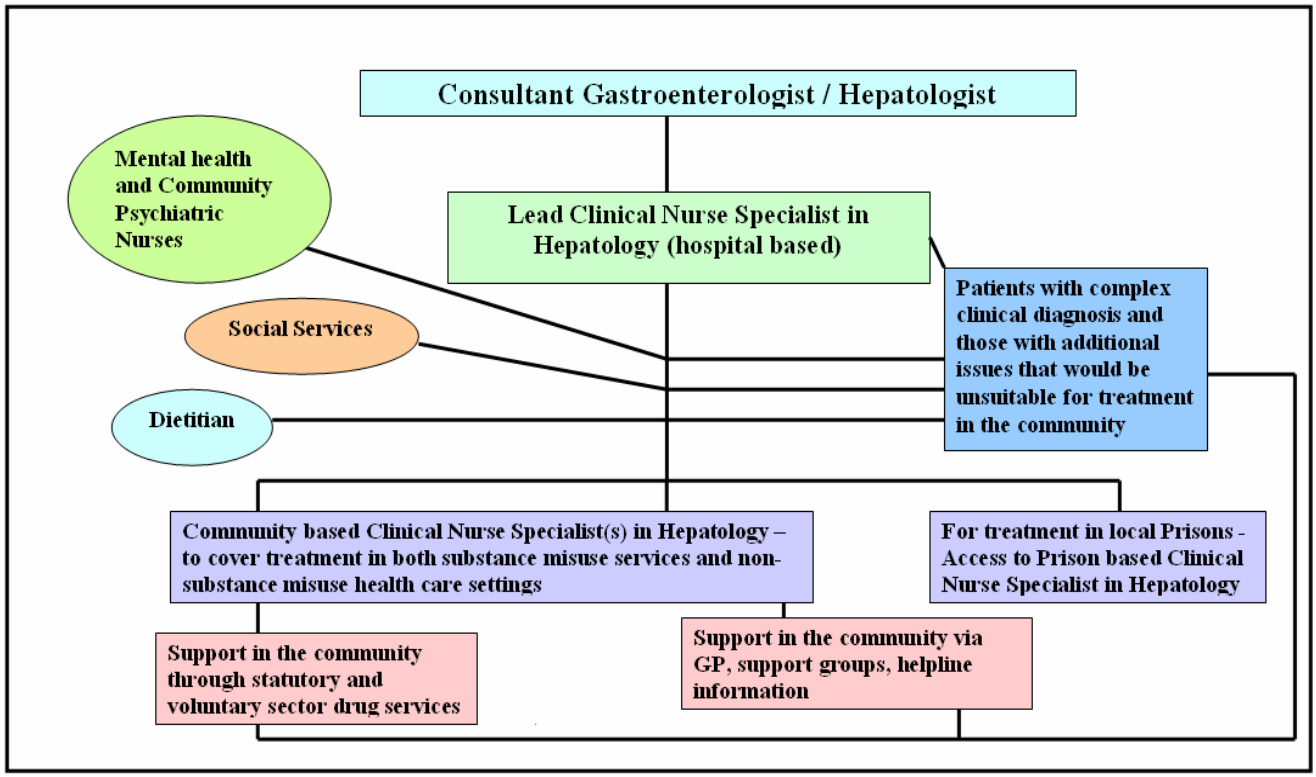
- Develop comprehensive surveillance database for chronic BBV hepatitis across Wales allowing for measurement of the impact of this action plan

Figure 2. Diagnosis and referral pathways for blood borne viral hepatitis



This figure is based on a flow chart produced by DoH[31] and outlines the key stages in diagnosis and referral to specialist hepatitis treatment services and is relevant to all those responsible for diagnosis and referral.

Figure 3. Clinical Network for the support, treatment and care of hepatitis C



Source: PHWT BBV Team

Figure 3 describes how the different specialists and organisations will work together to provide individuals in need of care with the complete treatment care package. Access can be from a number of points including primary care, specialist substance misuse treatment services, prison health and consultant referral. Similarly, post diagnosis and assessment, care can be provided in a number of venues. The rationale for this is to ensure maximum uptake of the service (minimising 'did not attend' rates), maximising benefit to the patient (decreased travelling time, decreased number of separate contacts with health care services, and increased likelihood of adherence).

Fundamental to the clinical care is the parallel provision of support from specialist mental health services, social services, dietetics and community based support services, including services for those requiring substance misuse support. This network allows for the treatment of patients in community settings where possible and appropriate, as well as ensuring that those with more complex health issues requiring more intensive care, may receive this care in a hospital environment.

Section 4: New Actions required

Evidence statements can be found in the appendix

4.1 National level; Welsh Assembly Government

Recommendation	Standard to be achieved (& evidence statement)
4.1.1 Negotiate a Welsh enhanced service to ensure provision of HBV vaccination to all high risk groups contacted within primary care	Standard: Service delivered as per recommendations in Immunisation against infectious diseases[25] Outcome measurement: Increase in Hep B vaccination in high risk groups Evidence statement D
4.1.2 Support the development of standardised data collection on Needle and Syringe Exchange service (NSE) activity and availability across Wales in collaboration with the all Wales NSE Forum and NSE co-ordinators	Standard: All NSE services provide standardised data for analysis Outcome measurement: 100% achieve standard Evidence statement H
4.1.3 Support an awareness raising campaign for the people of Wales, learning from the experiences of England, Scotland and France Support a targeted awareness raising campaign appropriate for ethnic minority populations in Wales and those from countries with a high prevalence of HCV and/or HBV Provide clear, culturally specific and regularly updated information on the consequences and options facing individuals diagnosed with BBV hepatitis	Standard: a multifaceted campaign that reaches all sectors of society Outcome measurement: Year on year increase in the number of new diagnoses Evidence statements B E
4.1.4 To agree with the National Offender Management service a programme to disseminate the action plan to all prisons in England and Wales	Outcome measurement: Programme in place by April 2011 Evidence statement G
4.1.5 To progress the delivery of the Treatment of Offenders Module of the *Substance Misuse Treatment Framework for Wales* for those over 18 years [31]	Outcome measurements by April 11: Module of the SMS framework in place and progress report on implementation of requirements laid out in the framework underway in all prisons in Wales *Clinical management of drug dependence in the adult prison setting*[33] Evidence statement G
4.1.6 To agree the monitoring and evaluation arrangements and monitor progress of LHBs, NHS Trusts and prisons in meeting recommendations outlined in this plan	Outcome measurements by April 2011: Brief report of progress towards aims, shortfalls highlighted

4.2 Health Service planners

Recommendation	Standard to be achieved (& evidence statement)
4.2.1 Direct the resource for the clinical networks and support services	
4.2.2 Monitor implementation of combination therapy for the treatment of HCV and HBV infection across Wales. Ensure eligibility criteria and consistently applied in all areas of Wales. Identify and address shortfalls in services	Standard: NICE Guidance Outcome measurements: number of people treated against investment Evidence statement F
4.2.3 Monitor the quality and availability of NSE. Ensure availability of quality services across Wales, with targeted services for vulnerable groups (including homeless individuals and young people)	Standard: to be defined by the All Wales NSE Forum Outcome measurement by April 2011: Short report on progress towards standard Evidence statement A
4.2.4 Support the development of standardised data collection on Needle and Syringe Exchange service (NSE) activity and availability across Wales in collaboration with the all Wales NSE Forum and NSE co-ordinators	Standard: All NSE services provide standardised data for analysis Outcome measurement: 100% achieve standard Evidence statement H
4..2.5 Establish monitoring and evaluation arrangements and monitor progress of LHBs, NHS Trusts and prisons in meeting recommendations outlined in this plan	Outcome measurements by April 2011: Brief report of progress towards aims, shortfalls highlighted

4.3 Health Boards - NSE and health promotion

Recommendation	Standard to be achieved (& evidence statement)
4.3.1 Strengthen the knowledge and training of staff (in drug services, outreach services, needle exchange services and primary care healthcare professionals) working with at-risk groups in harm reduction and BBV prevention. Co-ordinate training with appropriate professional groups. Training programmes should be accredited and records maintained in conjunction with All Wales Needle Exchange Forum	Standard: as defined in Drug and Alcohol National Occupational Standards (DANOS) *Skills for Health*.[34] Improving the Health and Wellbeing of Homeless and Specific Vulnerable Groups: Standards 2009/2014 (WAG 2009) [62] Outcome measurements by April 2011: Report on proportion of NSE staff who have documented evidence of training to DANOS or equivalent Forum to have developed an

	enhanced training standard Evidence statements A,B,C,D
4.3.2 Review local NSE services, act on any shortfall identified Ensure local NSE services record activity through standardised data collection system Ensure adequate resources for the provision of all injecting equipment and paraphernalia required	Standards as defined in: *Substance Misuse Treatment Framework for Wales*,[32] *Needle Exchange Service Framework* [35] QuADS (Quality in Alcohol and Drugs Services).[36] NTA *Models of care* [37] Outcome measurement: Services delivering to the standards Evidence statement A

4.4 Health Boards - primary care issues

Recommendation	**Standard to be achieved (& evidence statement)**
4.4.1 Negotiate a Welsh enhanced service to ensure provision of HBV vaccination to all high risk groups contacted within primary care and those working with high risk groups e.g. drug services staff, NEX and pharmacy staff	Standard: Service delivered as per recommendations in Immunisation against infectious diseases[25] Outcome measurement: Service available for those outwith of existing occupational health services. Outcome measurement: Increase in Hep B vaccination in high risk groups Evidence statement D
4.4.2 Improve uptake of BBV hepatitis testing. Clarify role of GPs in the screening of individuals with history of risk.	Outcome measurement: Year in year increase in testing Evidence statement E
4.4.3 Ensure agencies and GPs participating in diagnostic testing provide timely reporting of surveillance data to the BBV database managed by Communicable Disease Surveillance Centre (CDSC) Wales as part of enhanced surveillance program	Standard: Standardised data submitted for analysis Outcome measurements: Output monitored by PHWT Evidence statement H

4.Health Boards – Treatment and secondary care issues

Recommendation	Standard to be achieved (& evidence statement)
4.5.1 Develop clinical network and support services for those diagnosed with blood borne viral infection such that treatment is available both in the community and tertiary services	Standard for treatment and care: implement NICE guidelines in line with clinical demand Outcome measurements by April 2011 : Number of patients referred for care and managed appropriately against investment Evidence statement F
4.5.2 Ensure clinical network posts and support posts (including administrative) are funded to meet HCV and HBV diagnosis and treatment needs within the population	Standards: Staff posts funded sufficiently to implement NICE guidelines Evidence statement F
4.5.3 Ensure prescribing costs for combination therapy are realistically budgeted in light of expected prevalence of infection by locality	Standard: prescribing budgets sufficient for treatment capacity Outcome measurements: number of patients identified for treatment and who accept treatment = the number of patients who receive treatment Evidence statement F
4.5.4 Ensure continuity of care and access to support at all stages on viral hepatitis care pathway	Standard: NICE guidance Outcome measurements by September 2011 Local care pathway to be in place to cover all stages from diagnosis to treatment of follow up and shared with Treatment and Care via PHWT Evidence statement B

4.6 Local Authorities

Recommendation	Standard to be achieved (& evidence statement)
4.6.1 Address health issues relating to BBV and drug use for children under the responsibility of the local authority and those who are at risk of exclusion from School. To work with health partners to produce appropriate and targeted educational tools.	Standards: not available Outcome measurements April 2011: Brief report on educational programmes achieved to date

4.7 The National Offender Management Service (NOMS)

Recommendation	Standard to be achieved (& evidence statement)
4.7.1 Provide rolling educational programmes to be available to all staff and service users in Prison. (Program to cover injecting risk, sexual risk and risk from tattooing)	Standards not available Outcome measurements April 2011: Brief report on educational programmes achieved to date Evidence statement G
4.7.2 Working in partnership with relevant LHBs, NOMS Cymru and service providers BBV Health Care Services in prisons to be developed and delivered in accordance with the standards set out in the National Aids Trust framework and in conjunction with prison BBV nurse specialist	Standards in National Aids Trust *Tackling blood borne viruses in prison – a framework for best practice in the UK* [20]
4.7.3 Working in partnership with relevant LHBs, NOMS Cymru and service providers • ensure availability and uptake of hepatitis B vaccination by both prisoners and staff • Work with community based BBV clinical nurse specialist to provide high quality diagnosis, treatment and support for prisoners • Provide harm reduction interventions including condoms and relevant information on local substance misuse and health services for prisoners upon release	Standards for vaccination: as recommended in *Immunisation against infectious disease* [25] Standards for testing: Staff training standards as defined in DANOS *Skills for health* [34] Outcome measurements by April 2011: Increase in uptake of Hep B vaccination in prisons Evidence statement D, E, G
4.7.4 Working in partnership with relevant LHBs, NOMS Cymru and service providers design and deliver clinical drug dependence treatment services in Welsh prisons in accordance published clinical guidance	*Drug misuse and dependence – guidelines on clinical management: update 2007.* [50]. *Clinical management of drug dependence in the adult prison setting'* [33] Evidence statement G

4.8 Non-statutory organisations including patient groups

Recommendation	Standard to be achieved & evidence base
4.8.1 Strengthen the knowledge and training of staff working with at-risk groups on the transmission of infection, safe injecting techniques, HCV treatment options and HBV vaccination	Staff training standards as defined in DANOS *Skills for health* [34] Outcome implement by April 2011: Report on proportion of staff who have documented evidence of training to DANOS standards or equivalent Evidence statements A,B,C,D
4.8.2 Ensure HBV vaccination of health care workers and volunteers at risk of exposure via primary care	Standards as defined in *Immunisation against infectious disease* [25] Outcome measurements: n/a Evidence statement D

4.9 Public Health Wales Trust

4.9.1 Collaborate with all relevant partners via the All Wales Needle Exchange Forum on the development of standardised training and data collection programmes	Staff training standards as defined in DANOS *Skills for health* [34] Outcome: See 4.2.1.
4.9.2 Develop technology transfer with HPA to allow Wales based dried blood spot testing for HCV, HBV and HIV and make available to local services	Outcome measurement: DBS testing to be routinely available across Wales Outcome measurements: Technology to be available to all specialist services Evidence statement C
4.9.3 Develop enhanced surveillance database for BBV infection across Wales to cover diagnosis, care pathway, effectiveness of HCV treatment and risk factors Monitor disease trends, effectiveness of interventions and support Health Service Planners in the design of current and future services	Standard: Produce data to inform treatment effectiveness and treatment uptake. Meet WAG needs to estimate future burden of disease. Continued contribution to UK wide surveillance report *Shooting up* Outcome measurements: Achieve outputs as above on yearly basis Evidence statement H
4.9.4 Provide structured guidance for diagnostic testing for GPs and implement (when developed). Provide guidance	Outcome measurements: Increase in diagnosis of HCV infection within primary care

and clear care pathways for referral from GPs to specialist services	Evidence statement E

4.10 Necessary actions falling under the remit of WAG Substance Misuse Strategies

4.10.1 To ensure that substitute drug treatment is adequately resourced and provided in a timely fashion for all those that require it
4.10.2 Further develop extensive substance misuse outreach services to target young people most at risk; the homeless; those in local authority care; those excluded from school; those with substance misusing parents; and all homeless and vulnerable people at risk irrespective of age
4.10.3 To ensure that all relevant staff will receive appropriate training and education on the prevention, diagnosis and treatment of blood borne viruses and the additional risks posed by injecting drug use and alcohol use
4.10.4 To ensure that alcohol services are accessible to all those requiring it
4.10.5 To ensure the availability of high quality needle exchange services to all those requiring it

Section 5: Implementing the action plan

5.1 Costs of implementing the action plan These costs provide a guide to the commitment required to take the service forward annually

Recurrent Funding	Costs
Clinical Network – Human Resource costs	
Additional clinical nurse specialist (midpoint band 7+22% on costs) per treatment centre - 7 x £40,000 (matched to work load of 60 HCV positive patients/nurse on rolling basis)	**£280,000**
Additional Consultant Psychiatrist one session per week 7 x £11,000	**£77,000**
Additional Consultant physician one session per week 7 x £11,000	**£77,000**
Additional CPN support (midpoint band 6 +22% on costs) per treatment site - 7 x £34, 000	**£238,000**
Administrative support to nurse led clinics (midpoint band 4 + 22% on costs) per treatment centre 7 x £23,000	**£161,000**
Community based HCV support worker (midpoint band 6 +22% on costs) 7 x £34,000	**£238,000**
One full time public health nurse specialist to support and co-ordinate prison health care services in relation to blood borne viruses (midpoint Band 7 + 22% on costs) 1 x £40,000 plus £5,000 travel (to work across the prisons in Wales from a base in Cardiff)	**£45,000**
Technology transfer with HPA for dried blood spot testing	
0.5 wte BMS post (midpoint Band 6 + 22% on costs) to cover DBS testing 0.5 x £34,000	**£17,000**
Additional testing costs 3,000 x £28	**£84, 000**
Development and management of viral hepatitis database (CDSC) monitor diagnosis, care pathways and outcomes of treatment. To cover individuals identified via prisons, drug agencies and primary and secondary health care providers	
o Needle exchange data collection co-ordinator (midpoint Band 6 + 22% on costs)	**£34,000**
o 0.4wte Consultant – Surveillance	**£44,000**
o Programmer (midpoint Band 6 + 22% on costs)	**£34,000**
o Information Analyst (midpoint Band 5 + 22% on costs)	**£28,000**
Additional PHWT administrative support for implementation, monitoring and evaluation of the effectiveness of the Hepatitis Action plan (0.85wte midpoint Band 4 + 22% on costs)	**£20,000**
TOTAL	**£1,377,000**

The above table highlights the **minimum** required by services in Wales if further investment is to result in health gain. Not included are the following:

- **Actual drug costs -** This should be supported by Local Health Organisations as part of their commitment to delivery of NICE guidance. It is worth noting that to date the barrier to treating patients has not been the funding for drugs but rather the lack of NHS staff to deliver the care required
- **Awareness raising campaign -** A sustained programme on risk awareness based at the community level would be much more effective than a one off national campaign.

5.2 Milestones in responding to blood borne hepatitis infection in Wales

Milestones	
Action plan to be launched by WAG	
Sub groups to provide six monthly report to monitoring group	From October 2010 until April 2015
Monitoring group to report to WAG yearly 2010 - 2015	
For actions requiring no additional funding; have responded to and met recommended actions *For actions requiring additional funding*; have identified shortfalls in current provision and have placed bids for additional funding to provide additional or enhanced services as required	October 2010
WAG funding bodies to make prompt decision on funding applications for additional services (clear criteria and templates for successful bids to be available to providers)	April 2010
For actions requiring additional funding; Enhanced and additional services to commence Sub groups to provide 12 monthly report to action plan monitoring group Action plan monitoring group to report to Chief Medical Officer and WAG on progress	October 2010
Action plan monitoring group to report to Chief Medical Officer and WAG on progress.	Annually
Phase 2 from April 2015 to be presented to WAG	October 2014

5.3 Monitoring progress: working groups

The reporting structure outlined below is necessary to ensure progress is made towards defined actions in Wales and that there is clear health gain for the investment. It is proposed that each of the three key areas for action (prevention, diagnosis and treatment) are supported in their delivery by a monitoring group.

In each Health Board and within each speciality it is expected that a senior individual will be appointed to co-ordinate the collection of information relevant to each of three sub groups (prevention group, diagnostic group and treatment group). The three sub groups will report to the Programme Board at 6 monthly intervals from the launch date of the action plan. The Programme Board will report directly to the Welsh Assembly Government and Office of the Chief Medical Officer for Wales.

Membership of working sub groups

(Suggested membership not necessarily all inclusive)

- Prevention sub group: WAG, PHWT, substance misuse providers in Wales, All Wales Needle Exchange Forum, Community Pharmacy Wales, GPC Wales, APCO, Hepatitis C Nurse Forum, Police, prison health care and service user representatives

- Diagnosis sub group: Virology Cardiff, PHWT Health Protection Teams, Hepatologists, Gastroenterologists, Hepatitis C Nurse Forum, Microbiology Network Wales, GPC Wales, Prisons and service user representatives

- Treatment sub group: Hepatology lead Wales, PHWT, GPC Wales, substance misuse providers in Wales, Hepatitis C Nurse Forum, Local Health Organisations, Health Service Planners, Diagnostic representatives

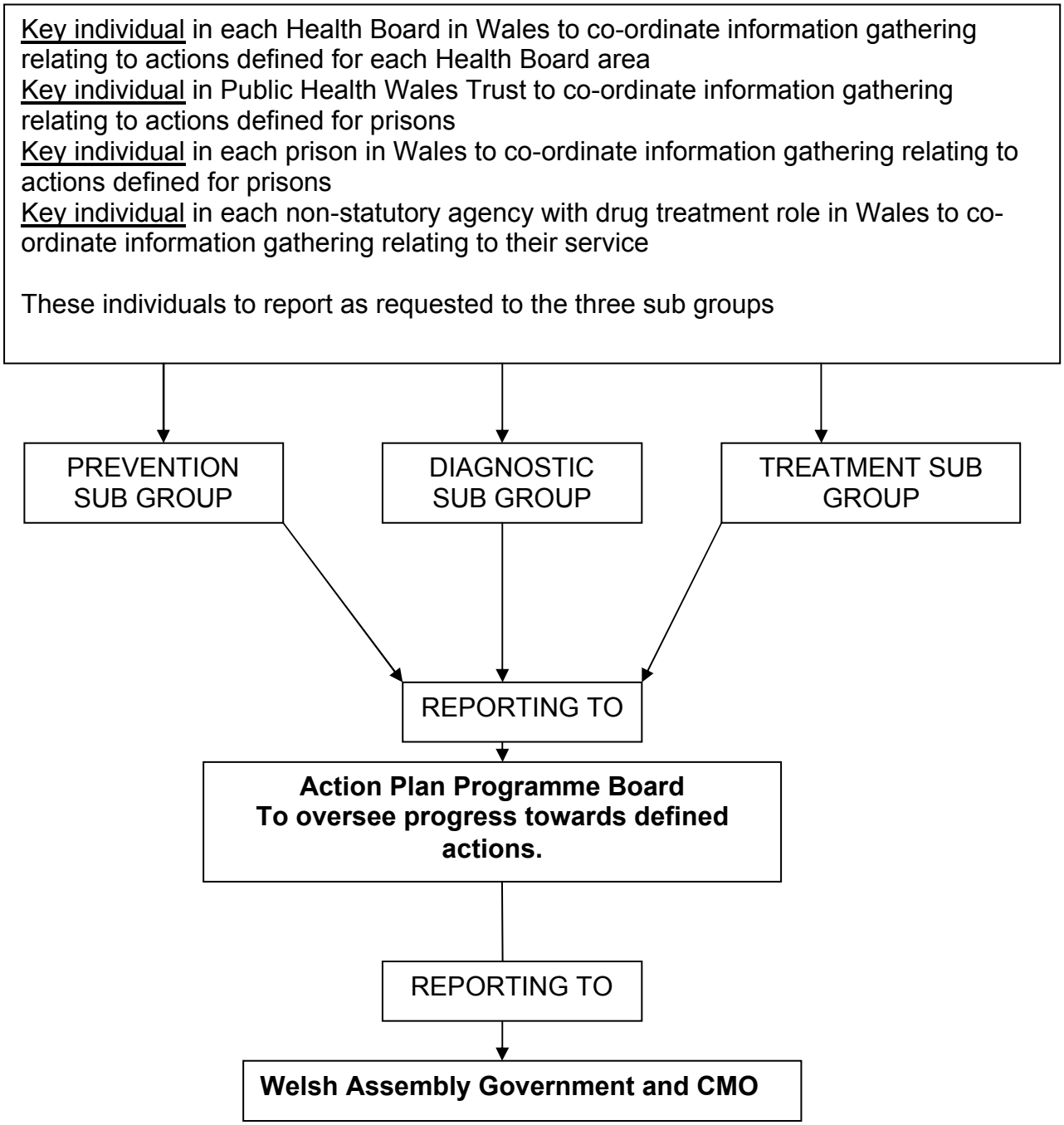
Membership of Programme Board

WAG

PHWT

Chairs of the three working subgroups

Reporting structure for action plan implementation



Appendix

Evidence statements

A Needle and syringe exchange

The NTA *Models of care* report provides a thorough review of the evidence for the effectiveness of needle and syringe exchange in reducing infection.[28] The report states that needle exchanges and other harm reduction measures are having a key role in reducing the spread of hepatitis C as well as HIV. A recent World Health Organisation review argues that needle and syringe exchange programs effectively reduce the spread of HIV among IDU.[38] Evidence for an impact on HCV is less clear and control studies on the impact of NSE, in light of the impact such studies would have on HIV, are unethical. However, epidemiological data clearly show that in countries with poor NSE provision e.g. transition countries of the former Soviet Union, then disease transmission is high. It is clear that NSE, as implemented in Wales, although essential is not sufficient on its own to prevent transmission of blood borne viral hepatitis. A recent PHWT report on the effectiveness of needle and syringe exchange provides an overview of NSE and challenges in providing a quality service.[39]

Research carried out in south Wales highlighted problems with NSE availability in some areas of south Wales and availability over weekends.[40] The attitudes of NSE staff towards users of the service are important.

National guidelines of provision of comprehensive NSE services in England are outlined in the NTA *Models of care* guidance.[28]

Paraphernalia manufactured specifically for drug injectors (single use disposable spoons, filters and sterile water) and colour coded needles to prevent mix up between individuals are now commercially available. As yet research is not available as to the impact of these interventions on disease transmission. However paraphernalia sharing is consistently associated with HCV incidence. These innovations, whilst at present lacking robust trails demonstrating effectiveness, should be considered as consistent with the aims of the prevention of transmission.

B Education

High quality evidence for the impact of education (whether peer based or non peer) on the incidence of HCV is lacking in the UK. Methodological and logistic challenges make high quality and definitive research unlikely in the short term. However peer education has been shown to be feasible amongst drug injectors in Wales.[41] A Home Office report suggested that well run peer education projects can have an important role in drugs prevention.[42] Whilst robust data on the impact of education on disease is not available it would be highly inadvisable to dismiss the importance of education of at risk individuals as an important component of the action plan.

C Treatment for opioid use

NICE recommends methadone and buprenorphine (oral formulations) using flexible dosing regimes as options for maintenance therapy in the management of opioid dependence.[27] Both drugs should be given as part of a program of supportive care. All detoxification programs require relapse prevention strategies and psychological support. While there is good evidence that OST reduces incidence of HIV there is little evidence for an impact of OST on the incidence of HCV.[43,44] An early

Australian study, carried out in a high prevalence setting, reported no significant effect of methadone maintenance on the incidence of HCV;[45] a more recent retrospective cohort study reported a non-significant but lower incidence of HCV amongst individuals in a high prevalence setting (approximately 75% HCV positive) with uninterrupted methadone maintenance therapy;[46] and a follow up study of imprisoned heroin users recruited, again from a high prevalence setting, reported that short episodes (<5 months in comparison to longer episodes) were significantly associated with risk of HCV infection[47]. Recent research in south Wales shows evidence that is consistent with a protective effect of OST on the incidence of HCV [12]. This effect was suggested in both housed and homeless populations.

NICE technology appraisal 4 recommends actions to implement community based interventions to reduce substance misuse among vulnerable and disadvantaged children and young people[29]. An overall picture of the patterns of substance misuse in Wales is available in the PHWT Health Information Analysis Team document, *Substance misuse health needs assessment 2006*.[48] The NTA *Models of care* provide guidance on treatment service provision.[28]

Treatment for opioid use in primary care is well established in Wales, however there exists great regional variation in the extent to which 'shared care' is carried out. Within shared care primary care prescribing is supported by specialist drug treatment services. The NTA surveyed GPs prescribing in England and Wales in 2001 and reported a widespread lack of confidence in prescribing to opioid users, huge geographical variation in prescribing and levels of shared care involvement, low dose prescribing and also widespread reliance on take home doses.[49] Guidelines on prescribing in primary are summarised in The NTA *Models of care* and in future will be covered in the Department of Health *Drug misuse and dependence – guidelines on clinical management: Update 2007* [28,50]

D Hepatitis B vaccination

The effectiveness of HBV vaccination is well established. Recommendations for its use and target groups are covered in *Immunisation against infectious disease*.[25]

E Diagnostic testing

Diagnostic testing is an essential step on the pathway to treatment. Research in south Wales showed that testing rates amongst IDUs were low.[1] A pilot study in north west Wales is currently using dried blood spot testing as an alternative to venepuncture testing amongst IDUs (DBS is much easier among individuals with poor vein access).[51] The outcomes of this intervention will inform testing protocols across Wales. Recent research from Ireland reported that structured clinical guidance for GPs increased screening for HCV.[52] There is little evidence in the UK for the effectiveness or otherwise for awareness raising among those who may have in the past put themselves at risk of blood borne viral hepatitis infection. However, a recent Health Technology Assessment concluded that a) case finding for hepatitis C in former injecting drug users is likely to be considered cost-effective by NHS commissioners b) improvements in treatment would improve cost effectiveness c) case finding is likely to be most effective when targeted at people with more advanced HCV disease.[53]

F Treatment for HCV and HBV

Effective drug treatment is available in Wales for HCV and HBV infection. Guidelines concerning treatment of HCV infection are described in NICE guidelines issued by the National Institute for Health and Clinical Excellence.[24] Combination therapy is now recommended for mild as well as moderate and severe liver disease. Guidelines for treatment of chronic HBV infection have been issued by the National Institute for Health and Clinical Excellence and by the British Association for Sexual Health and HIV.[26, 54]

G Prisons

With very high rates of incarceration amongst IDUs the role of prisons in addressing blood borne viral hepatitis is very important. A survey of eight prisons in England and Wales suggested that hepatitis viruses were transmitted in the prison context.[54] Possible interventions in prison are opioid substitution treatment, testing for and treating of HCV infection, hepatitis B vaccination, education around risk reduction and treatment options, provision of sterilisation kit (bleach tablets), condom provision and needles and syringe exchange in prison.

In 2006 the Department of Health published guidelines on the clinical management of drug dependence in the adult prison setting in anticipation that funding would be forthcoming for the delivery of an integrated drug treatment system, i.e. delivery of better integrated clinical and psychosocial interventions.[33] Funding for implementation has not been made available for prisons in Wales.

The guidelines represent the 'gold standard' model of service delivery, including a wide range of treatment options in which substitute prescribing, either maintenance or detoxification for opioid dependency, should play a significant role. The efficacy of these interventions within the UK context in reducing viral transmission is unknown.

Hepatitis B vaccination of prisoners is recommended by the DoH and covered in 'Immunisation against infectious disease'.[25] The HPA carry out quarterly monitoring of vaccination rates in prisons throughout the UK.

A review of research on prison based syringe exchange programs (operating in Switzerland, Germany and Spain) indicated that NSE in prisons is feasible and provided benefits in the reduction of risk behaviour and the transmission of blood borne viruses.[56] Research in Scotland has revealed that HCV transmission can occur within the prison context.[57] Following an HIV outbreak at HMP Glenochil in 1993, the Scottish Prison Service introduced several preventative measures to reduce transmission of blood borne viral transmission; these include bleach for sterilisation, counselling, detoxification and drug behaviour management programs.[58,57]

An observational study of a HCV screening program in Dartmoor Prison demonstrated the feasibility of screening for and treating HCV infection in prison[59]. Screening uptake was low and attrition rates high, especially at the referral interface between prison and specialist care and the yield of individuals eligible for treatment was low. Effective prison based screening and treatment must be designed in light of these challenges.

There is little evidence for the role of tattooing in prison in the transmission of blood borne viral hepatitis. However a study in Australia provided evidence of clinically apparent hepatitis C virus (HCV) infection developed in a prison inmate after two

tattooing episodes within the recognised incubation period for HCV infection[60]. Tattooing with unsterile equipment offers the potential for viral transmission. Prison is likely to provide the circumstances in which high risk tattooing can occur.

In 2006 the DoH and HM prison service issued guidance to all prison governors and healthcare managers that stated that governors must ensure that their establishment has a protocol setting out the arrangements under which condoms, dental dams and water based lubricants will be made available to prisoners. Provision is to be made irrespective of HIV sero-status and should be accompanied with appropriate information and any necessary counselling. These recommendations are in line with the targets to reduce HBV transmission[30, 61].

H Surveillance

The importance of good surveillance is self evident, without good surveillance data it is not possible to monitor either the changing patterns of blood borne viral hepatitis infection in Wales or to monitor the impact of interventions. Likewise good data collection is essential to monitor the uptake of treatment for HCV infection and the outcome of treatment.

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