

Blood Borne Viruses Health Needs Assessment

Spring 2020

Summary

Hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV) are the blood borne viruses that cause the greatest burden of disease. Needlestick injury is an important risk factor for acquiring infection. There are a range of policies, guidance and interventions that relate to their monitoring, control, prevention and treatment.

Hepatitis B is an infection of the liver caused by the hepatitis B virus. It can be spread through blood and body fluids, with specific groups at higher risk of infection. HBV infection is vaccine preventable. No complete data is available on the prevalence of HBV in the local population. However, between Q4 2018 and Q3 2019, 5 acute cases and 20 chronic cases were notified in Somerset, which indicates an under-identification of cases locally.

Hepatitis C affects the liver and is caused by the hepatitis C virus. It is spread through blood-to-blood transmission, with approximately 90% of UK chronic infections in people with injecting drug use. The detection rate for Somerset in 2017 was 11.7/100,000, the equivalent of 65 cases, which is similar to the 60 notified cases locally between Q4 2018 and Q3 2019.

HIV damages the cells of the immune system, Acquired Immune Deficiency Syndrome (AIDS) happens when a person's immune system has been severely damaged by the virus. HIV is spread through contact with body fluids of an infected person. An estimated 20 new cases are notified in Somerset each year. Over the last three years 57.4% were late diagnosis. There are an estimated 21 undiagnosed cases locally. Of 287 confirmed cases, 30% live in Somerset West and Taunton, 23% in Mendip, 22% in Sedgemoor and 25% in South Somerset.

A range of services are available to prevent people becoming infected by BBV's, through identification, treatment and support, including: Sexual Health Services, Somerset Drug & Alcohol Service, HCV operational delivery networks, and NHS Liver and HIV services. Current health gaps have been identified, and translated into recommendations for action, including:

1. Develop peer to peer support offer for at risk Somerset population (PWID/Homeless)
2. Review the process for monitoring and reporting on local HBV vaccination for 1-year olds.
3. In accordance with developing needlestick injury pathway (11) review organisation's needlestick injury reporting processes to include and enable reporting of incidents across the Somerset system.
4. Review availability of safe sharps disposal points across County for PWID, addressing any gaps in provision and renewing information resource for clients.
5. Review process for monitoring and reporting on local screening and treatment uptake, and outcomes for blood borne viruses (HCV & HBV).
6. Review the wider support offer available for patients diagnosed with HCV, including linkages between services (SDAS, Liver services and the Hepatitis C trust) and integrate into care pathway.
7. Review engagement offer for high risk populations (HBV/HCV), through targeted outreach service/s (i.e. community liver nurse) linking provision to all stakeholders.
8. Review information sharing arrangements between prison health, probation services and local treatment services.
9. Review the process for monitoring and reporting on local pregnancy screening data.
10. Review, renew, or develop blood borne virus pathway documents (HBV/HCV/Needlestick injury) for dissemination to services/providers.

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1. Background

There are a number of blood-borne viruses (BBV) that cause ill health, including viral haemorrhagic fevers and vector borne diseases. However, hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV) cause the greatest burden of disease from BBV's in our populations and are the focus of this need's assessment.

HBV is a viral infection carried in the blood that can cause inflammation of the liver which potentially leads to long term damage. Cases can be chronically or acutely infected. The virus is transmitted by contact with an infected person's blood or body fluids, through sexual transmission, sharing of drug paraphernalia, needlestick injury, blood transfusion, tattooing, piercing, sharing of razors or toothbrushes, and by bites or scratches. It can also be transmitted vertically between mother and baby. Hepatitis B is vaccine preventable¹.

HCV can cause inflammation of the liver. Acute HCV infection is often asymptomatic, with jaundice being uncommon and serious liver disease rare. Transmission is from contact with blood or body fluids from an infected person. There is no vaccination for HCV, but it is treatable with the use of Direct Acting Antiviral Treatment (DAAT)².

HIV damages the cells of the immune system, weakening the body's ability to fight other infections. HIV can lead to acquired immune deficiency syndrome (AIDS), where the immune system has been severely damaged by the HIV virus and the body is affected by a number of life-threatening infections and illnesses³. HIV is primarily transmitted by anal, vaginal or oral sex without a condom, sharing needles, syringes or other injecting equipment, or by vertical transmission from mother to baby during pregnancy, birth or breastfeeding. There is no cure for HIV, however it can be treated with antiretroviral medicine which lowers the viral load and allows the immune system to function. If HIV is undetectable it is untransmittable⁴.

Inoculation injuries, commonly known as "needlestick injury" are also considered in this need's assessment. They are an important risk factor for acquiring a BBV infection, requiring cases being followed up and treated over longer periods of time. Inoculation injuries include percutaneous exposure or a mucocutaneous exposure to blood or body fluids from another person. A percutaneous exposure is where a needle or sharp object that has already been used, a human scratch, or a bite, has broken the skin. A mucocutaneous exposure is where the mucous membranes i.e. mouth, nose, eyes or nonintact skin have been contaminated by blood or bodily fluids from someone else⁵. Needlestick injury may require post-exposure prophylaxis treatment for HIV, vaccination for HBV and monitoring for signs of HCV infection. Tetanus is also a risk from needlestick injury.

2. Policy context

The World Health Organisation advocate for the elimination of HBV and HCV⁶, and that people at risk of HIV should be tested and offered antiretroviral treatment if positive⁷. To

¹ NHS (2019) Overview. Hepatitis B. Online: <https://www.nhs.uk/conditions/hepatitis-b/>

²NHS (2018) Overview. Hepatitis C. Online: <https://www.nhs.uk/conditions/hepatitis-c/>

³ NHS (2018) Overview. HIV and AIDS. Online: <https://www.nhs.uk/conditions/hiv-and-aids/>

⁴ Terrance Higgins Trust (2019) Can't Pass It On. Online: <https://www.tht.org.uk/our-work/our-campaigns/cant-pass-it-on>

⁵ Ashford and St. Peters hospitals (2016) Inoculation injury policy. Online: <https://www.ashfordstpeters.info/policies/occupational-health/814-inoculation-injury-policy>

⁶ WHO (2016) Combating hepatitis B and C to reach elimination by 2030 Advocacy brief. Online: <https://www.who.int/hepatitis/publications/hep-elimination-by-2030-brief/en/>

⁷WHO (2020) HIV/AIDS. Online: www.who.int/health-topics/hiv-aids/#tab=tab_1

support this ambition there are a range of national policies, guidance and interventions that relate to the monitoring, control, prevention and treatment of BBV's in England.

HBV

A collection of guidance, data and analysis documents related to HBV has been collated by Public Health England (PHE) and is available online at: www.gov.uk/government/collections/hepatitis-b-guidance-data-and-analysis

This guidance includes:

- Public Health England. Interim guidance on the public health management and control of acute hepatitis B (November 2019)⁸.
- Hepatitis B antenatal screening and newborn immunisation programme: Best practice guidance (2011).⁹
- The Green Book (2006)¹⁰
- The Hepatitis B: migrant health guide (2014)¹¹

HCV

HCV guidance is available online at: www.gov.uk/government/collections/hepatitis-c-guidance-data-and-analysis

Guidance includes:

- Laboratory reports of hepatitis C in England and Wales (April to June 2019)
- Shooting Up: infections among people who inject drugs in the UK (2018)

HIV

HIV guidance has been collated by Public Health England and is available at: www.gov.uk/government/collections/hiv-surveillance-data-and-management

This guidance includes:

- Commissioning local HIV sexual and reproductive health services (2018)
- Health Promotion for Sexual and Reproductive Health and HIV: Strategic Action Plan 2016 to 2019 (2015)

Needlestick injury

Guidance, data and analysis documents related to needlestick injury can be found online at: www.gov.uk/government/publications/raising-awareness-of-needlestick-injuries-in-healthcare-settings

Guidance includes:

- Needlestick injuries in healthcare settings: raising awareness (2014)
- Inoculation injuries and children in schools and similar settings (2009)

⁸ PHE (2019) Interim guidance on the public health management and control of acute hepatitis B. Online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/843970/Interim_guidance_on_the_public_health_management_control_of_acute_hepatitis_B.pdf

⁹ (2011) Hepatitis B antenatal screening and newborn immunisation programme: Best practice guidance. Online: <https://www.gov.uk/government/publications/hepatitis-b-antenatal-screening-and-newborn-immunisation-programme-best-practice-guidance>

¹⁰ (2006) Immunisation against infectious disease. The Green Book. Online: https://webarchive.nationalarchives.gov.uk/20080817104105/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_079917

¹¹ PHE (2017) Hepatitis B: migrant health guide. Online: <https://www.gov.uk/guidance/hepatitis-b-migrant-health-guide>

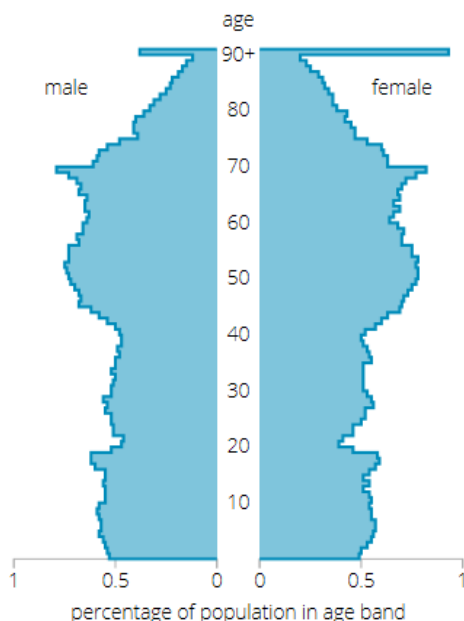
Preventing the transmission of BBV's through health promotion, diagnosis, treatment and support of infected, and at risk, individuals aligns to the national priorities set out in the NHS Long Term Plan (2019)¹², the strategic priorities of Somerset County Council's Improving lives in Somerset strategy (2019-2028)¹³, and the priorities set out by Somerset Clinical Commissioning Group in the Fit for my future strategy¹⁴. Additional guidance, epidemiological reports, evidence, and service planning documents have been reviewed for the purpose of this needs assessment and are referenced throughout.

3. Local Health Needs

3.1 Demographics

In June 2017 an estimated 555,195 people lived in Somerset. The population rose by an average of 4,000 per year in the 5 years before June 2017. 52% of the population live in urban areas, and 48% live in Rural areas. 18% of the current population are children aged 0 to 15 years, with 1 in 4 residents aged over 65. At 33.7%, West Somerset has the highest percentage of people aged 65+ in the UK. There were 5367 live births in Somerset in 2017¹⁵.

Chart 1. 2016, ONS Somerset population pyramid¹⁶



The age structure for Somerset is similar to the South West region. However, Somerset has a lower proportion of people aged between 20 and 40 than the South West. Amongst those of university-age (18-20), there was a net flow out of Somerset of 2,292 in 2017. 6% of Somerset residents (31,761) were born outside the UK. With the most common country of birth being Poland. Injecting drug use is an underlying risk factors for the transmission of blood

¹² NHS (2018) NHS Long term plan. Online: <https://www.longtermplan.nhs.uk/>

¹³ Somerset Health and Wellbeing Board (2019) Improving lives in Somerset strategy 2019-2028. Online: <http://www.somerset.gov.uk/health-and-wellbeing/somerset-health-and-wellbeing-board/>

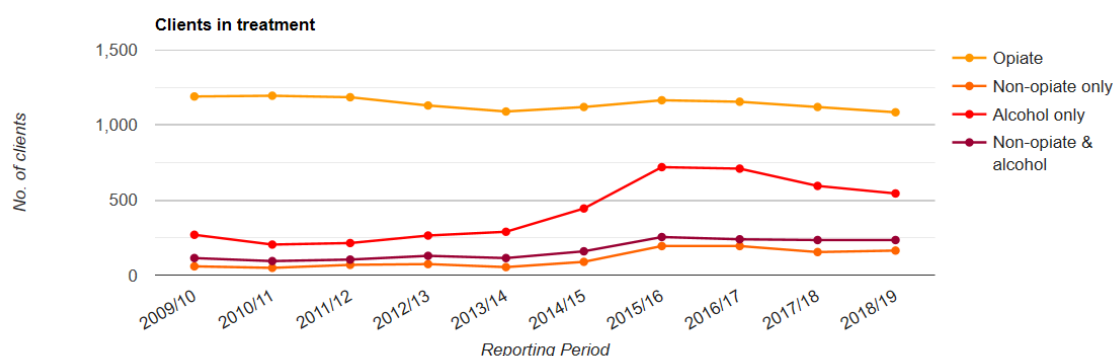
¹⁴ NHS and Somerset County Council (2018) Fit for my future. What it means for all of us? Online: <https://www.fit-formyfuture.org.uk/what/>

¹⁵ Somerset Intelligence (2018) Somerset: Facts & Figures. Online: <http://www.somersetintelligence.org.uk/somerset-facts-and-figures/>

¹⁶ ONS (2016) Population pyramids. Online: <https://www.ons.gov.uk/visualisations/dvc411/pyramids/pyramids/pyramids.html?initialWidth=944&childId=67d-411e-8d75-7cbb68ac2b44#15/322/322/null/null/false/false/na/1>

borne viruses. In 2018/19 there were 1085 people receiving treatment for opiate use in Somerset¹⁷. A large proportion of these will be people with injecting drug use (PWID)¹⁸.

Chart 2. Clients in treatment for substance use by financial year, Somerset



(Source: NDTMS, 2020)

Additional detail on the Somerset population can be found online: www.somersetintelligence.org.uk/people-and-neighbourhoods/

4. Epidemiology

4.1 Hepatitis B (HBV)

Hepatitis B is a blood borne infection of the liver caused by the hepatitis B virus (HBV). HBV is a small DNA virus in the Hepadnaviridae family. There are currently 8 known genotypes (A to H). The incubation period for HBV ranges from 1-6 months. Most HBV infections are self-limiting with cases self-clearing in a few months. However, some acute cases have severe symptoms, 1 in 20 will go on to develop a chronic infection. Chronic infection can result in liver cirrhosis (scarring of liver tissue) and cause liver cancer¹⁹. It can take between 40-160 days for symptoms to appear following infection, with some cases remaining asymptomatic, symptoms can include:

- flu-like symptoms, such as tiredness, general aches and pains, and headaches
- nausea
- vomiting
- lack of appetite
- yellowing of the skin and eyes (jaundice).

Hepatitis B can be spread through blood and body fluids such as semen and vaginal fluids. Transmission can occur:

- during unprotected sex, including anal and oral sex
- by sharing or using contaminated equipment to inject drugs
- through receipt of infectious blood (via transfusion) or infectious blood products (for example clotting factors)

¹⁷ Public Health England (2020) NDTMS - National Drug Treatment Monitoring System. Adult profiles: Clients in treatment - Somerset - All in treatment. Online: <https://www.ndtms.net/ViewIt/Adult/ExecutiveSummary.aspx>

¹⁸ Somerset Intelligence (Undated) Substance Misuse. Online: <http://www.somersetintelligence.org.uk/files/Adult%20Drug%20and%20Alcohol%20Treatment%20Needs%20Assessment%202016.pdf>

¹⁹ Sunbal, M (2014) Hepatitis B virus genotypes: Global distribution and clinical importance. Online: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4017058/>

- through needlestick or other sharps injuries
- by unsterilised and contaminated surgical, dental, tattooing or body piercing equipment
- via vertical transmission, a mother can pass the HBV infection to her newborn baby.

Hepatitis B is diagnosed by a blood test that shows a positive reaction to hepatitis B surface antigen (the outer surface of the hepatitis B virus that triggers a response from the immune system). In most cases, HBV will only stay in the body for around one to three months, this is known as acute hepatitis B. However, 1 in 20 will go on to develop a chronic infection, where a positive result means the liver is releasing hepatitis B protein into the blood, suggesting a chronic infection. 20% of chronic cases develop cirrhosis of the liver. Liver function tests are also used to assess damage to the liver from infection²⁰. Chronic cases may also remain infectious. The following groups are at higher risk of HBV infection:²¹

- People born or brought up in countries with intermediate or high prevalence (2% or greater) of chronic HBV including all countries in Africa, Asia, the Caribbean, Central and South America, Eastern and Southern Europe, Middle East and the Pacific islands.
- Babies born to mothers infected with HBV.
- People who have historically injected drugs.
- Men who have sex with men (MSM).
- Anyone who has had unprotected sex, particularly:
 - people who have had multiple sexual partners
 - people reporting unprotected sexual contact in areas of higher prevalence
 - people diagnosed with a sexually transmitted infection
 - commercial sex workers
- Looked after children and young people, including those living in care homes.
- Foster carers and people who adopt children from higher prevalence countries.
- Prisoners, including young offenders.
- Healthcare workers and laboratory staff.
- Immigration detainees.
- Close contacts of someone known to be chronically infected with HBV.

HBV infection is vaccine preventable with vaccination offered as part of the 6 in 1 vaccine to all newborn babies since August 2017. Vaccination is offered to people in at risk groups. Symptomatic treatment is offered for acute infections, allowing the body to clear the infection itself.

The main treatments for chronic hepatitis B include peginterferon alfa 2-a and antiviral medicines. Peginterferon alfa-2a stimulates the immune system to attack HBV and is usually given by weekly injection for 48 weeks. Antiviral therapy, usually tenofovir or entecavir, is offered to cases with chronic infection who do not respond to Peginterferon alfa-2a treatment. Chronic infection may require ongoing/lifelong treatment and regular monitoring of liver function.

Due to a lack of sources for routinely collected data, no complete information is available on the prevalence of hepatitis B in the local population or the proportion of infected persons who are receiving treatment for hepatitis B. However, 445 acute or probable acute cases of hepatitis B were reported in England in 2017. This gives an annual incidence of 0.80 per

²⁰ South West Health Protection Team (Undated) Hepatitis B Factsheet.

²¹ Hawker et al (2019) Communicable Disease Control and Health Protection Handbook, Oxford: Wiley-Blackwell.

100,000 populations. The majority of cases were in men (70.4%), with overall incidence of 1.14 per 100,000. The incidence in women in 2017 was 0.47 per 100,000. Men aged 25-34 years had the highest incidence of acute hepatitis B in 2017 at 1.97 per 100,000²².

There were 564 laboratory reports of acute or chronic hepatitis B from South West residents in 2017, a rate of 10.1/100,000 population²³. With 38 cases classified as acute cases, the South West incidence rate for acute HBV infection of 0.69/100,000 population.

Applying the South West rate to the 2017 Somerset population (555,195) provides an estimate of 56 chronic cases and 4 acute cases of HBV infection being reported in Somerset during the year. Between Q4, 2018 and Q3, 2019, 5 acute cases and 20 chronic cases were reported in Somerset to PHE's South West Health Protection team²⁴. This indicates an under-identification of Chronic cases in Somerset. It should be noted that not all cases of HBV infection will be identified and reported as many infected individuals will be asymptomatic and unaware of infection or will clear the infection without treatment. This increases the risk of further transmission as these cases may still be infectious.

2017 data for the South West shows that for chronic and acute notifications, 52.5% of cases were male, 45.9% female. The highest proportion of cases was in the 25-34 age group. Of those tested positive for HBV infection, higher proportions of people with Other/Mixed ethnicity tested positive for HBsAg (7.8%), followed by Black (6.1%), Asian (2.4%), Unknown (0.8%) and White (0.4%) ethnicities. An epidemiological study shows the following exposures identified in cases²⁵:

- Heterosexual exposure (54.8%).
- Sex between men (15.3%).
- PWID (0%).
- Health care related exposures, including; surgery, dental treatment, and hospital exposure (5.5%).
- Skin piercing or tattooing (3.3%).

Most 2017 cases in the South West did not have an exposure risk factor identified. However, sexual exposure was recorded for 5.9% of cases and 3.8% were travel related. The 2016/18 mortality rate for under 75's from HBV related end stage liver disease in the South West was 0.13/100,000. This is the same as the England average.

Antenatal testing of pregnant women provides an estimate of prevalence in women of childbearing age. In 2018/19, 99.7% of pregnant women under the care of Somerset NHS foundation trust (SNFT) were screened for HBV infection. 99.3% at Yeovil District Hospital, 100.0% at Weston General Hospital and 99.2% at Royal United Hospitals Bath²⁶. National data indicates that approximately 0.45% of those tested will be HBV service antigen (HBsAg) positive²⁷. In the South West, 1.77/1000 pregnant women screened positive in 2016/17, with

²² PHE (2018) Acute hepatitis B (England): annual report for 2017. Online:

²³ PHE FS (2019) Hepatitis B in the South West. 2017 data. Online:

²⁴ PHE (2019) Collated Quarterly Health Protection Surveillance Reports (Q2 2018 to Q3 2019). PHE South West.

²⁵ PHE (2018) Acute hepatitis B (England): Annual report for 2017. Online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/736145/hpr3118_hepB.pdf

²⁶ PHE (2019) Antenatal and newborn screening data: Q4 (1 January to 31 March 2019). Online: <https://www.gov.uk/government/publications/nhs-screening-programmes-kpi-reports-2018-to-2019>

²⁷ NICE (Undated) Hepatitis B and C: ways to promote and offer testing to people at increased risk of infection. Online: <https://www.nice.org.uk/guidance/ph43/resources/hepatitis-b-and-c-ways-to-promote-and-offer-testing-draft-guidance2>

0.42/1000 being newly diagnosed cases. Applying this rate to the 5367 births in Somerset in 2017, gives an estimate of 10 women screening positive for HBV, of these 2 would be newly diagnosed²⁸.

The proportion of screen positive pregnant women attending a specialist assessment within 10 days in the South West in 2016/17 for HBV was 74.3%. This is below the achievable (99%) and acceptable (95%) targets. Of South West women in 2016/17, 85% received timely assessment for HBV. In 2016/17, 95.3% of South West babies born to HBV positive women received their first dose of HBV vaccine, 100% of those babies requiring immunoglobulin received it within 24 hours of birth²⁹. Data for Somerset is unavailable. 1-year old vaccination coverage for Somerset in 2018/19 was 83.3%, and 2-year-old vaccination coverage was 100% (PHOF, 2019).

Hepatitis B can be transmitted through the sharing of needles, syringes and other injecting equipment among PWID. The proportion of PWID who have ever been infected with HBV in England, Wales and Northern Ireland has declined over the past 10 years, falling from 20% in 2007 to 16% in 2017. Approximately 0.19% (1 in 500) PWID have acute HBV infection³⁰. In the South West, the prevalence of historic infection with HBV as measured by the prevalence of the antibody Anti-HBc, has decreased over the last decade (16% in 2008 to 12% in 2017) and in 2017 was lower than that seen in England overall (17%).

Applying the percentage 0.19% to the 2018/19 population of opiate users in Somerset (1085) gives an estimated 2 acute cases of HBV infection per year in this group. Applying the 12% rate for historic infection provides an estimate of 130 PWID having been infected with HBV in Somerset. In the South West, self-reported uptake of at least one dose of the HBV vaccine in PWID was 78% in 2017. In 2016/17, 12.3% of people entering drug misuse treatment in Somerset who were eligible, completed a course of HBV vaccination (PHOF, 2019). Additional service data can be found in section 5.

4.2 Hepatitis C (HCV)

Eliminating Hepatitis C is a Public Health England ambition³¹. Hepatitis C is a blood borne infection affecting the liver caused by the hepatitis C virus. HCV is a small RNA virus in the Flaviviridae family. There are six recognised genotypes of HCV. The most common in the UK are genotypes 1 and 3³². The incubation period for HCV ranges from 2 weeks to 6 months. HCV often does not have any noticeable symptoms until the liver has been significantly damaged. This means cases may have the infection without realising it. When symptoms do occur, they can be mistaken for another condition. Symptoms can include:

- flu-like symptoms, such as muscle aches and fever
- fatigue
- loss of appetite

²⁸ ONS (2017) Births in England and Wales: Summary tables. Online: <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/datasets/birthsummarytables>

²⁹ PHE (2019) NHS Infectious Diseases in Pregnancy Screening Programme. Online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/800511/IDPS_data_report_2016-17.pdf

³⁰ Public Health England, Health Protection Scotland, Public Health Wales, and Public Health Agency Northern Ireland (2018). Shooting Up: Infections among people who inject drugs in the UK 2017. Accompanying data tables. London, Public Health England. Online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/756673/Shooting_Up_2018_Data_Tables.pdf

³¹ PHE (2019) 2020 Impact targets for HCV elimination.

³² The Hepatitis C trust (2019) About the hepatitis C virus. Online: <http://www.hepctrust.org.uk/about-hepatitis-c-virus>

- abdominal pain
- nausea and vomiting.

About 80% of cases with an acute infection will become chronically infected. Three quarters will have a degree of active liver disease. Long-term complications of chronic infection include liver cirrhosis and cancer. With chronic cases remaining infectious. HCV is usually spread through blood-to-blood transmission, it can be spread by:

- sharing unsterilised needles
- sharing razors or toothbrushes
- from a pregnant woman to her unborn baby.

HCV can also be spread through unprotected sex, although this is rare.

Approximately 90% of chronic infections in the UK are in PWID. The following groups are at higher risk of infection from HCV infection (Hawker 2019):

- People who received a blood transfusion before 1991 or blood products before 1986.
- People born or brought up in a country with an intermediate or high prevalence (2% or greater) of chronic HCV including all countries in Africa, Asia, the Caribbean, Central and South America, Eastern and Southern Europe, the Middle East and the Pacific islands.
- Babies born to mothers infected with HCV.
- Prisoners, including young offenders.
- Looked-after children and young people, including those living in care homes.
- People living in hostels for the homeless or sleeping on the streets.
- HIV-positive MSM.
- Close contacts of someone known to be chronically infected with HCV.

Hepatitis C is usually diagnosed using 2 blood tests, an antibody test and a polymer chain reaction (PCR) test. The antibody test is used to determine if a person has ever been infected with HCV. The PCR test is used to check for current (acute) infection. HCV infection is not vaccine preventable. However, more than 90% of people with hepatitis C may be cured using the newest forms of DAAT treatment.

In 2015 an estimated 182,400 people in the UK were living with chronic HCV infection. Prevalence is estimated to have fallen in recent years, declining to around 143,000 in 2018. Of these chronic infections, two-thirds are thought to be undiagnosed³³. During 2018, there were 10,669 confirmed laboratory reports of hepatitis C in England and Wales. Nationally, the majority of HCV infections are in men (68.4%). The highest number of reports is in the 15-44 age group. Table 1 provides an estimate for the number of chronic HCV infections in the South West Peninsula operational delivery network (ODN).

³³ PHE (2019) Hepatitis C in the UK 2019 Working to eliminate hepatitis C as a major public health threat. Online:

Table 1. HCV Operational delivery network profile for the South West Peninsula³⁴

Prevalence estimates (end of 2017)			
Risk group	Risk group size	Chronic infections	% prevalence
PWID	5,390	1,260	23.4%
Ex-PWID	20,490	2,190	10.7%
S. Asian never injectors	8,900	20	0.22%
White/other never injectors	1,956,000	270	0.01%
Total population	1,990,780	3,770	0.19%
Credible interval for total chronic infections:		2,990 - 4,680	

In 2018 the number of HCV infections in the South West reported to laboratory's was 813, this was less than 2017 when 932 cases were reported. Across Bristol and Severn, and South West Peninsula Operational Delivery networks, in 2018, 527, and 108 cases had been allocated to treatment (635 in total).

The HCV detection rate for 2017 in Somerset was 11.7/100,000. This is the equivalent of 65 cases³⁵. Between Q4, 2018 and Q3, 2019, 60 HCV cases in Somerset were reported to the South West Health Protection team. During 2017-2018, in England, Wales and Northern Ireland, 54% of PWID had evidence of ever being infected with HCV (57% in Scotland). Just over a quarter (27%) had evidence of current viraemic (HCV RNA positive) infection in England, Wales and Northern Ireland; (31% in Scotland) (PHE, 2018).

By applying the national percentage for ever being infected (54%) and acute infection (27%) to the 2018/19 number of opiate users in Somerset as an indicator of PWID (1085), we can estimate the number of people having been infected with HCV during 2017 as 586. We can also estimate the number of Acute HCV cases as 293. If we use the South West peninsula percentage (23.4%) this falls to 254 acute cases in Somerset. In 2017/18 the percentage of people in drug misuse treatment who inject drugs who had received an HCV test was 87.5%, the equivalent of 777 people (PHOF, 2019). Additional local data can be found in section 5.

The under 75 mortality rate from HCV related end-stage liver disease/hepatocellular carcinoma in Somerset between 2016 to 2018 was 0.20/100,000.

³⁴ PHE (2017) Operational Delivery Network (ODN) area profiles: data and provisional modelling of the HCV epidemic. Online: <https://www.gov.uk/government/publications/hepatitis-c-commissioning-template-for-estimating-disease-prevalence>

³⁵ Public Health Outcomes Framework [PHOF] (2019) Health protection profile. Online: <https://fingertips.phe.org.uk/pro-file/health-protection/data#page/1/gid/1938133211/pat/6/par/E12000009/ati/102/are/E10000027>

4.3 Human Immunodeficiency Virus (HIV)

HIV, a species of Lentivirus, damages the cells of the immune system, attacking CD4 cells (T-Cells), weakening a person's ability to fight everyday infections and disease. Acquired immune deficiency syndrome (AIDS) is the name used to describe a number of potentially life-threatening infections and illnesses that happen when a person's immune system has been severely damaged by the HIV virus³⁶.

HIV is spread through contact with body fluids of an infected person. Including contact with semen, vaginal fluids, anal fluids, blood and breast milk. HIV can be transmitted through unprotected anal and vaginal sex, sharing of needles, syringes or other drug paraphernalia, and vertically from mother to baby, during pregnancy, birth or breastfeeding. The most common route of infection is sex between men. The incubation period for HIV varies with age at which infection occurs. Without treatment the median disease progression period from HIV to AIDS is estimated to be approximately 10 years for young adults and significantly shorter for infants and older adults³⁷.

Following infection most people experience a short flu like illness, including fever, headache, rash or sore throat. This often occurs 2-6 weeks after being infected. After these symptoms disappear, the virus may not cause any symptoms, but goes on to damage the immune system. The following groups are at higher risk of HIV infection (Hawker 2019):

- Men who have sex with men (MSM).
- People born or brought up in a country with an intermediate or high prevalence.
- Babies born to mothers infected with HIV.
- People who have ever injected drugs.
- Anyone who has had unprotected sex, particularly:
 - people who have had multiple sexual partners
 - people reporting unprotected sexual contact in areas of intermediate and high prevalence
 - people diagnosed with a sexually transmitted infection
 - commercial sex workers
- Prisoners, including young offenders.

The most common route of transmission is sex between men, with cumulative figures over years showing this. However, recent reporting shows trends are changing, with transmission in this group declining. In 2018, 51% (2,250/4,453) of exposures were reported among gay and bisexual and other men who have sex with men (GBM), 19% (850/4,453) and 25% (1,090/4,453) were among men and women respectively who reported heterosexual sex as their probable route of infection. 2.5% (110/4,453) of exposures were among PWID³⁸. Another epidemiological study³⁹ showed the ethnic breakdown of cases, 69% were White, 14% Black African, 1% Black Caribbean, 11% Other/mixed. It also identified similar risk factors for transmission:

³⁶ NHS (2018) Overview HIV and AIDS. Online: <https://www.nhs.uk/conditions/hiv-and-aids/>

³⁷ Reference missing.

³⁸ PHE (2019) HIV in the United Kingdom: Towards Zero HIV transmissions by 2030. 2019 report. Online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/858559/HIV_in_the_UK_2019_towards_zero_HIV_transmissions_by_2030.pdf

³⁹ PHE (2019) Trends in new HIV diagnoses and in people receiving HIV-related care in the United Kingdom: data to the end of December 2018*. Online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/835084/hpr3119_hiv18-v2.pdf

- Sex between men (50%).
- Heterosexual contact (34%).
- Injecting drug use (3%).
- Mother to child (1%).
- Other (1%).

HIV is usually detected through the use of a blood or saliva tests. These can be completed in a clinical setting, in the community or at home. Blood tests give a more reliable result. Following an initial positive test further confirmatory testing will be carried out. During 2018 HIV prevalence in the UK was estimated at 103,800 cases. With an estimated 7,500 of these people living with an undiagnosed HIV infection, with 6,700 undiagnosed cases in England⁴⁰. Approximately 1.2% of PWID have HIV infection⁴¹.

In 2018 there were 224 newly diagnosed people in the South West (166 males, 58 females). Of these, 18 had AIDS at diagnosis. The majority of diagnosis were in people aged between 35-49. There were 2 deaths in the South West attributed to HIV in 2018⁴². In Somerset the HIV diagnosed prevalence rate in those aged 15-59 has remained steady since 2010, for 2018 it was 0.85/1,000 (Chart 3). This is the equivalent of 249 cases. This is lower than the South West (1.3/1,000) and England (2.37/1,000). Diagnosed prevalence in Somerset has increased since 2011 (PHOF, 2019). The population of people living with diagnosed HIV infection is growing older and diversifying. In 2017 more than a third (39%) of people receiving HIV care were aged 50 years or above, compared to 18% in 2008⁴³. This is expected to rise to 54% by 2028⁴⁴.

Table 2. 2018 South West HIV incidence by age group

Age	2018
<15	*
15 – 24	14
25 – 34	67
35 – 49	81
50 – 64	45
65 and over	16

(* <5)

⁴⁰ PHE (2019) Prevalence of HIV infection in the UK in 2018. Online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/843766/hpr3919_hiv18.pdf

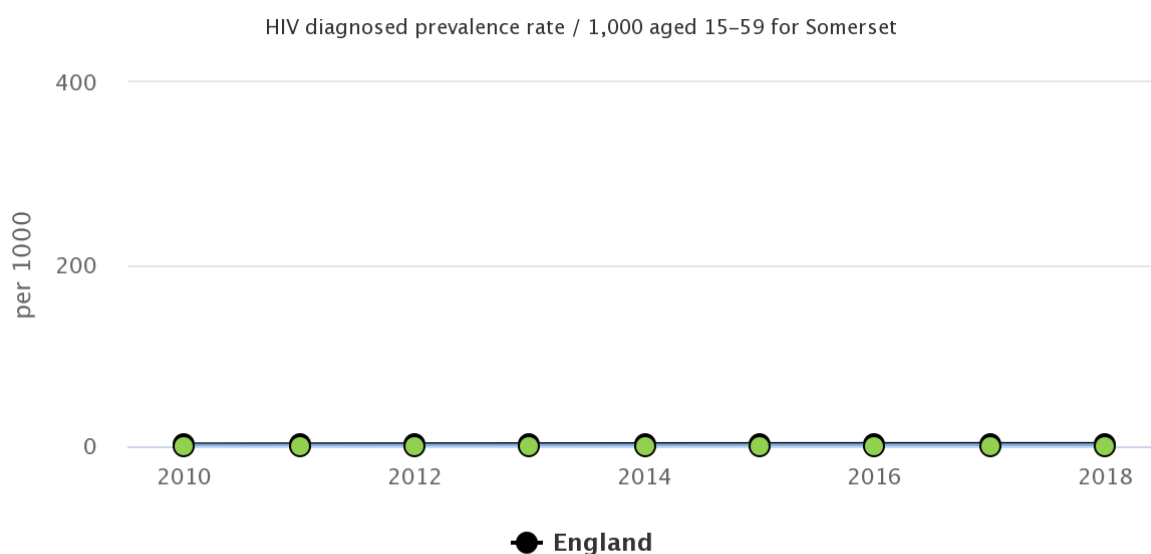
⁴¹ PHE (2018) Unlinked anonymous HIV and viral hepatitis monitoring among PWID: 2018 report. Online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729614/hpr2718_uam-pwid.pdf

⁴² PHE (2019) PHE Centre and London sector HIV data tables. Online: <https://www.gov.uk/government/statistics/hiv-annual-data-tables>

⁴³ Public Health England (November 2018) Progress towards ending the HIV epidemic in the United Kingdom: 2018 report-summary, key messages and recommendations

⁴⁴ The King's Fund (April 2017) The future of HIV services in England: Shaping the response to changing needs

Chart 3: Somerset HIV prevalence



(Source: [Public Health England, Fingertips Health Protection Profile](#))

The number of new HIV diagnosis in Somerset in 2018 in those aged over 15 was 4.3/100,000. This is the equivalent of 20 new cases in the year⁴⁵. This is lower than the South West (4.8/100,000) and England (8.7/100,000) but is consistent with historical Somerset figures. Between 2015-17 and 2016-18 the proportion of cases diagnosed late (indicating damage having occurred to the immune system) increased from 52.3% to 57.4%. Although, small numbers may mean wide variation in this figure. Between 2016-18 this was higher than the South West (45.1%) and England (42.5%) (PHOF, 2019).

The estimated number of cases receiving HIV related care in Somerset during 2017 was 287, with 30% of these living in Somerset West and Taunton (the majority living in the Taunton Deane area), 23% living in Mendip, 22% living in Sedgemoor and 25% living in South Somerset district council areas⁴⁶. In 2018, of the 103,800 HIV cases in England, an estimated 7% have undiagnosed infection. Applied to the Somerset population living with HIV gives an estimate of 21 undiagnosed cases, although this may be an underestimate of undiagnosed cases, it gives a total of 308 people living with HIV infection in Somerset. Of those receiving HIV related care:

- 82% were male.
- 87% were White and just under 12% were Black African.
- 57% of HIV infection was acquired through sex between men.
- 42% of HIV infection was acquired through sex between women and men.

In 2017, in most district council areas the biggest proportion of people receiving HIV related care had acquired HIV through sex between men (range 42.3% to 71.4%) except for the former Taunton Deane area (now part of Somerset West and Taunton) where 56% had acquired HIV through heterosexual contact.

⁴⁵ PHE (2019) Lower tier local authority HIV surveillance data tables.

⁴⁶ Public Health England (2018) Local Authority HIV, sexual and reproductive health epidemiology reports (LASER): 2017 (for Mendip, Taunton Deane, West Somerset, Sedgemoor and South Somerset).

HIV testing is offered within sexual health services, primary care and drug and alcohol services. In 2018, 55.3% of eligible new patients in Somerset Sexual health services were tested. This is an increase on previous years, (51.4% in 2016, 54.6% in 2017) but is below the South West (65.2%) and England (64.5%) averages (PHOF, 2019). The lower percentage in Somerset may reflect a move to risk targeted testing in services. Testing is also conducted in primary and secondary care, but figures are unavailable for this report.

During 2016/17 and 2017/18 in the South West 99.5% of pregnant women were screened for HIV during pregnancy (PHOF, 2019)⁴⁷. As found for HBV screening, in 2018/19, 99.7% of pregnant women under the care of Somerset NHS foundation trust were screened for HIV infection, 99.3% at Yeovil district hospital, 100.0% at Weston general hospital and 99.2% at Royal united hospitals Bath. The proportion of screen positive women attending a specialist assessment within 10 days in the South West in 2016/17 for HIV was 81.8%. This is below the achievable (99%) and acceptable (95%) targets (PHE 2019, Infectious Diseases in Pregnancy Screening Programme [IDPSP]).

4.4 Needlestick injury

Inoculation injuries, commonly known as “needlestick injury” involves a person having a percutaneous exposure or a mucocutaneous exposure to blood or body fluids from another person. A percutaneous exposure is where a needle/sharp object that has already been used, a human scratch, or a bite, has broken the skin. A mucocutaneous exposure is where the mucous membranes i.e. mouth, nose or eyes or nonintact skin have been contaminated by blood or bodily fluids from someone else. The risk of infection from such an injury is low⁴⁸.

Risk of transmission depends on a range of factors, including; viral load of source patient, depth of injury and if the procedure involved a source patient’s veins or arteries being accessed with a needle. Workers at risk of exposure include, clinical staff, laboratory staff, non-clinical support staff, and includes professionals working in a range of other settings.

Needlestick injury may require post-exposure prophylaxis treatment for HIV, vaccination for HBV and monitoring for signs of HCV infection. Tetanus is also a risk from needlestick injury.

Between 2004 and 2013 there were 4830 occupational needlestick injuries nationally that were reported to the surveillance system. 549 of these came from the 17 reporting sites in the South West. Breaking these figures down provides an estimate of 5 reported incidents per site, per year being reported in the South West, or 10-15 in Somerset. A greater number of incidents will go unreported⁴⁹.

Nationally, 54% of source patients had HCV, 30% had HIV and 9% had HBV. The number of reported incidences has increased annually. Of exposures, 71% were percutaneous, involving a sharps injury and 29% were mucocutaneous. Where recorded the occupation of those exposed included 42% nurses and healthcare assistants, 41% doctors and 1.5% ancillary staff.

⁴⁸ Health and Safety Executive (Undated) Risk to healthcare workers. Online: <https://www.hse.gov.uk/biosafety/blood-borne-viruses/risk-healthcare-workers.htm>

⁴⁹ PHE (2015) Preventing bloodborne virus exposure from workplace injuries. Online: <https://publichealthmatters.blog.gov.uk/2015/01/05/preventing-bloodborne-virus-exposure-from-workplace-injuries/>

Other groups identified included; Dentists, Midwives, Allied health professionals and unknown staff groups. This report showed negligible risk of transmission for HBV and HIV. The risk of transmission for HCV was 1 on 285⁵⁰.

The risk of transmission of HBV from a percutaneous inoculation injury ranges from 6% to 30% when the source is known to HbsAg positive during acute illness or HbeAg positive with absent 'anti-e' antibody. The risk from mucous membrane exposure to sputum, urine and vomitus are considered low unless they contain blood. The risk of infection with HCV from a penetrating injury is estimated to be about 1-3%. With transmission via mucous membranes contamination being much lower. The risk of HIV infection from a penetrating injury is estimated to be about 0.3% and even lesser from mucous membrane contamination⁵¹.

No wholly accurate data is available to describe the number or type of such incidents each year for the Somerset population. Data from Somerset County Council indicates that no needlestick injuries have been reported through the Council's monitoring system in the last 5 years. For the period 2014/15 to 2018/19, HES data indicates there have been 72 discharge episodes at Musgrove Park hospital and 31 at Yeovil District Hospital that have included a diagnosis code related to needlestick injury (W46). These incidents are fairly rare with approximately 20 a year across the two hospitals⁵².

5. Local services for the prevention and treatment of blood borne viruses

A range of preventative, diagnostic and treatment services for BBV are available in Somerset. This needs assessment focusses on services serving higher risk populations for infection. With the following stakeholder organisations engaged;

- Somerset County Council Public Health
- Somerset Wide Integrated Sexual Health Service
- Somerset Drug and Alcohol Service and Turning Point
- Somerset NHS Foundation Trust Hepatology Services
- Somerset NHS Foundation Trust HIV service (Starling Clinic)

5.1 Sexual Health Services

Somerset residents access a range of sexual health services that provide testing, diagnosis and treatment for sexually transmitted infections, including BBV's, services include:

- Somerset Wide Integrated Sexual Health Service (SWISH).
- Somerset HIV treatment Service, Starling Clinic, Somerset NHS Foundation trust
- Weston Integrated Sexual Health Service (WISH) Part of Unity sexual health.
- The Riverside Clinic, Royal United Hospitals Bath NHS Foundation trust.
- The Eddystone Trust.

The Somerset HIV referral pathway and the post exposure prophylaxis (PEP) pathway can be found in appendix A and B.

⁵⁰ Woode Owusu M, Wellington E, Rice B, Gill ON, Ncube F & contributors (2014). Eye of the Needle United Kingdom Surveillance of Significant Occupational Exposures to Bloodborne Viruses in Healthcare Workers: data to end 2013. Public Health England, London.

⁵¹ PHE South West Health Protection team (2018) Needlestick and inoculation injury. Standard operating procedure.

⁵² Somerset County Council Public Health (2019) Health Episode Data. Internally generated report.

5.1.1 Somerset Wide Integrated Sexual Health Service (SWISH)

SWISH offer a range of services related to the prevention, diagnosis and management of BBV's. This includes conducting sexual health promotion, providing information and advice, and testing. The service is delivered in accordance to local⁵³ and national guidance⁵⁴. Patients individual risk factors are assessed, with information and screening offered accordingly. In addition, the service support local and national campaigns to raise awareness and prevent the transmission of sexually transmitted infections, including blood borne viruses. The service is covered by the SOMPAR needlestick policy⁵⁵.

The service offers targeted HIV prevention and screening for those in high risk groups, including MSM and people from high risk countries. Following discussion, patients who screen positive for HIV have diagnostic testing completed and are referred to the Starling clinic for confirmatory typing and ongoing treatment. They are signposted to the Eddystone trust for support. HIV post-exposure prophylaxis (PEP) is offered following potential sexual exposure, those exposed by other means access this through the Starling Clinic or Yeovil District Hospital Accident and Emergency Department (appendix A and B).

The SWISH service promotes and offers HBV vaccination as part of a wider sexual health assessment. Vaccinations are offered in line with the "Green Book" guidance⁵⁶, to patients in higher risk groups, including;

- Men who have sex with men (MSM).
- People who have experienced sexual assault.
- Those with multiple sexual partners following a risk assessment.
- To individuals who have had recent sexual contact (< 6 weeks) in a high-risk country.
- Sex workers.
- Intravenous drug users not engaged in drug and alcohol services.

SWISH does not routinely offer HBV vaccination to the wider population as these patients should be able to access HBV vaccination via GP practices. Clients engaged in drug and alcohol services should access vaccination there. Opportunistic screening is offered to at risk patients, with anyone testing positive offered supported referral to NHS Liver Services for treatment.

The service offers rapid point of care testing for HCV with discussion. Referral pathways are in place to NHS Liver Services for anyone testing positive. However, the service comes into contact with a low number of HCV positive patients, with approximately one case identified through the service in that last four years. Even this case had a previous diagnosis. In the previous financial year (2018/19), 18 individuals were screened for HCV. For those in risk groups the service offers repeat screening every 3 months, or during window opportunities.

⁵³ Somerset County Council (Undated) Somerset Sexual Health and Contraceptive Services – Management and Coordination of the Integrated Sexual Health Service. Service Specification

⁵⁴ BASHH (2019) Guidelines. Online: <https://www.bashh.org/guidelines/>

⁵⁵ SOMPAR (2017) Needlestick and contamination injury policy. Online: <https://somerseft.nhs.uk/media/4832/needlestick-and-contamination-injury-policy-v5jan-2017.pdf>

⁵⁶ Public Health England (2014) Immunisation against infectious disease. The Green Book. Online: <https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book>

5.1.2 Weston Integrated Sexual Health Service (WISH) and Unity sexual health

Residents living in the North of Somerset County, in Sedgemoor and Mendip may access screening, diagnostics and treatment through the WISH clinic at Weston General Hospital which is part of the Unity sexual health service. The provision is comparable to that of SWISH. Approximately 30% of WISH patients are Somerset residents.

Somerset residents can also access sexual health services, including HIV testing and treatment, in Bath at the Riverside clinic⁵⁷.

5.1.3 Somerset HIV Treatment Service (Starling Clinic)

The Starling Clinic delivered by Somerset NHS Foundation trust, is a Somerset based HIV service offering free and confidential HIV care, treatment and support to all people diagnosed with HIV. Referrals can be received from professionals, and patients can self-refer. PEP is offered to patients following potential non-sexual exposure, this also includes vaccination for Hepatitis B (Appendix A and B).

5.1.4 HIV Prevention and Health and Wellbeing Service

The Eddystone Trust deliver Somerset's HIV Prevention and Health and Wellbeing Service. The aim of the service is to help reduce the prevalence of HIV in Somerset and to support people living with HIV (PLWHIV) to keep well and lead independent lives. The service promotes independence and self-management for PLWHIV whilst supporting access to health and social care services when needed⁵⁸. The service is targeted at:

- Gay and bisexual men.
- Men who have sex with men who may not identify as gay or bisexual.
- Trans women or men who have sex with trans women.
- People from a country or group with a higher rate of HIV infection.

BBV prevention includes:

- Evidence-based structured behaviour change interventions.
- Supporting regular screening of higher risk individuals and offering point of care testing.
- Campaigns.
- Signposting for access to PEPSE and advice on PrEP.
- Encouraging HBV vaccinations in MSM.
- Health promotion activity.

5.1.5 Self-testing (Online)

In addition to the above services, Somerset residents can access testing for HIV online. SWISH is currently running a trial of online STI testing⁵⁹ which started in Autumn (2019). This includes testing for HIV. Any Somerset residents requesting online testing through the Unity website are directed to the NHS Choices website.

5.2 Somerset Drug & Alcohol Service (SDAS)

Somerset Drug & Alcohol Service (SDAS) is provided by Turning Point. The service is commissioned to provide free, confidential treatment and support across Somerset to anyone

⁵⁷ NHS Royal United Hospitals Bath (2020) The Riverside Clinic. Online: <https://www.ruh.nhs.uk/sexualhealth/>

⁵⁸ Somerset County Council (2019) HIV Prevention and Health and Wellbeing Service. Service Specification 2020-2022

⁵⁹ SWISH (2019) Online STI Testing Trial. Online: <https://swishservices.co.uk/online-sti-testing-trial/>

experiencing difficulties with substance use or anyone affected by someone else's substance use. The service is available for adults, young people, and their family and friends, with sites across the County⁶⁰. The current service model, and underlining specification, has been in place since 1st April 2019. Data in this section crosses over between the previous and new service model.

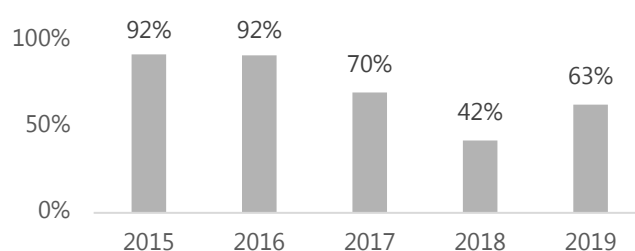
The service is commissioned to provide access to appropriate screening tests for blood borne viruses. Including the provision of HBV immunisation services and accessible support and testing for HIV, HCV and HBV. This includes pre and post-test counselling and advice. The service work in partnership to deliver pathways for onward referral for support and treatment of BBV's. Working in partnership with Primary and Secondary Care Health services, Accident and Emergency Departments and Hepatology services⁶¹.

The service aims to offer HBV vaccination and BBV screening to all new or reattending clients. Dry blood spot testing (DBST) is used for BBV screening. Clients are usually rescreened annually, with higher risk clients (sex workers, PWID etc.) re-screened every 90 days. The service aims to have 100% of staff trained to administer DBST. Turning point have a needlestick policy and at-risk staff can have HBV vaccination arranged through Lloyds pharmacy.

Any clients with a positive HBV or HCV screen are referred to hepatology services at Taunton and Musgrove Park Hospital, Yeovil District Hospital or Royal United Hospital. Clients referred to hepatology services attend appointments at hospital. Engaging with treatment can be problematic for clients given that accompanying risk factors and behaviours may limit engagement in treatment, meaning "do not attend" (DNA) rates are high.

In line with national supply issues in 2018, data from the service⁶² shows that the proportion of clients offered HBV vaccination fell that year but increased in 2019. HBV vaccination is not currently offered at all sites due to restrictions on room use. In 2019, 41% either received, or were not appropriate to receive, the HBV vaccination (Charts 4, 5 and table 3).

Chart 4. Percentage of clients who were offered a Hep B vaccination at comprehensive assessment by year.



⁶⁰Turning point (2019) Somerset Drug and Alcohol Service. Online: www.turning-point.co.uk/sdas

⁶¹ Somerset County Council (2018) Service specification. Somerset Specialist All Age Drug and Alcohol Treatment Service. Internal document.

⁶² Somerset County Council, Public health (2020) SDAS BBV Report. Internal document.

Chart 5. Percentage of clients who were offered a Hep B vaccination at comprehensive assessment who accepted or were assessed as not appropriate to offer by year.

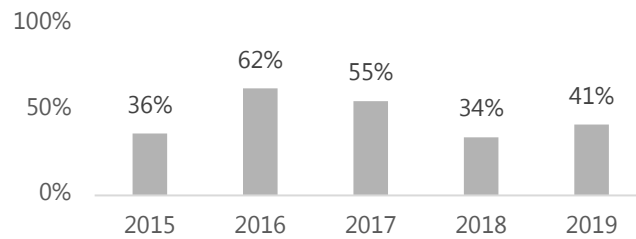


Table 3. SDAS HBV Figures

Calendar Year	No. Comp Assessments (CA)	No. CA that were offered a Hep B vaccination	No. CA that were offered a Hep B vaccination that accepted	No. CA that were offered a Hep B vaccination that accepted and have a record of vaccinations
2015	1896	1749	685	288
2016	1739	1595	1083	286
2017	1632	1143	896	268
2018	1681	709	569	212
2019	1460	919	603	218

The proportion of patients offered HCV screening in 2019 fell in comparison to previous years, with 80% offered. Of those offered 54% accepted a screening test. Year on year approximately 7% of those screened have a positive test. In 2019, 37% of positive tested patients were referred into treatment (Charts 6, 7, 8, 9 and Table 4). Currently HCV tests that are antibody positive and PCR positive are referred. Previously those that were antibody positive but PCR negative and with an unknown history of viral clearance were also referred.

Chart 6. Percentage of clients offered HCV test at comprehensive assessment by year.

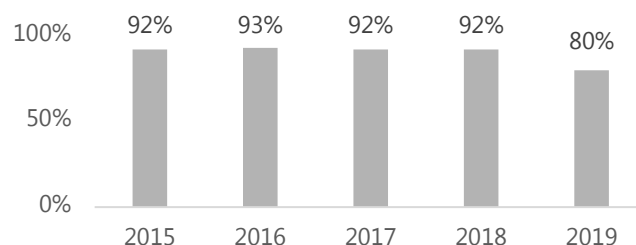


Chart 7. Percentage of clients offered HCV test that accepted by year.

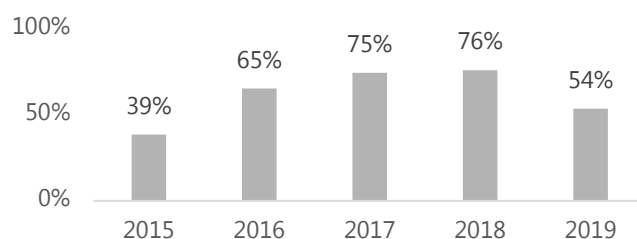


Chart 8. Percentage of clients with a comprehensive assessment that accepted an HCV test and tested positive

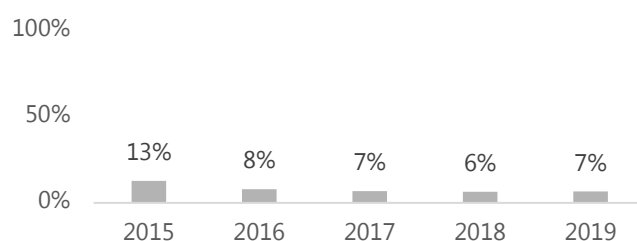


Chart 9. Percentage of clients tested positive for HCV referred on to treatment

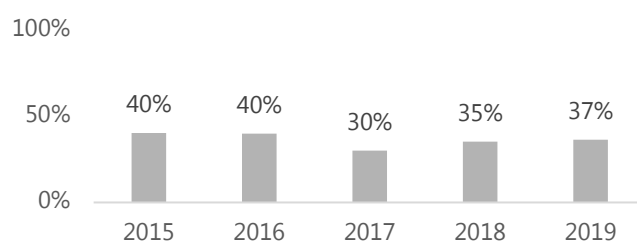


Table 4. SDAS HCV Figures

Calendar Year	No. Comp Assessments (CA)	No. CA that were offered a Hep C test	No. CA that were offered a Hep C test that accepted	No. CA that were offered a Hep C test that accepted and were tested as positive	No. tested positive for Hep C that were referred for treatment
2015	1896	1741	731	94	38
2016	1739	1614	1137	90	36
2017	1632	1499	1217	83	25
2018	1681	1543	1278	82	29
2019	1460	1164	785	52	19

In 2019, 27% of clients were offered HIV screening as part of comprehensive assessment. A small proportion of positive cases were identified (Table 5).

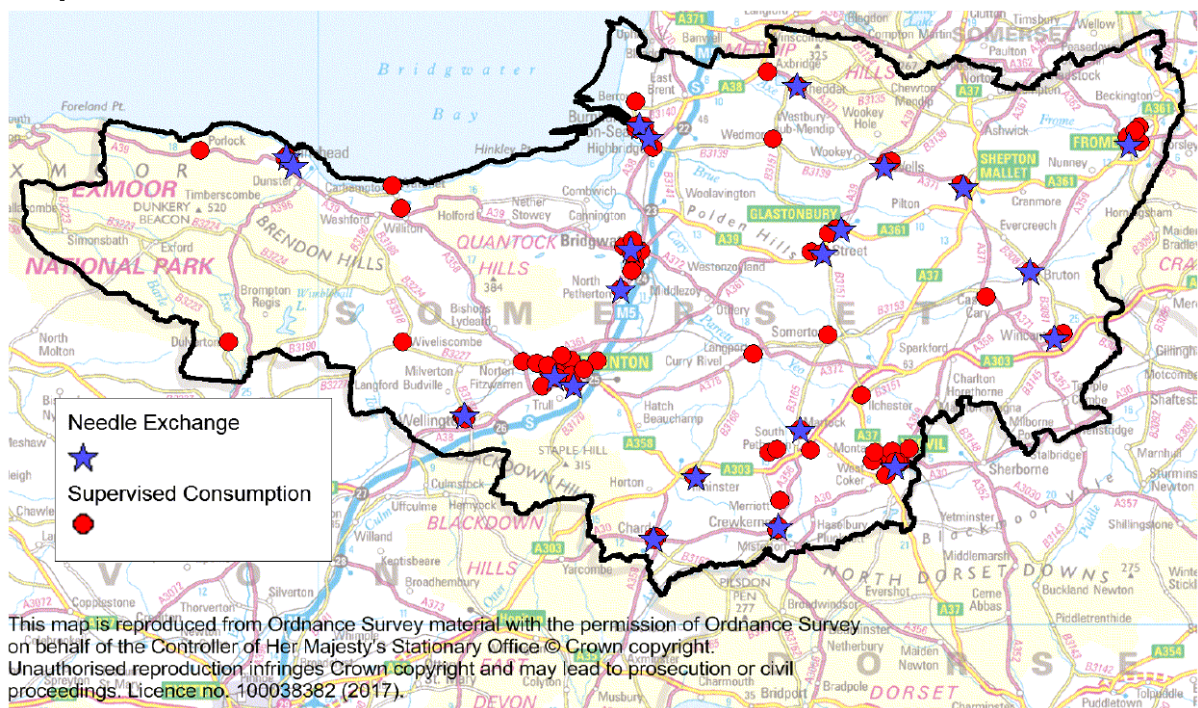
Table 5. SDAS HIV Figures

Calendar Year	No. Comp Assessments (CA)	No. clients with a CA with a record of a HIV test date	No. clients with a CA who tested positive for HIV
2015	1896	527	*
2016	1739	593	*
2017	1632	896	*
2018	1681	914	6
2019	1460	390	*

*Suppressed due to data being 5 or less

Turning point currently have an action plan for increasing uptake of BBV screening and HBV vaccination⁶³. Additionally, they provide a range of other services to reduce the risk of BBV transmission, including; needle exchange, support services, peer mentor training, peer mentors and volunteering, and wider support. Sites for needle exchange and supervised consumption are found across the County (Figure 1).

Figure 1. Locations of pharmacies delivering needle exchange and supervised consumption services as of December 2017



5.3 HCV operational delivery networks

Treatment for HCV is delivered through operational delivery networks (ODN). The aim of Specialised HCV ODN's for Adults is to maximise appropriate uptake and completion of HCV

⁶³ Turning point (2020) BBV Action Plan. Internal document. Unpublished.

treatment and to cure more people of infection⁶⁴. In Somerset HCV treatment is delivered through two ODN's, Bristol and Severn⁶⁵, and Peninsula.

The Bristol ODN is a partnership of 11 organisations delivering treatment. Somerset patients are referred to Royal United Hospitals Bath and Yeovil District Hospital for treatment⁶⁶. The Bristol and Severn HCV ODN five-year plan identifies current weaknesses and opportunities in service delivery⁶⁷.

The Peninsula ODN has a monthly run rate (how many patients to treat) of 35 patients receiving direct acting antiviral therapy (DAAT). From this 35, Somerset NHS Foundation Trust is allocated a monthly patient run rate of 5.

Peer-to-peer support is offered through the ODN and the Hepatitis C Trust. There is currently one person in this role covering Cornwall to Somerset, but it is expected that this service will be extended due to the success in other Peninsula Local Authority areas.

5.4 Somerset NHS Foundation Trust Liver Services

The liver service at Somerset NHS Foundation Trust are made up of consultant hepatologists and specialist nurses. HBV Treatment is offered for the management of disease and suppression of the virus. DAAT is offered for HCV infection. The thresholds for referral into the service have fallen dramatically with the reduction in the cost of DAAT. The service is offered to in-patients too. Patients often attend at a point of crises. The service work closely, and coordinate treatment, with services at Yeovil District Hospital, and in North Devon, North Somerset, Bristol and B&NES.

There are a number of pathways into the service. Previously, Public Health England shared details of HCV positive patients from the serological database, with 400 cases in Somerset. Of this cohort, approximately 150 patients were unknown to the service. Efforts have been made to contact and engage with this group. However, due to the relative age of the dataset a number of the cases have moved away from the area or sadly died. The added complex nature of lifestyles means this is a difficult cohort to engage. The team do not currently have a central database for HBV patients, but there are at least 65 patients being monitored or treated by the team.

There are approximately 45 HCV patients seen each year by the service, the majority of referrals come from GP's, with around one case referred every 6-8 weeks. This is a diverse cohort of patients who are often identified having had an incidental positive test result when completing liver function tests. A large proportion of referrals to the service are current or previous intravenous drug users or are from the immigrant population. GP's also make referrals on behalf of other agencies.

⁶⁴ NHS England (2016) Operational Delivery Networks for Hepatitis C Care in Adults. Online: www.england.nhs.uk/wp-content/uploads/2018/08/Operational-delivery-networks-for-hepatitis-C-care-adult.pdf

⁶⁵ University Hospitals Bristol (2012) The Bristol and Severn Hepatitis C Network. Online: <http://www.uhbristol.nhs.uk/patients-and-visitors/your-hospitals/bristol-royal-infirmary/what-we-do/hepc/bristol-and-severn-region-network/>

⁶⁶ Bristol & Severn Region HCV Operational Delivery Network (2019) Partnership Plan. Online: http://www.uhbristol.nhs.uk/media/3619986/partnership_plan_2019.pdf

⁶⁷ Bristol & Severn Region HCV Operational Delivery Network (2019) ODN Five Year Plan. Online: http://www.uhbristol.nhs.uk/media/3619983/five_year_odn_plan_2019-20.pdf

Any inpatients testing positive at Musgrove Park Hospital are referred into the service, including referrals from the Starling clinic. Referrals are also received from SWISH, including patients with different risk factors, and patients with comorbidities.

Reflecting the SDAS data there has been lower than expected number of referrals over the last 12 months from SDAS to the Liver service. Somerset NHS Foundation Trust are considering a business case for a specialist alcohol nurse with a co-specialism in drug treatment. This role would support increasing uptake in this cohort of cases. In addition, the team are available to support the development of the pathway from SDAS and for CPD with staff members.

Cases with complex lives or compounding factors have difficulty in attending clinics. The team at Somerset NHS Foundation Trust are already supporting DBST at Lindley House and some other accommodations through ARC (previously TAH) keyworkers. Key workers also bring clients to their appointments and oversee the taking of medications in these settings. This has been set up for the last 12 months and resulted in more high-risk patients taking up DAAT.

The team have developed a business case for a specialist outreach nurse for those with complex lifestyles. This is based on models developed in other ODN areas, it includes targeted outreach with local hostels and running satellite clinics at different locations across the County. A post is currently planned to be filled for this purpose, but currently on hold due to Covid 19. The team have also supported the development of the ODN peer to peer network, as this network would offer peer supported DBST for difficult to reach patients and support for cases to access treatment.

5.5 Yeovil District Hospital NHS Foundation Trust Gastrointestinal and Liver services

The team at Yeovil district hospital NHS foundation trust provide HCV and HBV treatment and care to patients in the East of the County, including those in Mendip and South Somerset districts. This is in addition to a number of patients residing in neighbouring Local Authority areas. Yeovil is part of the Bristol ODN. The majority of referrals come from turning point and Reach.

5.6 Primary care

GP's are central to the prevention, identification, and treatment of blood borne viruses⁶⁸. This includes tests and referral to treatment services. As highlighted the majority of HCV cases are currently identified by GP's. GP's offer HBV vaccination to risk groups, in 2018/19, 633 HBV vaccines were prescribed through Somerset GP practices⁶⁹. However, this does not represent the number of individuals vaccinated due to how the course of HBV vaccination is administered to patients. There is no additional data on the profile of this cohort of patients.

6. Identification of health gaps

Alongside the data, analysis and service descriptions, stakeholder engagement was used to inform on the identification of gaps in intelligence and local service provision. Gaps identified by stakeholders were edited for duplication and summarised. The following gaps were identified by stakeholders:

⁶⁸ NHS England (2019) Standard General Medical Services Contract 2018/19.

⁶⁹ Somerset CCG (2020) Medicines Management Data. Internally reported.

HBV

- Under identification of chronic HBV infections.
- Availability of local pregnancy screening data on HBV rates.
- Availability of Somerset data for use of HBV immunoglobulin for newborn's.
- The 1-year old vaccination coverage for HBV is below the target threshold (83.3%).
- Increase availability to, and uptake of, HBV vaccination in at risk groups.

HCV

- Availability of local prevalence data.
- Availability of data on number of patients screened in each setting and how many receiving or received treatment.
- Review referral of clients with differential or inconclusive diagnosis (antibody + but PCR -).
- Ensuring timely referral of clients with positive test results to treatment services.
- Develop the support offer for those diagnosed with HCV.

HIV

- Reduce the number/rate of late diagnosis for HIV.
- Prevention and testing information needs to be further promoted to heterosexual population, including consideration of risk groups, those with multiple sexual partners, those from countries with high prevalence of HIV and those living in Taunton and West Somerset.
- Availability of local data on assessment following positive screening during pregnancy.
- Availability of data on uptake of HIV online testing by Somerset population.
- Availability of more complete data on HIV screening, treatment and proportion of cases in each service meeting "undetectable means untransmittable" definition.

Needlestick injury

- Completeness of incident reporting across system and availability of data.
- Availability of safe sharps disposal in community for PWID.

Engagement of at-risk people

- Engagement of at-risk people with complex lifestyles with screening, assessment and treatment of BBV infection.
- Engagement of at-risk people who are currently unknown to services, including;
 - Those who are new to the area
 - Those on probation or being released from prison
 - Homeless individuals.
- Engagement of at-risk people in sparse and dispersed populations.
- Utilisation of existing social networks and systems of support.

Pathways and referrals

- Streamlined and appropriate referral pathways between identification services and treatment services.

- Description of appropriate access points for screening, assessment and treatment, including provision in Primary Care.
- Increasing the number of completed referrals from identification to treatment.

7. Evidence review

To supplement the review of policy and guidance, benchmarked materials and the information provided by stakeholders, an evidence review was conducted. A literature search planning form was completed, with relevant databases searched (Appendix C). An initial 2004 results were returned. Titles were reviewed for relevance, until article repetition occurred. From the title review 47 articles were selected for abstract review, with findings from 36 studies directly applicable to the development of the recommended actions and summarised here. The majority of findings came from commentary reviews, surveys, questionnaires or service evaluation. There were few randomised controlled trials found.

To summarise the evidence, it shows the prevention of BBVs is challenging but should be prioritised. Success is built on working collaboratively across systems and joining up pathways, services and provision. Interventions can be broken down into primary and secondary prevention, and include awareness raising, vaccination, treatment⁷⁰, and targeted harm reduction, tailored to the needs of specific groups and local drivers of risk.^{71,72} Services should seek to reduce the health inequalities experienced by clients, particularly those who are more vulnerable, such as women and homeless persons.⁷³ HBV could be the first of the three main infections to be eliminated.⁷⁴

Table 6. Primary and secondary prevention measures for blood borne viruses

Primary prevention	Secondary prevention
<ul style="list-style-type: none"> • Raising awareness/Counselling • Hygiene/Disinfection • Reduction of viral exposure • Pre/Post-exposure prophylaxis • Vaccination 	<ul style="list-style-type: none"> • Identification and counselling of infected people • Treatment of infected people

(Adapted from Pfaender et al, 2016)

⁷⁰ Pfaender, S. Hahn, T. Joerg Steinmann, J. Ciesek, S. & Steinmann, E. (2016) Prevention strategies for blood-borne viruses-in the Era of vaccines, direct acting antivirals and antiretroviral therapy. *Reviews in Medical Virology*; Vol. 26 Issue 5, p330-339, 10p. Online: <https://onlinelibrary-wiley-com.uoelibrary.idm.oclc.org/doi/full/10.1002/rmv.1890>

⁷¹ E, Peach, P, Francis, S, Cogger, M, Morris. (2015). Relational and contingent risk and harm reduction: blood-borne virus prevention and care in an urban, culturally diverse neighbourhood. *Drug and Alcohol Review*. Paper 73. 34 Suppl 1:50-51. Online: https://na.eventscloud.com/file_uploads/2698f12dd994a494b843ec15912afd68_116_ElizabethPeach.pdf

⁷² Caldwell, H. (2019) Preventing, identifying and treating hepatitis C. *Nursing Standard (NURS STAND)*; 34(1): 68-74. (7p). Online: <https://journals-rcni-com.uoelibrary.idm.oclc.org/doi/pdf/10.7748/ns.2018.e11321>

⁷³ Ireland, G.; Simmons, R.; Hickman, M.; Eastwood, B.; Ramsay, M.; Mandal, S. (2019) Mapping the hepatitis C cascade of care in people attending drug treatment services in England: A data linkage study. *International Journal of Drug Policy (INT J DRUG POLICY)*; 72: 55-60. (6p). Online: <https://www.sciencedirect-com.uoelibrary.idm.oclc.org/science/article/pii/S0955395919301616?via%3Dihub>

⁷⁴ Leoni, M; Ustianowski, A; Farooq, H; Arends, J. (2018) HIV, HCV and HBV: A Review of Parallels and Differences. *Infectious Diseases and Therapy*; Issue: Preprints p1-13, 13p. Online: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6249183/pdf/40121_2018_Article_210.pdf

The majority of evidence relates to PWID as the primary risk group for blood borne infection. Current opioid substitution therapy and high-coverage needle and syringe provision is having a significant impact on the transmission of BBV's, including HCV.⁷⁵ By adjoining treatment goals to the determinants of individual health, PWID can remain uninfected with BBV's.⁷⁶ The supply of drug paraphernalia should be monitored⁷⁷, and new technologies, such as Detachable Low Dead Space syringes, should be promoted with education to PWID, to reduce their risk.⁷⁸

More effective and innovative efforts may be required to disseminate effective prevention information to new PWID.⁷⁹ PWID themselves are essential harm reduction agents in the prevention of BBV, this has been effectively demonstrated in peer distribution networks for safer drug use paraphernalia.⁸⁰ Monitoring of BBV prevention and control measures in drug and alcohol services should be used to inform on provision and uptake.⁸¹ The use of observed intravenous drug use with education from professionals, may reduce transmission risk⁸². Where drug and alcohol services offer training to wider services it should be evaluated and reported.⁸³

Multi component harm reduction strategies with prison and release populations (those on probation) is more effective at reducing BBV transmission than punitive approaches to drug use.⁸⁴ The scale up of prevention and control to prison populations and promotion of active case finding in these settings will increase treatment coverage and prevent future transmission of BBV's.⁸⁵ All prisoners are entitled to the same standard of care as the wider community. However, there is variability between settings. Collaboration and more effective

⁷⁵ Ward, Z; Platt, L; Sweeney, S; Hope, V.; Maher, L; Hutchins. (2018) Impact of current and scaled-up levels of hepatitis C prevention and treatment interventions for people who inject drugs in three UK settings—what is required to achieve the WHO's HCV elimination targets? *Addiction*. Vol. 113 Issue 9, p1727-1738. 12p. Online: <http://eds.a.ebscohost.com.ueli-brary.idm.oclc.org/eds/pdfviewer/pdfviewer?vid=1&sid=f867a772-25f6-4439-9ef6-c51fe741d86b%40sdc-v-sessmgr03>

⁷⁶ Friedman, S. R.; Sandoval, M.; Mateu-Gelabert, P.; Meylaks, P.; Des Jarlais, D. (DATE) Symbiotic Goals and the Prevention of Blood-Borne Viruses Among Injection Drug Users. *SUBSTANCE USE AND MISUSE*. 46(2-3):307-315.

⁷⁷ Scott, Jenny (2010) The availability of injecting paraphernalia in the UK following the 2003 law change to permit supply. *Drugs: Education, Prevention & Policy*. Vol. 17 Issue 3, p205-215. 11p. 4 Charts.

⁷⁸ Kesten, J.; Ayres, R; Neale, J; Clark, J; Vickerman, P; (2017) Acceptability of low dead space syringes and implications for their introduction: A qualitative study in the West of England. In *International Journal of Drug Policy*. 39:99-108

⁷⁹ Jost, J.; Goldsamt, L.; Harocopos, A; Kobrak, P; Clatts, M. (2010) Hepatitis C knowledge among new injection drug users. *Drugs: Education, Prevention & Policy*. Vol. 17 Issue 6, p821-834. 14p. Online: <http://eds.b.ebscohost.com.ueli-brary.idm.oclc.org/eds/pdfviewer/pdfviewer?vid=1&sid=6637ab01-da15-4673-a480-138eaeba7f81%40pdc-v-sessmgr04>

⁸⁰ Newland, J; Newman, C; Treloar, C (2016) "We get by with a little help from our friends": Small-scale informal and largescale formal peer distribution networks of sterile injecting equipment in Australia. In *International Journal of Drug Policy*. 34:65-71. Online: <https://www.sciencedirect.com/science/article/abs/pii/S0955395916300974>

⁸¹ O'Keefe, D; Bluthenthal, R.; Kral, A; Aitken, C; (2019) Measures of harm reduction service provision for people who inject drugs. *Bulletin of the World Health Organization*. Vol. 97 Issue 9, p605-611. 7p.m Online: <http://eds.a.ebscohost.com.ueli-brary.idm.oclc.org/eds/pdfviewer/pdfviewer?vid=1&sid=05bfd3f6-1005-451c-a99b-13533ee3776a%40sessionmgr4008>

⁸² Roux, P; Le Gall, J; Debrus, M; Protopopescu, C; Ndiay. (2016) Innovative community-based educational face-to-face intervention to reduce HIV, hepatitis C virus and other blood-borne infectious risks in difficult-to reach people who inject drugs. *Addiction*; 111(1): 94-106. (13p). Online: <http://eds.b.ebscohost.com.ueli-brary.idm.oclc.org/eds/pdfviewer/pdfviewer?vid=1&sid=19012ef1-e79d-44b6-8e7f-fa7666bba443%40pdc-v-sessmgr01>

⁸³ Strike, C; Watson, T. (2017) Relationships between needle and syringe programs and police: An exploratory analysis of the potential role of in-service training. In *Drug and Alcohol Dependence*. 175:51-54.

⁸⁴ Vlahov, D; Robertson, A; Strathdee, S. (2010) Prevention of HIV Infection among Injection Drug Users in Resource-Limited Settings. *Clinical Infectious Diseases*. Supplement 3, Vol. 50, pS114-S121. 8p. Online: https://www-jstor-org.ueli-brary.idm.oclc.org/stable/40599185?seq=1#metadata_info_tab_contents

⁸⁵ Tavoschi, L; O'Moore, E; Hedrich, D (2018) European evidence-based guidance on prevention and control of blood-borne viruses in prison settings. *European journal of public health*. 28 (suppl 4).

partnership working between the criminal justice and public health systems is required for successful implementation of these strategies.^{86,87,88}

The main risks for BBV acquisition in young people were unprotected sex with multiple sexual partners and illicit drug use. Most were unaware of the risks related to high risk behaviour. Integrated service provision should be applied to deliver vaccination and educational programmes during preadolescence to at risk young people.⁸⁹ Tattooing and piercing is an additional risk factor for young people acquiring infection.⁹⁰ Online information designed to appeal to this group can provide them with relevant information on preventing infection. The challenge is to improve their usage via promotion, so they reach their potential audience.⁹¹ All looked after children should have an assessment of their risk of exposure to blood-borne infections and be tested if appropriate, with special consideration given to infants, unaccompanied asylum seekers, and older children with risk taking behaviour.⁹² Services engaging with at risk children and young people should offer more non-invasive screening tests, such as oral swabs.⁹³

Migrant health needs to be considered in the prevention of BBV transmission, including the complex interactions between migration and the wider determinants of health.⁹⁴ Successful interventions may need to be tailored and distinguish between the vulnerabilities experienced by different migration classes and in settings.⁹⁵

⁸⁶ Kamarulzaman, A; Reid, S; Schwitters, A; Wiessing, L; El-Ba. (2016) Prevention of transmission of HIV, hepatitis B virus, hepatitis C virus, and tuberculosis in prisoners. *The Lancet (ScienceDirect)*; Vol. 388 Issue: 10049 p1115-1126, 12p.

⁸⁷ Peate, I. (2011) Prisoner health: HIV infection and other blood-borne viral infections. *British Journal of Nursing (BR J NURS)*; 20(10): 605- 610. (6p).

⁸⁸ Jack, K; Islip, N; Linsley, P; Thomson, B; Patterson, A (2017) Prison officers' views about hepatitis C testing and treatment: a qualitative enquiry. *Journal of Clinical Nursing (John Wiley & Sons, Inc.)*. Vol. 26 Issue 13-14, p1861-1868.8p. Online: <https://onlinelibrary-wiley-com.uoelibrary.idm.oclc.org/doi/epdf/10.1111/jocn.13489>

⁸⁹ Sira, J; Brown, M; Ambegaokar, S; Modin, L; Kelly, DA (2019) The necessity of education and hepatitis B vaccination for young people: A study of high-risk behaviour for blood borne viruses in the United Kingdom. *Journal of Child Health Care (J CHILD HEALTH CARE)*; 23(3): 437-445. (9p).

⁹⁰ Perry M; Lewis H; Thomas DR; Mason B; Richardson G (2015) Need for improved public health protection of young people wanting body piercing: evidence from a look-back exercise at a piercing and tattooing premises with poor hygiene practices. Wales (UK). Cambridge University Press. MEDLINE. Online: <https://www-cambridge-org.uoelibrary.idm.oclc.org/core/services/aop-cambridge-core/content/view/S0950268818001024>

⁹¹ Mak, D.; Grace, J; Bastian, L; Aquilina, H; Sweeting, J. (2012) Evaluation of a sexual health and blood-borne virus health education website for youth. *Health Promotion Journal of Australia*, Vol. 23 Issue: 3 p194-200, 7p. Online: <http://eds.b.ebsco-host.com.uoelibrary.idm.oclc.org/eds/detail/detail?vid=0&sid=c5492751-c9af-45d4-9132-bb0dbcde6f13%40pdc-v-sessmgr01&bdata=JnNpdGU9ZWZrLWxpdmUmc2NvcGU9c2l0ZQ%3d%3d#AN=84915971&db=sph>

⁹² Welch, S. (2019) Blood borne infections in looked after children. *Paediatrics*. Vol. 29 Issue 1, p15-19, 5p. Online: <https://www-scienceirect-com.uoelibrary.idm.oclc.org/science/article/pii/S1751722218302348?via%3Dihub>

⁹³ Apoola A; Brunt L (DATE) A randomised controlled study of mouth swab testing versus same day blood tests for HIV infection in young people attending a community drug service. Publisher: Wiley-Blackwell Country of Publication: Australia. Drug Alcohol Rev Subsets: MEDLINE. Online: <http://eds.b.ebscohost.com.uoelibrary.idm.oclc.org/eds/pdfviewer/pdfviewer?vid=1&sid=355253d1-30f1-45df-9ebf-cef87f0b4e68%40pdc-v-sessmgr01>

⁹⁴ Ghimire, S; Hallett, J; Gray, C; Lobo, R; Crawford, G. (2019) What Works? Prevention and Control of Sexually Transmitted Infections and Blood-Borne Viruses in Migrants from Sub-Saharan Africa, Northeast Asia and Southeast. *International Journal of Environmental Research*. Vol. 16 Issue 7, p1287-1287, 1p. Online: <https://www.mdpi.com/1660-4601/16/7/1287>

⁹⁵ Melo, J.; Mittal, M; Horyniak, D; Strathdee, S. (2018) Injection Drug Use Trajectories among Migrant Populations: A Narrative Review. *Substance Use & Misuse*. Vol. 53 Issue 9, p1558-1570. 13p. 1 Chart. Online: <http://eds.b.ebscohost.com.uoelibrary.idm.oclc.org/eds/pdfviewer/pdfviewer?vid=1&sid=268ad6f7-58d7-4f39-9042-df802790db76%40pdc-v-sessmgr01>

The diagnosis of BBV's in the elderly is also important, opportunistic testing should be considered in the correct clinical context with these patients (e.g. GP's).⁹⁶ HBV vaccination is important in securing beneficial outcomes for renal patients.⁹⁷

Reported incidents of occupational exposure of healthcare workers to BBVs may be increasing, with particular staff groups at higher risk of exposure (Anaesthetists). A large proportion of occupational exposures are preventable by adherence to strict infection control practices and following guidelines for the prevention, management, testing and reporting of occupational exposure.^{98,99,100} Staff sharps training reduces needlestick injury.¹⁰¹ In the event of sharps injury, evidence suggest that PEP for HCV is not required, but close follow-up, postexposure testing, continued reassurance, and early treatment with direct acting antiviral combination therapy in the event that transmission occurs.¹⁰²

Above all, integrated and collaborative working is needed to prevent, and control BBV's. This includes providing flexible, accessible services for clients delivered through strong links and communication across organisational boundaries.¹⁰³ Integrated models using multi-disciplinary treatment planning have been demonstrated to increase HCV treatment rates in non-urban areas in the region (Cornwall).¹⁰⁴ National guidelines should be followed for pregnant women, with improved inter-sectorial sharing of information needed to reduce the risk of women of high infectivity being lost to follow up.¹⁰⁵ Improving the monitoring of provision through the development of information systems that ensure efficient, accurate and timely

⁹⁶ Kemp, L; Clare, K; Brennan, P N; Dillon, J. (DATE) New horizons in hepatitis B and C in the older adult. Age 48: 32- 37. (6p). Online: <http://eds.a.ebscohost.com/uoielibrary.idm.oclc.org/eds/pdfviewer/pdfviewer?vid=1&sid=70e96250-f725-43a5-8e0e-fa155c7e862c%40sessionmgr4006>

⁹⁷ Eaton, C; Mee O. (2012) Hepatitis B: virus and vaccination in patients with renal impairment. Journal of Renal Nursing (J RENAL NURS); 4(4): 181-186. (6p). Online: <http://eds.a.ebscohost.com/uoielibrary.idm.oclc.org/eds/pdfviewer/pdfviewer?vid=1&sid=1b829916-c542-4fa6-9682-12042fcd02c7%40sdc-v-sessmgr01>

⁹⁸ Beekmann, S; Henderson, D. (2015) Occupational Exposures among Healthcare Workers: New Methods for Prevention and Recommended Postexposure Prophylaxis for HIV and Hepatitis B and C. Current treatment options in infectious diseases, Vol. 7 Issue: 1 p28-38, 11p. Online: <https://link-springer-com.uoielibrary.idm.oclc.org/article/10.1007/s40506-014-0036-y>

⁹⁹ Ward, P; Hartle, A (DATE) UK healthcare workers infected with blood-borne viruses: guidance on risk, transmission, surveillance, and management. Continuing Education in Anaesthesia, Critical Care 15(2): 103-108. (6p). Online: <https://www-sciencedirect-com.uoielibrary.idm.oclc.org/science/article/pii/S1743181617300100?via%3Dihub>

¹⁰⁰ Deuffic-Burban, S.; Delarocque-Astagneau, E.; Abiteboul, D.; Bouvet, E.; Yazdan. (DATE) Blood-borne viruses in health care workers: Prevention and management. JOURNAL OF CLINICAL VIROLOGY. 52(1):4-10.

¹⁰¹ Martinelli, Jillian; Frazer, Leanne (2018) Keeping our staff safe (preventing acquisition of blood borne viruses). Reducing needle-stick injuries in healthcare workers. In Abstracts from the 7th International Australasian College for Infection Prevention and Control (ACIPC) conference, Infection, Disease & Health. 23 Supplement 1: S8-S8. Online: <https://www-sciencedirect-com.uoielibrary.idm.oclc.org/science/article/pii/S2468045118300907?via%3Dihub>

¹⁰² Barocas, J.; Linas, B. (2017) Decision Science at Work: The Case of Hepatitis C Virus Postexposure Prophylaxis. Clinical Infectious Diseases. Vol. 64 Issue 1, p100-101. 2p.

¹⁰³ Lewis M; Allen H; Warr J (2017) The development and implementation of a nurse-led hepatitis C protocol for people with serious mental health problems. Journal of Psychiatric 17(7): 651-656. (6p). Online: <https://onlinelibrary-wiley-com.uoielibrary.idm.oclc.org/doi/epdf/10.1111/j.1365-2850.2010.01589.x>

¹⁰⁴ Hampton, H; Farrington, E; Ellergy, A; McKenna, M; Stablefort. (2015) Community hepatitis C treatment in Cornwall: a model to improve care. Gastrointestinal Nursing (GASTROINTEST NURS), Supplement; 13(Sup9): S17. Online: <http://eds.b.ebsco-host.com/uoielibrary.idm.oclc.org/eds/pdfviewer/pdfviewer?vid=1&sid=b6e6c08d-8dd8-4a36-a284-04a8ea1c949e%40pdc-v-sessmgr06>

¹⁰⁵ Godbole, G; Irish, D; Basarab, M; Mahungu, T; Fox-Lewis, A. (DATE) Management of hepatitis B in pregnant women and infants: a multicentre audit from four London hospitals. BMC Pregnancy 13(1): 1-15. (15p). Online: <https://bmcpregnancychild-birth.biomedcentral.com/articles/10.1186/1471-2393-13-222>

recording of data within and between services, as well as developing staff skills, will be needed to support integrated approaches.^{106,107}

8. Recommendations for action

8.1 Addressing gaps identified for HCV and HBV prevention and treatment

The recommended actions in table 6 have been developed based on the available data, stakeholder feedback and evidence. Interventions from recommendations cross over, with benefits across under-engaged populations and risk groups. Some actions are already in process of being delivered. The recommendations will require further exploration by Service planners and Providers for deliverability.

8.2 Addressing gaps identified for HIV prevention and treatment

Gaps identified for HIV have been separated out and shared with members of the Somerset sexual health network, who will develop actions in accordance with their own action planning process. It should also be considered that recommended actions related to the prevention and treatment of HCV and HBV will also provide benefits for HIV prevention and treatment.

Gaps identified for HIV:

- Reduce the number/rate of late diagnosis for HIV.
- Prevention and testing information needs to be further promoted to heterosexual population, including consideration of risk groups, those with multiple sexual partners, those from countries with high prevalence of HIV and those living in Taunton and West Somerset.
- Availability of local data on assessment following positive screening during pregnancy.
- Availability of data on uptake of HIV online testing by Somerset population.
- Availability of more complete data on HIV screening, treatment and proportion of cases in each service meeting “undetectable means untransmittable” definition.

¹⁰⁶ Njoroge J; Hope VD; O'Halloran C; Edmundson C; Glass R; Parry JV; Ncube F (DATE) Are there missed opportunities for vaccinating against hepatitis B among people who inject drugs in the UK? Cambridge University Press. England: MEDLINE. Online: <https://www-cambridge-org.uoelibrary.idm.oclc.org/core/services/aop-cambridge-core/content/view/S0950268819001353>

¹⁰⁷ Simmons, R.; Ireland, G.; Irving, W.; Hickman, M.; Sabin, C.; Ijaz, S.; Ramsay, M. (2018) Establishing the cascade of care for hepatitis C in England—benchmarking to monitor impact of direct acting antivirals. *Journal of Viral Hepatitis*; Vol. 25 Issue 5, p482-490, 10p. Online: <https://onlinelibrary-wiley-com.uoelibrary.idm.oclc.org/doi/full/10.1111/jvh.12844>

Table 6: Blood borne virus action plan (HCV & HBV)

Recommended action (HCV & HBV)	Gaps addressed	Stakeholders	By when
<p>Primary prevention</p> <ul style="list-style-type: none"> • Raising awareness/Counselling • Hygiene/Disinfection • Reduction of viral exposure • Pre/Post-exposure prophylaxis • Vaccination 			
<p>1. Develop peer to peer support offer for at risk Somerset populations (PWID & Homeless).</p>	<ul style="list-style-type: none"> • Utilisation of existing social networks and systems of support. • Engagement of at-risk people with complex lifestyles with screening, assessment and treatment of BBV infection. • Engagement of at-risk people who are currently unknown to services • Engagement of at-risk people in sparse and dispersed populations. <p>Related evidence: 77</p>	<p>Somerset NHS Foundation Trust, Peninsula ODN, Ed-dystone Trust, Turning Point, SCCG, and SCC PH</p>	
<p>2. Review the process for monitoring and reporting on local HBV vaccination for 1-year olds.</p>	<ul style="list-style-type: none"> • (HBV) The 1-year old vaccination coverage for HBV is below the target threshold (83.3%). 	<p>NHS England, Public Health England</p>	

<p>3. In accordance with developing needlestick injury pathway (11) review organisation’s needlestick injury reporting processes to include and enable reporting of incidents across the Somerset system.</p>	<ul style="list-style-type: none"> • (NS) Completeness of Needlestick injury incident reporting across system and availability of data. <p>Related evidence: 95-99</p>	<p>All</p>	
<p>4. Review availability of safe sharps disposal points across County for PWID, addressing any gaps in provision and renewing information resource for clients.</p>	<ul style="list-style-type: none"> • (NS) Availability of safe sharps disposal in community for PWID. 	<p>SDAS, SCC PH+, District Councils</p>	
<p>Secondary prevention</p> <ul style="list-style-type: none"> • Identification and counselling of infected people • Treatment of infected people 			

<p>5. Review process for monitoring and reporting on local screening and treatment uptake, and outcomes for blood borne viruses (HCV & HBV).</p>	<ul style="list-style-type: none"> • (HCV) Availability of local HCV prevalence data. • (HCV) Availability of data on number of patients screened in each setting and how many receiving or received treatment. 	<p>SCC PH, SCCG and All provider organisations</p>	
<p>6. Review the wider support offer available for patients diagnosed with HCV, including linkages between services (SDAS, Liver services and the Hepatitis C trust) and integrate into care pathway.</p>	<ul style="list-style-type: none"> • (HCV) Develop the support offer for those diagnosed with HCV. 	<p>NHS Trusts, SCC PH, SDAS, SCCG</p>	
<p>Multicomponent prevention</p>			

<p>7. Review engagement offer for high risk populations (HBV/HCV), through targeted outreach service/s (i.e. community liver nurse) linking provision to all stakeholders.</p>	<ul style="list-style-type: none"> • Under identification of chronic HBV infections. • Increase availability to, and uptake of, HBV vaccination in at risk groups. • Engagement of at-risk people with complex lifestyles with screening, assessment and treatment of BBV infection*. <ul style="list-style-type: none"> o Engagement of at-risk people who are currently unknown to services, including; <ul style="list-style-type: none"> o Those who are new to the area o Children looked after* • Homeless individuals • Engagement of at-risk people in sparse and dispersed populations. <p>Related evidence: 72- 80, 100-104</p>	<p>TBC</p>	
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<p>8. Review information sharing arrangements between prison health, probation services and local treatment services.</p>	<ul style="list-style-type: none"> • Engagement of at-risk people with complex lifestyles with screening, assessment and treatment of BBV infection. <ul style="list-style-type: none"> o Those on probation or being released from prison <p>Related evidence: 81-85</p>	<p>NHS Trusts, SDAS, Prison Health/Probation Services</p>	
<p>9. Review the process for monitoring and reporting on local pregnancy screening data.</p>	<ul style="list-style-type: none"> • (HBV) Availability of local pregnancy screening data on HBV rates. • (HBV) Availability of Somerset data for use of HBV immunoglobulin for newborn's. <p>Related evidence: 102</p>	<p>Somerset NHS Foundation Trust, SCCG, NHSE/PHE</p>	

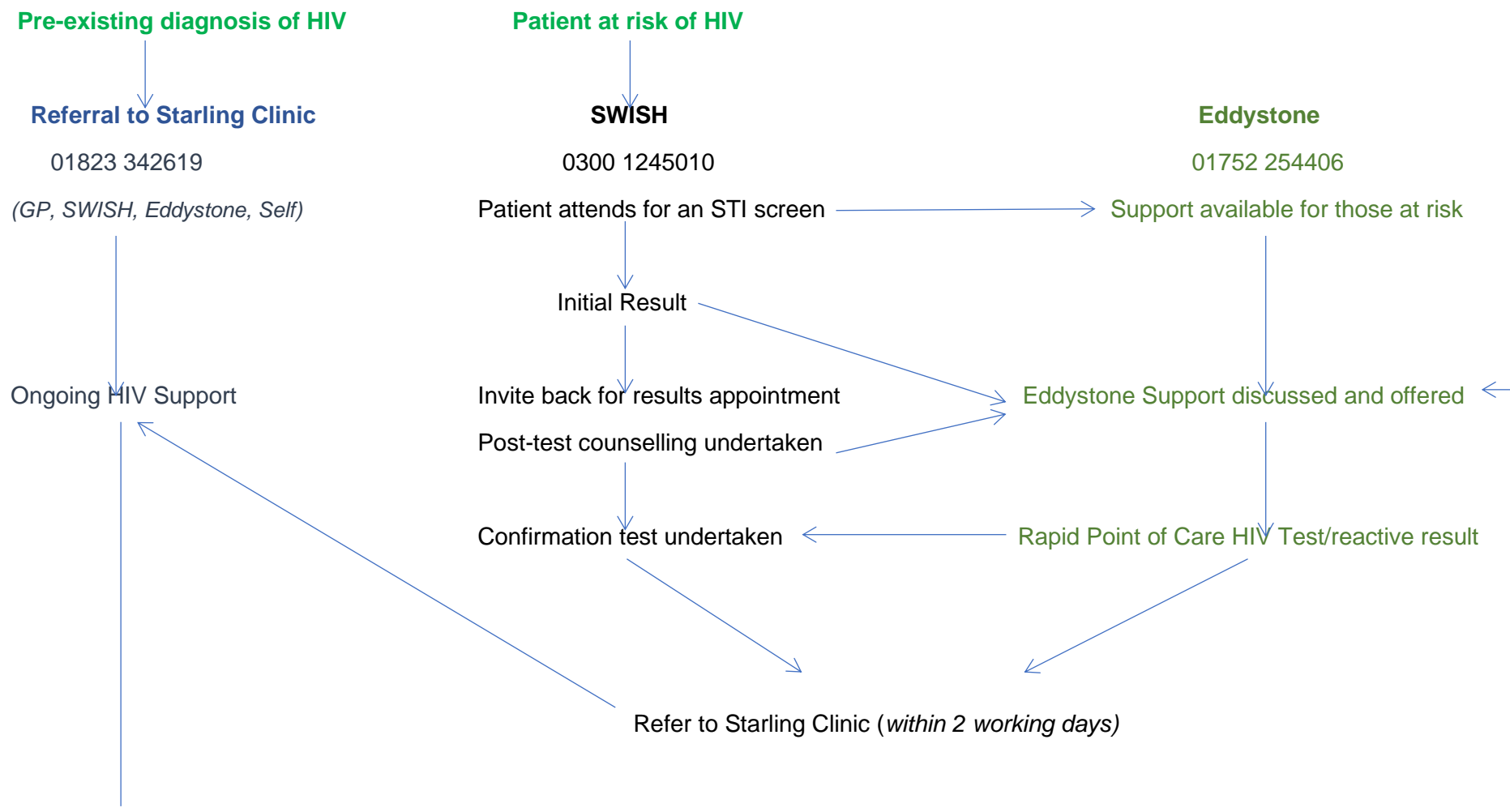
<p>10. Review, renew, or develop blood borne virus pathway documents (HBV/HCV/Needlestick injury) for dissemination to services/providers.</p>	<ul style="list-style-type: none"> • (BBV's) Streamlined and appropriate referral pathways between identification services and treatment services. • (BBV's) Description of appropriate access points for screening, assessment and treatment, including provision in Primary Care. • (BBV's) Increasing the number of completed referrals from identification to treatment • (HCV) Review referral of clients with differential diagnosis (antibody + but PCR -). • (HCV) Ensuring timely referral of clients with positive test results to treatment services. 	<p>All</p>	
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9. Acknowledgements

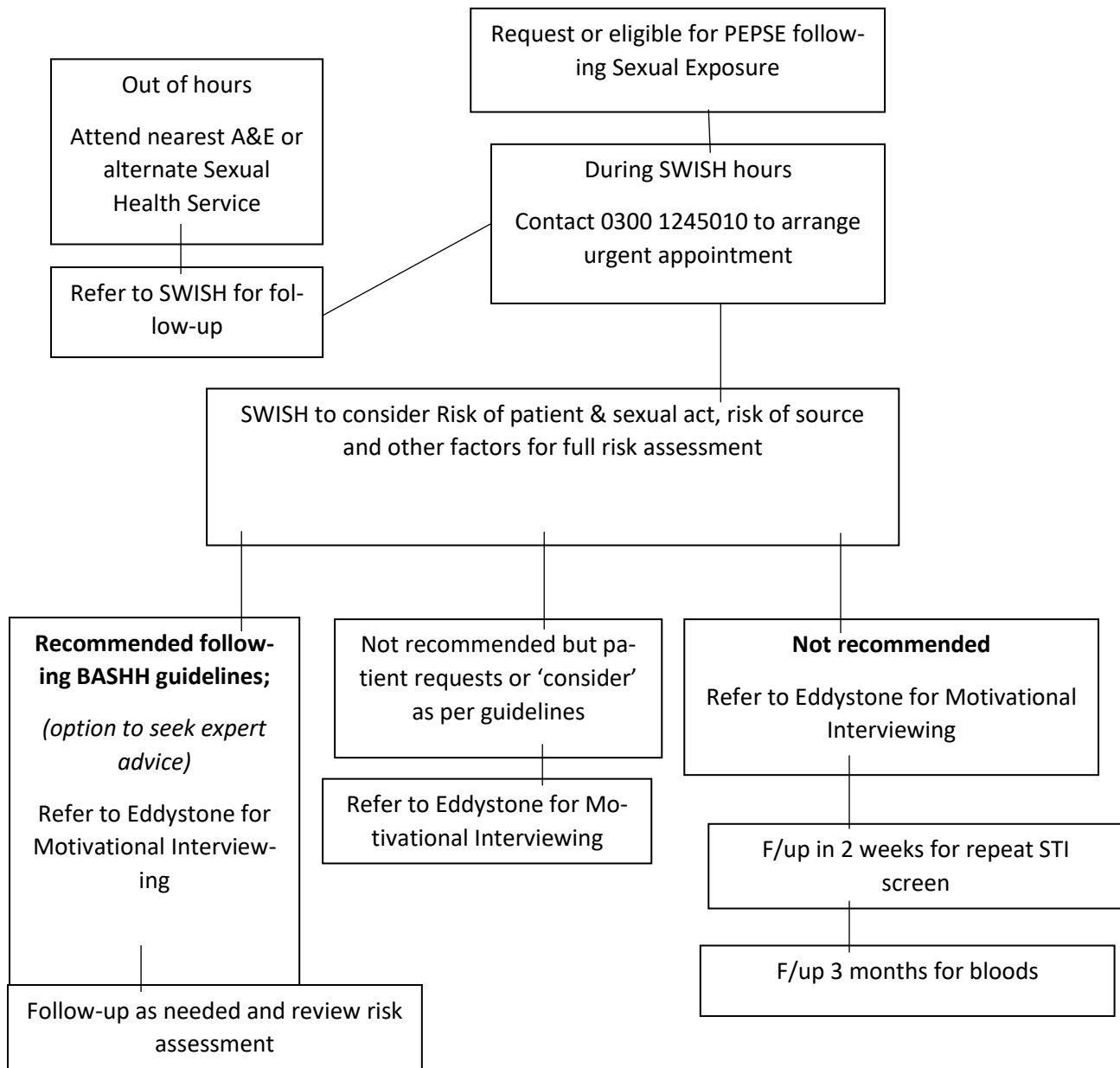
We are grateful to everyone who have contributed to the development of this report, including staff from NHS Trusts, sexual health, hepatology, drugs & alcohol services, Somerset County Council, Public Health England, NHS England, Somerset Clinical Commissioning Group, and Somerset's Local Medical Committee.

10. Appendices

Appendix A. Somerset HIV Referral pathway



Appendix B. HIV Post exposure prophylaxis pathway (PEPSE)

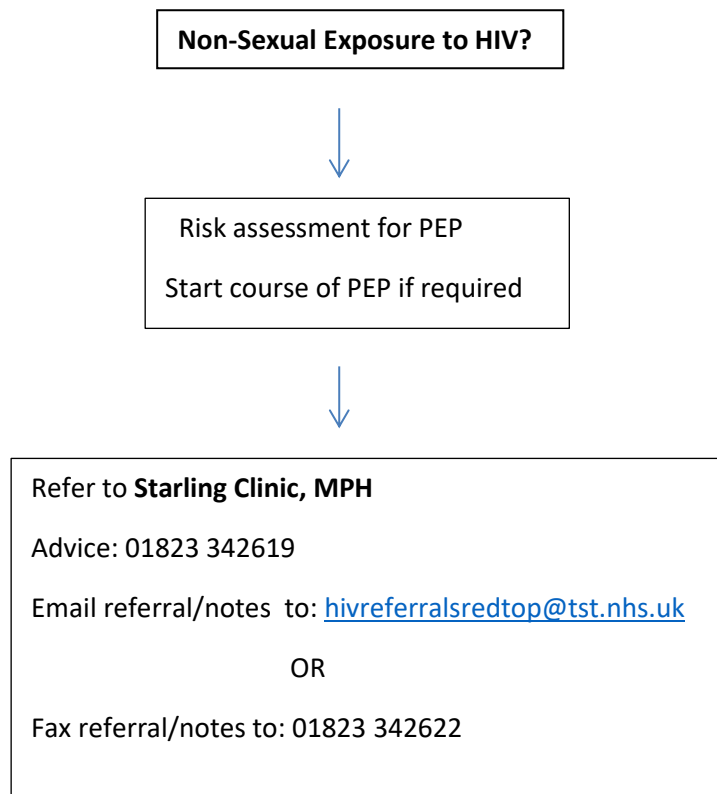
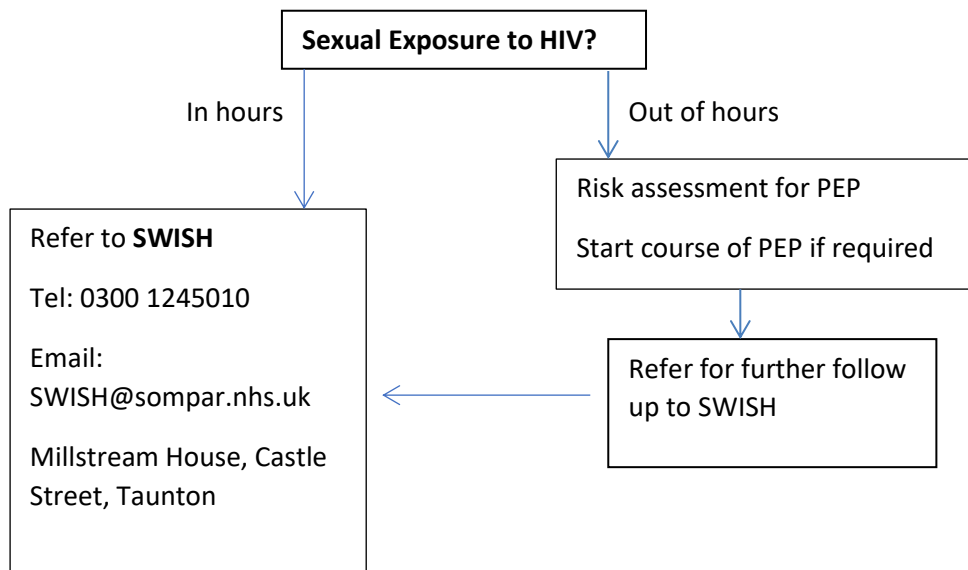


FOR INFORMATION ONLY

PEP required following Occupational Exposure

Employer to refer to Optima Health (08448260306 Taunton branch)
Optima Health will only take referrals for NHS workers in the following Trusts: SomPar, MPH, YDH and SW ambulance service.

Referral pathway for patients requiring Post Exposure Prophylaxis (PEP) for exposure to HIV seen in MPH and YDH Emergency and Acute Medical Departments.



Appendix C. Literature search planning form

1. Topic

<i>Try to pick out the key features What do you really need to find out?</i>	Blood borne virus prevention Hepatitis B Virus (HBV) Hepatitis C Virus (HCV) Human Immunodeficiency Virus (HIV)
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2a. Core concepts

Primary Concept 1	Primary Concept 2	Secondary Concept A	Secondary Concept B
<i>This may be to do with a patient or population group or problem</i>	<i>This may be to do with an intervention; what is being done to/with the patient/population /problem</i>	<i>This may be a comparator that you need to examine</i>	<i>This may be to do with outcomes for or effects on the patient/population /problem</i>
Blood borne virus	Prevention	Treatment	Behaviour change
Alternative words/phrases/synonyms			
HIV HCV HBV	Inhibition Transmission Infection Vaccination Reduction Prevalence Incidence	Therapy Cure Drugs/Pharmaceutical	Intervention Programme Project Model Tool

2b. Additional Search Terms

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3. Framing

- | |
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| <ul style="list-style-type: none"> • What interventions are effective at preventing the transmission of blood borne viruses? • Effective interventions to reduce the transmission of blood borne viruses. • Interventions to reduce prevalence of blood borne viruses. |
|---|

4. Limits

<i>e.g. Are you only interested in articles that relate to UK/NHS; that apply to a particular age-group; that are written in English; that have been published in a particular timeframe etc?</i>	<ul style="list-style-type: none"> • English and English Translation • 2010-2020 • Full Text Articles Only • Journal Articles Only
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Resource checklist

<p><u>Guidelines & policy documents</u></p> <ul style="list-style-type: none"> • PHE • NHS • WHO 	<p><u>Case studies</u></p> <ul style="list-style-type: none"> • PHE
<p><u>Databases searched</u></p> <ul style="list-style-type: none"> • MEDLINE • Academic Search Index • Complementary Index • CINAHL Complete • ScienceDirect • Supplemental Index • Social Sciences Citation Index • Environment Complete • Journals@OVID • British Library Document Supply Centre Inside Serials & Conference Proceedings • Psychology and Behavioural Sciences Collection • Business Source Complete • SPORTDiscus • JSTOR Journals • Research Starters • Education Research Complete • Child Development & Adolescent Studies • Humanities International Complete 	<ul style="list-style-type: none"> • Oxford Reference • Emerald Insight • JoVE Journal • Books at JSTOR • British Education Index • ProjectMUSE • Religion and Philosophy Collection • Library, Information Science & Technology Abstracts • Oxford Scholarship Online • EconLit • Arts & Humanities Citation Index • Philosopher's Index • IEEE Xplore Digital Library • Historical Abstracts • AgeLine • ERIC • British Standards Online • HeinOnline • AMED - The Allied and Complementary Medicine Database
<p><u>Journals covered:</u></p> <ul style="list-style-type: none"> • transfusion • plos one • plos neglected tropical diseases • journal of infectious diseases • addiction • vaccine 	<ul style="list-style-type: none"> • transfusion medicine reviews • drug and alcohol dependence • Australian and New Zealand journal of public health • substance use & misuse • drug and alcohol review • American journal of public health • sexually transmitted infections

<ul style="list-style-type: none"> • international journal of drug policy • bmc infectious diseases • emerging infectious diseases • journal of hospital infection • vox sanguinis • clinical infectious diseases • journal of medical virology • epidemiology & infection • journal of clinical virology • drug & alcohol review • journal of viral hepatitis • bmc public health • Australian & New Zealand journal of public health • occupational health • lancet • epidemiology and infection • virology • international journal of std & aids • journal of medical entomology 	<ul style="list-style-type: none"> • journal of infection • drugs: education, prevention & policy • journal of hepatology • proceedings of the national academy of sciences of the united states of America • addictive behaviours • American journal of epidemiology • nature • medical journal of Australia • Australian journal of rural health • European journal of public health • journal of community health • international journal of prisoner health • health promotion journal of Australia • American journal on addictions • American journal of sports medicine • journal of American college health • journal of the history of medicine and allied sciences • times higher education supplement
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Results

Search 1.

2004

47 relevant articles accessible from list, selected up to saturation

36 relevant following abstract review

Author

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