



Public Health
England

Shooting Up: Infections among people who inject drugs in the UK, 2017

An update, November 2018



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Contents

List of abbreviations	6
Summary	7
Introduction	9
Data sources	11
Hepatitis C prevalence remains high and one-half of those ever infected are undiagnosed	13
HIV levels remain low, but risks continue	19
Hepatitis B remains rare; however vaccine uptake needs to be sustained, particularly in younger age groups	22
Bacterial infections are an increasing problem	25
Sharing of injecting equipment has declined but remains a problem	30
Changes in psychoactive drug injection patterns remain a concern	33
Provision of effective interventions need to be maintained and optimised	37
References	40

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List of abbreviations

ART	Antiretroviral therapy
BBV	Blood borne virus
DAA	Direct acting antivirals
GAS	Group A streptococci
GHSS	Global Health Sector Strategy
HIV	Human immunodeficiency virus
HCV	Hepatitis C virus
HDSS	High dead space syringe
iGAS	Invasive group A streptococci
LDSS	Low dead space syringe
MRSA	Meticillin-resistant <i>Staphylococcus aureus</i>
MSM	Men who have sex with men
MSSA	Meticillin-sensitive <i>Staphylococcus aureus</i>
NESI	Needle Exchange Surveillance Initiative
NDTMS	National Drug Treatment Monitoring System
NPS	New psychoactive substances
NSP	Needle and Syringe Programme
OST	Opioid substitution treatment
PGD	Patient group directive
PHE	Public Health England
PWID	People who inject drugs
RNA	Ribonucleic acid
UAM	Unlinked Anonymous Monitoring Survey

Summary

Hepatitis C prevalence remains high and one-half of those infected are undiagnosed

Hepatitis C remains the most common blood borne infection among people who inject drugs (PWID), and there are significant levels of transmission among this group in the UK. One-quarter of this population is currently infected with hepatitis C and approximately one-half of those infected are unaware of their HCV infection. The increasing availability of the new directly acting antiviral (DAA) drugs provides an opportunity to reduce morbidity and mortality from hepatitis C, and to decrease the risk of onward transmission.

HIV levels remain low, but risks continue

In the UK, around 1 in 100 PWID are living with HIV. Most have been diagnosed and will be accessing HIV care. However, HIV is often diagnosed at a late stage among PWID.

Hepatitis B remains rare, but vaccine uptake needs to be sustained, particularly in younger age groups

In the UK, around 1 in every 500 PWID is living with hepatitis B infection. About three-quarters of PWID report being vaccinated against hepatitis B, but this level is no longer increasing, and is particularly low among younger age groups and in those who recently began injecting.

Bacterial infections continue to be a problem

One half of PWID report having a recent symptom of a bacterial infection. Among PWID, bacterial infections continue to occur and some have increased in incidence in recent years.

Injecting risk behaviours have declined but remain a problem

The level of needle and syringe sharing among PWID has fallen across the UK, but needle and syringe sharing remains a problem, with 1 in 6 reporting sharing of needles and syringes in the past month.

Changing patterns of psychoactive drug injection remain a concern

The prevalence of risky behaviours associated with injecting drug use, such as groin injecting and the use of stimulants, have significantly increased over the past decade.

Provision of effective interventions needs to be maintained and optimised

The provision of effective harm reduction interventions to reduce risk and prevent and treat infections needs to be maintained. These interventions include needle and syringe programmes (NSP), opioid substitution treatment (OST) and other treatments for drug misuse and dependence. Vaccinations and diagnostic tests for infections need to be routinely and regularly offered to people who inject or have previously injected drugs. Care pathways and treatments should be optimised for those testing positive.

Introduction

Drug use in the UK is among the highest reported in Western Europe (1). In 2017-2018, around 3.0 million (9.0%) 16-59 year olds in England and Wales reported using a drug in the last year (2). This proportion has reduced over the past 2 decades, but has remained stable over the last 8 years. The Scottish Crime and Justice Survey (2014-15) estimated 6.0% of 16-59 year olds reported using a drug in the past 12 months (3). There were 199,339 people who received treatment for drug misuse in England in 2016-17. Of those who newly presented to treatment, 37% were currently injecting, or had previously injected, drugs. The proportion currently or previously injecting among new presentations to drug treatment differed between those starting treatment for opiates (60%) and non-opiates (9%) (4).

People who inject drugs (PWID) are vulnerable to a wide range of viral and bacterial infections, which can result in high levels of morbidity and mortality. HIV, hepatitis B virus and hepatitis C virus are very effectively transmitted through the use of shared needles and syringes. Unsterile injection practices are also associated with bacterial infections such as *Staphylococcus aureus* and Group A streptococci. Rare but life-threatening infections with spore-forming bacteria such as tetanus, botulism and anthrax can be associated with contaminated drugs. Public health surveillance of infectious diseases, and the associated risk and protective behaviours among PWID, provides important information to understand the extent of these infections, the risk factors for their acquisition and for monitoring the effectiveness of prevention measures.

The advent and increasing availability of the new directly acting antiviral (DAA) drugs provides an opportunity to reduce morbidity and mortality from hepatitis C, among those aware of their diagnosis, and to decrease the risk of onward transmission. In 2017, 91% of laboratory reports of positive tests for hepatitis C indicated injecting drugs as an exposure risk (5). This suggests PWID remain a significant target group for the roll-out of DAAs.

The 2017 drug strategy sets out how the government and its partners, at local, national and international levels, aim to reduce illicit and other harmful drug use, and increase the rate of individuals recovering from their dependence (6). One focus of the strategy, and of the outcome measures that will be used to monitor its local impact, is on infections like hepatitis C and the opportunity to treat them.

The epidemiology of infections among PWID is influenced by evolving injection practices and the availability of new treatments. This annual national report describes trends in the extent of infections and associated risks and behaviours among PWID in the UK to the end of 2017.¹ Further details can be found in the set of data tables that accompany this report: www.gov.uk/government/publications/shooting-up-infections-among-people-who-inject-drugs-in-the-uk

This report focuses on infections among people who inject psychoactive drugs. Information on infections among people who inject image and performance enhancing drugs, such as anabolic steroids, peptides and melanotan, can be found in the 2016 Shooting Up report, available at: www.gov.uk/government/publications/shooting-up-infections-among-people-who-inject-drugs-in-the-uk

¹ Where data have been previously published, only the proportions are usually given in this report. The numerators and denominators for these proportions can be found in the source publications.

Data sources

The data for this report is extracted from various national surveillance systems. The **Unlinked Anonymous Monitoring (UAM) Survey** of PWID monitors HIV, hepatitis B and hepatitis C, and associated risk and protective behaviours in PWID in contact with specialist services. Those who agree to participate provide a dried blood spot sample, and self-complete a behavioural questionnaire.

The **Needle Exchange Surveillance Initiative (NESI)** monitors the prevalence of blood borne virus and injecting risk behaviours among PWID in Scotland. Participants are mainly recruited from selected needle and syringe programmes and pharmacies that provide injecting equipment. Participants complete a short interviewer-administered questionnaire and provide a voluntary dried blood spot sample for anonymous hepatitis B/C and HIV testing.

Information collection from **routine laboratory reports** is made possible through laboratory-confirmed infections in England, Wales and Northern Ireland, which are statutorily notified and routinely reported to PHE and held on a central system known as **Second Generation Surveillance System (SGSS)**, which covers nearly all microbiologically-confirmed infections. Data on infections caused by hepatitis B and C were all extracted from this reporting system. These reports contain demographic and risk information, although the risk factor information is not always provided. For acute hepatitis B, laboratory surveillance data for England is combined with data collected from Health Protection Teams.

The **National Drug Treatment Monitoring System (NDTMS)** collects patient-level information about the people using drug and alcohol treatment services across England. All services that provide structured treatment for drug and/or alcohol users are asked to submit data to NDTMS.

Voluntary confidential reports of new HIV diagnoses and people receiving HIV-related care are received from laboratories and clinicians in England, Wales, and Northern Ireland by Public Health England (PHE). Scottish data are collected separately and incorporated with data from England, Wales and Northern Ireland to create a UK dataset.

Information on bacterial pathogens is available through **surveillance of clinical and laboratory reports**. Reporting of meticillin-resistant *Staphylococcus aureus* (MRSA) and meticillin-sensitive *Staphylococcus aureus* (MSSA) bacteraemias is mandatory for NHS Trusts since 2005 and 2011, respectively. Data on MRSA and MSSA infections in PWID are also available through referral of isolates for reference microbiology. Isolate referrals are also one of the primary sources of data on group A streptococcal (GAS)

infections. For tetanus, wound botulism and anthrax among PWID, enhanced surveillance involves the follow up of laboratory or clinical reports with a surveillance questionnaire.

Hepatitis C prevalence remains high and one-half of those ever infected are undiagnosed

On 28 May 2016, the World Health Assembly adopted a Global Health Sector Strategy on viral hepatitis for the period 2016 to 2021 (7). This strategy aims to eliminate viral hepatitis as a major public health threat by 2030, and introduces the first ever global targets for viral hepatitis, including a 30% reduction in new cases of hepatitis B and C by 2020 and a 10% reduction in mortality (5). National action plans to tackle hepatitis C are in place and have been developed across the UK (8-11).

The advent and increasing availability of the new directly acting antiviral (DAA) drugs provides an opportunity to reduce morbidity and mortality from hepatitis C among those aware of their diagnosis, and to decrease the risk of onward transmission. In the UK, increased treatment with new direct acting antiviral (DAA) drugs has been observed over recent years (an increase of 19% in 2017/18 compared with 2016/17, and of 125% when compared to pre-2015 levels) (5), and PWID, as main drivers of the hepatitis C epidemic, are a prime target group for increased uptake of DAAs (12).

Although previously available interferon-based therapy was available to PWID, many barriers, including patient, provider, health system, societal and structural, resulted in low diagnosis and treatment for hepatitis C in this group (12). New DAA therapies have fewer side effects, are orally administered, and shorter in duration (8-12 weeks vs. 24-28 weeks). There are several studies providing support that DAA treatment can be effective in PWID, although there remains a risk of reinfection with ongoing injecting drug use (12).

Hepatitis C prevalence

In the UK, it is thought that around 210,000 people are living with chronic hepatitis C (5). PWID are the group most affected by hepatitis C in the UK (5). Of the hepatitis C infections diagnosed in England where exposure data was known, around 90% are thought to have been acquired through injecting drug use (Accompanying Data, Table 1a).

Across the UK, 12,219 positive test results for hepatitis C were reported during 2017 (Accompanying Data, Table 1a). Although data on exposure is often incomplete or missing, extrapolation from the results where information is available suggests that in 2017 approximately 91% positive test results were for PWID in England.

UK-wide data indicate that around half of those who inject psychoactive drugs have ever been infected with hepatitis C, with 50% of those surveyed in 2017 in Wales having antibodies to hepatitis C, 52% in England, and 23% in Northern Ireland (13) whilst the most recent NESI study in Scotland (2015-2016) showed 58% of those surveyed have antibodies to hepatitis C (14). UAM Survey data from England, Wales and Northern Ireland found that, during 2017, 25% of PWID have a current HCV infection (HCV RNA positive). Amongst those who had injected in the past year, 29% were positive for HCV RNA (13).

Hepatitis C incidence and outbreaks

The overall level of hepatitis C transmission among PWID in the UK appears to have changed little in recent years. Recent transmission of hepatitis C virus (HCV) can be estimated through laboratory testing.

Testing for antibodies against HCV can be used to estimate the prevalence of HCV among recent initiates to injecting, assuming that the hepatitis C infection is related to their injecting drug use. In England, Wales and Northern Ireland, 22% of recent initiates to injecting surveyed in 2017 had antibodies against HCV (Accompanying Data, Table 1a) (13). Of these recent initiates with antibodies against HCV, 54% were positive for HCV RNA, which indicative of a current infection.

Recent transmission of HCV can also be estimated by laboratory evidence identifying those who test positive for HCV RNA (currently infected) but are negative for HCV antibodies. The period of time that samples from recently infected individuals will have HCV RNA but no antibody response is estimated to be 51-75 days (15-17). Individuals in this viraemic pre-seroconversion window are likely to have recently acquired their infections. This testing has been done in Scotland, since 2008-09 within the NESI survey, and was included in England, Wales and Northern Ireland within the UAM, since late 2016. In the UAM survey, the proportion of participants with RNA but no antibodies was 0.95% in 2017, while the proportion of NESI respondents was 1.8% in 2015-16.

In Northern Ireland, an outbreak of acute hepatitis C among PWID was detected in 2016 (Box 1). Increased surveillance and testing, as well as education about harm reduction measures contributed to the end of the outbreak which was declared in December 2017.

Box 1: An outbreak of Hepatitis C among PWID in Northern Ireland, 2016-2017

Northern Ireland has lower levels of infection with hepatitis C in its PWID population compared to the rest of the UK (23% antibodies against HCV in Northern Ireland vs 50% in Wales and 52% in England) (13). In 2016, through screening of PWID by the homeless nursing service, 4 cases of acute and recently acquired hepatitis C infections were diagnosed, which was cause for concern. The injecting networks of these cases were identified and targeted for screening and harm reduction education.

A total of 45 currently infected (RNA positive) individuals were identified out of 156 screened PWID. The screening identified that those at risk were mainly injecting heroin and, despite the availability of clean injecting packs and education on BBV transmission, sharing of injecting equipment such as spoons and filters still occurred.

Posters and wallet cards were distributed to hostel staff and clients to raise awareness of the ongoing situation, and provide harm reduction messages. Hostels were supplied with safe injecting packs and sharps bins for the safe disposal of injecting equipment. Hostel clients received individual and group advice as well as training which promoted smoking heroin rather than injecting. Hepatitis B vaccination was offered to clients frequenting homeless hostels.

PWID were referred for an assessment by the Drug Treatment Team and drug addiction services were scaled up due to increased demand. Dry blood spot testing was introduced and undertaken for all individuals at risk. PWID were offered a repeat test 3 months after the first negative test if still at risk or after the first positive test to confirm chronicity. All chronic cases were referred to hepatology for treatment consideration and individuals who were ready to engage with hepatitis C treatments were offered rapid access to treatment.

The outbreak was declared over on 4 December 2017 after control measures were well-established and there was a commitment to continue these by the appropriate health service.

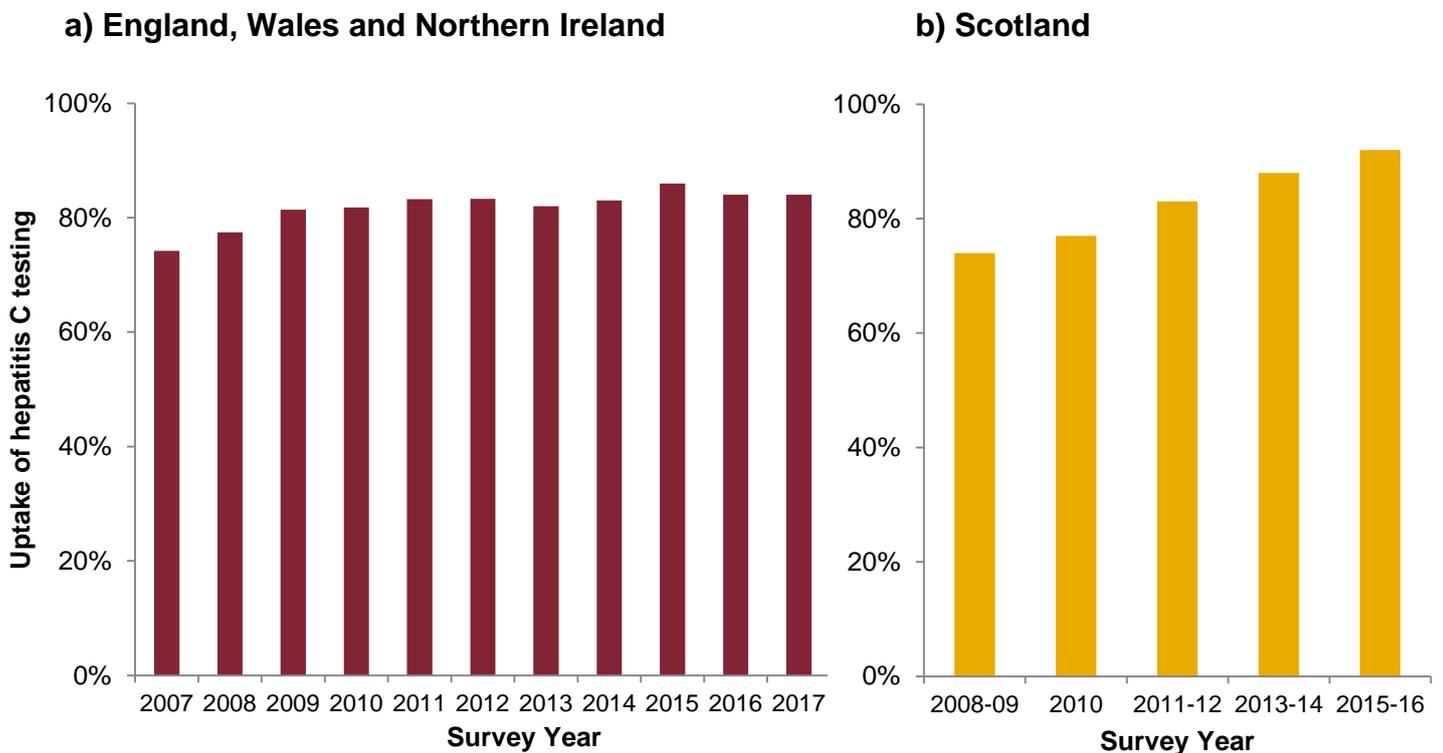
The detection at an early stage of the event among PWID provided an opportunity to intervene in this vulnerable population. A multi-agency approach and immediate action to step-up existing measures prevented further transmission in this outbreak.

Uptake of voluntary confidential testing

Recently updated UK clinical guidelines recommend that all PWID accessing treatment services are tested for HCV and HIV at first assessment, and that repeat testing should be considered when the risk of exposure continues (18). When risk is assessed as high, testing may need to be carried out up to once or twice a year (18).

The proportion of PWID who report uptake of voluntary confidential testing for hepatitis C has increased across the UK in the last decade. Whilst Scotland has seen a sustained increase, England, Wales and Northern Ireland have seen a more gradual increase in testing which has possibly plateaued over the last 7 years (Figure 1; Accompanying Data, Table 3b). The sustained increase in Scotland is synchronous with the Hepatitis C Action Plan 2006-2011 (19, 20) and the Scottish Government Sexual Health and Blood Borne Virus Framework 2011-15 as well as the 2015-2020 update (10), which both aimed to increase diagnoses and treatment of hepatitis C among those who inject drugs.

Figure 1. Uptake of voluntary confidential testing for hepatitis C among people who inject drugs: a) England, Wales and Northern Ireland, and b) Scotland



Data source: Unlinked Anonymous Monitoring survey of people who inject drugs (England, Wales and Northern Ireland) and Needle Exchange Surveillance Initiative (Scotland).

Survey data suggests that the proportion of PWID who are unaware of their hepatitis C infection has decreased over the last decade. In Scotland, the NESI survey has shown

a continued reduction from 54% in 2008-09 to 37% in 2015-16. The UAM survey in England, Wales and Northern Ireland showed a steady trend, with around half of PWID sampled from 2007-2017 unaware of their HCV antibody positive status. In 2017, the proportion of those unaware of their HCV infection has been calculated to be 34%² (Accompanying Data, Table 3b) (15). Of those with a current infection (HCV RNA positive), 45% were unaware of their HCV infection status. These figures should be interpreted with caution as changes in the 2017 UAM survey, introduced to differentiate between past and current HCV infection, have resulted in increased levels of non-response to this question. This is likely to account for some of the changes observed in these figures compared to previous years.

Many of those who were unaware of their infection reported that they had either never tested or not tested recently; 28% reported never having had a test for hepatitis C; and of those unaware but tested, 42% reported that their last test had been more than 2 years ago.³ Although the WHO target of 50% of infected people in the WHO European region knowing their status by 2020 (21) is likely to have already been met in the UK when considering PWID, more needs to be done if we are to reach the 90% target by 2030 (7).

In England, the National Drug Treatment Monitoring System (NDTMS) found that among those in treatment for their drug use who have ever injected drugs, the proportion who had been offered and accepted a hepatitis C test has increased to 64% in 2016/17 from 53% in 2010/11 (Accompanying Data, Table 3b), although this was a slight decrease from 65% in 2015/16.

The offer of HCV testing at the start of treatment is very high, with 96% of those eligible for testing who have ever injected drugs being offered a hepatitis C test at the beginning of their most recent treatment period⁴. Uptake of HCV testing is lower with 66% accepting the offer of testing³. Stigma and discrimination are well evidenced barriers to HCV testing (22). Individuals may fear confidentiality breaches in relation to their HCV status if positive, and that this may result in discrimination. In addition,

² Due to changes in survey questions regarding awareness of HCV infection status, data from 2017 are not directly comparable to previously collected data

³ Of those participants from across England, Wales and Northern Ireland in the 2016 UAM Survey who had antibodies detected in the sample they provided and who did not report being aware of their hepatitis C status, 98 out of 347 (28%) reported never having had a voluntary confidential diagnostic test for hepatitis C. Of those who had been tested, 82 out of 196 (42%) reported that their last test was prior to 2016.

⁴ National Drug Treatment Monitoring System data in England indicates that 64% (59,157/92,950) of people who have ever injected drugs and who are in treatment for their drug use had been offered and accepted a hepatitis C test in 2016/17, up from 53% (61,106/114,848) in 2009/10. Among those who have ever injected drugs, 96% (89,199/92,950) of those who were eligible to receive a hepatitis C test (this excludes those 'assessed as not appropriate to offer') had been offered a test at the beginning of their most recent treatment period, however only 66% (59,157/89,199) had accepted that offer.

patient and provider concerns regarding the co-morbidities, adherence and side effects of treatment may affect HCV testing uptake, though these concerns should be much reduced by the ease and effectiveness of new treatments.

These data show that hepatitis C continues to be a major problem among PWID in the UK, with high levels of transmission and a quarter currently infected with HCV (13). Many of those with undiagnosed infection have either never been tested or been infected since their last test. These findings suggest that the approaches used to encourage testing for hepatitis C and other blood borne viruses may need further development. Interventions to reduce the transmission of hepatitis C, diagnostic testing services and care pathways for those infected need to be continued and where appropriate expanded (18). Innovative approaches to reaching those chronically infected with HCV are being explored, including using hepatitis C treatment as prevention of as a means of reducing the prevalence and incidence of the disease amongst PWID (Box 2).

Box 2: Evaluating the Population Impact of Hepatitis C Direct Acting Antiviral Treatment as Prevention for People Who Inject Drugs (EPIToPe)

The National Institute for Health Research (NIHR) has funded a new research study (EPIToPe) which aims to generate empirical evidence on the effectiveness of HCV “Treatment as Prevention” in People who Inject Drugs (PWID) (23). Despite effective prevention interventions, chronic HCV prevalence remains high at 25% among PWID. Evidence from mathematical modelling suggests that HCV treatment is essential to achieving substantial reductions in HCV prevalence and incidence among PWID. New Direct Acting Antiviral (DAA) HCV therapies combine high cure rates (>90%) with short treatment duration (8-12 weeks). EPIToPe aims to test whether scaling up HCV DAA treatment will reduce chronic HCV prevalence and transmission among PWID.

In the first study, at least 500 PWID in Dundee/NHS Tayside will be treated over 2 years. This large-scale and rapid increase in HCV treatment will be delivered across multiple sites in the community including pharmacies, addiction services, and prisons. This is estimated to reduce chronic HCV in PWID in Dundee by two-thirds from nearly 30% to less than 10%. Service providers will be interviewed to identify key barriers and facilitators that can help other sites successfully scale-up HCV treatment. Patients will also be interviewed following treatment, and administrative databases linked to assess if being cured from HCV also helps PWID stay in specialist drug treatment and recover from addiction. Economic modelling will estimate whether the increase in HCV treatment to PWID is cost-effective to the NHS. Evidence gathered from the first study will be used to show how to scale-up HCV treatment in the community, and inform the co-design, with regional HCV clinical services, of a second and larger evaluation of HCV “Treatment as Prevention” in England.

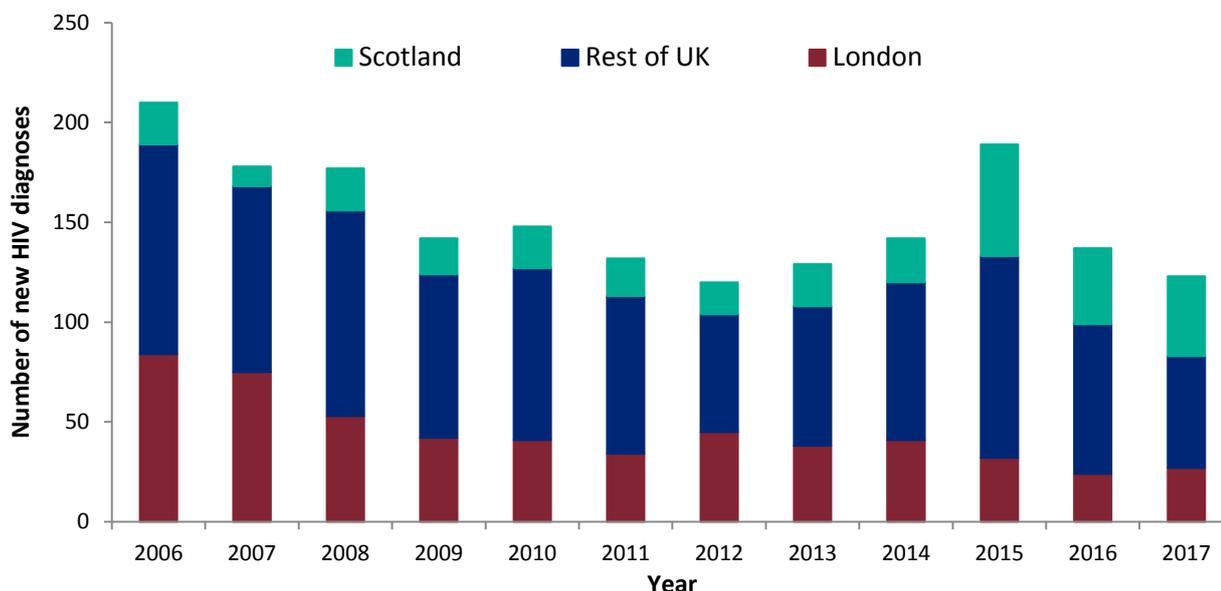
HIV levels remain low, but risks continue

Overall HIV infection is uncommon among PWID in the UK, and HIV prevalence among PWID in the UK is low compared to many other European countries (24). In England, Wales and Northern Ireland, 1.7% (95% CrI 1.35-2.09%) of the people who inject psychoactive drugs surveyed in 2017 were estimated to be living with HIV (Accompanying Data, Table 1c) (13). Among those attending needle and syringe programmes in Scotland during 2015-16, 1.9% were HIV antibody positive (Accompanying Data, Table 1c) (14). Both these HIV prevalence estimates are higher than the overall adult HIV prevalence in the UK which was estimated to be 0.16% in 2016 (25).

New infections and diagnoses

Overall, there were 123 new HIV diagnoses which were likely to have been acquired through injecting drug use in the UK during 2017; this is slightly lower than the annual average of 145 new HIV diagnoses between 2007 and 2017 (Figure 2) (Accompanying Data, Table 1c) (26).

Figure 2. Annual number of new HIV diagnoses which were likely to have been acquired through injecting drug use: 2007 to 2017



Data source: HIV and AIDS Reporting System (HARS)

In Scotland there were 40 new HIV diagnoses in PWID in 2017, continuing the upturn in new diagnoses seen since 2015. Most of these new HIV diagnoses were in the NHS Greater Glasgow and Clyde area (36/40); this is higher than the average of 18 new diagnoses per year in the Greater Glasgow and Clyde area from 2006 to 2014. During

the first 6 months of 2018, 5 new HIV diagnoses were reported among PWID in Greater Glasgow and Clyde, indicating ongoing transmission in this group (27). New harm reduction services were introduced following recognition of the HIV outbreak in 2015 (28).

Testing and care

The majority of PWID reported ever being tested for HIV (78% in 2017 in England, Wales and Northern Ireland [Accompanying Data, Table 3b]), and 40% reported being tested for HIV in the current or previous year. In Scotland 84% of PWID reported ever being tested for HIV in 2015-16, with 43% reporting testing in the last year.

Although the majority of PWID living with HIV in the UK are aware of their infection, around 240 (95% CrI 120-510) are living with undiagnosed HIV⁵ (29) and late diagnoses remain a problem. In 2017, 47% (37/78) of the HIV diagnoses among people who had acquired their infection through injecting drugs were made at a late stage of HIV infection (Accompanying Data, Table 1c). This compares to 43% (1,352/3,118) overall (for all the risk groups combined), and 33% (530/1,586) of those exposed through sex between men (30). People who are diagnosed late have a ten-fold risk of dying within a year of diagnosis compared to those who are diagnosed promptly (31). In addition, those diagnosed late have probably been living with undiagnosed HIV for 3 to 5 years, and may have been putting others at risk through sexual transmission, in addition to the risks from sharing of injecting equipment (32). Data from the UAM survey shows that there are missed opportunities for HIV testing. The majority of those who report never being tested for HIV or not testing recently (>2 years ago), reported that they had attended their GP, had been prescribed a substitution drug, or had used a needle and syringe programme in the previous year.

Owing to improved survival, the number of people accessing HIV treatment and care in the UK who acquired their infection through injecting drug use has increased over the past decade, with 1,900 people accessing care in 2017 (Accompanying Data, Table 1c). Coverage of antiretroviral therapy (ART) among PWID accessing care in 2017 was high at 97% (1,838/1,900). Viral suppression (as measured by a viral load ≤ 200) was reached by 92% (1,477/1,611⁶) of PWID on ART; this compares with 97% (35,087/36,270) of those who had acquired HIV through heterosexual sex and 98% (37,223/38,175) of those who acquired HIV through sex between men (30). The proportion of HIV positive PWID who are virally suppressed is lower than that seen in

⁵ Estimated using a Bayesian multi-parameter evidence synthesis (MPES) model

⁶ Of the 1,900 people accessing care for HIV in 2017 who acquired HIV through injecting, 1,611 had viral load information reported

other risk groups. This could be due to non-adherence to anti-retroviral treatment or reduced engagement or retention in care as a result of their drug taking behaviour (33), mental health issues or financial instability (34).

Although HIV infections continue to occur among PWID, the overall HIV prevalence in this group in the UK is currently comparatively low. Most of those with HIV are aware of their infection and uptake of treatment and care for HIV among those diagnosed is high. However, the recent HIV outbreaks among PWID in Glasgow (35) and South West England (36) and the high proportion of PWID diagnosed late with HIV are a concern. These findings highlight the importance of accessible HIV testing services. HIV testing and prevention services for all groups of PWID need to be maintained in a range of appropriate settings and should be responsive to changes in both drug use and sexual risks.

Hepatitis B remains rare; however vaccine uptake needs to be sustained, particularly in younger age groups

Hepatitis B prevalence

Hepatitis B virus can be transmitted in PWID as a result of blood-to-blood contact through the sharing of needles and other equipment. Data from the UAM survey indicate that the transmission of hepatitis B continues among PWID and laboratory data indicate a consistent, low prevalence in recent years. There have been no reported cases of acute hepatitis B amongst PWID in Scotland since 2014.

The proportion of PWID who have ever been infected with hepatitis B in England, Wales and Northern Ireland has declined over the past 10 years, falling from 20% in 2007 to 16% in 2017 (Accompanying Data, Table 1b). In UAM survey participants in 2017, only 0.19% were currently infected with hepatitis B⁷, which is similar to the levels seen in recent years (37). This suggests that around 1 in every 500 PWID is currently living with a hepatitis B infection.

Hepatitis B vaccine uptake

Hepatitis B vaccination is recommended with high priority for all people who currently inject drugs, including those who inject intermittently and those who are likely to 'progress' to injecting, for example those who are currently smoking heroin and/or crack (18, 38). A course of 3 doses is recommended, with vaccine given at 0, 1 and 2 months, although an accelerated course (with doses given at 0, 7, 21 days, and a booster dose at 12 months) may be appropriate for service users with chaotic lifestyles and those who have difficulty engaging with services (18, 38).

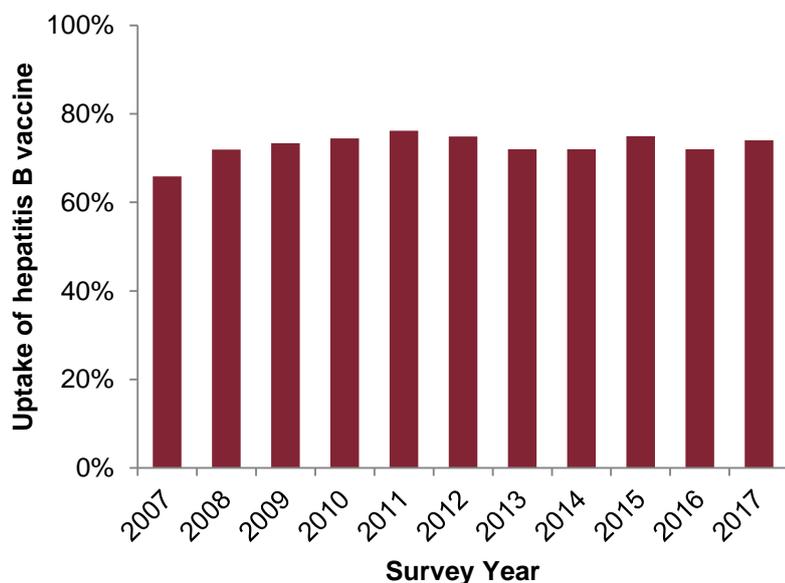
In England, Wales and Northern Ireland, self-reported uptake of the hepatitis B vaccine (ie receiving at least 1 dose), has plateaued at around 72% between 2008 and 2017 (Figure 3a) (Accompanying Data, Table 3b). In 2017, hepatitis B vaccine uptake was particularly low in the under-25 age group at 64%, a decrease from 76% in 2011. It was also particularly low among those who began injecting in the last 3 years at 57%, down

⁷ Current infection is defined as testing positive for both antibodies to the hepatitis B core antigen (anti-HBc) and for hepatitis B surface antigen (HBsAg).

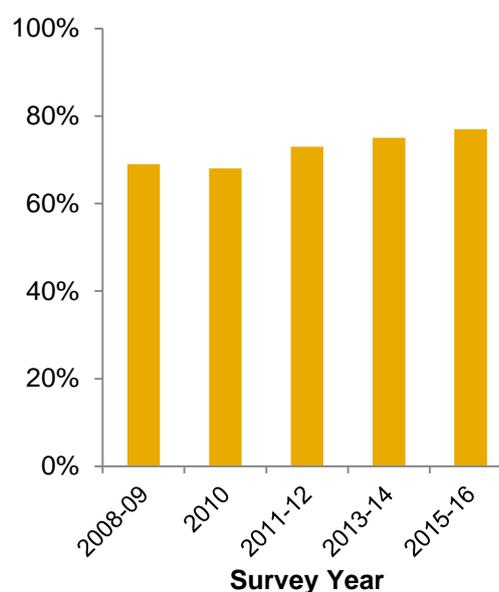
from 67% in 2011 (13). Vaccine uptake also decreased in the 25-34 years age group from 79% in 2011 to 72% in 2017 (13). In 2017, reported uptake in England was 73% and in Wales was 76% (13). Hepatitis B vaccine uptake has been over 80% in Northern Ireland since 2015 (81% in 2017) (13), which is synchronous with the introduction of a Northern Ireland wide patient group direction (PGD) in 2015 to facilitate hepatitis vaccination in drug and addiction services and improve uptake in risk groups (39). Among those attending needle and syringe programmes in Scotland during 2015-16, 77% reported uptake of the hepatitis B vaccine (Accompanying Data Table 3b, Figure 3b). Increased HBV vaccination uptake in Scotland has been driven by the introduction of universal prison vaccination (40).

Figure 3. Uptake of the vaccine against hepatitis B among people who inject drugs: a) England, Wales and Northern Ireland, and b) Scotland

a) England, Wales and Northern Ireland



b) Scotland



Data source: Unlinked Anonymous Monitoring survey of people who inject drugs (England, Wales and Northern Ireland) and Needle Exchange Surveillance Initiative (Scotland).

Data from NDTMS in England indicate that, of those presenting for treatment for their drug use who were at risk of hepatitis B and had ever injected drugs, half (50%; 8,730/17,585) accepted vaccination against hepatitis B (Accompanying Data, Table 3b). Of those offered, the proportion who accepted vaccination has decreased from 70% (15,478/22,142) in 2009/10 to 52% (8,730/16,645) in 2016/17. Attendees are assumed to be ‘at risk’ unless there is positive evidence that they are not ‘at risk’ (ie previously vaccinated, with natural or acquired immunity or assessed as not appropriate to offer hepatitis B vaccine).

Ensuring access to hepatitis vaccine is critical. In 2017, there was a shortage of vaccine due to manufacturing issues. Although these have been resolved, and PWID were considered a high priority group for vaccination, there likely remains a backlog of

people whose opportunistic vaccinations were deferred due to lack of vaccine being readily available when PWID attended services (41).

Box 3: Hepatitis B vaccine shortage – implications for services providing vaccination for people who inject drugs

A schedule of hepatitis B vaccine is highly effective in preventing infection when given prior to exposure. Risk groups for immunisation and the routinely recommended schedules are detailed in Chapter 18 of the 'Green Book' (38).

Throughout 2017 there was a global shortage of hepatitis B vaccine which impacted severely on the UK supply. The overall supply situation has now improved as one of the main manufacturers is confident that planned supplies of adult and paediatric hepatitis B vaccine are now sufficient to supply the entire UK market.

To ensure that stock was available for those individuals at highest and most immediate risk of exposure to hepatitis B during the period of constraint, and as a contingency for a potential future shortage, Public Health England (PHE) developed temporary recommendations to support clinicians/providers undertaking an individual risk assessment. These are available at:

www.gov.uk/government/publications/hepatitis-b-vaccine-recommendations-during-supply-constraints

PHE recommend that people at high and immediate risk of hepatitis B exposure should be prioritised for vaccination; this includes people who inject drugs (PWID). Community drug service providers should always be able to obtain and offer vaccine to PWID and vaccination programmes in drug services should not be suspended due to supply constraints. Historically, high levels of vaccination in this vulnerable population have contributed to the declining and recent low prevalence of current infection (HBsAg) in PWID which is critical to reducing transmission and maintaining control of hepatitis B in the community.

Although hepatitis B vaccination is recommended as high priority for all people who currently inject drugs, around a quarter of PWID have never been vaccinated. Even though hepatitis B infection among this group is now rare, it is essential that high vaccination levels are maintained, particularly in younger age groups.

Bacterial infections are an increasing problem

Bacterial infections such as *Staphylococcus aureus* and Group A streptococci in PWID are often related to poor general hygiene and unsterile injection practices. Morbidity can be severe for bacterial infections in PWID, with severity compounded by delays in seeking healthcare in response to the initial symptoms (42). Mortality can occur from invasive infections resulting in sepsis, bacteraemia or necrotizing fasciitis. Bacterial infections can have a substantial impact on health services (43), with studies indicating that about 1 in 10 PWID are admitted to hospital each year because of a bacterial infection (42).

Symptoms of an injecting site infection

During 2016, half (50%)⁸ of those injecting psychoactive drugs in England, Wales and Northern Ireland reported that they had experienced a sore, open wound or abscess (all possible symptoms of an injecting site infection) during the past year (Accompanying Data, Table 2). Symptoms of an injecting site infection are more commonly reported by women (53%) than men (50%) (13) and were particularly high among the under-25 years age group at 33%, when compared to other age groups (13). Among those surveyed during 2015-16 at needle and syringe programmes across Scotland, 20% reported that they had experienced an abscess, sore or open wound during the past year (Accompanying Data, Table 2).

⁸ Questions regarding symptoms of injection site infections have been updated; as such data collected in 2017 is not comparable to previously collected data.

Box 4: Investigation of severe infections amongst PWID requiring intensive care unit admission

In order to prevent or reduce bacterial injecting site infections amongst PWID, Public Health Wales in collaboration with the Wound Innovation Centre have initiated the ACT project (Ask, Check, Treat). This project aims to highlight early identification and treatment of infections through provision of self-care wound packs to PWID in a range of settings including mobile NSP services, homeless hostel day centre NSP services and substance misuse services. Evaluation will be completed by the end of 2018.



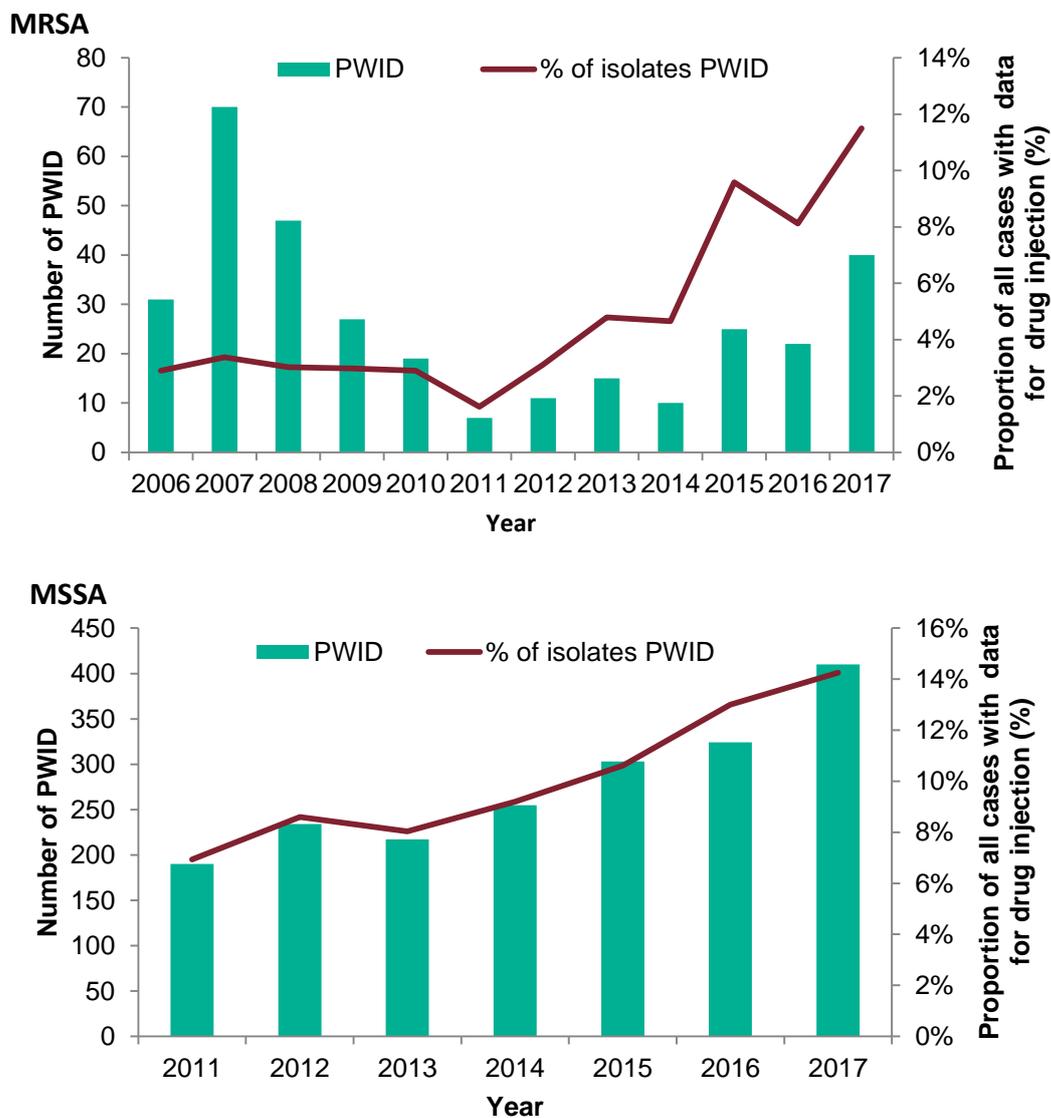
Meticillin-sensitive and -resistant *Staphylococcus aureus* (MSSA, MRSA)

Data on meticillin-sensitive *Staphylococcus aureus* (MSSA) and meticillin-resistant *Staphylococcus aureus* (MRSA) infections in PWID in England is available from 2 different data sources; NHS Trusts report the number of MRSA and MSSA bacteraemias through mandatory enhanced surveillance and isolates of MRSA and MSSA infection (including, but not limited to bacteraemias) are sent to the PHE *Staphylococcus* Reference Laboratory for characterisation. Sending of isolates is currently not mandatory, but referral of MRSA from cases of bacteraemia is encouraged.

Data from the mandatory enhanced surveillance of MSSA and MRSA bacteraemias in England indicate that in 2017, of those with risk factor information, 14% (410/2,877) of the MSSA bacteraemias were associated with injecting drug use, as were 11% (40/348) of the MRSA bacteraemias (Accompanying Data, Table 2). This represents an increase in the proportion of cases for which injecting drug use was indicated over the last 6 years; from 6.9% (190/2741) in 2011 for MSSA and 1.6% (7/434) in 2011 for MRSA (Figure 4). These numbers should be considered with caution as risk factor information is missing for a large proportion of the MRSA and MSSA bacteraemias reported, therefore the proportion connected to injecting drug use is likely to be underestimated. In Scotland, there were 138 MSSA and 1 MRSA bacteraemia cases associated with injecting drug use reported in 2017: this is 9.2% and 1.3% of all MSSA and MRSA bacteraemia cases reported, respectively.

Data on MSSA and MRSA among PWIDs are also available from the PHE Staphylococcus Reference Laboratory. In 2017, 54 isolates from PWID were received (36 bacteraemia, 15 skin and soft tissue infections, 2 respiratory and 1 ascitic fluid) from 6 geographically dispersed PHE centres. The age range of cases was 18-87 years (median 36 years); 31 (57%) were male. The isolates included 38 (70%) MSSA, 2 of which were positive for the Panton-Valentine Leukocidin (PVL) toxin which is associated with increased virulence. The 38 MSSA isolates belonged to at least 12 different genetic lineages, suggesting multiple disparate clones can cause disease in this population. All 16 MRSA were negative for PVL toxin and belonged to at least 4 different genetic lineages. The majority (10; 62.5%) belonged to ST5, currently the second most common multi-locus sequence type of MRSA circulating in England.

Figure 4. Reported MRSA (2006-2017) and MSSA (2011-2017) bacteraemias with an injecting drug use risk factor by year from the mandatory enhanced surveillance in England

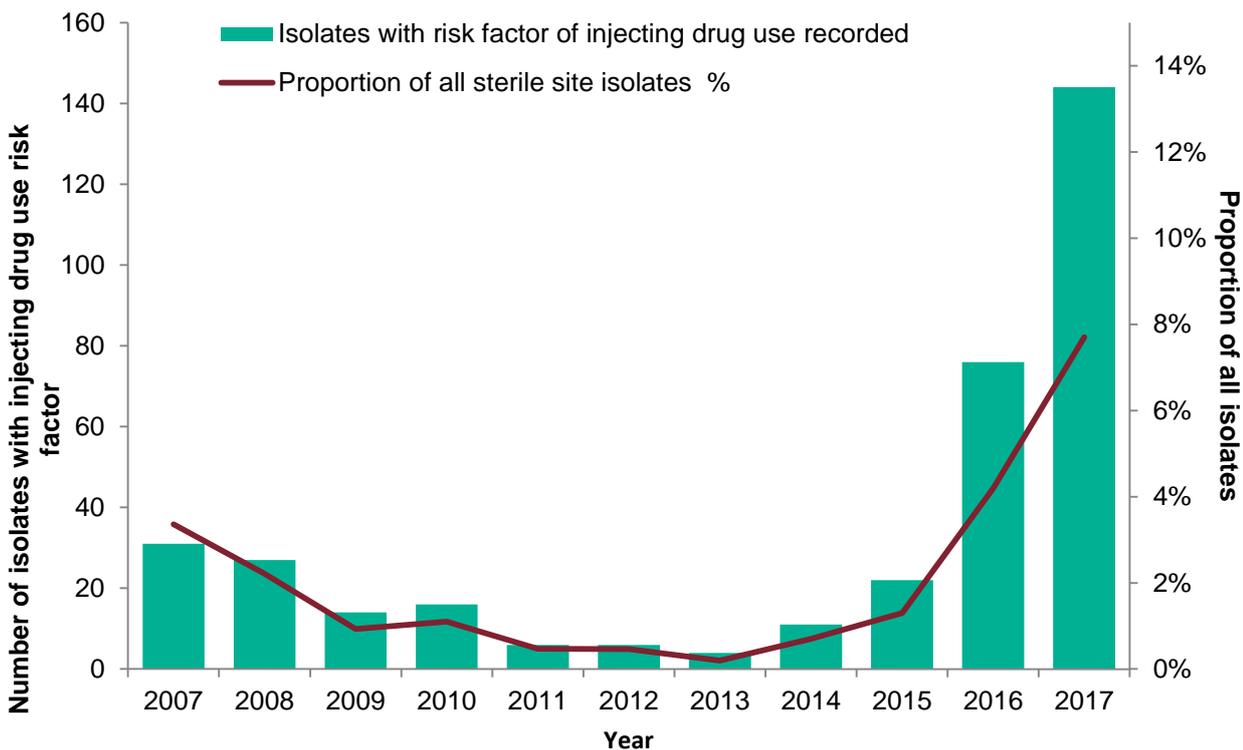


Data source: PHE Staphylococcus Reference Laboratory

Group A streptococci (GAS)

Since 2010, there has been an overall increase in the number of iGAS isolates typed by the PHE Respiratory and Vaccine Preventable Bacteria Reference Unit. Since 2013, there has been an increase in the proportion of these isolates that include drug injection as a risk factor on the referral form (Figure 5). In 2017, there were 145 isolates of iGAS for which injecting drug use was indicated; this represents 7.7% (145/1876) of all invasive isolates (Accompanying Data, Table 2). In 2017, 3 main emm types predominated in PWID: emm66 41 % (60/145; 41%); emm94 (33/145; 23%) and emm82 (16/145; 11%). Interestingly, this pattern does not reflect the emm type distribution of isolates recovered from cases without a PWID designation; where emm1.0 is the most common type comprising 24% (410/1732). The total number of iGAS isolates reported in PWID is nearly double the number reported in 2016 (76; 4.2%) and more than 6 times that seen in 2015 (22; 1.3%).

Figure 5. iGAS isolates received by PHE Respiratory and Vaccine Preventable Bacteria Reference Unit with risk factor of injecting drug use recorded, 2007-2017



Data source: PHE Respiratory and Vaccine Preventable Bacteria Reference Unit

Although the increases in MRSA/MSSA and group A streptococci could be an artefact of enhanced clinical awareness and case ascertainment, an increase in injection-related or invasive infections is supported by data from Hospital Episode Statistics data from 2012 to 2016. This increase was seen across all ages and was greatest for 45-55 year olds (18% per year) (44).

Toxin-producing bacteria (botulism, tetanus, anthrax)

Illnesses which are caused by the toxins produced by spore-forming bacteria, such as botulism, continue to be problematic among PWID. The spores produced by these bacteria are found in the environment and can contaminate drugs at any point in the supply chain, from production to use. Although these infections are usually rare, they can be life-threatening and outbreaks can occur. During 2017, there were 2 cases of wound botulism in the UK; 1 confirmed and 1 probable. Both were identified in Scotland. There were no cases of clinically confirmed tetanus or anthrax reported among PWID in the UK during 2017 (Accompanying Data, Table 2).

Sharing of injecting equipment has declined but remains a problem

Sharing of injecting equipment

Many PWID remain at risk of BBV, such as HIV and hepatitis B and C, through their injecting drug use and also through sexual activity. Overall, the level of needle and syringe sharing (either receiving or passing on a used needle or syringe) among those currently injecting psychoactive drugs has fallen across the UK. In Scotland, sharing of needles and syringes in the previous month fell from 20% during 2007-08 to 16% in 2016-17 among individuals attending drug treatment services (Accompanying Data, Table 3a), whilst in England, Wales and Northern Ireland, sharing of needles and syringes in the past month fell from 23% of current injectors in 2007 to 18% in 2017 (Accompanying Data, Table 3a). When including the sharing of mixing containers or filters as well as needles and syringes, the proportion of current injectors reporting sharing in the past month was 36% in 2017 in England, Wales and Northern Ireland, which is a decrease from 45% in 2007 (Accompanying Data, Table 3a). The provision of low dead space syringes (LDSS) in needle exchange and drug and alcohol services is a measure to reduce the risk of onwards HCV transmission in PWID when sharing of needles and syringes does occur (Box 5) (45). Since 2017, Scotland has provided LDSS to all NSP users (46).

Adequate provision of injecting equipment is important, to reduce sharing and re-use of injecting equipment (47). Needle and syringe provision is considered 'adequate' when the reported number of needles and syringes received met or exceeded the number of times the individual injected. In 2017, the proportion of PWID in the UK reporting adequate needle/syringe provision was sub-optimal; around two-thirds (61%) of PWID who had injected during the preceding 28 days reported adequate needle/syringe provision in England, Wales and Northern Ireland (13). When interpreting this data it should be noted that the UAM survey questions around NSP were updated in 2017 to reflect changes in provision and to incorporate information on secondary distribution, where individuals collect needles and syringes for themselves and for other people. In 2015-16, the proportion of PWID who had injected in the past 6 months in Scotland who reported adequate needle/syringe provision was 73% (14).

Box 5: Provision of low deadspace syringes to reduce BBV transmission through sharing of needles and syringes

Replacing high dead space syringes (HDSS) with low dead space syringes (LDSS) has been noted to be an important strategy for reducing BBV transmission in PWID (48, 49). The term 'dead space' refers to the volume of fluid retained in a needle/syringe once the plunger has been fully depressed (50), this residual fluid provides an opportunity for BBVs to be transmitted if the needle is reused by another individual. The amount of dead space varies by syringe type; with standard high dead space syringes (HDSS) containing up to 10 times the volume of dead space than low dead space syringes (LDSS) (49). In 2012, the World Health Organisation recommended the provision of LDSS in all NSPs (51).

Replacing detachable HDSS with detachable LDSS in NSP is likely to be a cost-saving approach for reducing Hepatitis C Virus (HCV) transmission among people who inject drugs, despite the slightly higher cost of LDSS. This was the conclusion of a project, which was a collaboration between the NIHR Health Protection Research Unit in Evaluation of Interventions, NIHR Collaboration for Leadership in Applied Health Research and Care West (CLAHRC West), University of Bristol and Bristol Drugs Project (52). The research will be in press shortly. In summary the team evaluated the costs of replacing HDSS with LDSS alternatives and promoting LDSS and estimated the proportion of HCV infections that would be averted by switching to LDSS and the potential quality of life years that may be saved as a result. It was estimated that introducing detachable LDSS would save money and result in better health outcomes than not distributing them. Analyses also suggested that detachable LDSS would only need to reduce the HCV transmission risk of HDSS by about 0.5% to be cost-saving, highlighting both the robustness of the findings and justifying wide-scale implementation.

Sexual behaviour

PWID are also at risk of acquiring and transmitting blood borne viruses through sexual transmission. Among PWID surveyed across England, Wales and Northern Ireland, 65% reported anal or vaginal sex during the preceding year and of these, 40% reported 2 or more sexual partners (13). Of those with 2 or more partners during the preceding year, only 19% reported always using condoms (13).

The proportion of men participating in the UAM Survey who reported sex with men during the preceding year has risen from 3.5% (66/1,897) in 2007 to 8.4% (100/1,191) in 2017. Prevalence of HIV in this group has increased in recent years to 7.0% (7/100) in 2017; this compares with 5.1% (50/981) over the period 2006 to 2016. This is likely to reflect the emergence of injecting drug use among some groups of men who have sex with men (MSM) who take drugs prior to or during sex (48, 49).

Survey data for MSM suggest a distinct profile: a greater proportion of MSM report having injected mephedrone, methamphetamine and ketamine, drugs associated with 'slamming' - ie the injection of drugs before or during planned sexual activity to sustain, enhance, disinhibit or facilitate sex (50, 51), in the past year. MSM were more likely to report sharing of needles/syringes in the last month than heterosexual men and were more likely to report having overdosed in the past year. Compared to heterosexual men, a higher proportion of MSM report ever selling sex for money, goods or drugs and were more likely to report having 10+ sexual partners in the past year. Survey data suggests that 'slamming' is evident among MSM accessing general drug services, this is a factor which could lead to an increase in the UK's historic low HIV prevalence among PWID (52) and could undermine efforts to reduce HCV transmission in this population.

Changes in psychoactive drug injection patterns remain a concern

Patterns in psychoactive drug use

Heroin remains the most commonly injected drug in the UK: in 2017, 93% (1,211/1,308) of those who injected drugs in the previous month in England, Wales and Northern Ireland reported injecting heroin. In Scotland, among people who had injected drugs during the past 6 months, heroin was the most commonly injected drug, reported by over 90% of those surveyed at services providing injecting equipment between 2008 and 2016 (14).

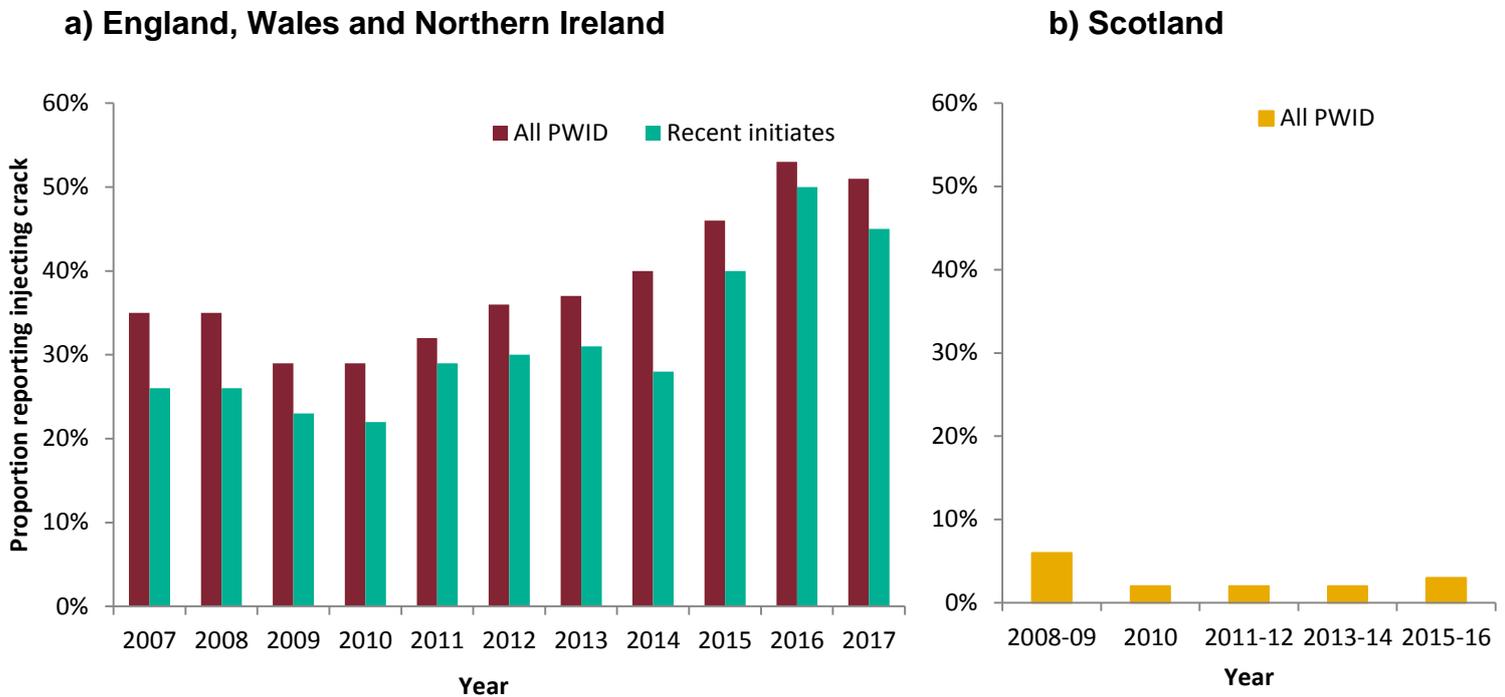
The injection of amphetamine ('speed') or amphetamine-type drugs by those who injected drugs in the previous month continues to decrease from 12% in 2014 to 6.4% (76/1,186) in 2017 in England, Wales and Northern Ireland. In Scotland, injection of amphetamines was reported by 4% of those who injected in the last 6 months in 2015-16 (14).

Increase in the injection of types of cocaine

Data from the UAM survey indicate that injection of crack has increased in recent years in England and Wales, with 51% of those who had injected in the preceding 4 weeks reporting crack injection in 2017 as compared to 35% in 2007 (Figure 6) (13, 53). A significant increase was observed in Wales and in multiple regions in England (East of England, London, South East, South West, East Midlands and West Midlands, Yorkshire & Humber) when compared to reported use a decade ago. Crack injection also increased among recent initiates, with 45% of those who had injected in the preceding 4 weeks reporting crack injection in 2017, compared with 26% in 2007 (53). No crack injection was reported in Northern Ireland in 2017. In Scotland, injection of crack was reported by 3% of those who injected in the last 6 months in 2015-16 (Figure 6)(14).

In England, Wales and Northern Ireland, injection of cocaine (other than crack cocaine) has remained relatively constant in recent years, with 9.5% of those who had injected in the preceding 4 weeks reporting cocaine injection in 2017. There was significant disparity amongst the regions, with higher proportions in South East (21%; 29/140) and North East (38%; 68/178). By comparison, in Greater Glasgow and Clyde, powder cocaine injecting increased from 16% (129/806) in 2008-2009 to 50% (291/585) in 2017/18, which has been associated with the recent outbreak of HIV among PWID in the area (14).

Figure 6. Crack injection in the last 4 weeks among people who inject drugs; a) England, Wales and Northern Ireland, 2007-2017 and b) Scotland, 2008-2016



Data source: Unlinked Anonymous Monitoring survey of people who inject drugs (England, Wales and Northern Ireland) and Needle Exchange Surveillance Initiative (Scotland)

New psychoactive substances (NPS)

In recent years, there has been an increase in the number of “new psychoactive substances” (NPS) being used in the UK. NPS is a term for substances that are intended to mimic the effects of controlled drugs such as cannabis, cocaine, amphetamine, ecstasy and heroin (54). The Psychoactive Substances Act (PSA) came into force in 2016, prohibiting the production, distribution, sale and supply of NPS in the UK (55). Some of the drugs referred to as NPS, had already been controlled before the act; for example prior to the PSA, mephedrone was controlled under the Misuse of Drugs Act in 2010.

Some NPS can be injected and, as these are typically short acting stimulants, there is concern about their association with risky injecting practices such as an increase in injecting frequency. There is evidence, however, that the injection of NPS, such as mephedrone, has declined; in England, Wales and Northern Ireland, 3.9% (69/1,772) of those surveyed in 2017 reported that they had injected mephedrone at some point during the preceding year, which is a decrease from previous years (9.0% in 2014, 8.2% in 2015, 4.4% in 2016) (36). Those who had injected mephedrone during the preceding year were twice as likely to report having injected drugs with a needle or syringe that had previously been used by someone else (36).

In Scotland, injection of NPS was formally monitored for the first time in 2015-16: it was reported by 10% of those who injected in the last 6 months (14). A potential driver for this high prevalence is likely to be the observed increase in ethylphenidate injection in the Lothian region of Scotland during 2014 (2015-16: 29% (126/428)) (14). Like other stimulants, ethylphenidate use has been associated with short term highs and more frequent injecting (56). In order to combat the harms of this drug, the UK Government issued a temporary class drug order (TCDO) against it in April 2015 which reclassified the drug, making the sale or supply of ethylphenidate illegal in the UK reducing its availability and use (57).

Increase in groin injecting

Survey data for England, Wales and Northern Ireland suggest the proportion of PWID reporting injecting into their groin in the last month has increased significantly over the past decade, from 32% (676/2,099) in 2007 to 39% (514/1,330) in 2017 (Box 6). This increase is not seen in recent initiates to injecting, where the proportion reporting injecting into their groin in the past 4 weeks has remain relatively stable over the past decade (16% in 2007; 14% in 2017) (13).

The increase in those reporting groin injection is thought to be due, in part, to the ageing cohort of PWID in the UK (58). Injecting over a long period of time can result in vascular damage in the arms, making injection at this site difficult. Consequently, PWID inject into alternate sites such as peripheral veins in the hands, legs and feet, until eventually resorting to use of central veins in order to ensure a hit (59).

Increased use of the femoral vein for injecting is of concern due to its association with a number of health problems including abscess development and deep vein thrombosis. In addition to damage to the femoral vein, the femoral artery and nerve may sustain damage due to their close proximity, causing further health problems (60, 61).

Box 6: Increase in high risk injecting practices in Wales and investigation of severe infections amongst PWID requiring surgical intervention or intensive care unit admission

Evidence from PWID attending NSP services in Wales (62) indicates increases in groin injecting from 16% in 2014-15 to 19% in 2017-18 amongst individual opioid users and even higher increases amongst individuals injecting stimulants including amphetamine and crack, from 11% in 2014-15 to 17% in 2017-18. Whilst the majority of groin injectors were those with longer injecting careers of 10 years or more, 10% had been injecting for less than 5 years. This issue has been increasingly highlighted following identification of a cluster of PWID groin injectors requiring surgical interventions including disarticulation of the hip (complete removal of the leg). Enhanced surveillance has been initiated for the period 2018 with active identification and interviewing of all cases and will be reported by early 2019.

Provision of effective interventions need to be maintained and optimised

Infections remain common among PWID. This reflects ongoing injecting risk particularly through reuse and sharing of injecting equipment. PWID are also at risk of infections through sexual behaviours. Interventions to prevent infections among this group, such as NSP and OST, need to be sustained with the impact of these interventions dependent on their coverage (4, 63). It is important that the provision of these services is regularly reviewed to ensure it is sufficient to prevent infections. Good intervention coverage, particularly among recent initiates to injecting is important to reduce the risk of infection.

Those who commission services to reduce the harms associated with injecting drug use should give appropriate priority to preventing the spread of infections. National drug strategies, including the 2017 Drug Strategy, acknowledge that tackling drug-related harm and reducing infections are important components of a recovery-focused response to drug use (6, 64-66). Services commissioned in line with these strategies, relevant action plans (8, 10, 11, 67), related guidance (18, 45, 68-71) and local needs assessments (72) should include appropriate free provision of:

- needle and syringe programmes
- opioid substitution treatment
- other drug treatments

These services, and primary care and sexual health services, should provide information and advice on safer injecting practices, preventing infections and the safe disposal of used equipment.

Promoting testing, treatment and care

Hepatitis C prevalence remains high in PWID with around half of those having ever been infected with hepatitis C. The Global Health Sector Strategy (GHSS) 2016-2021 has set the first-ever global targets to eliminate viral hepatitis as a major public health threat by 2030 (69). The advent and increasing availability of the new DAAs provides an opportunity to reduce morbidity and mortality from hepatitis C among those aware of their diagnosis, and decrease the risk of onward transmission. PWID are the main drivers of the hepatitis C epidemic and are thus a prime target group for the roll-out of DAAs. More work is needed to meet the 2030 targets set by the GHSS. Improving the offer and uptake of testing for hepatitis C is particularly important because **many hepatitis C infections remain undiagnosed** among PWID. Routine opt-out testing approaches should be considered where appropriate. Well-designed, supportive care

pathways for those infected are needed, and those diagnosed with hepatitis C and who continue to inject should have access to effective treatment and care in line with current guidelines (18, 73-75).

One of the biggest obstacles to entering care pathways for HCV is the lack of treatment settings suitable for PWID. Multidisciplinary and peer-supported programmes have been shown to be successful, as well as offering BBV testing, treatment and care in a variety of settings (76, 77). In addition to community-based clinics, NSP, and drug treatment clinics, BBV testing is now being offered through the English and Welsh prison system on an 'opt-out' basis (Box 7).

Box 7: 'Opt-out' blood borne virus testing in the English prison system

An important step to fulfilling the WHO's proposed hepatitis elimination goals by 2030, will be identifying and meeting the needs of the most vulnerable infected populations. Incarceration and injection drug use are overlapping risk factors for infection with blood borne viruses (BBVs) such as hepatitis B/C and HIV, and people in prison in England are upwards of 4 times more likely to test positive for a BBV than their peers in the community (78). However, despite a heightened need, this population has traditionally been under-tested for BBVs when compared to people living in the community. To help meet this need, PHE in partnership with NHS England and HM Prison and Probation Service (HMPPS) have overseen the rollout of BBV testing in adult prisons on an 'opt-out' basis. A significant milestone was reached in April 2018, when after more than 4 years of implementation, the programme was successfully rolled out across the entire adult prison estate.

Since the introduction of the programme, there has been a reported seven-fold increase in collective (HBV, HCV and HIV) testing uptake compared to the traditional prison testing baseline before the programme (increase from 4% to 29%). Whilst this increase in testing is welcomed, current testing levels are still below the lower BBV testing threshold proposed by NHS England (50-74%), and well below the target of at least 75% uptake (79).

The challenge moving forward will be increasing BBV testing levels to within the upper NHS England performance standard. To this end, the focus in the current financial year and beyond will move from BBV testing programme implementation to improving the quality and uptake of testing within prisons. This will entail a 'whole system approach' that will see public and private sector agencies working together with the third sector to improve peer support networks, identify BBV lead nurses, standardise the testing offer and organise various stakeholder engagement events with a focus on improving testing and treatment rates in prisons.

In the UK, **HIV prevalence remains low, but risks continue** among PWID, and HIV outbreaks still occur. Injecting drug use among some groups of MSM is also a concern. To ensure HIV levels remain low, it is important that testing for HIV is offered regularly

to all those at risk, that care pathways for those with HIV are maintained, and that services adapt to changing patterns of risk (18).

Hepatitis B infections among PWID remain rare, but vaccine uptake needs to be sustained, particularly in younger age groups. The provision of vaccination for this population should be maintained in line with guidance (38) and ways of further improving uptake among PWID explored. The improved supply of hepatitis B vaccine means vaccination rates should be maintained.

Information and advice on safer injecting practices and avoiding injection site infections are important as **bacterial infections continue to be a problem.** This should include the provision of tetanus vaccination when appropriate (38), wound care services and treatment for injection site infections (18). Appropriate urgent referral for potentially serious injection site infections may be needed for some patients (18).

The changing patterns of psychoactive drug injection remain a concern due to the higher levels of risk associated with the injection of stimulant drugs. Services provided to reduce the risk of infections should adapt to the increasing range of drugs that are now being injected (18). These services should also be appropriate to the needs of particular groups of PWID, such as some MSM (80).

Injecting risk behaviours have declined but remain a problem. The level of needle and syringe sharing among those currently injecting psychoactive drugs has fallen across the UK, but needle and syringe sharing remains a problem. People continue to be at risk of infection through injecting behaviours. A range of easily accessible NSP for all PWID, including those using drug treatment services, need to be provided in line with guidance, such as the provision of free services, including needle and syringe provision, as well as testing for BBV (45, 71). Low dead space equipment should be offered and encouraged where appropriate (18, 45). NSP should continue to also offer interventions that support entry into treatment and other interventions that encourage a reduction or cessation of injection as a route of consumption. They should aim to distribute sufficient appropriate injecting-related equipment to prevent sharing and re-use and support hygienic injecting practices.

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