

Needle and syringe programmes (NSPs) for HIV prevention



KEY POINTS

- Needle and syringe programmes (NSPs) provide people with sterile needles and syringes to reduce transmission of HIV and other bloodborne viruses from sharing injecting equipment.
- Global coverage remains inadequate. Of the countries that have NSPs, the majority provide less than the WHO-recommended 200 clean needles per person per year.
- Criminalisation, legal restrictions on those under 18, and stigma and discrimination are key barriers to effective needle and syringe programmes.
- Funding for needle and syringe programmes is insufficient, largely due to lack of political support.

Explore this page to find out more about [how needle and syringe programmes are delivered](#), [coverage of programmes across geographical regions](#), [barriers to accessing these programmes](#) and [the future of needle and syringe programmes](#).

Needle and syringe programmes (NSPs) are a type of [harm reduction initiative](#) that provides clean needles and syringes to [people who inject drugs \(sometimes referred to as PWID\)](#) to reduce [transmission of HIV](#) and other blood borne viruses (such as hepatitis B and C). The World Health Organization (WHO) recommends providing 200 sterile needles and syringes per drug injector per year, in order to effectively tackle HIV transmission via this route.¹

Many programmes supply other equipment to prepare and consume drugs such as filters, mixing containers and sterile water and also provide ways to dispose used needles safely. The majority of

NSPs are run by drug services or pharmacies and operate from a range of fixed, mobile and outreach sites.²

Programmes aim primarily to reduce the transmission of HIV and other blood-borne viruses caused by the sharing of injecting equipment. Many also work to reduce other harms associated with injecting drug use by providing:

- advice on safer injecting practices
- advice on minimising the harm done by drugs
- advice on how to avoid and manage an overdose
- information on the safe handling and disposal of injecting equipment
- referrals to HIV testing and treatment services
- screening for other sexually transmitted diseases (STIs) and tuberculosis (TB)
- help to stop injecting drugs, including access to drug treatment (such as opioid substitution therapy) and encouragement to switch to safer drug taking practices
- links to other HIV prevention interventions such as pre-exposure prophylaxis (PrEP) and free condoms
- referrals to other healthcare services, wider psychosocial support and counselling.³

NSPs substantially and cost effectively reduce the spread of HIV among people who inject drugs and do so without evidence of exacerbating injecting drug use at either the individual or societal level.⁴

How are needle and syringe programmes delivered?

There is considerable variability among regions and countries in the way NSPs are delivered. The main strategies for delivering NSPs are outlined below.

Fixed sites

Fixed sites are typically located in areas with high levels of injecting drug use.

They can be drop-in centres, community centres, pharmacies, or specialised voluntary counselling and testing centres, which are closely linked to outreach services in the area (see below).

Those who attend will be able to receive new injecting equipment, and dispose safely of used injecting equipment. At fixed sites, it is easier to offer additional services such as healthcare alongside testing and counselling for HIV and other blood-borne viruses.^{5 6}

Mobile programmes

Mobile programmes operate from a van or bus with needles and syringes distributed through a door or window. Some large mobile programmes act like fixed sites with testing and other healthcare services also available. Others run in conjunction with fixed sites. In these instances, the fixed site is typically located in an area with high numbers of people who inject drugs and will operate along regular routes at fixed times, often at night when sex workers are working and when drug users are more likely to be on the streets. In contrast, smaller mobile NSPs tend to focus on harder to reach or smaller populations.^{7 8}

Mobile programmes can be more accessible than fixed sites and often face less opposition than fixed sites.⁹

Outreach programmes

Outreach is often combined with fixed sites, drop-in centres or mobile units and can act as a link between all service points.

Outreach programmes take many forms including mobile units (such as a van or bus), 'backpacking' services, which are delivered on foot at street level, or home delivery services.¹⁰

Outreach programmes are an effective way to reach people who normally avoid harm reduction services due to multiple experiences of criminalisation, stigmatisation and marginalisation (for example, people who are under 18, pregnant women).^{11 12}

A harm reduction outreach worker tends to either be a professional who has been trained in drug use issues or a drug user who has been trained in peer education, HIV prevention and harm reduction.¹³

Outreach compared to fixed site NSPs in Iran

A study in Kermanshah, Iran compared the impact of a drop-in needle and syringe programme (a fixed site) with an outreach programme on injecting risk behaviours.

Outreach was found to be as effective as the fixed-site NSP in significantly reducing recent syringe borrowing, recent syringe reuse, and in increasing recent HIV testing, and more effective in reducing the likelihood that someone would lend syringes to others.

Overall, 76% of those included in the study had accessed some form of NSP within the past two months, indicating a quarter of people were unable to access such services, despite their clear benefit.¹⁴

Syringe vending machines

Countries including the Netherlands, Germany, Italy, Ukraine and Australia use syringe vending machines in addition to other forms of NSPs.

Syringe vending machines accept coins and tokens (distributed by outreach workers) in return for harm reduction packs. In Australia, these packs include several needles and syringes as well as alcohol swabs, cotton wool, sterile water and spoons. Others contain educational materials.¹⁵

The machines are typically mounted on the outside walls of fixed sites. They are also installed in places where needles and syringes are hard to access. Most provide needles and syringes 24 hours a day, 7 days a week.¹⁶

Evidence of the impact of this intervention suggests they are valuable in increasing access to NSPs, particularly among the most marginalised.¹⁷

Pharmacies

Pharmacy-based NSPs operate in a number of ways. Some sell needles and syringes directly to people, while others exchange harm reduction kits for vouchers.

The main advantage of this delivery mode is that pharmacy networks are often already well established and located near to large groups of people who inject drugs. In addition, their opening hours are often more convenient than those at fixed sites.¹⁸ For example, it is estimated that pharmacies in Ukraine increased overall NSP coverage by around 10% within a year of introduction.¹⁹

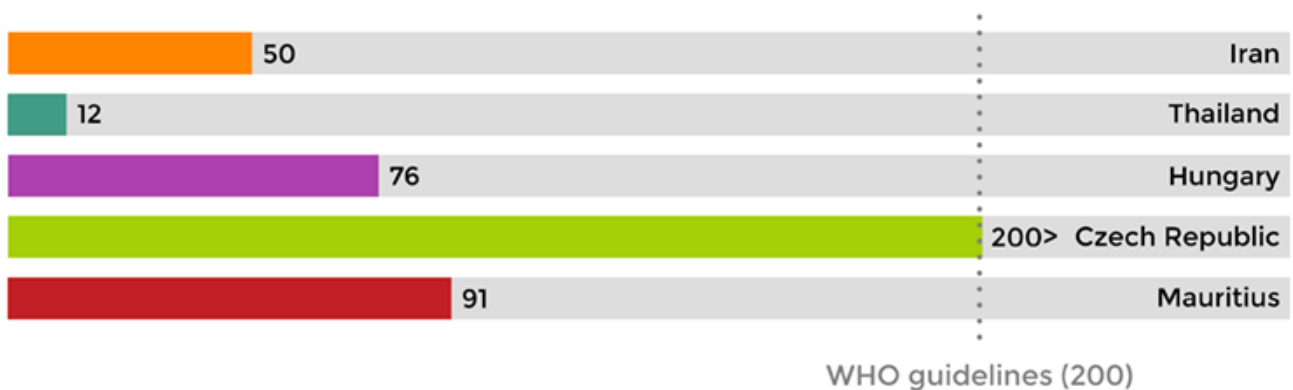
However, pharmacy-based needle and syringe exchanges are very limited in resource poor settings. Even where they do exist, some pharmacists are reluctant to sell needles and syringes or deal with their disposal.^{20 21} Moreover, they rarely offer education and additional healthcare services.²²

Needle and syringe programme coverage

In 2018, there were 179 countries worldwide that reported people who inject drugs, but just 86 of these countries implement needle and syringe programmes. This is a slight reduction from 2016 levels, when 90 countries provided NSPs. Bulgaria, Laos and the Philippines have closed their NSPs, as they have moved towards more punitive drug policies. In addition, some Latin American countries such as Brazil have withdrawn services due to a lack of need. Conversely, Mali, Mozambique and Uganda all introduced NSPs between 2016 and 2018.²³ Global NSP coverage remains inadequate.

As of 2016, only 12 countries provided at least 200 clean needles per person who injects per year as recommended by the World Health Organization (WHO).²⁴

Number of needles and syringes distributed per PWID per year in selected countries worldwide



Source: UNAIDS Data 2018

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Asia and the Pacific

In 2018, 15 countries in Asia were implementing NSPs. NSPs in Asia are delivered in a number of ways. In some places, fixed sites have been integrated with other facilities such as health clinics and pharmacies and there is a significant amount of outreach work. Implementation of NSPs throughout the region has largely been undertaken by civil society organisations.²⁵

Afghanistan, Bangladesh, Cambodia, China, India, Myanmar and Pakistan have the strongest NSPs, distributing more than 150 needles per person each year. However, Brunei, Darussalam, Hong Kong, Japan, the Maldives, Singapore, South Korea, Sri Lanka, the Philippines and Laos are without NSPs due to a lack of political support.²⁶

As a result, NSP coverage is still too low to have a significant impact on HIV prevalence among injecting drug users in the region. Declining donor support, shifting policies towards more punitive approaches, a lack of human resources and inflexible NSP hours are cited as barriers to NSP access.²⁷
²⁸

People who use drugs are increasingly been presented as amoral and against 'Asian values', leading to extrajudicial killings, mass and other human rights violations, especially in Bangladesh, the Philippines and Sri Lanka. However, Thailand and Myanmar have bucked this trend, introducing more progressive policies on NSPs and other harm reduction interventions.²⁹

In the Pacific (Oceania), Australia and New Zealand are the only countries that have figures on people who inject drugs, and both provide NSP services.

Australia and New Zealand both have one of the highest NSP coverage rates in the world. Political support and public funding for harm reduction services has helped to keep HIV transmission from unsafe injecting very low. In Australia more than 3,600 NSP sites were operating as of 2018, 67% of which were based in pharmacies. This equates to around 630 needles distributed per person who injects drugs per year. New Zealand operates 190 pharmacy-based NSPs and 23 peer-based services, offering around 230 needles per person who injects drug per year.³⁰

Eastern Europe and Central Asia

All 29 countries and territories in [Eastern Europe and Central Asia](#) report injecting drug use and 27 have NSPs, although there is a huge disparity in the number available in each country. For example, there are 1,667 in Ukraine but only two in Albania, Romania and Serbia and five in Bosnia and Herzegovina. Between 2016 and 2018, Turkmenistan and Bulgaria closed their NSPs entirely, while Bosnia and Herzegovina, Bulgaria, Hungary and Romania have all scaled back programmes. This is the result of retreating donor support, coupled with a lack of political support. Many countries in the region do not provide domestic funds for NSPs.³¹

A report by the Eurasian Harm Reduction Network estimated that only 10% of people who inject drugs in Eastern Europe and 33% in Central Asia are able to access NSPs.³² Restrictive opening hours, poor-quality equipment and stigma all discourage people from accessing NSPs in many countries. Women who use drugs are particularly likely to miss out due to heightened levels of violence and discrimination.³³

Despite the challenges, the number of sites providing NSPs increased in Croatia, the Czech Republic, Estonia, Georgia, Latvia, Poland, Slovakia and Slovenia between 2016 and 2018. In the Czech Republic alone, 8,000 new clients registered for NSPs in 2016.³⁴

Western and Central Europe and North America

All Western European countries operate NSPs with the exception of Turkey.. France, Portugal, Spain and the UK distribute more than 200 syringes per person who injects drugs per year as per the WHO recommendation.³⁵ NSPs in Western Europe use fixed sites, vending machines, outreach and mobile

services. Syringes can also be bought without prescription in the majority of the countries in the region, meaning pharmacies play a vital role in NSP provision.³⁶

Austria, Belgium, Finland, Ireland, Luxembourg, Portugal and Sweden have all increased the number of syringes distributed since 2016. Other countries have reduced coverage, although in some cases such as the Netherlands and Spain this is due to a decrease in heroin use.³⁷

A major barrier to access in the region is geographical distance. In a number of countries, people who inject drugs who live in rural areas struggle to access NSPs as they are mainly located in cities.³⁸

Other barriers include under-18s being denied services, and the needs of certain groups not being met. For example, 8% of people who inject drugs in the UK identified as gay or as a man who has sex with men in 2016. But despite this group having an increased likelihood of injecting methamphetamines or ketamine rather than opioids and of sharing needles, no NSPs specifically address these needs.³⁹

North America is home to 17% of the global population of people who inject drugs. NSPs are being scaled up in the region due to a significant acceleration in opioid use.

The number of NSPs in the US has increased by 91 since 2016, totalling 335 as of 2018, although coverage is still inadequate. The increase is the result of the federal government changing its position on NSPs, leading to a partial repeal of the ban on federal funding for the service. This has led to some more progressive programming. For example, Las Vegas opening the US's first ever syringe vending machines in 2017.⁴⁰

In Canada, NSPs are increasing and 95% of people who inject drugs are estimated to use sterile injecting equipment. However, in both countries remote rural areas are often neglected and women are often fearful of accessing NSPs due to increased stigma.⁴¹

Latin America

Injecting drug use is relatively uncommon in Latin America compared to other regions and is mainly found along the US-Mexico border and in Colombia.

For people who inject drugs NSP services are extremely limited, as is data on injecting drug use. Only 0.1 to 0.5 needles are distributed per person per year, well below the WHO recommendation of 200.⁴²

Since 2016 needle and syringe services in Mexico have expanded while some sites in Colombia have closed. NSPs previously existed in Argentina, Brazil and Uruguay in order to respond to injecting cocaine use. However, this has now declined to minimal levels, with cocaine more likely to be smoked or snorted, leading to the closure of these countries' NSPs.⁴³

Needle and syringe programmes in Colombia

Colombia first introduced a needle and syringe programme in 2014 and has since reached around 2,000 people. NSPs operate in the cities of Cúcuta, Cali and Pereira. However, in Medellín, the Colombian city with the highest population of people who use drugs, no NSPs exist due to local government opposition. NSPs in Bogotá and Dosquebradas also closed in 2017 due to a lack of funding and political support.

Even where NSPs operate, services are inconsistent due to cash flow issues and insufficient coverage. In 2015, it was estimated that only nine syringes were distributed per person who injects drugs per year.[44](#) [45](#)

In Pereira, inflexible opening hours and a dress code, coupled with the requirement that people must provide official identification in order to receive safe injecting equipment, mean this service is far less effective than it could be.[46](#)

As a result of these issues, risk behaviours remain high. Government research in 2018 found 41% of people who inject drugs in Colombia had shared a needle in the last six months.[47](#)

The Caribbean

Data regarding people who inject drugs in the Caribbean are sparse. Puerto Rico and the Dominican Republic are the only places in which injecting opioid use is regularly reported.[48](#)

NSPs have been available in Puerto Rico since 2007, with six sites operating as of 2018. Vending machines and peer-led outreach are also offered.[49](#) Between 2007 and 2011, the most recent data available, they led to a 17.1% reduction in the number of HIV infections as a result of unsafe injecting.[50](#) [51](#)

The Dominican Republic opened its first programme in 2012 and offers fixed sites and peer-led outreach. In 2015, this service distributed nearly 14,500 syringes to people who inject drugs in the Dominican Republic, equivalent to just over 2 syringes per person who injects drugs per year.[52](#) [53](#)

NSPs in both countries are provided by civil society organisations that rely wholly on funding from international donors. NSPs also play a role in linking people who use drugs but do not inject to other healthcare services.[54](#)

The Middle East and North Africa

Injecting drug use is evident in all countries in the [Middle East and North Africa \(MENA\)](#) yet only eight currently implement NSPs. Even where available, these services fall short of need with between just one and four needles distributed per person per year.[55](#)

Tunisia and Jordan have seen the greatest expansions of sites since 2016. While Morocco and Palestine have also scaled up services. Instability and other challenges resulted in Egypt closing its NSP in 2016. Pharmacies continue to be the most accessible source of sterile syringes, particularly in Iran, Jordan and Tunisia.[56](#)

Only in Iran, where unsafe injecting drug use drives HIV transmission, is NSP provision substantial, with 580 sites across the country. In 2015, 82% of people who inject drugs in Iran reported using sterile injecting equipment.[57](#)

Coverage throughout MENA remains too low to have a positive impact on the transmission of HIV and other blood-borne viruses.[58](#)

There is also little financial and political support for NSPs in the region. This, coupled with over-complex bureaucratic procurement processes, regional instability, legal barriers and persistent

stigmatisation of people who inject drugs, prevent people from accessing NSPs. However, the enabling environment is better in Iran and, to some extent, Morocco.[59](#)

Sub-Saharan Africa

In 2017, injecting drug use was evident in 36 countries, equating to an estimated population of between 645,000 and 3 million people who inject drugs in the region.[60](#)

NSP provision throughout [sub-Saharan Africa](#) has expanded in recent years. Eight countries (Kenya, Mauritius, Senegal, South Africa, Tanzania, Uganda, Mali and Mozambique) all operate NSPs, with Uganda, Mali and Mozambique opening sites for the first time since 2016.[61](#)

Kenya began implementing NSP services in 2012, and offers a combination of fixed sites and outreach services. Prior to the inception of NSP services, an estimated 52% of people who inject drugs reported using sterile injecting equipment. In 2016 this had risen to 89%.[62](#) As of 2018, approximately 135 needles and syringes were being distributed per person who injects drugs per year, a substantial increase since 2015, although this is still below WHO-recommended targets.[63](#)

Mauritius also has a high coverage in comparison to the rest of the region. As of 2017, it distributed around 90 needles and syringes per person who injects drugs per year.[64](#)

In all countries with NSPs many barriers to access exist. These include social stigma, sites being restricted to urban areas and police harassment, including the confiscation of syringes and needles.[65](#)

Kenya: a regional leader

Kenya has become a champion of harm reduction in sub-Saharan Africa, steadily expanding NSPs and other interventions since 2012. As well as expanding access, the country is implementing a number of NSPs that address the specific needs of harder-to-reach people who inject drugs.

In the coastal region of the country, the Muslim Education and Welfare Association (MEWA) is partnering with international harm reduction NGO Mainline to deliver inclusive, rights-based and gender-sensitive services which are more accessible for women.

The project is strengthening the capacity of established NSPs and drop-in centres and is also improving outreach services. Key to this is its focus on training women who use drugs to become knowledgeable on harm reduction, creating a successful model of peer-to peer support.[66](#)

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Barriers to accessing needle and syringe programmes

Legal and social barriers

In many countries criminalisation of injecting drug use is a major barrier to NSP services. In 2018, 93 countries with a need for NSPs did not offer them due to punitive drugs policies that seek to criminalise people who use drugs. Some countries who had previously operated NSPs have now closed them, such as Bulgaria, Laos and the Philippines, in favour of more punitive policies.⁶⁷

But in other countries, drug laws and policies are becoming more progressive. For example, Myanmar effectively decriminalised the possession of needles and syringes in 2015. This is a major step forward, given that 25% of annual HIV infections in Myanmar are caused by the sharing of injecting equipment.⁶⁸

Even where NSPs exist, criminalisation of possession of illicit substances and injecting equipment often forces people who inject drugs to hide their equipment and engage in unsafe injecting practices, with many threatened, abused, extorted or arrested by the authorities.⁶⁹

For example, the confiscation of syringes has been associated with increases in new HIV infections among female sex workers who inject drugs. In parts of Eastern Europe and central Asia, police may consider needle-syringe distribution as promotion of illegal drug use, which leads to a high rate of turnover among outreach workers who fear they may be arrested for carrying out their work.⁷⁰

Differing approaches: NSPs in Ukraine and Russia

Both Russia and Ukraine are home to large populations of people who inject drugs and HIV prevalence among this group is high, estimated at 22% in Ukraine and 26% in Russia.⁷¹

The two countries take very different approaches to NSPs. In Russia, despite increasing rates of HIV linked to injecting drug use, the government's punitive policies and practices towards

people who use drugs continues, and only an extremely limited number of NSPs are offered, totalling 20 as of 2018.[72](#)

In contrast, Ukraine has been scaling-up NSPs since 2012 and now has 1,667 sites operating across the country.[73](#) The country has a progressive national NSP policy, which stipulates services should be free of charge and be 'low-threshold', meaning that people are not required to meet certain requirements (such as showing official identification or having a registered address) in order to receive injecting equipment.[74](#)

As a result of Ukraine's approach to NSPs, a wide-reaching study found 97% of people who inject drugs in Ukraine used sterile injecting equipment at last use in 2017. Overall, HIV infections have fallen by 16% since 2010.[75](#)

Legal restrictions

In some countries, legal age restrictions for accessing NSPs prevent people who are under 18 from receiving services. This is despite evidence that people often start injecting drugs as an adolescent.[76](#)
[77](#)

Mandatory detention of injecting drug users in drug detention centres in countries such as China, Cambodia and Indonesia also prevents people from accessing NSP services.[78](#)

Stigma and discrimination

Even in places where it is legal to purchase needles and syringes, [stigma, discrimination](#) or disapproval from the community prevent many people who inject drugs from accessing NSP services. They also experience stigma and discrimination from healthcare workers, or receive services that are not delivered in a sensitive way.[79](#)

Stigma and discrimination acts as a particularly significant barrier among already stigmatised or marginalised groups, such as women who use drugs, men who have sex with men, homeless people, migrants, ethnic minorities and indigenous peoples.[80](#)

Lack of political support and funding

In many countries, there is a lack of political will resulting in a shortfall of [funding](#) for the implementation of NSPs.[81](#)

This is despite the fact that NSPs are cost effective, estimated as costing between US\$ 23–71 per person per year, far more affordable than the lifetime cost of HIV treatment. If the impact on preventing HIV and hepatitis C infection is considered, the cost-effectiveness of NSPs becomes even greater.[82](#)

The USA had a longstanding ban on the use of federal funds to purchase sterile syringes for injecting illegal drugs both domestically and internationally.[83](#) However, a 2016 amendment means that federal funds are now allowed to be used to support other facets of NSPs, such as human resources and syringe disposal.[84](#)

In Canada, a lack of federal support means that NSPs are typically delivered by NGOs, civil society

groups, provinces and territories, with service numbers varying dramatically between and within provinces.⁸⁵

Even in Europe, the region traditionally most supportive of harm reduction, a drop in government funding has resulted in service closures and uncertainty. For example, in Italy a reduction in funding has seen the number of NSP sites fall from 106 in 2012 to 66 in 2015. ⁸⁶

International donor funding for the HIV response is in decline, and this problem is increasingly pronounced in middle-income countries where harm reduction is most needed. Services in many countries are closing due to the withdrawal of international funding and national governments are failing to fill the funding gap.

Physical and geographical barriers

In other places, access to NSPs is limited by geographical distance, particularly in remote and rural areas.

Elsewhere, legal restrictions can lead to geographical barriers. For example, in Canada some municipalities have passed zoning bylaws that prevent NSPs from operating in certain areas.⁸⁷

A number of studies have shown that people who inject drugs who live in close proximity to programmes are more likely to use them.⁸⁸

Even where they are in reach, some sites have restricted opening hours, long waiting times, insufficient resources (including needle and syringe supplies) as well as inadequately trained personnel. For example, a study among people in Australia who inject drugs found community hospitals were not frequently used as access points for injecting equipment due to negative experiences which included being made to wait for unreasonable periods.⁸⁹

The future of needle and syringe programmes

The impact NSPs can have on preventing HIV and improving the health and lives of people who use drugs, which in turn impacts on the wider community, cannot be disputed. However, the provision of NSPs remains inconsistent, particularly in areas where punitive approaches to people who use drugs are deeply entrenched.

Creating more enabling political and legal environments will only be achieved through the continuation of evidence-based advocacy yet the lack of data on NSPs hampers this. Until political and financial support becomes stronger for NSPs, and harm reduction in general, millions of people who inject will continue to miss out, and the sharing of needles, syringes and other injecting equipment will continue to result in new HIV infections, among people who inject drugs and their sexual partners.

Even in areas where NSPs are available, access is problematic for the most marginalised drug users such as women, men who have sex with men and those under the age of 18. Adapted services are therefore needed and must be a key focus for NSPs effectively respond to all those who truly need them.

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