Needle and syringe programmes for people who inject drugs

Operational guide

World Health Organization
UNAIDS
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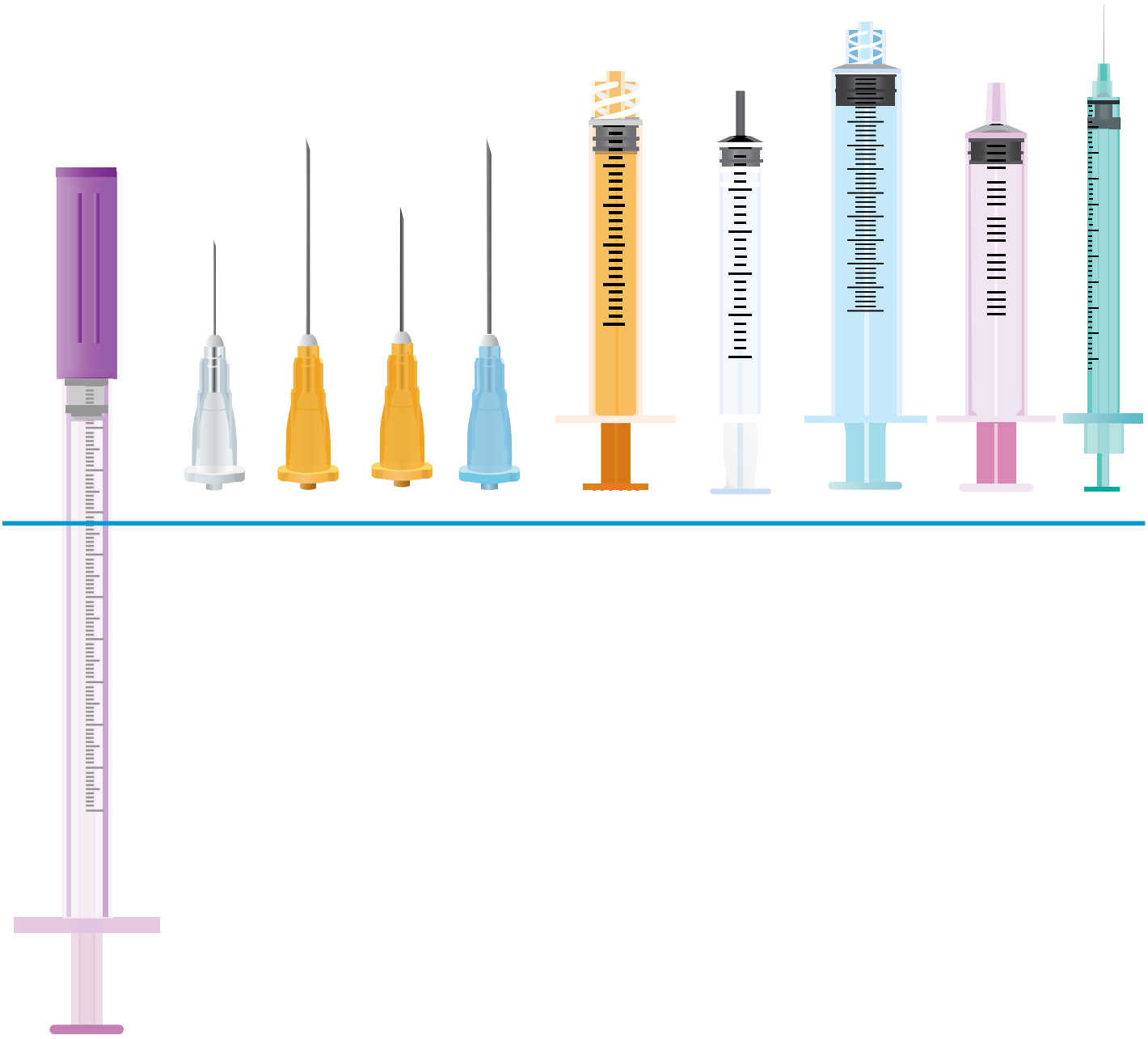
United Nations Office on Drugs and Crime



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Contents

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Abbreviations

CLM	community-led monitoring
GHSS	global health sector strategy
HBV	hepatitis B virus
HCV	hepatitis C virus
HDSS	high dead-space syringe
LDSS	low dead-space syringe
NSP	needle and syringe programme
OAMT	opioid agonist maintenance treatment
STI	sexually transmitted infection
TB	tuberculosis
UN	United Nations
WHO	World Health Organization

Peer worker during outreach in a public park, Afghanistan.

Summary

Globally, most countries report injecting drug use, with estimates indicating that between 14 and 15.6 million people inject drugs. This population is at disproportionately high risk of bloodborne infections such as HIV and viral hepatitis, as well as skin infections and fatal overdose.

Of people who inject drugs:

- **38.8%** have chronic hepatitis C virus (HCV) infection;
- **31.7%** had recently a skin infection;
- **18.8%** have recently overdosed;
- **15.2%** are living with HIV.

Needle and syringe programmes (NSPs) are often the first point of contact with marginalized people who inject drugs. As a core intervention for harm reduction, they are highly effective in preventing HIV and HCV transmission, reducing the incidence of skin and soft tissue infections and providing an entry point for prevention of overdoses and broader health support. In Europe, high-coverage provision of needles and syringes has been associated with a 76% reduction in HCV acquisition. Yet, despite strong WHO recommendations and guidance and decades of evidence, coverage remains far from adequate in most countries in the world.

Extending access to sterile injecting equipment, addressing structural barriers such as criminalization and stigmatization and integrating services with opioid agonist maintenance treatment (OAMT) are essential to meeting the 2030 global targets for HIV and hepatitis C.

Fig. 1 illustrates five modules for implementing NSP. Considerations for implementing NSP are shown in Box 1.

Box 1. Implementation considerations and practical enablers

Community-led NSP, led by and for people who inject drugs, are highly effective and should be central to national harm reduction strategies.

NSP in prisons and other closed settings are essential to reduce HIV and HCV infection. They require enabling policy frameworks, trained staff and integration into prison health systems.

Safety of front-line workers must be ensured by legal protection, safety protocols and mental health support, particularly in settings where they may face the risk of being arrested.

Distribution limitations must be avoided by ensuring enough sterile equipment, without caps, which undermine prevention and increase long-term health-care costs.

Quality of injection material must be sufficient to minimize harm and maintain the trust of people who inject drugs.

The target population must include groups with special outreach, treatment and care needs, such as women, occasional injectors, partners and non-injecting communities through inclusive, non-judgemental approaches.

Low dead-space syringes (LDSS) should be considered, as they are expected to reduce the risk for HIV and HCV transmission and meet community preferences and local use patterns.

Recovery and disposal of syringes by collection or sweeping protects communities and builds public and political support for harm reduction.

Injection equipment and paraphernalia, such as filters, cookers, acidifiers and sterile water, must be prioritized and aligned with local risks, preferences and resources.

Avoidance of auto-disable syringes is critical, as they are unsuitable for NSPs and may increase risk if reused unsafely.

Fig. 1. Five modules of NSP implementation

Assessment and planning

Effective implementation requires ongoing situational assessments, meaningful community involvement and a focus on consistent, sufficient access and coverage.

Implementation model

NSPs must be adapted to local needs, preferences and resources and combine flexible outreach with fixed sites for maximum impact.

Add comprehensive services

NSPs serve as gateways to essential services: opioid agonist maintenance treatment (OAMT), overdose prevention and management, condom and lubricant distribution, HIV post-exposure prophylaxis (PEP) and pre-exposure prophylaxis (PrEP), HIV and HCV testing and treatment, thus improving access, trust and health outcomes.

Monitoring

Ensures the quality and reach of NSPs, guiding adaptation through community input, data collection and strategic indicators without compromising access or trust.

Scaling up

Extension of NSPs requires political commitment, domestic funding, full health system integration and ongoing advocacy rooted in community leadership and public health priorities.

Step 1 – Size estimation

Reliable population size estimation is important for planning but should not delay activities. Combining epidemiological and community-led methods ensures accuracy, responsiveness and adequate coverage.

Step 2 – Values and preferences

Meaningful community involvement ensures that NSPs reflect real needs, improving access, trust, effectiveness and sustainability through locally informed design and delivery.

Step 3 – Quantification and planning

Combines population size (from step 1), injection frequency and material needs (from step 2) to guide NSP planning. The goal is to ensure sufficient coverage rather than exact numbers.

"one injection = one syringe"

- **Programmes should adopt the target of "one injection = one syringe"** to guide supply planning and support safer injecting practices.
- The **Global Health Sector Strategy (GHSS) target of 300 syringes per person annually** is a population-level average. It is usually insufficient at the individual level and should *not* be used as a programme benchmark.
- **Monitoring should support – not obstruct – service delivery.** If data collection creates barriers or an undue workload, practical approaches should be used.

1 Introduction

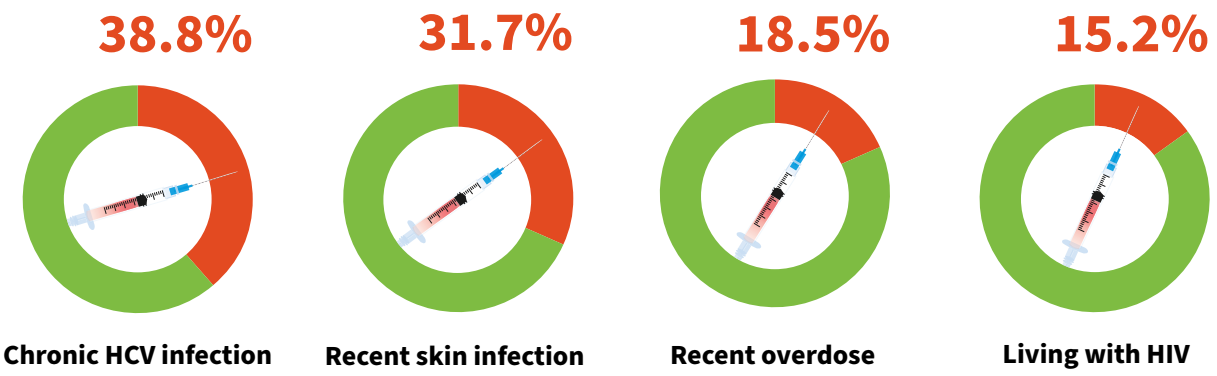
Context

Injecting drug use has been a well-documented global phenomenon for decades. Injecting drug use has been reported in 190 countries and territories, with global estimates suggesting that between 14 and 15.6 million people inject drugs *(1-4)*. Accurate estimation of the size of this population, locally and globally, is, however, difficult, because of the hidden nature of injecting drug use, particularly in contexts where criminalization and stigmatization drive people underground, often leading to significant underestimates.

Injecting drug use is associated with many health risks. Injection of certain drugs is associated with an increased risk of overdose, while sharing and reusing equipment are associated with increased risks of skin infections *(5)* and transmission of bloodborne infections such as HCV and HIV *(6, 7)*.

Recent data *(1)* indicate that more than one in three (38.8%) people who inject drugs have current HCV infection, more than one in seven (15.2%) are living with HIV, and nearly one in ten (8.4%) are estimated to have current hepatitis B virus (HBV) infection *(1)*. Almost one in five (18.5%) people who inject drugs has recently experienced a non-fatal overdose, and nearly one in three (31.7%) has had a recent skin or soft tissue infection related to injecting practices *(1)* (Fig. 2).

Fig. 2. Risks associated with injecting drug use



Source: Degenhardt et al. *(1)*

Regional and local prevalence differ considerably. Global estimates indicate that in 2022 people who inject drugs were approximately 14 times more likely to acquire HIV than the general adult *(15-49)* population *(8)*. WHO estimates that between one third and half (33.9–52.5%) of new HCV infections worldwide occur among people who inject drugs *(8)*, and recent estimates suggest that between 2015 and 2021 over 800 000 new cases of HCV infection are attributable to injecting drug use annually *(6, 9)*.

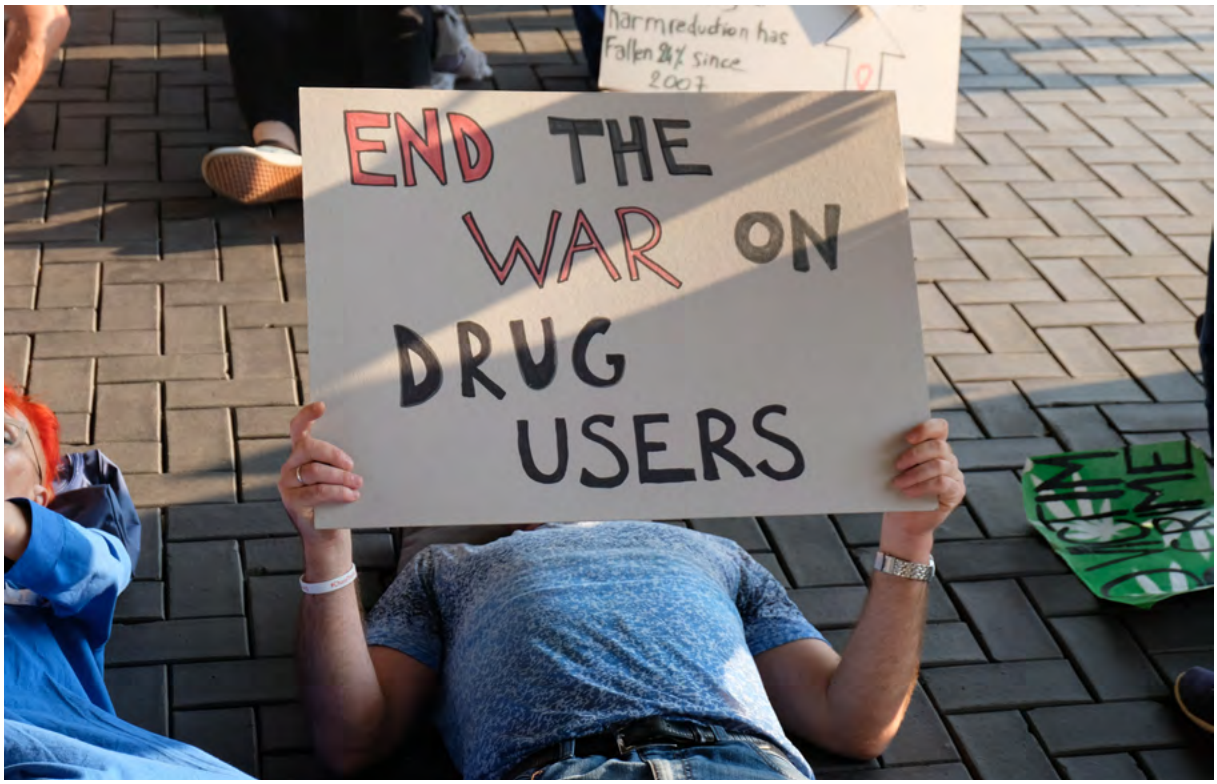
Core interventions and strategic imperatives

Harm reduction is globally recognized as best practice for preventing transmission of bloodborne infections and for mitigating the potential social and health risks of drug use. Provision of sterile injecting equipment in NSPs is, in many contexts, the cornerstone of comprehensive harm reduction strategies. Importantly, NSPs are effective for all types of injected drugs, not only opioids but also stimulants, the use of which is increasing. NSPs play a critical role in establishing contact with marginalized, stigmatized and often criminalized communities of people who inject drugs. In the absence of such programmes, these populations may remain entirely out of reach, allowing epidemics of infections such as HIV, HCV and tuberculosis (TB) to spread unchecked. Box 2 summarizes the components of harm reduction strategies.

NSPs contribute to reducing skin infections and are a cost-effective intervention for preventing HIV and HCV transmission *(10-17)*. The extent of their preventive impact is difficult to measure because of the hidden nature of injecting drug use, regional differences, differences in injection practices and the constantly evolving complexity of the environments in which the programmes operate. Nevertheless, a review in 2017 of many years of evidence in many contexts found that **high NSP coverage in Europe was associated with a 76% reduction of acquiring HCV** *(11)*. **Other studies suggest that NSPs can reduce HIV transmission by about half** *(17-21)*.

In countries that endorsed early scaling up of NSPs, such as Australia, the Kingdom of the Netherlands and the United Kingdom, HIV transmission among people who inject drugs fell rapidly and stabilized early in the epidemics and has since remained consistently low *(22)*. Similarly, in Switzerland, after harm reduction services were extended in the early 1990s, the incidence of HIV among people who inject drugs fell significantly within a few years *(23, 24)*. New HIV infections in these settings are now rare, reflecting a sustained impact of early, comprehensive harm reduction.

Ukraine is another compelling example. In a modelling study, NSPs provided by nongovernmental organizations, combined with opioid agonist treatment and antiretroviral treatment prevented approximately 20% of new HIV infections among people who inject drugs between 1997 and 2021. Further scaling-up was projected to reduce the incidence by over 50% *(16)*.



Activist holding a placard during an activist action, the Kingdom of the Netherlands. © Médecins du Monde / MdM

Box 2. Harm reduction

In the context of psychoactive substance use, harm reduction consists of policies or programmes for reducing the harm resulting from use of substances, with no assumption that cessation of drug use is a main therapeutic goal. In the WHO guidelines for preventing HIV, viral hepatitis and STI, harm reduction is defined as a comprehensive package of evidence-based interventions based on public health and human rights, including NSPs, OAMT and community distribution of naloxone for management of opioid overdose *(2)*.

Some such interventions (for example, OAMT) are also critical for the treatment of drug use disorders and to facilitate engagement in treatment (for example, prevention of overdosing), with the broader aims of improving health and quality of life and the ultimate objective of helping individuals to achieve recovery to the extent possible *(25)*.

Inclusion of other harm-reduction interventions, such as OAMT, with high coverage of NSPs further improves the overall preventive impact *(26)*.

WHO first recommended NSPs for HIV prevention in 2003, providing the basis for their formal recognition as an essential harm reduction intervention. Since 2016, such programmes have been highlighted in the WHO Global Health Sector Strategies (GHSS) on HIV, Viral Hepatitis and Sexually Transmitted Infections (STIs). NSPs have been highlighted as a key intervention, with established targets for reach and coverage by 2030, for their critical role in achieving global goals for elimination of HIV and HCV infections.

Despite overwhelming evidence and long-standing institutional endorsement, NSP coverage remains insufficient. More than half of all countries have not reported that outreach services are available for people who use drugs, and about two thirds of countries do not report NSPs for people who inject drugs *(27)*. Of the 190 countries that have reported the presence of people who inject drugs, about half have at least one NSP *(28, 29)*. Many such programmes, however, provide inadequate coverage and low service quality *(30)*. Alarmingly, only a small fraction of people who inject drugs live in countries that are estimated to have sufficient coverage with harm reduction *(28)*, and only five countries, representing only 2% of the global population of people who inject drugs, have high coverage with both NSPs and OAMT *(29).*

Criminalization, stigmatization, discrimination and homelessness remain major barriers to access to NSPs, contributing to persistently high rates of HIV and HCV transmission among people who inject drugs *(31-33)*. This is a particular concern, given that **NSPs are not only critical for preventing the transmission of bloodborne infections and strengthening links to HIV, HCV and TB testing and treatment services, but also save lives and are relatively cheap and easy to implement. They are one of the most effective, cost-efficient, straightforward public health interventions for reducing the harm associated with injecting drug use**.

Strategic priorities

Achieving the Global Health Sector Strategy (GHSS) *(34)* and the UNAIDS HIV targets *(35)* by 2030, will require renewed global commitment and concerted expansion, enhancement and sustainment of these programmes, with greater political and financial ownership at country level. Domestic funding is crucial to sustain programmes and to foster country ownership of harm reduction responses. Prioritization of domestic funding can help strengthen national accountability, align services with local needs and create a basis for long-term integration of such interventions into broader health and social protection systems.

Strengthening harm reduction services with domestic resource mobilization and political leadership is essential to controlling HIV and eliminating viral hepatitis and other injection-related harm *(34, 36).*

Methods

This guidance was developed in accordance with WHO procedures for the preparation of normative and operational documents. The content is based on various WHO publications on the health needs of people who inject drugs, including: the Guide to starting and managing needle and syringe programmes (2007) *(37)*, Guidelines for the psychosocially assisted pharmacological treatment of opioid dependence (2009) *(38)*, Guidance on prevention of viral hepatitis B and C among people who inject drugs (2012) *(39)*, Community management of opioid overdose (2014) *(40)* and the Consolidated guidelines on HIV, viral hepatitis and STI prevention, diagnosis, treatment and care for key populations (2022) *(2)*. A desk review was conducted to map the current global context of injecting drug use and obtain any additional recent evidence on the effectiveness and feasibility of NSPs.

Scoping activities included consultations in the formal WHO Working Group on Viral Hepatitis in People Who Use Drugs and Prison and the Strategic Coordination Group to the UN on HIV and Injecting Drug Use and in sessions and meetings held during the 12th International Conference on Health and Hepatitis in Substance Users in 2024 *(41)*.

An external expert group was established, balanced by gender and geographical region, with strong representation from the community of people with lived experience of drug use to guide and support development of the document. An initial outline was shared with the group for feedback on framing, priorities and overall structure. The group met five times online and provided additional individual input.

A near-final draft was reviewed by a group of expert peer reviewers representing diverse disciplines, including academia, service delivery, donors and community organizations, and reflecting gender, regional and stakeholder diversity. All feedback was reviewed and considered in line with the objectives of the guidance.

Outreach worker preparing packages of equipment for distribution, Afghanistan. © Médecins du Monde / Robin Hammond

Purpose, readership and use of this operational guidance

The aim of this guidance is to support countries in implementing WHO's recommendations for NSPs. It offers practical direction for developing national strategies for planning, implementation and monitoring of effective programmes that are tailored to local contexts and integrated into national health and harm reduction frameworks. Central to this approach is ensuring long-term sustainability, including integration into national health budgets and recognition of the essential role of community involvement and leadership at every stage, from assessment and implementation to scaling up and evaluation.

By increasing NSP coverage for populations and settings with the greatest unmet needs, the guide should contribute meaningfully to achieving the 2030 global targets for controlling HIV *(35)* and for elimination of viral hepatitis and other injection-related harm *(36)*.

This document is intended for use by national programme managers, particularly those in ministries of health responsible for the national response to prevention of HIV, overdose prevention programmes, viral hepatitis in key populations, and also for subnational programme managers who oversee service delivery. It is equally relevant for implementers of harm reduction services, including international and national nongovernmental organizations, civil society groups and community-based and -led organizations. It is also designed to serve as a normative reference for donors, to ensure that funding, planning and implementation meet evidence-based best practices and contribute to meaningful progress in scaling up NSPs.

By bridging policy and practice, the guide should enable decision-makers and implementers to turn WHO recommendations into actionable, country-adapted programmes.

The guide offers practical, structured support based on WHO's recommendations. It outlines a framework for situational analysis, needs assessment and scoping and presents a strategic range of implementation models tailored to national priorities and contexts.

The first section outlines a framework for NSP planning and design, followed by guidance on enablers, such as integration into primary health care, decriminalization, community leadership and sustainability. The annexes present practical tools for implementation in line with the stepwise approach outlined in the proposed framework.

The guide is designed to be flexible and adaptable. It offers context-specific recommendations for the various stages of NSP development, from establishing new programmes, to enhancing the quality and impact of services and scaling up to maximize their reach.

1.1 Core recommendations and guiding principles

Core WHO recommendations and guidance on NSP directly related to implementation are presented in Table 1. A broader set of recommendations is relevant for a comprehensive package for people who inject drugs, including OAMT, condom provision, HIV pre-exposure prophylaxis and other harm reduction measures *(2,10,41–45)*.

Table 1. Core WHO recommendations and guidance on NSP

GRADE recommendation	All individuals from key populations who inject drugs should have access to sterile injecting equipment through NSPs (strong recommendation, low certainty of evidence; 2016).
GRADE recommendation	It is suggested that NSPs also provide low dead-space syringes (LDSSs), along with information about their preventive advantage over conventional syringes (conditional recommendation, very low certainty of evidence; 2012).
Guidance statement	Key population-led groups and organizations should be made essential partners and leaders in designing, planning, implementing and evaluating health services (2016).
Essential for impact: enabling interventions	
Good practice statement	Countries should work toward developing policies and laws that decriminalize the use of sterile needles and syringes (and that permit NSPs) and that legalize OAMT for people who are opioid dependent (2016, updated 2022).
Guidance statement	Laws, legal policies and practices should be reviewed and, where necessary, revised by policy-makers and government leaders, with meaningful engagement of stakeholders from key population groups to allow and support increased access to services for key populations (2016).
Good practice statement	Countries should work towards implementing and enforcing anti-discrimination and protective laws, derived from human rights standards, to eliminate stigma, discrimination and violence against people from key populations (2016, updated 2022).
Good practice statement	Countries should ban compulsory treatment for people who use and/or inject drugs (2016).

NSP material available in a drop-in center, Myanmar.

Recommended package of interventions for people who inject drugs *(2)*

Essential for impact: enabling interventions

- Removing punitive laws, policies and practices
- Reducing stigma and discrimination
- Community empowerment
- Addressing violence

Essential for impact: health interventions

Prevention of HIV, viral hepatitis and STIs

- Harm reduction (NSPs, OAMT and naloxone for opioid overdose management)
- Condoms and lubricant
- Pre-exposure prophylaxis for HIV
- Post-exposure prophylaxis for HIV and STIs
- Prevention of vertical transmission of HIV, syphilis and HBV
- Hepatitis B vaccination
- Addressing chemsex

Diagnosis

- HIV testing
- Testing for hepatitis B and C
- STI testing

Treatment

- HIV treatment
- Screening, diagnosis, treatment and prevention of HIV-associated TB
- STI treatment
- Hepatitis B and C treatment

Essential for broader health: health interventions

- Conception and pregnancy care
- Contraception
- Mental health
- Prevention, assessment and treatment of cervical cancer
- Safe abortion
- Screening and treatment for hazardous and harmful alcohol and other substance use
- TB prevention, screening, diagnosis and treatment

Guiding principles

1. NSPs are essential public health interventions

The provision of sterile injecting equipment is an evidence-based intervention that significantly reduces transmission of HIV, viral hepatitis and bacterial infections. Extending access to sterile needles and syringes does not increase drug use. NSPs are cost-effective and essential to achieving global goals to end the epidemics of HIV and viral hepatitis by 2030. These programmes are effective not only for opioid use but also for other forms of injecting drug use, including amphetamine-type stimulants and poly-substance use.

To maximize their impact, such programmes must be integrated into national health systems, their sustainability ensured with domestic funding and institutional support and embedded in policies and strategies to guarantee equitable access for all people who inject drugs.

2. NSPs are based on human rights principles

NSPs are based on the recognition that all people have the right to "the highest attainable standard of physical and mental health", as stated in international human rights law. This right applies equally to all, including those who are subject to criminal or administrative sanctions, and remain in force regardless of legal status, including for individuals in detention and other closed settings.

The right includes equitable access to essential health services, such as sterile injecting equipment, essential medicines, treatment of substance use disorders, prevention and education and harm reduction, without discrimination, stigmatization or fear of punishment *(46)*.

3. Ensure access beyond availability

Provision of injecting equipment in services does not guarantee sufficient, equitable access. Systemic barriers such as stigmatization, discrimination and restrictive policies often hinder uptake. Programme obstacles such as geographical constraints, limited service hours, supply restrictions, low-quality or poorly adapted materials and staff attitudes can further limit reach and coverage. Lack of women-friendly service environments can further discourage engagement and contribute to unequal access.

Efforts should be made to improve the availability, reach, uptake and quality of NSPs to ensure that they are effective. Adequate coverage is fundamental to the effectiveness of NSPs. While pilot initiatives can help to tailor local models, rapid scaling up is essential to achieve meaningful results.

4. The community at the centre of the response

Active community engagement is fundamental to the success of NSPs. Networks of people who use drugs are usually hidden and closed as a response to criminalization. Entry into these networks often require privileged access, which is most often secured by people who inject drugs who are already known and accepted by the community.

Meaningful participation allows tailoring of services to local injection practices and needs. By giving the community the central role in designing outreach strategies, developing educational materials, shaping (and operating) service delivery, programmes become more responsive and accessible. This not only improves uptake but also ensures that interventions are adapted to real-world needs and are more sustainable over time. Many NSPs are led by peers or a community, reflecting the importance of community leadership, a principle affirmed in the UN General Assembly Political Declaration in 2021 *(47)* and the WHO Global Health Sector Strategies *(34)*.

To achieve equity, NSPs must be accessible to all people who inject drugs, including those who face greater barriers, such as women, ethnic minorities, young people, people in contact with the criminal justice system, those in closed settings and marginalized communities. Addressing these disparities ensures that individuals receive the right services at the right time in the right place.

5. NSPs are applicable in all contexts

Stakeholders in various contexts may initially hesitate to establish NSPs because of concern about cultural adaptability or perceived conflicts with abstinence-based policies. Four decades of evidence, however, demonstrate that NSPs can be successfully established in diverse settings, including in prisons and other closed settings. There is no general model; programmes must be adapted to the local context.

To increase reach and ensure sustainability, NSPs can also extend distribution through trusted local access points, such as pharmacies and community-based organizations, fostering deeper integration into local health systems. Tailoring NSPs to the values, needs and structures of each setting ensures their effectiveness as evidence-based public health interventions.

6. Adaptability to rapidly changing contexts

NSPs must be responsive to changing drug use patterns, evolving markets (including the digital market) *(48)* and emerging health challenges. While NSPs are relevant for all types of injecting drug use, the distribution models, materials and complementary services must adapt accordingly.

For example, stimulant use may require approaches that are different from those for opioid use, including more mental health support. The expansion of online drug markets and the digital engagement of many people who use drugs require tailored strategies to reach and engage these populations online. Community-based, tailored services with flexible delivery methods are essential to maintaining relevance and effectiveness in dynamic contexts.

7. Inclusion in a harm reduction package

NSPs are most effective when they are embedded in a broader package of harm reduction, health and social services. These include OAMT, overdose prevention, HIV and hepatitis C testing and treatment, treatment services for mental health and substance use disorders and social support services. A holistic, person-centred approach improves health and social outcomes by addressing the complex, interrelated needs of individuals.

8. Addressing the impact of criminalization

Punitive drug policies undermine health outcomes and exacerbate exclusion and marginalization. In 2018, the UN systems common position on drug control *(49)* called for:

> ...alternatives to conviction and punishment in appropriate cases, including the decriminalization of drug possession for personal use, and to promote the principle of proportionality, to address prison overcrowding and overincarceration by people accused of drug crimes, (...) and to support practical measures to prohibit arbitrary arrest and detention and torture.

Continued criminalization of syringe possession and drug use discourages service uptake, reinforces social stigmatization and fuels health inequity. Stigmatizing attitudes, both institutional and interpersonal, further deter individuals from seeking care and undermine the effectiveness of harm reduction interventions. WHO advocates for evidence-based, human-rights centred approaches that prioritize prevention, harm reduction, treatment and care as well as broader social inclusion *(50)*.

2 Framework for NSP implementation

2.1 Module 1. Assessment and planning

Effective programme implementation requires a thorough understanding of the local context. As injecting drug use is often stigmatized and criminalized, it may be difficult to obtain accurate data. An effective way of assessing needs and estimating numbers is by meaningful involvement of people who use drugs. **During assessment, it is important to recognize that the priority should be ensuring consistent and sufficient access to materials for all those in need, even when precise quantification is not feasible**.

Key questions to guide development of an effective NSP include:

- How many people are estimated to inject drugs? How many of them are women?
- What types of drugs are used, and what are people's practices and drug use patterns?
- Where do people primarily use drugs?
- What are the key risk factors and health needs of people who use drugs?
- What are their needs and preferences for materials to reduce risk?
- What is the usual frequency of injecting (disaggregated by types of drug use)?
- How much sterile equipment is necessary to cover all injections?
- What services are available to address the health and social needs of people who inject drugs?

Situational assessments should be conducted regularly, not just once, to ensure that programmes remain responsive to changing needs.

Education sessions during NSP outreach, Myanmar. © Médecins du Monde / Sabestian Duijndam

Step 1. Population size estimation

Reliable estimates of population size are crucial for effective programming, but their absence should not be a barrier for initiating activities. Where NSPs are limited or absent, data are often scarce. In practice, initiation of services often creates the conditions necessary for acquiring more accurate data, gradually revealing the actual scale and dynamics of injecting drug use.

In the absence of estimates of population size, indirect indicators, such as the numbers of deaths due to overdose, drug-related hospital admissions, notifications of hepatitis C and HIV linked to injecting and drug-related arrests, can be used cautiously in initial planning and to monitor changes over time.

Various methods are available for estimating the population size, from rigorous epidemiological tools to pragmatic, community-based approaches, many of which rely on engaging people who inject drugs to produce grounded, context-specific estimates *(51, 52).* Estimates for specific implementation areas are usually more accurate, as they are based on local knowledge, with fewer gaps in data. While national estimates are often less precise because of their scope and limited detail, they remain essential for setting strategic priorities, allocating resources and monitoring national progress *(53)*.

The integrated bio-behavioural survey (IBBS) or bio-behavioural survey (BBS) *(51)* is widely used in national strategies. The survey is often considered the gold standard, as it can provide data for estimating population size, **the prevalence of infection, risk behaviour, access to service and coverage gaps**. Conducting such a survey can require significant financial and human resources. A less extensive survey, the "BBS lite" *(54)* is a more rapid, less resource-intensive version. While it may provide less accurate estimates of population size, it is more practical and feasible and can be used to complement other methods when more precise data are required.

Outreach worker preparing packages of equipment for distribution, Afghanistan. © Médecins du Monde / Robin Hammond

Some commonly used techniques for estimating size are capture–recapture techniques and the network scale-up method *(55)*. While these methods provide valuable insights, they often require technical expertise and resources and are usually conducted by external experts, with support from health authorities or international donors. More details and practical guidance on size estimation can be found in the WHO and UNAIDS Guidelines on estimating the size of populations most at risk of HIV (2010) *(55)* and the Biobehavioural survey guidelines for populations at risk for HIV (2017) *(51)*. See also Xu et al. *(56)*.

Annex 1 provides an example of a form for mapping hot spots.

Grassroots-driven initiatives are important complementary sources for size estimations due to their deep local engagement and trust within the community.

Several community-centred techniques are available for estimating population size, particularly for planning local programmes. They are based on common knowledge rather than complex methods. Their main advantage is that they are simple to implement, cost-effective and can be repeated regularly to adjust programme plans and track changes over time.

"Hot-spot mapping" is a practical exercise used to identify locations in which people who inject drugs tend to gather, such as parks, street corners or informal settlements. Peers and outreach workers map such sites and estimate how many individuals frequent each. The estimates are then combined for an overall population estimate. Inclusion of female peers is essential to reach less visible populations such as women who inject drugs, who are often underrepresented in data and services for harm reduction.

The approach is simple and visual and directly useful for planning outreach, delivering service and ensuring that resources are directed to where they are most needed. While the approach reflects mainly locations that are already known to the community, continued peer engagement and regular updates can be used to identify new, less visible locations.

Underestimates are common because of the hidden nature of the injecting use. Triangulation of several epidemiological and community methods can improve accuracy. Underestimation of the size of the population that injects drugs has serious consequences, including inadequate funding and insufficient service coverage, which can accelerate the spread of HIV and hepatitis C virus infection. While publication of estimates, especially if they are increasing, may be politically sensitive, transparency is essential for an effective response.

For size estimates to remain both rigorous and responsive, they should be integrated into routine assessments. Detailed surveys such as IBBS can be done every few years, and simpler, peer-informed methods can be used more frequently to ensure timely adjustments.

Section 3.2.1 of the Guidelines on Estimating the Size of Populations Most at Risk to HIV (2010) describes counting and enumeration methods.

In its simplest form, this includes drawing on the expert opinion of community members. A group of peers or outreach workers are asked to estimate how many people like themselves live in an area. Each person gives a number, and the average of the responses is used as an estimate. Although this approach is informal, it is reasonably reliable and quick, especially for early assessments. It relies on lived experience and local insight.

Page 112 of the Bio-behavioural Survey Guidelines For Populations At Risk For HIV (2017) outlines the multiplier method a frequently used approach for population size estimation.

In a simplified variation of this method, programme data are combined with peer insights. For example, if an NSP reports that 400 users were seen in the past month, community members are asked what percentage of the total population this number represents. If they say 20%, the population can be assumed to be 2000. Although it is difficult to judge the precision of this method, it is simple and effective and ensures that peer perspectives are included in planning.

Step 2. Assessment of values and preferences for NSP material procurement

Tool for assessing values and preferences for NSP procurement: Annex 2 presents an example framework for assessing values and preferences for NSP procurement

Meaningful involvement of the community is the foundation of any effective harm reduction programmes. **Effective assessments of values and preferences should ensure that the programme addresses real needs, as articulated by the community that the programme serves** *(34)*. In contexts in which there is not yet a formal community-led network of people who use drugs, initial technical support may be crucial in effective assessments of values and preferences. Engagement of community technical assistance experts will ensure that the programme remains grounded in the core principles of community-led values and preferences, even in the absence of an established community network. Consulting people about their preferences for needles and syringes is an early opportunity for engaging the community in NSP.

Understanding the needs, preferences and drug-use patterns of people who inject drugs ensures that NSP services are aligned with their realities. If services do not match what people actually need (with respect, e.g. to syringe size, access points, operating hours), uptake and effectiveness will be compromised, and critical resources may be wasted. People who inject drugs have diverse injection practices, requiring different needle and syringe sizes, education on safer injection practices and on the use of other harm reduction supplies (e.g. cookers, water for injection, filters). A well-adapted programme will prevent potentially harmful practices, such as sharing injecting equipment, by ensuring appropriate, sufficient supplies at the times and in the places where people inject drugs. **Values and preferences are a key element for procurement planning**. When there are financial constraints or supply limitations, such as in low-resource settings, programmes should ensure full transparency and engage communities in identifying and implementing appropriate alternatives.

Barriers such as stigmatization, discrimination, criminalization and geographical barriers can limit access to NSPs. Consultation with communities can be used to identify barriers and enablers to accessing services in each context, including the best locations, distribution methods and strategies for reaching marginalized groups.

Meaningful involvement of people who inject drugs in programme design fosters trust, increases engagement and enhances sustainability. When people see that their needs and experiences shape services, they are more likely to use and advocate for those services.

Adaptation to the local context

NSPs operate on a simple principle: Access to sterile injection equipment prevents bloodborne infections and reduces skin infections. For a programme to achieve its full potential, it should plan to provide sufficient sterile equipment for each injection.

The materials required and the number of injections per day differ widely, mainly according to the substances used. While the pattern of long-term heroin injection tends be relatively predictable, people who inject stimulants often have more frequent and more variable injection practices. Such variation is further compounded when poly-substance use is common, which increases the importance of flexible access to sterile injecting equipment. Individuals who are receiving OAMT or are engaged in other forms of treatment of drug use disorders should not be excluded from NSPs, as exclusion from access to syringes does not dissuade people from injecting but increases their risks.

Drug availability can change rapidly, sometimes fluctuating within days. **NSPs must be adaptable to such changing reality and ensure that the supply meets the demand and that people who inject drugs always have access to the sterile equipment they need**. Effective stock management and stable funding streams are crucial to prevent interruptions in services, which can have severe consequences, as people may be unable to obtain sterile injecting materials. Situations in which people are obliged to reuse equipment should be avoided to protect both individual and public health.

Step 3. Planning and quantification

Estimates of the size of the population and their material needs (steps 1 and 2) form the basis for determining quantities and for planning NSP. They also provide a foundation for setting project targets and indicators for monitoring (see module 4, Monitoring).

At national level, quantification usually ensures overall coverage and ensures planning of sufficient materials for the country. While such estimates may not include detailed local differences, they are crucial for securing national funding, setting policy priorities and comprehensive planning of responses to meet the needs of people who inject drugs.

A combination of estimates of population size with insights from the field on injection frequency provides a practical basis for setting programme targets and calculating the average annual coverage per person. Outcomes from the values and preferences assessment can indicate the types of drugs, injection frequency and requirements for material. Established programmes with strong community engagement are often best positioned to collect such information on local injecting patterns and practices.

Categorization by substances injected or patterns of drug use – such as injecting opioids, stimulants (or both), engaging in chemsex, or following different injection practices – can indicate differences in injection frequency and equipment requirements. When population estimates are combined with differentiated profiles, programmes can more accurately determine the total daily and annual equipment requirements, resulting in harm reduction responses that are better adapted to local realities and appropriately resourced. Some buffer stock should be anticipated for uncertainties or sudden changes in the local context. Fig. 3 summarizes a plan for planning and quantification.

NSP equipment freely available in a mobile OAMT service, France.

Fig. 3. Illustration of a planning and quantification tool

Add details on required material →

	Estimated population size	Different injecting profiles	# of injections per day per person	5 mL per day per person	2 mL per day per person	cooker per day per person	23G needle per day per person	…
1. Size estimation and needs	3.000							
Add profiles ↓	900 (30%)	People who use heroin, 2x a day	2.5	2.5		2.5		
	900 (30%)	People who use stimulants	4	2	2	4		
	300 (10%)	People on opioid agonist treatment, occasional injection	0.1	0.1				
	900 (30%)	People who use different types of substances	3	1	2		5	
		Total material per day *(multiply material by size of profile and add up)*		4980	3600	5850	4500	

2. Quantification		Number 5 mL per day	Number 2 mL per day	Number cooker per day	Number 23G needle per day	…
	Total quantity material per year *(total syringes per day * 365 days)*	1.8 m	1.3 m	2.1 m	1.6 m	1.8 m

3. Target Setting		
	Indicative coverage target per person per year *((Total number of syringes / estimated population size)* 365))*	1033

Note

The greyed text and numbers are illustrative only. Annex 3 provides a blank template. The "injecting profiles" shown are examples and should be adapted to the local context.

Units & terms

- **5 mL** and **2 mL** refer to syringe barrel volumes (millilitres).
- **Cookers** are small vessels used to prepare solutions for injection.
- **23G needle**: "G" denotes gauge (thickness). Needle **length** is specified separately (often in inches or millimetres).

How to use the table

- Enter the **estimated population size**, define locally relevant **injecting profiles**, and the **average injections per person per day** for each profile.
- For each profile, enter per-person, per-day needs for their local relevant material (based on V&P phase), such as **syringes, needles, cookers**, etc.
- With the help of this table, programs can then calculate:
- **Total material per day** = (profile size × per-person daily need)
- **Total quantity per year** = (daily total × 365);
- **Indicative coverage target per person per year** = (daily total ÷ estimated population size) × 365.

The more data that are available, the more detailed the profiles and estimated group sizes can be. Experienced programmes can make adjustments according to trends and lessons from previous years. Even with highly detailed information, however, estimates remain estimates. **The goal is to ensure that service provision responds effectively to actual needs, even when calculating exact numbers is challenging**.

If NSPs are still new, or very little information is available, a simplified way to approach program- and country-level quantification of injection materials is to use the population size estimate and multiply it by the estimated an average requirement per person for everyone.

Fig. 4. Simplified scheme for planning and quantification

	Estimated population size	No. of injections per day per person	Total number of syringes per day
Estimated size and needs	3000	2.5	7500
Quantification	Total number of syringes per day *(per day *365)*		2.74 million
Target setting	Indicative coverage target per person per year *(estimated number of injections per day *365)*		913

Planning and quantification should include considerations of safe recovery and destruction of used injection materials. In most contexts, collaboration with health facilities that have an established system for managing and destroying medical waste is a practical, cost-effective solution. Efforts to recover used material can be included in existing models, such as peer outreach, fixed-site distribution and exchange in health facilities.

Annex 3 presents a tool that can be used for quantification and planning

A person preparing an injection in a drug consumption room, France.

© Gaia Paris / Salomé Hévin

2.2 Module 2. Implementation models

Service delivery models for harm reduction must be tailored to the local context, as no single model is universally applicable. The most effective approach depends on where people use drugs, the sociopolitical environment and available resources. **Each model has strengths and limitations, and the choice should be guided by existing opportunities, practical considerations, and the values and preferences of people who use drugs**.

In settings where drug use occurs primarily in private residences or other hidden spaces, outreach teams may be best suited to engage with people who use drugs. Conversely, in areas with long-established open drug scenes, a fixed-site drop-in centre could be a more effective service point for comprehensive harm reduction.

A fundamental element of all models is meaningful involvement of the community, whose members play key roles in all aspects of effective programming and access to people who use drugs, as they are trusted by their peers. Without their active participation, programmes generally fail to reach people effectively.

Employing staff with living or lived experience of injecting drug use can help to sensitize and connect the NSP with the community it serves. They can operate as bridge-builders helping services providers to understand the ground-reality and reach people who use drugs.

A deeper level of community engagement is the peer-to-peer model. This model goes beyond merely involving the community; it puts people who inject drugs in the driver's seat, shaping and leading interventions that reflect their lived realities. This includes peer distribution of sterile needles and syringes, community-based harm reduction education, and outreach interventions. Peer-led initiatives vary in structure, from fixed-site programs run by organizations of people who use drugs to fully community-operated outreach teams.

A combination of service delivery models is often used to maximize the impact of NSPs. Outreach approaches usually provide the first point of contact, while more structured models, such as mobile units and fixed sites, offer progressively broader services, although the operating costs and resource requirements are higher. Table 2 summarizes various service models.

A volunteer shares an HIV prevention kit with a community member in São Paulo, Brazil. © WHO / Dan Agostini

Table 2. NSP service models

Service model	General description	Advantages	Limitations
Outreach programmes	Frontline services provided on foot or by bike to hotspots, informal settlements or private residences Teams deliver and retrieve injecting equipment, offer education and make referrals	Effective in reaching hidden or excluded people Build trust by repeated direct engagement Provide an entry point to additional health and social services Are adaptable to changing drug scenes Low cost; require only a bare minimum of staff and material	Risk of law enforcement interference Potential concern for staff and clients' safety and must protect people who wish to remain hidden Limited capacity to carry supplies and limited range of services
Mobile services	Vans or buses that provide harm reduction and basic health services in diverse neighbourhoods Some units include a private compartment for individual consultations	Flexible and responsive to changing "street" dynamics Provide regular, stable access, with less possibility of community opposition, as there is no fixed presence Can cover large areas Provides discreet service, basic health care and access to a wider range of medical services Relatively low running cost	Initial purchase and modification of vehicles can be costly Confidentiality concerns; limited space for private consultations
Fixed sites	Permanent drop-in centres offer harm reduction, rest areas and access to health and social services Often co-located with primary care, opioid agonist treatment and other clinical support	Stable, low-threshold access point Provide safe, non-judgemental drop-in spaces where individuals can temporarily leave behind repressive or unsafe environments, rest and engage with services at their own pace. Facilitate long-term engagement, trust and continuity of care Provide an entry to health care by fostering therapeutic relations and supporting individuals in navigating complex medical and social support systems, including primary care, opioid agonist treatment, other drug treatment and management of TB, viral hepatitis and HIV Can provide dedicated hours or spaces for women and other priority populations	Depend on location; less adaptable to shifting drug scenes Potential neighbourhood residents' opposition; often require strong local engagement or clear communication (e.g. sweeping discarded syringes in the area and organizing open-door days to explain the programme objectives) Often relatively high operating costs

Service model	General description	Advantages	Limitations
Secondary distribution schemes	People who inject drugs trained to distribute sterile injecting equipment and naloxone in their peer networks May operate independently or as part of other services	Extend reach to underserved sub-networks, such as women who use drugs, festival settings, young people who inject drugs or people engaged in chemsex Leverages peer trust; early warning system for trends in drug use or increased overdose trends Low operating costs	Implementation often constrained by policing practices or lack of legal support Limited possibility for monitoring distribution or outcomes, unless additional systems are in place
Syringe-vending machines	Machines that provide sterile injecting kits in exchange for tokens, coins or return of used syringes Accessible 24 h/day, 7 days/ week in public or semi-public locations	Ensures round-the-clock, anonymous access Help to engage new or less visible injectors Low-barrier and convenient for people who hesitate to use staffed services	Restricted to specific locations, and offer limited services Can usually only provide small quantities Require maintenance and usually require certain logistics (electricity)
Online and postal services	Injecting equipment ordered online and delivered to private residences or designated collection points May include naloxone and educational materials	Reach rural, isolated, digital-naive populations; may be effective in reaching people newly injecting or younger people who are more adept in navigating digital environments Particularly relevant in the context of the rapidly growing online drug market, from which increasing numbers of people obtain substances via digital platforms Ensure anonymity and user autonomy Complement the other models mentioned in this table	Relevant only for people with a postal address and online presence Packaging and dispatch can be resource-intensive Requires a reliable postal service No in-person interaction for support or follow-up

Embedding NSP services into other settings

Pharmacies

In many contexts, pharmacies are relatively widespread and could serve as valuable pick-up points for needle and syringe programs, often with extended opening hours. To ensure the success of this model, it is generally essential to work with pharmacy staff to reduce stigmatization and foster a non-judgmental, supportive environment. While it is often assumed that pharmacies will be reluctant to provide services or sell injecting equipment to people who inject drugs, they are likely supplying a substantial proportion of injection equipment in certain contexts, and their role remains under-recognized and underestimated.

Pharmacies are often part of the private sector or operate within models that require income generation through service provision. NSP may supply materials free of charge for distribution at pharmacies or adopt mechanisms such as voucher systems to facilitate access to injecting equipment through pharmacy networks while maintaining a direct link with the overarching harm reduction services. In certain contexts, providing people with the option of purchasing their own injecting equipment can empower them and reinforce their autonomy and sense of agency. Moreover, this approach can contribute to the sustainability of service provision through basic supply and demand mechanisms. The success of this approach is, however, highly context-specific, and care should be taken to ensure that materials remain accessible to all who need them, regardless of their ability to pay.

Pharmacies play a fundamental role in the broader health system. While they may not always offer the lowest-threshold means of access, inclusion of injecting equipment distribution into pharmacy services could strengthen the reach and sustainability of an NSP as part of a comprehensive, integrated health system response.

Local shops and alternative vending points

In some contexts, local street vendors play a role in distributing sterile needles and syringes. This increases access, reduces the need for people who use drugs to carry equipment and fosters positive interactions between local vendors and the community of people who use drugs, contributing to a more supportive local environment. As for pharmacies, collaboration can be established with NSPs, such as through voucher systems.

Other settings

While NSPs are often implemented in community-based harm reduction centres, they can also be effectively integrated into a broader range of health and social services, such as:

- **Overdose prevention sites:** Facilities providing low-threshold, person-centred services tailored to the needs of people who use drugs (also referred to as overdose prevention centres, supervised consumption sites and other terms), which can play a role with facilitating access to sterile equipment, overdose prevention and management *(57, 58)*.
- **Drug checking services:** Such services provide individuals who use drugs with information on the chemical content of their drugs as well as advice and, sometimes, other interventions. While evidence of their effectiveness remains limited at the time of writing, such services could provide opportunities for access to sterile injecting equipment.
- **Services for treatment of mental, neurological and substance use disorders**: Integration of NSPs into drug treatment services should help to ensure that people receiving opioid agonist treatment or other forms of treatment continue to have reliable access to sterile injecting equipment, recognizing the realities of ongoing or occasional injecting. Such integration should be limited to settings with a supportive, non-judgmental approach and staff trained to engage on safer injecting. Anonymous alternatives must be available to ensure access to sterile equipment and uphold health and dignity at all stages of treatment *(25)*.

- **Community health clinics and hospitals**: Partnership with local health facilities and community-based organizations can significantly extend the reach of NSPs.
- **Sexual and reproductive health clinics**: Integrating needle and syringe distribution into STI and sexual health services can provide a more comprehensive prevention package.
- **Services for populations with special needs**: Needle and syringe provision can be effectively embedded within services tailored to other key populations – such as men who have sex with men, people engaging in chemsex, sex workers and trans and gender diverse people. This ensures access in settings that are affirming, community-led and aligned with their broader health needs.

A mobile clinic providing services to people who use drugs, Myanmar.

2.3 Module 3. Comprehensive services

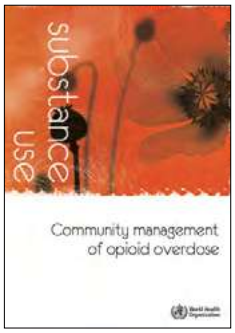
NSPs are often the gateway to a broader range of health services for marginalized populations. Without this critical access point, people who inject drugs may be excluded from health care altogether, resulting in preventable illness and exacerbating long-term public health challenges.

NSPs, as a cornerstone of comprehensive harm reduction strategies, are frequently integrated into broader initiatives for harm reduction, aligned with the WHO-recommended harm reduction package of essential services *(2)*. They not only facilitate safer injecting practices but are also a critical link to additional support, such as wound care, testing for and treatment of HIV and hepatitis, OAMT, access to HIV post-exposure prophylaxis (PEP) and HIV pre-exposure prophylaxis (PrEP), hepatitis B vaccination and other treatment options for substance use disorders, and overdose prevention. They also offer a platform for distribution of a wider range of harm reduction commodities, including condoms and lubricant, safer smoking equipment and other context-specific materials to ensure the health and dignity of people who use drugs *(59)*.

Beyond being important stand-alone interventions, NSPs should ideally also provide opportunities to integrate additional essential health and social services or to establish effective referral pathways. The potential use for supporting broader public health goals was illustrated by their use to facilitate vaccination during the coronavirus disease 2019 (COVID-19) pandemic.

Whether through direct provision or structured referrals, NSPs are a vital point for entry into health-care systems. For many, they offer the first (and often only) contact with medical and social support, creating opportunities for early intervention, health education and sustained engagement with care.

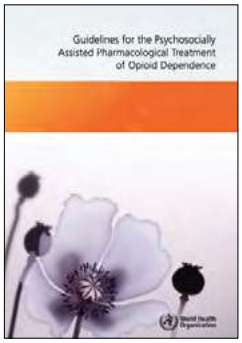
Overdose prevention and management



While injection-related risks are often framed primarily in terms of bloodborne virus transmission, in many settings overdose represents a far more immediate, critical threat to health. **Inclusion of overdose prevention and management in daily NSP activities can reduce mortality due to opioid overdose**. These programmes should facilitate access to treatment of drug use disorders, provide training in recognition of overdose and emergency response while ensuring widespread provision of naloxone to people who use opioids, their peers, their friends or family members and front-line workers.

WHO recommends that people who are likely to witness an opioid overdose should have access to naloxone and be instructed in its administration so that they can use it in emergency management of suspected opioid overdose *(40)*. Strengthening peer-led naloxone distribution and adopting a non-punitive approach to overdose response are essential components of an effective harm reduction strategy.

Opioid agonist maintenance treatment



OAMT is recommended by WHO as one of essential health service for people with opioid dependence *(38)*, access to which should be facilitated by NSPs. **Needle and syringe programmes often serve as the first point of contact, helping to engage people who inject opioids and connecting them to opioid agonist treatment**.

Treatment of drug use disorders and harm reduction services, rather than being considered as separate or competing interventions, should be integrated to ensure seamless transitions between harm reduction, treatment and broader health services. However, challenges can arise when an abstinence-oriented drug treatment services co-exists with NSPs. This has, in some settings, impacted the willingness of people who inject drugs to access fixed-site needle and syringe distribution when these are co-located with services that

may sanction or stigmatize active drug use. Integration must be grounded in a supportive, non-judgmental approach with staff trained in safer injecting practices.

While strong links between programmes increase engagement and the likelihood that people who inject drugs will access and benefit from both interventions according to their needs and preferences, it is essential that anonymous access to sterile injecting equipment remains available to ensure low-threshold entry points and protect confidentiality.

Cascade of care for HIV and viral hepatitis

NSPs are among the most effective public health interventions for preventing the transmission of bloodborne infections, such as HIV and HCV, associated with injecting drug use. They have not only a direct preventive impact but can promote testing and access to diagnostic services for HIV, TB, hepatitis B, hepatitis C and other infectious diseases. They can serve to link individuals to HIV, hepatitis C and B, and TB treatment and hepatitis B vaccination. The trust and continuity of contact established in NSPs create opportunities to improve retention by active case-finding of individuals who might drop out of treatment and might otherwise have been lost to follow-up.

NSPs can play a key role in facilitating the cascade of care. The components of the cascade differ according to the intervention model. In outreach settings, some focus on promoting self-testing or including peer-led rapid testing. Mobile units can extend access further, offering reflex testing linked to confirmatory diagnosis or telemedicine for remote consultations and follow-up care. By tailoring services to community needs, these programmes strengthen engagement in the full cascade of care.

© WHO / Barry Christianson

A counsellor provides an HIV self-test kit and guidance during a visit to a mobile clinic in Cape Town, South Africa.

Primary health care and wound care

NSPs are a gateway to broader health-care services, particularly for marginalized communities who face barriers to traditional medical settings. When NSPs are integrated into primary health care, they can facilitate access to services such as sexual and reproductive health, mental health and treatment for common infections and non-communicable diseases.

Wound care is a highly valuable intervention for marginalized people who inject drugs, many of whom experience abscesses, ulcers and other injection-related complications. The service can be delivered by trained outreach workers, medical staff in mobile units or at NSP sites, ensuring immediate, accessible care for people living in precarious conditions.

Social services

NSPs are usually part of a public health framework and primarily address medical needs such as prevention of bloodborne infections and linkage to care. This health-oriented view, can, however, overlook the broader needs expressed by communities.

Effective programmes should prioritize meaningful community involvement and leadership to ensure that services respond to the lived realities and priorities of people who use drugs.

The immediate needs of many, especially those who are marginalized, are not related solely to health but also to structural exclusion. Social services can provide safe spaces to rest, along with access to washing facilities, food, and support from social workers or legal counsellors.

Social services can enable access to NSPs by addressing broader needs and fostering trust. Resources should be balanced to include social services without compromising core harm reduction interventions. Addition of social services can enhance engagement and is often the entry point for interaction with the health system and broader social reintegration. Recognition of this continuum of needs, rather than isolating health from other aspects of well-being, strengthens the impact of NSPs on public health and leads to long-term outcomes in health and human rights.

Education

In NSP models in which there is physical contact with staff, the programmes offer an opportunity to educate participants on topics such as the risks associated with injecting practices, demonstrations of available materials and safer methods of injecting, broader health concerns and even legal advice. Some programmes provide individualized training to improve injection techniques, reducing the risk of skin infections, vein damage and other complications. An educational component rarely requires significant additional resources and can often be integrated effectively into NSP service delivery.

Additional services

Various other services can be offered by NSPs to improve access and to meet the needs of specific populations. Involving peer workers with lived experience and trusted relationships is a proven strategy to facilitate initial engagement and sustained contact. Meaningful involvement of specific populations in programme design helps in tailoring services to their priorities and realities. The WHO harm reduction package provides a useful framework for identifying complementary interventions, but programmes should also develop targeted responses for populations with distinct vulnerabilities, such as:

Women who use drugs – Many women with substance use disorders face layered vulnerabilities, including poverty, criminalization, involvement in sex work and exposure to gender-based violence. These intersecting factors increase their risks for HIV, hepatitis C, poor mental health and social exclusion. In some settings, women rely on male partners for access to drugs or assistance in injecting, often receiving used equipment or

injecting without control over safety or hygiene. Yet, most harm reduction services are modelled to reach men who use drugs and fail to meet women's needs.

Services must respond by offering flexible hours, creating women-only spaces, and employing female staff with lived experience. Integrating sexual and reproductive health care, including contraception and maternal health services, is essential, as is access to hygiene supplies and childcare products. Tailored safer injecting education should address power dynamics in relationships. Mental health, parenting support and legal advice, particularly with respect to custody, may be included to overcome barriers and improve access *(60, 61)*.

Chemsex. Sexualized drug use is linked to increased risks of HIV, hepatitis C, other STIs, mental health issues and unsafe injecting. Many participants are not regular injectors and may lack information on safer injecting, increasing their vulnerability. Stigmatization, fragmented services and fear of judgement often delay access to care.

NSPs should offer integrated, non-judgemental services combining harm reduction, sexual health, support for mental, neurological and substance use conditions. They should include sterile injecting equipment, overdose prevention, testing for HIV and STIs, pre- and post-exposure prophylaxis, condoms and lubricants. Peer-led outreach and chemsex-specific education are essential to build trust, improve safety and strengthen care pathways.

Young people who use drugs. Because of their age and legal status, young people who use drugs often face higher barriers to accessing care. Services should accommodate the unique characteristics of young people within a framework that best protects the children and adolescents from harm while addressing their individual health needs.

People who occasionally inject drugs. Occasional injectors may not seek harm reduction services or identify with the injecting community. Targeted outreach and provision of safer smoking materials can offer prevention *(59)*, maintain contact with this often hidden group and ensure timely access to sterile injecting equipment and essential information on harm reduction when they are needed.

Two community members talk before a workshop in Cape Town, South Africa. © WHO / Barry Christianson

2.4 Module 4. Monitoring

Continuous monitoring is essential to ensure that NSPs have the necessary reach, effectiveness and quality. A well-designed monitoring system measure activities and provides insights into accessibility, coverage and impact.

Monitoring based on the assessment and planning phases ensures that data collection is purposeful and aligned with programme objectives rather than a stand-alone administrative task. By tracking service delivery, population reach and contextual factors, it supports continuous adaptation and reinforces the responsiveness and sustainability of programmes.

Level 1. Recording daily activities

Recording daily activities often forms the basis of programme tracking. This is often required for reporting purpose to donors and government requirements. Tracking activities can often be straightforward, such as counting activities, and can answer important questions, such as:

- How many people did the programme reach?
- How many syringes and naloxone kits were provided?
- How many contacts, education sessions and other services have been provided?
- How many people were referred to other services, including for treatment of drug use disorders?

Service delivery should not be conditioned on recording of information, particularly when such requirements create barriers to access. In certain street-based contexts, registration of personal data may undermine trust or be unfeasible due to unstable or tense conditions on the ground. Outreach workers should be encouraged to prioritize service provision, and where detailed data cannot be collected in real time, retrospective estimates can be used to document service activity. Monitoring should strengthen, not hinder, service delivery.

Level 2. Asking the people reached by the programme

Counts of routine activity alone provide only partial understanding of a programme's reach and effectiveness. To better assess whether services are meeting people's needs, short, regular interactions with the people reached by the programme can provide valuable information. This may include questions such as:

- In the past month, how often did you reuse or share a syringe?
- How frequently did you access injecting equipment from other sources?
- Are you in contact with people who don't access NSPs?

Such questions can be used to assess whether the quantity and continuity of supply are adequate. A few questions on knowledge about safer injecting and harm reduction can reveal information gaps. **These basic questions can be included in daily service delivery without requiring much time or resources**. Confidentiality and trust are essential for eliciting authentic, meaningful responses. The answers to such questionnaires posed during routine services may, however, give only a partial view, as the people most likely to participate are those who are more engaged or satisfied.

When applied consistently, such tools support trend monitoring, inform programme adjustments and strengthen advocacy by demonstrating gaps or effectiveness. They also provide a chance to engage in dialogue and better understand individual experiences. Analysis of the answers to open-ended questions, however, require staff with the skills to analyse qualitative data and monitor changes over time.

Level 3. Understanding the context

To better understand the broader context in which services operate, individual interviews and focus group discussions provide structured approaches to understand contextual dynamics and unmet needs. They also offer an opportunity to explore perspectives beyond those of regular programme users, helping to identify individuals who are not currently reached by services. Ensuring the diversity of participants generates meaningful dialogue and inclusive findings. Focus group discussions can help answer questions such as:

- Are people receiving sufficient material?
- Are community members satisfied with the services?
- Do the interventions meet actual needs?
- Are there new or unmet needs?
- Who is still not reached by the programme, and why?

The guidance on values and preferences introduced during assessment (see Module 1) can be used in these exercises to enhance understanding of the evolving context.

Outreach workers often have crucial in-depth knowledge of the real-world situation. Their day-to-day observations provide essential input for adapting programmes. Regular team meetings can be used to share their insight, track changes in the field and guide timely adjustments to service delivery.

Principles of data collection

Monitoring should be conducted to ensure that interventions meet their goals and are responsive to community needs. Data collection must have a clear purpose and should benefit both the programme and the people it serves. Programmes should avoid collecting data "just in case" and collect only what is necessary.

Monitoring systems often collect more data than necessary, burdening staff and potentially capturing sensitive information. **The guiding principle should be: collect only what is necessary and with a clear purpose. Collection of too much data, especially on sensitive issues, can create barriers to access**.

Digital solutions can improve efficiency but may be unsuitable in resource-limited settings. Furthermore, their use sometimes requires stronger trust, as use of digital tools may be perceived more privacy invasive. If people do not trust that their privacy is protected, they will avoid services, making data collection counterproductive.

Individual records can indicate the reach of a programme. Unique identification codes protect anonymity while enabling estimation of the individuals who are accessing services. They also provide support for basic case management, including regular testing or follow-up on medical and social support. Registration must, however, remain strictly anonymous. Any use of personal data must fully comply with local data protection laws, of which programmes must be aware to prioritize confidentiality and data security. Ethical, secure data handling is essential. More information can be found in the WHO Consolidated guidelines on person-centred HIV strategic information: strengthening routine data for impact *(62)*.

The benefits of collecting individual information should be balanced against the additional work, strict data protection requirements and the fact that it is often unnecessary for routine monitoring. In some settings, it is not feasible to collect individual data. Outreach teams may not have time or remain focussed on safety in certain busy outreach settings. Service models such as vending machines, pharmacies and secondary distribution do not allow for direct data collection.

When data collection risks obstructing access or proves impractical, service delivery must take precedence. In such cases, programme reach and trends can still be monitored meaningfully through team observations and informed estimates based on field experience.

Community-led monitoring

In community-led monitoring (CLM), service users collect, analyse and use data to improve harm reduction services. Guided by the principle "nothing about us without us", CLM is led by affected communities to identify service gaps, assess quality and access and advocate for rights-based change.

For people who inject drugs, CLM is a structured means for documenting experience with services, such as refusal to provide sterile equipment, stockouts or stigmatization, and broader barriers such as punitive laws, policing and breaches of confidentiality. By providing systematic, verifiable data, CLM raises these issues and holds providers and decision-makers accountable.

In NSPs, CLM can monitor indicators such as the quantity and quality of equipment distributed, service safety, staff attitudes and whether services address actual injecting practices and preferences. It amplifies community voices in policy processes, ensuring that harm reduction services meet the standards and expectations of those they are designed to serve. Unlike traditional monitoring, CLM is community-driven. It is used to ensure social accountability, particularly in settings where trust in institutions is low. It complements advocacy and builds community power.

To be impactful, CLM must be ethical, safe, and adequately funded – especially where drug use is criminalized. Integration of CLM into national harm reduction strategies strengthens NSP delivery, responsiveness and alignment with community-defined priorities.

More information can be found in the guide of the International Network of People who Use Drugs on CLM, Community-led monitoring for people who use drugs 2023 *(63)* and UNAIDS's Establishing community-led monitoring of HIV services – Principles and process 2021 *(64)*.

Staff members at the reception of a drug consumption room, France. © Gaia Paris / Salomé Hévin

Global coverage levels

The aim of the WHO Global Health Sector Strategy (GHSS) is to increase global and national averages to at least 300 sterile syringes per person who injects drugs annually by 2030 *(54)*. This revised target builds on the previous benchmark of 200 syringes, set for HIV prevention, and has been raised for better alignment with the coverage levels required for effective prevention of hepatitis C. Table 3 summarizes the characteristics of population coverage defined in the GHSS.

Importantly, this is not an individual target, as 300 syringes per year is insufficient for most individuals. Rather, it is calculated and intended as a population-level average, based on the estimated size of the total population of people who inject drugs regionally, nationally or globally. The indicator and target are designed for estimating coverage at population level and are intended to highlight potential needs to scale-up NSPs, particularly in view of critically low current global coverage. At the time of writing, reaching this target would require a nearly 10 times increase in average syringe distribution worldwide.

A common misconception is that this population level target can be used for planning programmes or for quantifying supplies. It is not, however, designed for that purpose and should not be used to estimate individual need, for programme planning or for determining procurement volumes.

Table 3. Characteristics of population-level coverage of NSPs according to the Global health sector strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022-2030

$\frac{\text{Total number of needles and syringes distributed in a specified geographical area}}{\text{Estimated number of persons injecting drugs in the same area}}$ = > 300 syringes per person per year	
Source	Stock records for total distribution of syringes and needles by programmes and other sources (e.g. pharmacies). Estimated size of population of people who inject drugs in the country or region or globally.
Target	Minimum of 300 syringes distributed per person who injects drugs per year.
Timeframe	Usually 1 year. This indicator is for high-level monitoring of NSP coverage.
Advantages	Fairly simple to calculate, even without detailed programme data. Offers rapid information on trends and coverage, which are useful for regional, national or global monitoring.
Disadvantages	Often misunderstood as a benchmark for programme planning. The denominator used is often programme coverage and not estimated overall population size.
Note	The denominator is the total number of people who inject drugs in a given geographical area (typically national, regional or global). This is an important difference from using only the number of individuals recorded as having received services. It is designed to measure population coverage and indicate general penetration of NSP services; therefore, includes people who have not (yet) been reached, as well as those who move in and out of injecting drug use and individuals who engage with NSPs only occasionally.

Programme coverage targets

The aim of NSPs is to ensure that every injection is made with sterile equipment. Different injecting practices require different needle and syringe sizes, and some preparations may require more than one syringe. For clarity and for target setting, syringe distribution is often used as a simplified unit of measurement.

One injection = One syringe

As a guiding principle, programmes can adopt a baseline target of "one injection = one syringe" for planning an adequate supply and promoting safer injecting practices. This principle should not be used to restrict individual distribution but rather to ensure that sufficient quantities are available to meet diverse needs.

Targets expressed in the number of syringes per person per year allow programmes to set measurable objectives, so that the objective of promoting safer injecting practices is presented in clear, measurable terms. Such targets must not, however, cap individual supply. Distribution should be guided by individual needs, including injection frequency and drug type.

A quantification tool (see Module 1) can be used to calculate the total number of syringes required. Dividing this total number of syringes, by the total target population provides an average number of syringes per person per year. Monitoring of monthly progress indicates alignment with the "one injection = one syringe" principle and allows timely adjustments.

If detailed data are not available or the quantification tool is not adapted to the setting, a useful rule of thumb can help estimate needs. People who inject heroin often do so at least twice a day, while those who inject stimulants may inject much more frequently. **By way of illustration, it is not uncommon for a programme to require an average of three syringes per person per day to accommodate the variety of injecting practices encountered in service delivery**. This estimate translates to well over one thousand syringes per person per year. It reinforces the fact that GHSS targets cannot be used as a basis for programme planning. Instead, a thorough assessment, with the community, is necessary to understand local injecting patterns and thus ensure that service planning reflects actual needs.

Indicators

Indicators are valuable for monitoring regular activities and identifying trends in programme inputs, processes and outputs. Although they can be used to measure programme performance, they are limited, as they capture only single data points with no further insight. Analysis of indicators should therefore be complemented by a qualitative assessment.

Table 4 illustrates two common indicators and two common approaches, one based on programme data and the other on surveys. Programmes are encouraged to adapt indicators to their objectives, context and available data. A more comprehensive list and further information can be found in the WHO Tool to set and monitor targets for HIV prevention, diagnosis, treatment and care for key populations *(52)*.

Table 4. Use of data from programmes and from surveys in monitoring

Example 1. Use of programme data for monitoring reach and distribution of injection equipment	
	$\frac{\text{Total number of syringes distributed}}{\text{Number of different people reached}}$ = Average number of syringes per person
Source	Daily activity record sheets.
Target	To be based on the principle of one injection = one syringe.
Timeframe	Information is usually recorded every day, with reporting once a month to follow trends. Often one of the key figures for reporting coverage in annual reports.
Advantage	Widely used in many programmes, ensuring consistent tracking and comparability among sites. Offers rapid insights into trends, which is useful for daily monitoring. Can be calculated even when individual data are limited or unavailable. Data on syringe distribution are often accessible in stock records. With a reasonable estimate of the number of individuals reached, programmes can estimate a fairly reliable average, providing information on programme coverage and supply requirements.
Disadvantage	Programmes with limited information on the number of individuals reached, such as those in which secondary distribution or vending machines are used, will have fewer reliable data on actual coverage. The indicator reflects the number of syringes distributed, not how they are used. It does not indicate whether people use sterile equipment for every injection or any information on specific risks.
Note	This indicator reflects coverage only of those reached by the programme. It does not include individuals who do not access the services. Therefore, it cannot be used to infer regional or population coverage but only programme coverage.

Example 2. Proportion of injections with sterile equipment from questionnaires	
	$\frac{\text{Number of injections with sterile equipment}}{\text{Number of injections}}$ x 100 = % of injections covered
Source	Dedicated questionnaire, regularly included in service delivery.
Target	Cover each injection with sterile equipment (100%).
Timeframe	This indicator requires a dedicated questionnaire, which could be collected once every quarter, depending on feasibility and resources.
Advantages	Indicates the potential outcome of the programme, beyond service outputs. Although the indicator is a quantitative measure, it can be used to deepen conversations with participants, thus helping to understand barriers to consistent use of sterile equipment and the reasons for continuing risky behaviour.
Disadvantages	Requires additional work to design, implement and analyse the questionnaires. Data are for a sample, which may not be fully representative. Individuals who are more engaged in a programme are often more likely to respond, potentially biasing the results. Contacts should be sufficiently long to administer questionnaires. In some contexts, such as in busy outreach settings or environments with limited privacy, this may not be feasible.
Note	The number of questionnaires required will depend on the programme size and capacity. Usually, 50 completed questionnaires will provide a reasonable indication of trends and experiences in the population served.

2.5 Module 5. Scaling up and sustainability

Many NSPs begin as demonstration projects designed to generate endorsement and build momentum for broader implementation. Such initial initiatives play a crucial role in securing political support, informing the development of a national strategy, and planning for scale-up. However, they should not be mistaken for fully effective public health interventions on their own. A common misconception about demonstration projects is that they reflect a national presence of needle and syringe programs, when in fact they are often limited in scope and intended primarily to inform national policy development. **While such pilots play an important role in generating local evidence, demonstrate feasibility and fostering political support, advocacy efforts should ensure they do not obscure or delay the need to scale-up comprehensive and sustained service delivery**.

To achieve meaningful public health outcomes, broad coverage is essential. Globally, substantial scaling-up of services is urgent. The two basic elements for successful extension and long-term sustainability are strong political endorsement and secure financial investment.

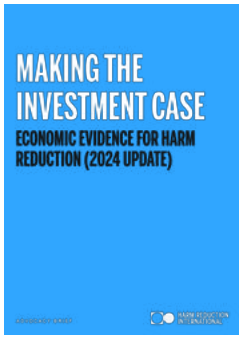
Political endorsement

Strengthened political commitment is essential for moving beyond the limitations of initial small-scale projects and ensuring integration of NSPs into national public health strategies. Without clear, sustained political endorsement, such programmes may remain peripheral, fragmented or dependent on external funding, which can jeopardize their continuity and impact. Integration into national frameworks secures their legitimacy and positions them as key components of national health and social policies.

Advocacy should address shifting perspectives, from viewing NSPs as controversial to highlighting them as evidence-based, cost-effective interventions to protect health, uphold dignity and reduce long-term burdens on individuals and health systems. **Framing such programmes in a public health and human rights approach shows that they are not exceptional measures but essential components of a comprehensive, inclusive health response**.

In many contexts, securing the support of local communities, particularly neighbours and the immediate social environment, is equally crucial. Their endorsement not only helps to ensure that programmes can operate safely and smoothly but also contributes to building broader societal acceptance. Community support can catalyse national political backing, reinforcing the perception that these programmes are both necessary and welcome.

Financial resilience



For long-term viability, NSPs must be included in national health budgets. Many NSPs, particularly in low- and middle-income countries, continue to rely on international donor funding, with limited domestic financial support. This poses a serious risk for their sustainability, as external funding is often vulnerable to shifting political priorities.

Advocacy should stress that NSPs are cost-effective interventions for the prevention of bloodborne diseases, as well as for skin infections in certain contexts *(5)*. While the cumulative cost of national scaling-up can be considerable, the expense should be compared with the long-term financial burden of providing lifelong antiretroviral therapy or treating chronic hepatitis C. Investment in prevention through harm reduction ultimately reduces the strain on health systems and contributes to more sustainable public health outcomes.

Governments should leverage existing procurement mechanisms to negotiate lower prices for syringes and other harm reduction commodities, ensuring cost-efficiency in national purchasing. Countries can also explore the feasibility of local production of syringes and related supplies. Local manufacture can reduce costs, improve supply chain reliability and lessen dependence on international imports, which is particularly relevant in settings where global supply routes are disrupted.

Full integration into health systems

To ensure sustainability, it is critical to reduce reliance on international funding and integrating needle and syringe programs into domestic healthcare financing systems. This will secure stable, long-term funding and shield programmes from volatile, shifting donor priorities. **Integration into national health systems also reinforces country ownership and ensures that services are better aligned with local needs, making the response more resilient, responsive and based on public health priorities**. In addition, domestically funded, community-led implementation models are an important, underused pathway for sustainable integration.

NSP services can be embedded in various components of the health system, such as pharmacy distribution, in primary health care or integrated into other service settings (see Module 2 Implementation models). However, integration must be carried out with close attention to maintaining low-threshold, stigma-free environments. Services that are perceived as punitive, moralizing or judgemental can drive people away and undermine public health. Safeguarding a non-discriminatory, welcoming harm reduction service is essential to its effectiveness.

National procurement of harm reduction commodities should also be integrated into existing national procurement systems and supply chain policies to ensure coherence and sustainability among systems.

NSPs are recognized by WHO as essential health services and are specifically listed in the WHO UHC Compendium *(65)*, a repository of interventions for universal health coverage, illustrating their critical role in public health. They are also listed in the GHSS as a core indicator for measuring progress toward achieving goals for elimination of viral hepatitis and prevention of HIV *(34)*, which indicates not only the feasibility of implementation in all contexts but also the importance of full integration into national health systems.

Advocacy

In most contexts, NSPs balance service delivery with sustained local and national advocacy. **Advocacy and sensitization are essential to secure the long-term sustainability of programmes, particularly where harm reduction approach remains politically sensitive or poorly understood**. This requires building trust with local communities, such as neighbours and municipal stakeholders, and also engaging decision-makers and public institutions in influencing national policies and securing domestic funding.

Importantly, advocacy and sensitization also involve proactive engagement with law enforcement bodies, especially local police, to ensure an enabling environment, reduce interference and ensure the safety and continuity of service delivery. Advocacy should therefore be recognized as a core component of programme implementation, requiring a clear strategy and dedicated resources.

Members of the community of people with lived experience are often among the most powerful advocates, if their safety can be assured. Enabling people who use drugs to speak of their realities and needs strengthens advocacy, reduces stigmatization and ensures better understanding by policy-makers. It also reinforces the importance of community leadership, in which people who use drugs are framed as part of the solution and not only as passive individuals defined by risk or vulnerability.

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A mobile health team meets with community members during a field visit to a clinic providing essential health services.

3 Implementation considerations and practical enablers

Community-led NSPs

NSPs can be delivered in various ways, including through formal health services and community-led organizations. While all models should prioritize community mobilization and actively involve people with lived experience, community-led organizations are unique in that they are run by and for people who inject drugs.

Needle and syringe programmes have often been initiated by communities of people who inject drugs themselves. From the beginning, these interventions have illustrated the pivotal role of community leadership in reaching individuals most at risk and ensuring their continued engagement. Over the past decades, the value of placing communities at the centre of the response has gained broader recognition *(66)*, not only for service delivery, but also in the design, governance and accountability of programmes.

Where there are no or only underdeveloped community-led structures, NSPs must foster their development and formalization. They should help strengthen leadership capacity among the community of people who use drugs and build the foundations for fully community-led programme models, when feasible. This includes providing active support for peer-led service delivery, investment in community infrastructures and advocacy for policy environments that recognize, legitimize and sustain community leadership in the long term.

Recognizing communities not merely as participants but as leaders constitutes a profound change in how public health responses are conceived and delivered. Community-led approaches embody a rights-based commitment to empowering marginalized communities. In the context of NSPs, such leadership is reflected in peer-to-peer distribution models and fully community-led services.

The Global AIDS Strategy 2021–2026 *(44)* sets clear, ambitious targets for strengthening the role of communities in the 30–60–80 goals:

- 30% of HIV testing and treatment services to be delivered by community-led organizations;
- 60% of programmes addressing societal enablers to be led by communities; and
- 80% of HIV prevention services for key populations and women to be delivered by community-, key population– or women-led organizations.

When possible, embedded, adequately resourced community-led structures must be central to national and global needle syringe distribution strategies. Integration of NSP into domestic funding frameworks should reflect these targets and ensure sustainable community leadership in implementation.

NSPs in closed settings

It is estimated that over half of people who inject drugs have been incarcerated, and many continue or initiate injection while detained, often increasing the risks of HIV and HCV transmission *(33)*. International human rights standards, including the "Nelson Mandela Rules" *(67)*, affirm that people deprived of liberty must have access to health care equivalent to that available in the community. WHO recommends comprehensive harm reduction in prisons, including access to sterile injecting equipment, opioid agonist treatment and naloxone to prevent overdose *(2)*. Nevertheless, NSPs have been introduced in prisons in only 11 countries *(28)*. This remains largely insufficient, particularly in view of the heightened risk of HIV and HCV transmission in closed settings.

NSPs can play a role in linking with drug dependence treatment and overdose prevention during incarceration and after release. It is therefore essential that post-release planning includes referral to treatment and harm reduction services, to facilitate access to further support, sterile equipment and overdose prevention measures.

Implementation of NSPs in prisons and other closed settings requires specific consideration. Extending access depends on institutional commitment, enabling legal frameworks and confidential, voluntary service delivery. Current NSP programmes in prison often rely on support from civil society organizations. They are most effective when delivered by trained health-care staff, peer educators and trusted community members. Staff attitudes must be addressed to reduce stigmatization and build trust in services. The United Nations Office on Drugs and Crime has published a handbook for starting and managing NSPs in prison and other closed settings *(68)*.

Transfer of the responsibility for prison health to public health authorities could help to align service quality with community standards and improve the continuity of care. Linking NSPs with national HIV and public health programmes strengthens their position in broader health systems and supports their scaling-up. Effective implementation also requires strong integration with health services, staff training, peer involvement and dedicated support both inside prison and after release *(28, 69)*.

Safety of front-line workers

The safety of NSP staff, particularly those working in outreach or street-based settings, is a critical concern. In most contexts, non-medical drug use remains highly criminalized, which increases the risks of front-line workers in environments that may be subject to surveillance or enforcement. This places staff at risk of arrest, harassment or violence. **Programmes should adopt proactive risk mitigation measures, including comprehensive staff training, safety protocols and access to legal support**.

Peer workers often engage in NSPs through deep personal commitment and a desire to support their communities. For those who are seeking to reduce or stop their own drug use, however, the work environment may expose them to triggers. Programmes should foster open dialogue about such challenges to ensure that peer workers receive the support they need to manage their own well-being. Creation of a culture of care allows individual needs to be discussed and addressed collaboratively with programme leadership, without fear of judgement or reprisal.

To safeguard both staff and participants, programmes should have practical, context-sensitive protection measures. Constructive dialogue with law enforcement bodies, including local police, is essential to explain the public health role of NSPs and reinforce their alignment with national strategies. In some contexts, it may be safer to work in pairs. Wearing visible identification, such as badges or clothing with programme logos, can help reduce the risk of arrest or interference during fieldwork. In certain contexts, however, such visibility may draw unwanted attention or pose additional risks. Risk should therefore be assessed case by case.

Peer-to-peer programmes with flexible working arrangements require thoughtful implementation. **Peer workers may spend time in high-risk environments both as part of their outreach activities and in their personal lives. Protection strategies should not rely on surveillance or require workers to explain their presence in certain locations. Instead, programmes should prioritize supportive, non-intrusive approaches to safety with respect for individual autonomy and no monitoring of personal behaviour**.

Given the emotional demands and high-risk nature of work in harm reduction, NSPs should invest in providing structured mental health and occupational safety supports. This includes access to burnout prevention training, regular psychosocial support and clear protocols for managing distressing events such as overdose, violence and death. Ensuring the well-being of harm reduction staff is not only a matter of duty of care, it is essential for sustaining a skilled, compassionate, resilient workforce.

Mobile NSP program at nighttime, France.

© Gaia Paris / Salomé Hévin

Meeting demand

While there are budget constraints in many settings, costs should not be reduced by limiting the quantity of sterile equipment provided. NSPs can remain effective even with limited distribution infrastructure, so long as distribution is not restricted to insufficient quantities. Underfunding these services results in preventable HIV and HCV infections, ultimately leading to higher long-term healthcare costs.

While programmes should aim for equitable distribution based on individual needs, placing strict caps on the amount of equipment provided per person should be avoided. There is no evidence that greater availability of injecting equipment leads to increased drug use or more frequent injections. On the contrary, ensuring that individuals have access to sufficient sterile equipment reduces the risk of sharing and reuse of injecting equipment, thereby preventing bloodborne infections such as HIV and hepatitis C. Distribution should respond to actual demand, ensuring that every injection can be done safely.

Concern about resale or secondary distribution of syringes should not be used as a justification for limiting supply. If resale is occurring in the community, it may be a signal that demand is not being met by existing services—highlighting the need for increased access, not restrictions. Even when syringes circulate beyond the primary recipients, they typically continue to contribute to public health goals by reducing the use of contaminated equipment and lowering transmission risks more broadly.

Quality of injection equipment

The quality and specifications of needles and syringes are critical for reducing harm associated with injecting drug use, including bloodborne viruses and skin and soft tissue infections. Poor-quality or inappropriate equipment not only fails to meet the practical needs of people who inject drugs but also leads to inefficient use of resources, increases the risk of losing contact with the community and weakens the overall impact of harm reduction interventions.

Limited introduction of high-quality materials may have unintended consequences, as the items may be preferred to those of lower quality and recirculated among peers, increasing the risk of sharing and reuse. To avoid this, **it is essential to ensure that all distributed equipment meets user needs and quality standards and is available in sufficient quantities**. This approach leads to safer injecting practices, reduces health risks and reinforces the overall effectiveness and credibility of harm reduction interventions.

Display of available material in a NSP program, France. © Gaia Paris / Salomé Hévin

Target population

The primary aim of NSPs is to reach people who inject drugs to prevent bloodborne infections such as HIV and hepatitis C. To maximize the public health impact of such interventions, it is essential to recognize the wide spectrum of injecting behaviours and frequencies. International definitions often focus on injecting within the past month or 6 months; however, this may miss important subgroups.

This includes individuals who use drugs mainly by other routes but inject occasionally and those at risk of changing to injection due to shifts in the drug market, pricing or availability. **Programmes should not overlook communities considered to be "non-injecting", in which injecting may still occur infrequently or can emerge in response to changing local drug trends**.

People who inject occasionally or individuals early in their injecting trajectory may also not self-identify as people who inject drugs and are often disconnected from established harm reduction networks. As a result, they may not access service delivery points or be part of the peer and community networks through which NSPs commonly operate. People who have recently initiated injecting are in a period of heightened risk for bloodborne infections and injecting-related harms yet remain underserved. Their limited familiarity with harm reduction services—combined with internalized stigma and fear of judgement—can lead to reluctance to engage with available support.

NSPs can play an important role in prevention by offering safer smoking equipment and tailored information. They should ensure low-threshold access to sterile injecting materials for those who do begin injecting, in order to minimize early harm.

Sexual or life partners of people who inject drugs may remain invisible to services, yet they are directly exposed to infectious diseases, either by sexual transmission or by sharing injecting materials. Although they are often invisible to harm reduction programmes and NSP services, they may be at significant risk.

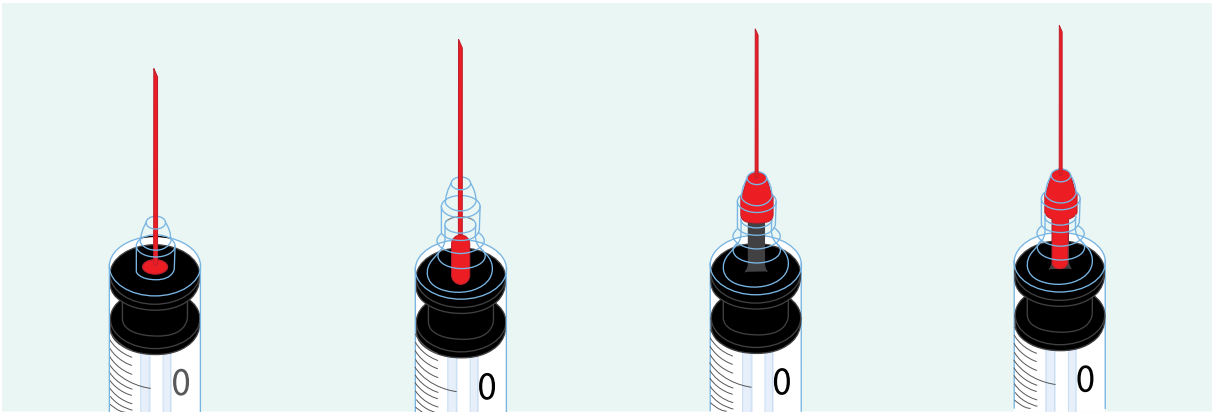
Intersectionality such as gender identity, sex work, migration status and incarceration, can also be linked to injecting drug use and may place individuals at greater risk while making them less visible to conventional services. Trans and gender diverse people and sex workers who inject drugs may not identify with mainstream harm reduction spaces or may access services tailored to other aspects of their identity. As a result, they may not be reachable through traditional outreach channels.

These dynamics underscore the importance of proactive outreach strategies that extend beyond conventional service delivery models. Reaching less-visible groups such as new and young injectors, women, migrant communities, people in prison and other closed settings and individuals who are in several population categories (e.g. sex workers who inject drugs) requires tailored, inclusive approaches. Addressing the barriers these individuals face, including lack of familiarity with services and fear of stigmatization or discrimination, is critical to ensuring that no one is left behind.

Low dead-space syringes

The primary goal of NSPs is to ensure that syringes are used only once; however, this is difficult in many settings. Low dead space syringes (LDSS) are designed to retain less residual fluid *(70)* (Fig. 5), which may reduce the risks of HIV and HCV transmission when people who inject drugs share syringes *(71)*.

Fig. 5. Low dead-space syringes



Low dead space fixed needle and syringe

Low dead space detachable needle

Reduced dead space modified syringe with detachable needle

Traditional high dead space detachable needle and syringe

Source: Adaptation of Hancock et al. *(72)*.

Various types of injecting equipment are available to minimize residual volume, including syringes with fixed needles, syringes with specially adapted needles, and modified syringes that reduce the dead space in the syringe tip.

Laboratory studies have shown that fixed needle LDSS are likely to transfer less HIV and HCV than both detachable LDSS and "traditional" high dead-space syringes (HDSS). Of the detachable types, LDSS, and particularly those with low dead-space needles, are expected to transfer less virus than HDSS *(73-75)*. Modelling studies support the laboratory evidence *(76, 77)*, estimating that smaller quantities of blood are transferred with fixed LDSS than with HDSS.

Limited evidence from epidemiological studies also suggests that the prevalence of HIV and HCV is lower among people who inject drugs who use fixed LDSS than among those who use HDSS *(78-80)*. At the time of writing, only one study, has shown a reduction in the incidence of hepatitis C with use of LDSS, with a 76% lower risk of recent HCV infection among people who inject drugs who consistently used fixed LDSS than among those who used them less consistently *(81)*. If these findings are confirmed, use of LDSS could be highly cost-effective *(72)*, with a large prevention benefit *(71, 76)*. Scaling up of global LDSS uptake can be expected to reduce unit costs, further improving their cost-effectiveness.

Determination of the most appropriate, feasible option or combination of options requires an understanding of context-specific needs, preferences, cost-considerations and patterns of use among people who inject drugs. **It is essential to assess and select the most adapted material during the values and preferences phase, ensuring that community members are involved in testing and providing feedback on the available equipment**. This participatory approach helps tailor harm reduction strategies to the real-world practices and preferences of the people they serve.

Collection and disposal of syringes

Many programmes include some form of syringe exchange, whereby return of used syringes increases access to new ones. In some contexts, this model is upheld as a guiding principle to encourage safe disposal and reduce environmental and community-level risks. However, the applicability of strict exchange models depends on the context. In certain settings, for example, the carrying of used syringes is used as evidence of drug use and increases the risk of arrest, which may discourage individuals from retaining or returning equipment.

Active recovery of used syringes, through exchange schemes or collection ("sweeping") to remove used syringes from public spaces, contributes to environmental protection by preventing plastic waste from entering the natural ecosystems and reduces the risk of accidental exposure of the wider community.

In many contexts, visible efforts to keep public areas free of discarded syringes are essential to gaining and maintaining support from the broader community. Addressing community concerns through regular sweeping and responsible waste disposal can foster local trust, ease political resistance, and create a more enabling environment for harm reduction. In some settings, syringe recovery is a prerequisite for allowing a programme to function. Its contribution to public health and social acceptance should therefore not be underestimated.

Local hospitals are often the most appropriate partners for final disposal of collected syringes, as they usually have an established system for handling and discarding medical waste safely, in line with national regulations, making them a practical and reliable solution for the secure disposal of injecting equipment.

Used syringes collection during NSP outreach, Afghanistan.

Injection equipment and paraphernalia

Injection materials should be selected in line with the values and preferences of the community and should be of sufficient quality and adapted to local needs. A different mix of materials and injecting paraphernalia, including cookers, filters, acidifiers, and sterile water, may be required for each context. Different materials may be required to accommodate various injection practices among different subgroups (See Module 1, Assessment for details.) The minimum package of materials should be context-specific and balance feasibility with harm reduction priorities.

In some settings, pre-packaged kits may be preferred, as they facilitate distribution, while an individualized selection of equipment may be more appropriate in others. Syringe options vary, including fixed- or detachable-needle designs. The size and volume of both syringes and needles should be adapted to the needs of the community, ensuring they are not larger than necessary in order to minimize vein damage.

Avoidance of auto-disable syringes

Auto-disable syringes are not suitable for use in needle and syringe programmes and should not be procured for harm reduction purposes. These syringes are designed so that the plunger locks after a single use to prevent reuse. However, field observations suggest that, in the context of injecting drug use, this feature is often counterproductive. To enable practices such as “flushing” (which consists of drawing up, and re-injecting blood), people who inject drugs often tamper with or break the locking mechanism.

Tampering can compromise sterility, and use of sharp tools may damage the syringe and introduce additional risks, such as blood contamination or micro-injuries. Once these syringes have been altered, they are likely to be reused by the same person or shared with others, which substantially increases the risk of transmitting HIV and HCV and other injection-related harm.

Rather than reducing harm, auto-disable syringes can inadvertently increase risks by encouraging unsafe reuse and prolonging the circulation of used equipment. In some settings, they are perceived as of lower quality or impractical, leading to mistrust and reduced uptake, ultimately undermining programme goals. In addition, auto-disable syringes are often more expensive than standard harm reduction equipment, increasing programme costs with no added benefit and reducing overall cost-effectiveness. Prioritization of procurement of appropriate, community-preferred syringes, preferably low-dead space types, ensures safer injecting and greater community trust and enhances both health outcomes and programme efficiency.

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Annex 1. Example tool for hot spot[1] mapping

Source: Based on a tool developed by FHI 360

Instructions

- Identify and list all known hotspots in the implementation area.
- Actively seek additional or unreached hotspots.
- Visit each hotspot and complete the tool according to direct observation and local knowledge.
- Use multiple sources of information. Interview at least three key informants, including at least two people who inject drugs (see part III).
- Record details of the location, type, activity status and estimated number of people who inject drugs.
- Compile all data to establish a reliable estimate of the total number of people who inject drugs in the area.

Programmatic mapping and estimation of size of key populations

Information on hotspots for people who inject drugs, identified as people aged ≥ 18 years who used drugs, by injection, at least once in the past 6 months

Part 1. Hotspot identification		
1.	State	.....
2.	District	.....
3.	Key population	People who inject drugs
4a.	Day, date and time of visit 1	.....
4b.	Day, date and time of visit 2	.....
4c.	Day, date and time of visit 3	.....
5	Name of interviewer	.....

[1] A hotspot is a specific location or area where members of key populations gather to meet. In the context of drug use, this may include isolated areas or private homes where people gather to inject drugs.

Part 2. Hotspot profile

6. Name or code of hotspot .....

7. Address of hotspot

11a. Location
(Please provide detailed address as applicable, with several clear landmarks) .....

.....

11b. Block

.....

11c. City, town or village 1. City 2. Town 3. Village

11d. Name of city, town or village .....

8. Hotspot coverage

a. Currently covered by programme intervention;
b. Not currently covered by programme intervention

9. Hotspot type (Circle only one relevant category)

1	Injection gallery	2	Home	3	Bar
4	Lodge, hotel	5	Street	6	Railway station
7	Bus stand	8	Park	9	Market
10	Pharmacy	11	Abandoned area	12	Under a bridge
13	Public toilet	14	Highway	15	Injecting buying site
16	Injection selling site	17	Others (specify)		

.....

10. Status of the hotspot

1. Active 2. Inactive

If inactive, since when:

Month ..... Year .....

(Please specify the main reason for the inactivity of the hotspot.)

.....

.....

11. For how many months or years has this hotspot been operational? (Circle one relevant category.)

1. < 3 months.
2. 3–6 months.
3. 7–11 months.
4. 1–2 years.
5. 2–3 years.
6. ≥ 3 years.

Part 3. Information about people who inject drugs at a physical hotspot
Interview at least three or four key Informants of whom two are people who inject drugs.

12.	In general, how many people who inject drugs are associated with this hotspot?	Minimum	Maximum .....
13.	Of the people who are associated with the hotspot, how many are women?	Minimum	Maximum .....
	Peak days and times when the most persons who inject drugs are present at the hotspot		
14.	On what day of the week is the maximum number of people who inject drugs at the hotspot (peak day)? *(Several answers are possible. Circle as applicable.)*	Monday ..... A Tuesday ..... B Wednesday ..... C Thursday ..... D Friday ..... E Saturday ..... F Sunday ..... G Every day ..... H	
15.	At what time of day is the maximum number of people who inject drugs present at the hotspot (peak time)? *(Several answers are possible. Circle as applicable.)*	Morning ..... A Afternoon ..... B Evening ..... C Night ..... D 24 h ..... E	
16.	Among the people who inject drugs associated with this hotspot, how many (minimum–maximum) work at or visit other hotspots in the same district?	Minimum	Maximum .....

Part 4. Information on other hotspots to be listed

17. Please let us know of any similar places in the area, people who inject drugs can be accessed.

	Hotspot name	Address	Names of potential stakeholders and contact details	Other information	Remarks
(i)	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....
(ii)	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....
(iii)	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....

Hotspot map. (Consider confidentiality!)

Annex 2. Tool for establishing values and preferences of people who inject drugs, for procurement of injection material

Source: Outlines provided by Dr A. Madden, International Network of People who Use Drugs.

Importance of establishing values and preferences: Involving people who inject drugs in decisions about the harm reduction supplies to be procured and distributed ensures that services are effective, acceptable and equitable. Too often, decisions are made without input from the people who use the equipment, resulting in poor uptake, unsafe practices, and unnecessary waste.

Understanding local values and preferences helps to ensure that:

- supplies meet actual needs;
- unintentional harm due to poorly adapted or low-quality material;
- equipment is practical and fit for purpose;
- services build trust and dignity; and
- resources are not wasted on unwanted or ineffective equipment.

Key objectives of establishing values and preferences for procurement:

- understanding the different profiles of people who use different substances at different frequencies;
- assessing preferences and needs for injecting equipment and other harm reduction supplies;
- understanding barriers and facilitators to access;
- identifying any local concerns and specific needs (e.g., issues with police or pharmacies, gender-specific needs); and
- exploring the need for education and knowledge mobilisation on harm reduction and safer injecting practices.

Brief step-by-step process for identifying values and preferences for procurement

Step 1. Prepare and inform

- Identify one or two peer outreach workers, peer educators or trusted staff to facilitate the discussions.
- Brief them that the aim is to find out what supplies people want and need most, and why.
- With peer workers or staff, prepare an explanation in plain language to introduce the activity to participants, such as "We want to make sure the needles, syringes, and other supplies we get actually meet your needs. Your input will help us choose better."

Step 2: Collect input (Choose one or more of the recommended methods.)

- Mini focus groups (3–6 participants). Short (30–45 min) discussions guided by a few open questions, such as:
  - "What equipment do you prefer to use, and why?"
  - "Are there any types you wish to avoid or dislike?"
  - "What would you change about what's available now?"
- Peer-led interviews or conversations: Short, one-on-one, informal interviews or conversations by trusted peers in drop-in centres, mobile services or outreach settings. (The same questions as above could be used.)
- Rapid surveys (paper or digital): A short, anonymous survey with 5–10 simple questions that can be completed within 5 min. Useful for collecting input from a large group. Examples of questions are:
  - "What size syringe do you usually prefer to use?"
  - "Have you ever avoided using equipment from the NSP? If yes, why?"
  - "If you could change one thing about the injecting equipment you receive, what would it be?"

  Surveys can be conducted in-person at NSP sites, drop-in centres, mobile services, outreach settings or sent via SMS, WhatsApp or community networks.
- Quick preference forms or lists: Tick-box sheets with photos or samples of different supplies (e.g. different needle and syringe products, needle gauges, barrel sizes) for people to rate or choose.
- Feedback on product demonstration: Show samples of items, and ask for immediate feedback.

Step 3: Simple analysis and write-up

- Sort responses into themes: usability, safety, preference, issues (e.g. dull needles, leaking syringes, drug wastage, vein damage).
- Summarize people's preferences (e.g. "Most participants preferred 2 mL syringes with detachable 25G needles, because they cause less bruising.")
- Use simple language and structure:
  - What people like
  - What people don't like
  - Suggestions or ideas for improvement

Step 4: Sense-check the findings

- Share a short summary (1–2 pages) with a small group of peers or community representatives.
- Ask: “Does this sound right?”, “Did we miss anything important?”
- Adjust the report to reflect their feedback.

Step 5: Build in continuous feedback

Maintain community feedback during procurement.

- Provide a feedback box or WhatsApp line in NSPs and drop-out centres.
  - Hold monthly check-ins with peer educators and outreach workers.
  - Include a quick feedback question at distribution points: “Is the equipment you’re getting still working well for you?”
  - Test small batches of new NSP products and harm reduction supplies, and ask for brief community feedback before scaling up procurement.

Tips: Make it meaningful and respectful.

- Pay participants for their time, even with small incentives (e.g. cash, vouchers, transport tickets, phone credit, snacks).
- Let people choose how they give feedback (talk, write, draw).
- Make sure that their input directly affects what gets purchased – do not ask for input and then ignore it. If, for certain reason (such as limited resources), material can’t be purchased in accordance with the input you have asked for, let people know why.

Annex 3. Tool for quantification

Filling in version of fig.3. "Illustration of a planning and quantification tool". This can be used as a basic (paper-based) tool.

	Add details on required material →	
	Estimated population size (%)	**Different injecting profiles**
1. Size estimation and needs		
Add profiles ↓		
Total material per day *(multiply material by size of profile and add up)*		

2. Quantification	
Total quantity material per year *(total syringes per day * 365 days)*	

3. Target Setting	**Indicative coverage target per person per year** *((Total number of syringes / estimated population size)* 365))*

Excel based quantification tool

Source: Developed for this operational guide by Ernst Wisse (WHO consultant) and Kanishk Gupta (PATH)

Annex 4. Safe handling and disposal

Source: Annex in WHO *(1)*

Disposing of needles and syringes (sharps) and sharps containers

- Sharps must be disposed of in a rigid container that can withstand the weight of biomedical waste without tearing, cracking or breaking.
- If clients exchange needles, provide sharps containers when possible.
- When sharps containers are not available, encourage clients to place used equipment in a rigid plastic container with a tight-fitting lid, such as a bleach bottle.
- Encourage clients to return all sharps containers when they are two-thirds full to the NSP.
- When possible, pick up sharps containers from clients' homes or from the locations at which they inject, and store used equipment.

Handling sharps: recommendations for NSP clients

- Locate the sharps containers close to the area of use.
- Dispose of equipment immediately.
- Never recap a needle.
- When exchanging needles for other people, ask them to recap their own needles, or place a cork on the point of the needle.
- Do not bend or break a needle.

Handling sharps: recommendations for NSP workers

- Be mindful that clients who are exchanging needles may be carrying concealed needles.
- Do not touch returned needles.
- Ensure that clients dispose of their own needles.
- If an estimate is required of the number of needles returned, it should be done by looking and not touching (or measuring weight to get rough estimation of large quantities of needles).
- When conducting vaccination or testing, locate sharps containers close to the area of use.
- Dispose of needles immediately.

When collecting discarded needles in the community:

- Wear puncture-proof gloves.
- Wear solid, closed-toe shoes to protect feet from accidental contact with sharps.
- Carry a sharps container for immediate disposal.

After collection of used injecting equipment:

- Keep used equipment at a central location (e.g. fixed site of NSP).
- Ensure secure storage of used equipment until it can be disposed of safely.
- If possible, use a high-temperature waste incinerator to destroy used injecting equipment. Many hospitals have such incinerators.
- When high-temperature incineration is not possible, use the safest locally available means of destroying equipment, such as an industrial furnace, a small purpose-built incinerator or (as a last resort) burial.

Reference

1. World Health Organization, UNAIDS, UNODC. Guide to starting and managing needle and syringe programmes. Geneva: World Health Organization; 2007. https://iris.who.int/handle/10665/43816.

Smoking equipment available in a NSP program, France.

For more information, please contact:

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