Original Research

Harm Reduction Policy Strategies for Addressing HIV/HCV Prevention Among People Who Inject Drugs in Prison and Other Closed Settings: Case of Romania

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Abstract

Background: People who inject drugs (PWID) in prisons and other closed settings are disproportionately affected by bloodborne viruses (BBV) such as Human Immunodeficiency Virus (HIV) and Hepatitis C (HCV), mainly acquired through needle sharing and compounded by limited access to healthcare services. Romania, despite having high prevalence rates of HIV and HCV among its prison populations, has experienced a decline in harm reduction measures due to underfunding, stigma, and political neglect.

Methods: This policy brief examines evidence-informed interventions, including needle and syringe programmes (NSP), opioid substitution therapy (OST), HIV-HCV testing and treatment and naloxone provision, all of which have demonstrated significant efficacy in reducing HIV-HCV transmission and overdose deaths in prison settings. Priority levels for interventions were determined based on effectiveness, cost-effectiveness, and feasibility within the Romanian prison context, drawing from existing frameworks from EUDA, WHO and the Global Fund and best-practice models from Australia and Spain.

Results and conclusion: Despite the proven benefits, Romania's prison system lacks sufficient implementation of these measures, posing substantial public health risks. We argue for the urgent integration of harm reduction policies specifically targeting people who inject drugs in prisons and other closed settings through healthcare strategies, combined with structural reforms and stigma reduction measures. These interventions are essential not only for protecting the health of people in prisons but also for mitigating HIV-HCV transmission risks in the broader community, supporting the need for sustainable, evidence-informed approaches to prison healthcare reform.

Keywords: Harm reduction, Drug use, Prisons, HIV/HCV prevention

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Background

People in prison and other closed settings are more likely to have used drugs at some point in their lives or to suffer from drug-related problems. According to the United Nations, around 50% of people in prison inject drugs [1]. Injecting drug use is associated with a higher risk of acquiring and transmitting Human Immunodeficiency Virus (HIV) and Hepatitis C virus (HCV) [2,3]. This is particularly true when needles, syringes or injecting equipment are shared [4]. The transmission of HIV and HCV through injecting drug use is a significant issue in prisons. HIV prevalence among prisoners varies by continent, from 6% in Africa to 3% in Asia and 5% in Europe [5]. Women make up 5-10% of the world's prison population, and HIV prevalence rates are often higher (double or more) among women than men, due to multiple layers of vulnerabilities, including stigmatization and gender-based violence [6].

Barriers to effective prevention, testing and treatment services in prison include criminalising, punishing and stigmatising people who use drugs, leading to violence, human rights abuses, and discrimination [7,8]. Stigma and discrimination may result in denial of care, poor quality of care, physical or verbal abuse, involuntary disclosure of HIV status and breaches of confidentiality [8]. Thus, stigma and discrimination make people who inject drugs (PWID), especially those from rural communities, less likely to be reached by mainstream or outreach services [9]. Nevertheless, funding for harm reduction remains a major challenge in many countries, particularly low- and middle-income countries. Only 6% of the funding needed to support harm reduction initiatives is secured in these countries [10]. Stigmatisation and lack of funding mutually strengthen each other [11]. Additional barriers such as lack of political will or drug criminalization prevent harm reduction programmes from starting or expanding in prisons [2,7]. Only four countries have implemented NSP in the EU [12]. However, implementation and coverage continue to be an issue due to underfunding, political resistance, sustainability plan, implementation gaps and weak multi-stakeholder engagement in drug-related matters [13].

In this frame, harm reduction services become a crucial tool to address the risk of HIV and HCV transmission through injecting drug use, reducing the negative health, social and legal consequences associated with drug use [14,15]. Harm reduction covers a wide range of services, including needle and syringe programmes (NSP), opioid substitution treatment (OST), naloxone provision, opioid overdose reversal and access to prevention, treatment, and care for sexually transmitted infections, including HIV and HCV [9,16]. There is clear evidence that providing harm reduction services to PWID leads to a considerable decrease in new HIV diagnoses. Responding to injecting drug transmission in prisons can improve the health of both prisoners and the community to which they return, with benefits society [15]. Additionally, addressing injecting drug use could contribute to achieving the World Health Organization (WHO) target of eliminating HCV and HIV by 2030, as well as the United Nations Sustainable Development Goal 3.3, which aims to end AIDS by 2030 [14,17].

Rationale

Romania's prison population consists of 23,549 prisoners and faces significant public health challenges regarding HIV and HCV transmissions among PWID [18]. Romania used to have significant harm reduction measures in prisons, but these measures have disappeared due to stigmatization, underfunding and low government support [19]. In 2010, the Global Fund support ceased and the impact of this resulted in higher numbers of new cases of HIV-HCV amongst prisoners in Romania [20]. In 2010, there were 76 prisoners living with HIV, and this number rose to 321 in 2013 [21].The number of syringes provided in prisons went from 18383 in 2010, to 3000 in 2012 [21]. Recent data show that the prevalence rate of prisoners with HIV and/or HCV infections is higher than the prevalence rates of the general population [22]. For instance, 3,22% of the general population had positive HIV tests compared to 56.7% of prisoners in the research by Sultana et al. (2024) Funding for harm reduction in Romania is limited, making it more difficult to provide crucial harm reduction services such as NSP and OST to PWID [23]. This is partially because the country is classified as an upper-middle-income country by the World Bank [24]. Notable international donors no longer fund harm reduction services in Romania, including the Global Fund which deemed Romania ineligible for an HIV grant in 2021[13]. All these factors contribute to the cycle of health inequities within Romania's prison system, disproportionately affecting PWID.

Needle and syringe programmes in Romania are scarce and not available in prisons [21]. According to Shaw (2022), only 75 sterile needles were given to each person who uses drugs in Romania in 2016, whereas the advised number of sterile needles per drug user per year is 200 [5]. OST remains available in under half of the prisons, and approximately 10% of opioid users in Romania receive OST [15,19]. This low number further leads to more HIV and HCV cases, which then puts more pressure on Romania's already struggling healthcare system and further presents the urgent need for a policy reform, as well as a leading political commitment across stakeholders—including, but not limiting to, Ministry of Health, NGOs, and international donors [25].

Privacy and confidentiality concerns persist within the Romanian prison system [26]. There is a significant stigma on drug use, HIV, and HCV in Romania, hence, disclosure of HIV or HCV status can lead to discrimination, derogatory treatment, and other issues, which deters individuals from seeking medical aid [27,28]. This issue underlines another failure in ensuring the health of individuals in prisons and other closed settings, many of whom already face vulnerabilities due to substance use, HIV or HCV status. Yet there is not a clear consensus on how to improve the current situation for PWID in prisons in Romania. Some literature suggests enforcing mandatory testing when inmates first enter the prison [29]. Micro-elimination projects requiring HCV screening before the onset of symptoms can decrease HCV transmission rates. [29]. However, other scholars suggest safekeeping the confidentiality of HIV, HCV, and drug use status is important, and that mandatory testing violates ethics and rights [30,31]. The Romanian government has a history of not being in favour of expanding harm reduction

services, in contrast to the multiple NGOs and the European Union emphasising the need for more harm reduction services in Romania [5,18,32]. These conflicting views highlight the need for a clear and transparent policy on PWID in prisons in Romania, better data collection and the creation of evidence-informed guidelines. This policy brief aims to outline strategies for reducing the HIV and HCV transmission rates in prisons in Romania through harm reduction services.

Proposed Policy Options

To effectively address HIV and HCV transmission among PWID in prison settings, it is essential to integrate and adapt existing policy frameworks to fit the unique challenges of people who inject drugs in prisons and other closed settings. Figure 1 shows the intersection of policy approaches aimed at reducing harm, addressing the healthcare needs of people who inject drugs, and preventing HIV/HCV transmission through harm reduction. The overlap indicates how the interventions are synthesized based on the target population, and the specific prison context.

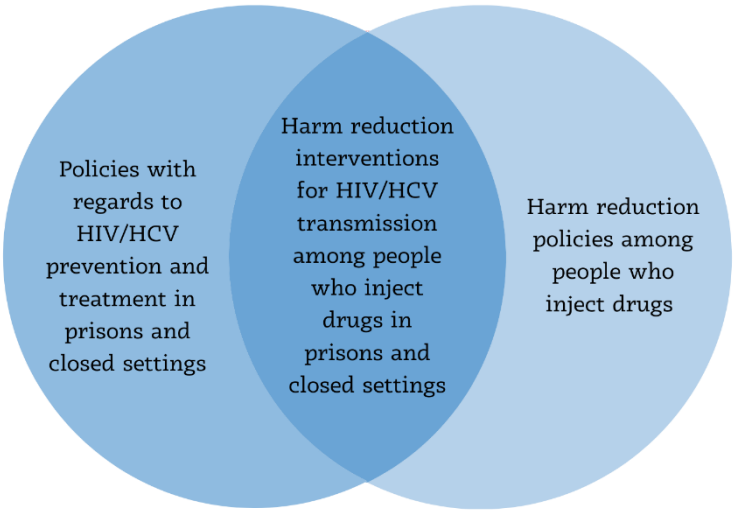

Figure 1. *Representation of the types of policies aimed to support HIV/HCV prevention and treatment among PWID in prison settings*

The policy options addressing the scope of this brief, its target population, and the specific prison context require a synthesized approach for effective intervention. Table 1 below presents a classification of existing policies for prison settings and beyond (continuity of care post-release), highlighting how various sets of interventions were systematically compiled and categorized.

Table 1. *Classification of existing policies, highlighting how various sets of interventions were systematically compiled and categorized.*

Classification Type	Categories
Policy Orientation	Harm Reduction Prevention Health Promotion Rehabilitation Surveillance and Monitoring
Target Population	People who inject drugs (PWID) Prison Population Released Individuals (Transition to Community)
Effectiveness	Proven Effectiveness (Strong Evidence) Emerging Practices (Moderate Evidence) Innovative Approaches (Limited Evidence)
Priority Levels (Considering effectiveness and applicability)	Low Medium High
Intervention Level	Social Structural Individual

This policy brief outlines three scopes of intervention—structural, health-focused, and expansive health interventions—designed to create a comprehensive response to this public health challenge, based on existing frameworks from WHO, Global Fund, EUDA and best practice examples from Spain and Australia. While these levels of intervention are distinct in their scope, they are no siloed; their overlapping components complement and strengthen one another, creating a holistic approach.

Structural Interventions

Structural interventions form the foundation of a supportive environment for harm reduction and healthcare access in prison settings. These measures focus on eliminating systemic barriers and creating equitable conditions for people in prisons [33]. For instance, reforming punitive laws and policies that stigmatize drug use and marginalize PWID is essential for reducing discrimination and promoting healthcare engagement. Addressing stigma and discrimination is particularly important, as these factors deter individuals from seeking help, thereby perpetuating health risks and social exclusion [34].

Investments in prison infrastructure, healthcare capacity, and data collection are key to implementing evidence-based harm reduction strategies [33]. Empowering communities—both within and outside prison settings—ensures the inclusion of affected voices in policymaking [34]. Tackling violence within prisons also creates safer environments, enabling healthcare providers to deliver services more effectively [35]. These structural interventions are essential for removing barriers to care, establishing trust between people who live in prisons and healthcare systems, and ensuring continuity of care upon release [36].

“Prisons and Other Closed Settings: Priorities for Investment and Increased Impact of

Interventions" by the Global Fund underscores the importance of strategic investments in harm reduction interventions that demonstrate measurable impacts, such as reducing HIV and HCV transmission rates [30,37]. Structural interventions can also include the decriminalization of drug use, and the reorganization of healthcare or harm reduction services offered to PWID, addressing systemic barriers to access. In the Romanian context, pre-exposure prophylaxis (PrEP) approval under sustainable payment mechanisms should also be prioritized within the structural agenda. These interventions aim to promote health by fundamentally altering the structural context in which health outcomes are shaped, ensuring a more equitable and supportive environment for PWID.

Health Interventions for PWID

Health interventions for PWID focus on the immediate health risks faced by people in prisons who inject drugs. These interventions aim to reduce the transmission of bloodborne viruses like HIV and HCV through harm reduction measures such as NSP, OST, and naloxone distribution for overdose prevention [38–40]. Providing access to condoms, lubricants, PrEP, and PEP further minimizes risks associated with unsafe injecting and sexual practices [40,41].

Regular testing and early diagnosis of HIV, HCV, and other sexually transmissible infections (STIs) enable timely treatment and prevent further disease progression. Evidence strongly supports these interventions as effective in reducing harm and improving health outcomes among people who inject drugs in prison [40]. For example, NSP have been proven effective in reducing needle-sharing practices, while OST has been linked to significant reductions in HIV and HCV transmission rates. Together, these interventions form a vital component of any comprehensive harm reduction strategy tailored to PWID and other key populations in prisons [42]. Spain, with its National Strategy on Addictions 2017-2024, represents a best practice model in the EU in terms of health focused interventions for addressing HIV/HCV among PWID and the establishment of the infectious disease monitoring programme has helped understand the immediate and long-term positive outcomes of harm reduction services [43].

Expansive Health Interventions

Expansive health interventions extend the scope of care to address the comprehensive healthcare needs of people in prisons, considering the wider determinants of health. These measures go beyond immediate harm reduction to include mental health support, reproductive health services, and the prevention and treatment of chronic conditions, including mental health care, contraception, and cervical cancer prevention.

Moldova Model, highlighted in the Global Fund Report, exemplifies the potential of the expansive interventions approach. It integrates harm reduction services with mental health care and peer support, fostering collaboration among stakeholders, including prison authorities, healthcare providers, and civil society organizations [44]. Overcoming common barriers such as stigma, political resistance, and funding constraints helps prioritisation of a human rights-based approach that combines public health priorities with sustainable, inclusive policies [14,33].

Expansive health interventions not only improve individual health outcomes but also contribute to societal benefits by fostering healthier communities and reducing recidivism rates [45]. Adopting strategies that are aimed at broader health, prisons can transition to holistic healthcare systems that support people in prisons both during and after their sentences.

Choice of Interventions for Romania

To specifically address health interventions for PWID in prison settings to prevent HIV and HCV transmission, this policy brief emphasizes targeted harm reduction strategies mainly focusing on harm reduction health interventions, due to lack of funding and current institutional capacity in Romania. Either structural or expansive interventions go beyond the scope of this policy brief. Health interventions proposed are assigned priority levels based on their proven effectiveness, relevance to the target population, feasibility within the prison context in Romania, and economic evaluation.

Table 2 presents the most common harm reduction interventions identified as best practices in the literature. From these, four high-priority interventions were selected based on the urgent need for immediate positive health outcomes, given the magnitude of the HIV and HCV transmission problem among PWID in Romanian prisons. The selection reflects the need for cost-effective solutions, considering the severe funding constraints in Romania. The table is organized according to the European Union Drugs Agency (EUDA) “Prison and Drugs in Europe: Current and Future Challenges” and Australian “Strengthening injecting-related harm reduction in prisons” formats [46,47].

Table 2. *Set of health interventions for PWID in prison settings to prevent HIV and HCV transmission, systematically categorized by their objectives, evidence of effectiveness, stakeholders, and assigned priority levels. BBV – blood-borne viruses, HIV – Human Immunodeficiency Virus, HCV – Hepatitis C virus, HBV – Hepatitis B virus, ECDC - European Centre for Disease Prevention and Control, EUDA – European Union Drugs Agency, PWID – People who inject drugs, PrEP - Pre-exposure prophylaxis, PEP - Post-exposure prophylaxis, NGOs – Non-governmental organizations*

Intervention	Harms reduced	Evidence of effectiveness	Stakeholders involved	Priority
Needle Syringe Programmes (NSP)	- Reduced BBV transmission - Lowered injury/diseases caused by injecting (e.g., thrombophlebitis, abscesses) - Reduced needle sharing	There is good evidence for the effectiveness of NSP and OST in reducing risky injecting behaviour and increasing evidence for the effectiveness of OST and NSP in reducing HIV acquisition risk, but the evidence on the effectiveness of NSP and OST for preventing HCV acquisition is still weak [38]. Evidence emerging from various countries that operate at least one prison NSP shows that they are feasible and likely to reduce HIV, HCV, and HBV in prisons just as they do in the community [41,42]. Feasibility in prisons has been demonstrated but requires stakeholder commitment and proper monitoring and is able to prevent injecting-related injuries and disease and thrombophlebitis [43]. However, more data is needed to incorporate coverage and delivery strategies [40].	Prison authorities Healthcare providers Policymakers NGOs	**High Priority**
Naloxone Provision	- Prevented opioid overdose deaths, particularly post-release	Bird et al. in their pre-post evaluation of a national policy found that brief training and standardised naloxone distribution to individuals at risk of opioid overdose in prison effectively reduced opioid-related deaths within the first four weeks post-release by 36% (from 9.8% of 193/1,970 in 2006–2010 to 6.3% of 76/1,212 in 2011–2013) [39]. Take-home naloxone programmes have the potential to reduce overdose deaths both in prison context, and in the high-risk period following release from prison [44,45]. A randomised controlled trial (RCT) demonstrated that providing take-home emergency naloxone before prison release can be a life-saving intervention to prevent heroin overdose deaths among both ex-prisoners and the broader population [45].	Healthcare providers NGOs Prison authorities People who inject drugs	**High Priority**
Opioid Substitution Treatment (OST)	- Reduced BBV transmission - Lower mortality rates post incarceration - Improved prison safety - Lowered injury/diseases caused by injecting - Reduced use of drugs	OST is associated with a reduction in the risk of HCV acquisition up to 50%, which is strengthened in studies that assess the combination of OST and NSP [38]. Receiving OST in prison reduced the risk of death in prison, whereas receiving OST in the first 4 weeks following release reduced risk of death in the community [40]. Overall, OST can reduce needle sharing and other HIV risk behaviours, drug use and death, but further research is needed as sample sizes and bias reduced the reliability of such findings and alignment with previous studies [40,46–49].	Public health agencies Prison authorities NGOs Advocacy Groups	**High Priority**
HIV-HCV testing	- Reduced HIV-HCV	A systematic review by ECDC and EUDA highlights the high effectiveness of HCV and	Prison staff nurses	**High Priority**

and treatment	transmissions - Early detection and treatment - Prevented deterioration of the health status - Continuity of treatment	HIV treatment in prisons for reducing virus transmission, with Direct Acting Antivirals (DAAs) recommended for HCV and antiretroviral therapy for HIV[50]. However, achieving complete control of BBV requires prioritizing preventive measures alongside treatment. Testing and screening for HIV, regarded by EUDA as a key intervention to address drug injection in prisons, is identified as the "most effective approach" when conducted voluntarily and with confidentiality. BBV testing not only facilitates the development of targeted health strategies for PWID who have just started treatment but also ensures the continuity of treatment for individuals transitioning from community care to incarceration. Such measures are critical for implementing comprehensive primary and secondary healthcare interventions in prison settings [48,49].	Doctors	
Health promotion and peer education of BBV testing	- Increased awareness of harm reduction - Increased uptake of blood-borne virus testing in prison - Reduced risky injecting practices - Enhanced engagement in health services - Psychosocial support	Health promotion, peer education (for both prisoners and staff) on blood-borne virus testing were found in a systematic review by ECDC and EUDA to be effective in increasing uptake of blood-borne virus testing in prison [49,51]. Extensive research indicates that prison education programmes are more effective in reducing risky behaviours when developed and delivered by peers, as peer educators are seen as more credible and trustworthy sources of information by people in prisons [52]. Peer support programmes and peer workers also offer emotional support and practical guidance, potentially encouraging participation in BBV testing [53]. An observational study showed that Peer-supported screening is an effective active HCV case-finding model to find and link prisoners with untreated active HCV infection to HCV care [54].	Peer educators Prison staff NGOs	**Medium Priority**
Provision of Pre-exposure Prophylaxis (PrEP) and post-exposure prophylaxis (PEP)	- Reduced BBV transmissions	In its technical brief, The Global Fund highlighted PrEP/PEP administration as one of the efficient HIV prevention methods [37]. WHO suggested this administration to be provided on a daily basis in the form of medication taken orally [55]. It has been further shown that PrEP does not interfere with other interventions such as NSP or OST and these can therefore be provided simultaneously. In fact, such synergy of methods is highly supported to achieve the most desirable results [37].	Healthcare providers Public health agencies Prison healthcare units	**Medium Priority**
Condoms and lubricants	- Reduced BBV transmissions - Reduced risky sexual practices	Even though not directly related to the reduction of harm caused by drug use, distribution of condoms and lubricants in prison is surely a relevant HIV prevention technique too [62].When easily accessible to the prisoners, condoms and lubricants reduce the occurrence of risky sexual behaviour and thus promote safe sex [57]. To counteract some general concerns, no unfavourable effects of condom and lubricant provision were noticed in prisons where this was implemented, including no rise in the amount of sex, be it consensual or forced, nor did any other safety issues [37].	Prison staff Public health agencies NGOs	**Medium Priority**
Overdose prevention sites	- Prevented overdose - Reduced BBV transmissions - Lowered injury/diseases	The aim of overdose prevention sites is to offer a safe space in which one can inject drugs under the supervision as to avert overdosing and get in contact with health professionals. While there is currently a lack of research on the effectiveness of the presence of these sites in closed settings, results from community-based studies do indeed show lower risks	Prison authorities Prison healthcare units Healthcare providers	**Low Priority**

	caused by injecting - Psychosocial support - Linkage to care	of overdosing as well as better access to help and care within these facilities [50]. Additionally, it did not reinforce criminality nor cause further public disturbances [58].		
Needle sterilizing agents	- Reduced BBV transmissions - Lowered injury/diseases caused by injecting	The effectiveness of needle sterilizing agents such as chlorine/bleach is rather disputed. On one hand, using bleach to sterilize needles and syringes in prisons has been found inefficient due to improper sterilizing techniques utilised by the prisoners who are often time-pressured as to not be caught by the staff. Further, it can give people a false impression of safety, even if the needles were not properly sterilized [59]. On the other hand, however, when used correctly, bleach has been identified as a sufficient sterilizing agent against HIV and HCV [50]. Therefore, the general consensus is to provide needle sterilizing agents when no other prevention option is available, or as an addition to for instance NSP.	Prison staff Public health agencies NGOs	**Low Priority**

Policy Options: A Critical Analysis of Applicability in the Romanian Prison Context

Romania's prison population is disproportionately affected by HIV and HCV, with PWID at significantly higher risk due to systemic underfunding, stigmatization, and inadequate healthcare infrastructure. Despite international evidence supporting harm reduction strategies, implementation in Romania remains inconsistent and limited due to scarcity of funding. This brief emphasizes targeted harm reduction strategies that focus mainly on the scope of health interventions, based on existing literature of best practices on Harm Reduction and case studies from Spain and Australia [46,64]. The purposed health interventions are prioritized based on their proven effectiveness, relevance to the target population, feasibility within the prison context in Romania, and economic evaluation while addressing potential barriers and proposing mitigation strategies. This section outlines four priority interventions tailored to the Romania's context: OST, NSP, naloxone provision, and HIV-HCV testing and treatment. We suggest implementing these interventions gradually, in the prisons that previously benefited from harm reduction strategies, and over time scaling them up across all prisons and other closed settings in Romania.

Opioid Substitution Therapy (OST)

As discussed in Table 2, OST reduces opioid dependency, withdrawal symptoms, and needle-sharing, significantly lowering the risk of HIV and HCV transmission [38]. Although Romania provides OST in prisons, access is limited to individuals already receiving treatment before incarceration [6,19]. This excludes a large segment of opioid-dependent prisoners, perpetuating health risks and illicit drug use. Expanding OST could reduce violence and improve overall safety by stabilizing opioid-dependent individuals. However, barriers such as stigma, insufficient funding, and limited healthcare capacity hinder expansion. Integrating OST into standard prison healthcare, needed additional funding for staff training, adequate medication and broadening eligibility criteria are essential [40]. Research indicates that post-release OST significantly reduces mortality rates and has a 96.7% likelihood of being cost-effective per life-year saved, based on a willingness-to-pay threshold of $500 [65,66].

Needle and Syringe Programmes (NSP)

NSP are evidence-based interventions proven to reduce HIV-HCV transmission among PWID without increasing drug use or compromising security [38,40,48,49,50]. However, NSP are virtually absent in Romanian prisons due to political resistance, concerns about security, and societal stigma. Their absence is a missed opportunity to address the country's growing HIV and HCV burden. Integrating NSP with OST can amplify effectiveness, reducing HCV transmission by up to 50% [38]. Implementing NSP is highly cost-effective and even cost-saving, with studies showing a return of $4 for every dollar invested [67]. To overcome resistance, Romania should adopt a phased approach, starting with pilot programmes in selected prisons. Using vending machines for syringe distribution, engaging peer educators and involving local NGOs can reduce operational challenges while fostering trust. Awareness campaigns targeting policymakers and prison administrators are critical to dispelling misconceptions and building support for NSP, as well as establishing peer-to-peer community

networks within prisons [68].

Naloxone Provision

Naloxone prevents opioid overdose deaths, especially during the high-risk post-release period. Although data on naloxone provision in Romanian prisons is limited, its proven efficacy in other settings highlights its potential [69]. Barriers include limited awareness among staff and insufficient resources for distribution. Providing naloxone to at-risk individuals upon release could significantly reduce mortality and build trust in healthcare systems [51,52]. In-prison training for staff and inmates on naloxone use can further enhance its impact, promoting harm reduction and preparedness.

HIV-HCV Testing and Treatment

Testing and treatment are foundational to harm reduction in prisons. Romania's 2020 micro-elimination programme, which screened over 12,000 prisoners for HCV, demonstrates the feasibility of large-scale testing initiatives [21]. Early detection enables timely treatment, interrupts transmission, and reduces public health risks upon prisoners' reintegration. Voluntary provider-initiated testing, coupled with strong confidentiality safeguards, increases uptake and trust in the healthcare system. Integrating treatments like direct-acting antivirals (DAAs) for HCV and antiretroviral therapy (ART) for HIV into prison healthcare ensures effective disease management [47]. Barriers include stigma, fear of confidentiality breaches, and inadequate healthcare infrastructure in prisons. Addressing these issues requires robust privacy protocols, stigma-free training for healthcare providers, and targeted funding for infrastructure improvements.

Conclusion

Romania's prison system faces significant challenges in addressing the high prevalence of HIV and HCV among PWID, compounded by systemic underfunding, stigma, and inadequate healthcare infrastructure. This policy brief underscores the urgency of implementing cost-effective, evidence-based harm reduction interventions tailored to the Romanian context. Prioritized strategies include opioid substitution therapy, needle and syringe programmes, naloxone provision, and comprehensive HIV-HCV testing and treatment. By adopting a phased approach, leveraging existing infrastructure, and engaging stakeholders, Romania can enhance healthcare delivery, reduce HIV-HCV transmission rates, and align with international harm reduction recommendations.

References

1. Stöver H, Tarján A, Horváth G, Montanari L. The state of harm reduction in prisons in 30 European countries with a focus on people who inject drugs and infectious diseases. Harm Reduct J [Internet]. 2021 Dec 1 [cited 2024 Dec 2];18(1):1–17. Available from: https://harmreductionjournal.biomedcentral.com/articles/10.1186/s12954-021-00506-3
2. UNODC. Responding to the needs of people who inject drugs in prison [Internet]. [cited 2024 Dec 2]. Available from: https://www.unodc.org/unodc/en/hiv-aids/people-who-inject-drugs-in-prison.html
3. HIV.gov. Substance Use and HIV Risk - HIV.gov [Internet]. [cited 2024 Dec 2]. Available from: https://www.hiv.gov/hiv-basics/hiv-prevention/reducing-risk-from-alcohol-and-drug-use/substance-use-and-hiv-risk
4. CDC. How HIV Spreads [Internet]. [cited 2024 Dec 2]. Available from: https://www.cdc.gov/hiv/causes/?CDC_AAref_Val=https://www.cdc.gov/hiv/risk/drugs/index.html
5. Sayyah M, Rahim F, Kayedani GA, Shirbandi K, Saki-Malehi A. Global View of HIV Prevalence in Prisons: A Systematic Review and Meta-Analysis. Iran J Public Health [Internet]. 2019 Feb 6 [cited 2024 Dec 2];48(2):217. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC6556176/
6. UNODC. HIV infection rates high among imprisoned women [Internet]. 2008 [cited 2025 Mar 20]. Available from: https://www.unodc.org/unodc/en/frontpage/hiv-infection-rates-high-among-imprisoned-women.html
7. Reddon H, Marshall BDL, Milloy MJ. Elimination of HIV transmission through novel and established prevention strategies among people who inject drugs. Lancet HIV [Internet]. 2018 Feb 1 [cited 2024 Dec 2];6(2):e128. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC6599632/
8. Walker SJ, Shrestha LB, Lloyd AR, Dawson O, Sheehan Y, Sheehan J, et al. Barriers and advocacy needs for hepatitis C services in prisons: Informing the prisons hepatitis C advocacy toolkit. International Journal of Drug Policy. 2024 Apr 1;126:104386.
9. HRI. What is Harm Reduction? [Internet]. [cited 2024 Dec 2]. Available from: https://hri.global/what-is-harm-reduction/
10. HRI. The Cost of Complacency: A Harm Reduction Funding Crisis [Internet]. [cited 2024 Dec 2]. Available from: https://hri.global/flagship-research/funding-for-harm-reduction/cost-of-complacency/
11. Rehman M, Chapman L, Liu L, Calvert S, Sukhera J. Structural stigma within inpatient care for people who inject drugs: implications for harm reduction. Harm Reduct J [Internet]. 2024 Dec 1 [cited 2024 Dec 2];21(1):1–10. Available from: https://harmreductionjournal.biomedcentral.com/articles/10.1186/s12954-024-00971-6
12. Moazen B, Dolan K, Saeedi Moghaddam S, Lotfizadeh M, Duke K, Neuhann F, et al. Availability, Accessibility, and Coverage of Needle and Syringe Programs in Prisons in the European Union. Epidemiol Rev [Internet]. 2020 [cited 2024 Dec 2];42(1):19–26. Available from: https://pubmed.ncbi.nlm.nih.gov/32914179/
13. Shaw G. The impact of transition from Global Fund support to Governmental Funding on the

sustainability of harm reduction programmes: A case study from Romania [Internet]. 2016. Available from: https://icaso.org/wp-content/uploads/2016/10/Romania-case-study.pdf
14. WHO. Global Hepatitis Report [Internet]. 2017 [cited 2024 Dec 2]. Available from: https://iris.who.int/bitstream/handle/10665/255016/9789?sequence=1
15. EMCDDA. Prisons and drugs: health and social responses [Internet]. 2022 [cited 2024 Dec 2]. Available from: https://www.euda.europa.eu/publications/mini-guides/prisons-and-drugs-health-and-social-responses_en
16. IAS. Harm Reduction & HIV [Internet]. [cited 2024 Dec 2]. Available from: https://www.iasociety.org/harm-reduction
17. ECDC. Evidence Brief: Progress towards reaching the Sustainable Development Goals related to HIV in the European Union and European Economic Area. 2024 [cited 2024 Dec 2]; Available from: https://www.ecdc.europa.eu/en/publications-data/evidence-brief-progress-towards-reaching-sustainable-development-goals-related-0#:~:text=The%20United%20Nations%20Sustainable%20Development,discrimination%20in%20the%20EU%2FEEA.
18. EHRA. Romania - Eurosian Harm Reduction Association [Internet]. [cited 2024 Dec 2]. Available from: https://harmreductioneurasia.org/drug-policy/criminalization-costs/romania
19. Shaw G. Crisis in Harm Reduction Funding [Internet]. 2022 [cited 2024 Dec 2]. Available from: https://www.correlation-net.org/wp-content/uploads/2022/04/2022-Balkan-SE-policy-report.pdf
20. The Global Fund. The Data Explorer: Grants [Internet]. [cited 2025 Mar 20]. Available from: https://data.theglobalfund.org/grants
21. Liberties EU. Alarming Rise in HIV Cases in Romanian Prisons [Internet]. 2014 [cited 2024 Dec 2]. Available from: https://www.liberties.eu/en/stories/hiv-romanian-prisons/1981
22. Sultana C, Falanga C, Chicin G, Ion L, Grancea C, Chiriac D, et al. HIV, HCV and HIV-HCV Coinfections in the General Population versus Inmates from Romania. Viruses [Internet]. 2024 Aug 1 [cited 2024 Dec 2];16(8):1279. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC11360329/
23. Sicrea CC, Apostu R. HIV-AIDS in Romania, Between Confidentiality and Dicrimination. Revista Universitară de Sociologie [Internet]. 2024;(2):378–88. Available from: https://www.ceeol.com/search/article-detail?id=1283793
24. World Bank. Data for Romania, Upper middle income [Internet]. [cited 2024 Dec 2]. Available from: https://data.worldbank.org/?locations=RO-XT
25. EMCDDA. Balancing access to opioid substitution treatment with preventing the diversion of opioid substitution medications in Europe: challenges and implications [Internet]. 2021. Available from: https://www.emcdda.europa.eu/publications/technical-reports/opioid-substitution-treatment-ost-in-europe-availability-and-diversion_en
26. COE. Report to the Romanian Government on the visit to Romania carried out by the European Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment (CPT) [Internet]. 2022. Available from: https://rm.coe.int/1680a62e4b
27. Lazar F. HIV stigma in Romania – from the generation of nosocomially-infected children to the new generation of injecting drug users. Results from a qualitative study. BMC Infect Dis

[Internet]. 2014 Dec [cited 2024 Dec 2];14(Suppl 7):O5. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC4239558/
28. Schweitzer AM, Dišković A, Krongauz V, Newman J, Tomažič J, Yancheva N. Addressing HIV stigma in healthcare, community, and legislative settings in Central and Eastern Europe. AIDS Res Ther [Internet]. 2023 Dec 1 [cited 2024 Dec 2];20(1):1–8. Available from: https://link.springer.com/articles/10.1186/s12981-023-00585-1
29. BUTARU AE, DOICA IP, GHEONEA DI, ROGOVEANU I, DICULESCU M, OANCEA CN. Preliminary Results of the Micro-Elimination Project of Hepatitis C in a Disadvantaged Town in South-West of Romania-Orşova. Curr Health Sci J [Internet]. 2020 [cited 2024 Dec 2];46(3):217. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC7716757/
30. UNODC. PolPolicy brief: HIV testing and counselling in prisons and other closed settings [Internet]. 2009 [cited 2024 Dec 2]. Available from: https://www.unodc.org/documents/hiv-aids/UNODC_WHO_UNAIDS_2009_Policy_brief_HIV_TC_in_prisons_ebook_ENG.pdf
31. EATG. Access to HCV related services in prison settings in Europe: A community perspective [Internet]. 2018. Available from: https://www.aidsactioneurope.org/sites/default/files/REPORT-Access-to-HCV-related-services-in-prison-settings-in-Europe.pdf
32. Milutin. ARAS alarms on harm reduction crisis in Romania. [cited 2024 Dec 2]; Available from: https://dpnsee.org/2021/06/05/aras-alarms-on-harm-reduction-crisis-in-romania/
33. WHO. The WHO Prison Health Framework :A framework for assessment of prison health system performance. 2021 [cited 2024 Dec 9]; Available from: https://www.drugsandalcohol.ie/35165/1/WHO_prison_framework.pdf
34. Blankenship KM, Friedman SR, Dworkin S, Mantell JE. Structural Interventions: Concepts, Challenges and Opportunities for Research. Journal of Urban Health [Internet]. 2006 Jan [cited 2024 Dec 9];83(1):59. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC1473169/
35. Edgar K. Bullying, victimization and safer prisons. http://dx.doi.org/101177/0264550505058948 [Internet]. 2005 Dec 1 [cited 2024 Dec 9];52(4):390–400. Available from: https://journals.sagepub.com/doi/abs/10.1177/0264550505058948?casa_token=J1weD0Xx82oAAAAA%3ARuQqLMVfyt3xcl2LU6v43Wlh9U7_yynQJU2UT7Q7Nk3_0sLH8QkvVTy6CYn5IPKgCTUzEPIgwg5IrQ
36. Møller L, Stöver H, Jürgens R, Gatherer A, Nikogosian H. Health in prisons: A WHO guide to the essentials in prison health [Internet]. Copenhagen; 2007 [cited 2024 Dec 9]. Available from: https://iris.who.int/bitstream/handle/10665/107829/9789289072809-eng.pdf?sequence=16&isAllowed=y
37. The Global Fund. Prisons and Other Closed Settings: Priorities for Investment and Increased Impact [Internet]. 2022 [cited 2024 Dec 2]. Available from: https://www.theglobalfund.org/media/12471/core_prisons-other-closed-settings_technicalbrief_en.pdf
38. Platt L, Minozzi S, Reed J, Vickerman P, Hagan H, French C, et al. Needle syringe programmes and opioid substitution therapy for preventing hepatitis C transmission in people who inject drugs. Cochrane Database of Systematic Reviews [Internet]. 2017 Sep 18 [cited 2024 Dec 2];2017(9). Available from: https://www-cochranelibrary-

com.mu.idm.oclc.org/cdsr/doi/10.1002/14651858.CD012021.pub2/full
39. Bird SM, Mcauley A, Perry S, Hunter C. Effectiveness of Scotland's National Naloxone Programme for reducing opioid-related deaths: a before (2006-10) versus after (2011-13) comparison. Addiction (Abingdon, England) [Internet]. 2016 May 1 [cited 2024 Dec 2];111(5):883–91. Available from: https://pubmed.ncbi.nlm.nih.gov/26642424/
40. Macdonald C, Macpherson G, Leppan O, Tran LT, Cunningham EB, Hajarizadeh B, et al. Interventions to reduce harms related to drug use among people who experience incarceration: systematic review and meta-analysis. Lancet Public Health [Internet]. 2024 Sep 1 [cited 2024 Dec 2];9(9):e684–99. Available from: http://www.thelancet.com/article/S2468266724001609/fulltext
41. Colledge-Frisby S, Ottaviano S, Webb P, Grebely J, Wheeler A, Cunningham EB, et al. Global coverage of interventions to prevent and manage drug-related harms among people who inject drugs: a systematic review. Lancet Glob Health. 2023 May 1;11(5):e673–83.
42. Levengood TW, Yoon GH, Davoust MJ, Ogden SN, Marshall BDL, Cahill SR, et al. Supervised Injection Facilities as Harm Reduction: A Systematic Review. Am J Prev Med [Internet]. 2021 Nov 1 [cited 2024 Dec 2];61(5):738–49. Available from: https://pubmed.ncbi.nlm.nih.gov/34218964/
43. Fernández Bessa C, Nicolás Lazo G, Viader Sauret G. Improving Prison Conditions by Strengthening Infectious Disease Monitoring Mapping report Catalonia (Spain) [Internet]. Barcelona; 2015 [cited 2024 Dec 9]. Available from: https://www.ub.edu/portal/documents/10080835/10975974/improving_prison_conditions_by_strengthening._catalonia_partner_reports_-_hri_prison_project_cb.pdf/bdf8f7cc-69e0-353b-869c-04c5bd41e67b
44. Open Society Foundation. Harm Reduction in Prison: The Moldova Model [Internet]. [cited 2024 Dec 2]. Available from: https://www.opensocietyfoundations.org/publications/harm-reduction-prison-moldova-model#publications_download
45. Wallace D, Wang X. Does in-prison physical and mental health impact recidivism? SSM Popul Health [Internet]. 2020 Aug 1 [cited 2024 Dec 9];11:100569. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC7113431/
46. EUDA. Prison and drugs in Europe: current and future challenges. 2021 [cited 2024 Dec 2]; Available from: https://www.euda.europa.eu/publications/insights/prison-and-drugs-in-europe_en
47. Harm reduction in Prisons Working Group. Consensus Statement: Strengthening Injecting-Related Harm Reduction in Prisons Harm reduction in Prisons Working Group [Internet]. Sydney; 2023 [cited 2024 Dec 2]. Available from: https://www.unsw.edu.au/content/dam/pdfs/ada/sprc/research-reports/2022-09-uploads/2023-09-strengthening-injecting-related-harm-in-prisons-consensus-statement.pdf
48. Lazarus J V., Safreed-Harmon K, Hetherington KL, Bromberg DJ, Ocampo D, Graf N, et al. Health Outcomes for Clients of Needle and Syringe Programs in Prisons. Epidemiol Rev [Internet]. 2018 Jun 1 [cited 2024 Dec 2];40(1):96–104. Available from: https://dx-doi-org.mu.idm.oclc.org/10.1093/epirev/mxx019
49. Dolan K, Rutter S, Wodak AD. Prison-based syringe exchange programmes: a review of

international research and development. Addiction [Internet]. 2003 Feb 1 [cited 2024 Dec 2];98(2):153–8. Available from: https://onlinelibrary.wiley.com/doi/full/10.1046/j.1360-0443.2003.00309.x
50. Colledge S, Larney S, Bruno R, Gibbs D, Degenhardt L, Yuen WS, et al. Profile and correlates of injecting-related injuries and diseases among people who inject drugs in Australia. Drug Alcohol Depend [Internet]. 2020 Nov 1 [cited 2024 Dec 2];216. Available from: https://pubmed.ncbi.nlm.nih.gov/32916518/
51. Curtis M, Dietze P, Aitken C, Kirwan A, Kinner SA, Butler T, et al. Acceptability of prison-based take-home naloxone programmes among a cohort of incarcerated men with a history of regular injecting drug use. Harm Reduct J [Internet]. 2018 Sep 21 [cited 2024 Dec 2];15(1):48. Available from: https://pmc-ncbi-nlm-nih-gov.mu.idm.oclc.org/articles/PMC6497216/
52. Parmar MKB, Strang J, Choo L, Meade AM, Bird SM. Randomized controlled pilot trial of naloxone-on-release to prevent post-prison opioid overdose deaths. Addiction (Abingdon, England) [Internet]. 2016 Mar 1 [cited 2024 Dec 2];112(3):502. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC5324705/
53. Hedrich D, Alves P, Farrell M, Stöver H, Møller L, Mayet S. The effectiveness of opioid maintenance treatment in prison settings: a systematic review. Addiction [Internet]. 2012 Mar 1 [cited 2024 Dec 2];107(3):501–17. Available from: https://onlinelibrary.wiley.com/doi/full/10.1111/j.1360-0443.2011.03676.x
54. Larney S, Gisev N, Farrell M, Dobbins T, Burns L, Gibson A, et al. Opioid substitution therapy as a strategy to reduce deaths in prison: retrospective cohort study. BMJ Open [Internet]. 2014 [cited 2024 Dec 2];4(4):e004666. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC3987723/
55. ECDC, EMCDDA. Public health guidance on prevention and control of blood-borne viruses in prison settings [Internet]. Stockholm; 2018 [cited 2024 Dec 2]. Available from: https://www.ecdc.europa.eu/en/publications-data/public-health-guidance-prevention-control-bloodborne-viruses-prison-settings
56. ECDC. Systematic review on the prevention and control of blood-borne viruses in prison settings [Internet]. Stockholm; 2018 [cited 2024 Dec 2]. Available from: https://www.ecdc.europa.eu/en/publications-data/systematic-review-prevention-and-control-blood-borne-viruses-prison-settings
57. Moller LF, Van Den Bergh BJ, Karymbaeva S, Esenamanova A, Muratalieva R. Drug use in prisons in Kyrgyzstan: a study about the effect of health promotion among prisoners. Int J Prison Health [Internet]. 2008 Mar 1 [cited 2024 Dec 2];4(3):124–33. Available from: https://pubmed.ncbi.nlm.nih.gov/18698527/
58. Stöver H, Kastelic A. Drug treatment and harm reduction in prisons. In: Enggist S, Møller L, Galea G, Udesen C, editors. Prisons and Health [Internet]. Copenhagen: World Health Organization; 2014. p. 1–189. Available from: https://apps.who.int/iris/bitstream/handle/10665/128603/PrisonandHealth.pdf;jsessionid=9D8EB2F358676D0942F6EA53A5307F94?sequence=1
59. Bagnall AM, South J, Hulme C, Woodall J, Vinall-Collier K, Raine G, et al. A

systematic review of the effectiveness and cost-effectiveness of peer education and peer support in prisons. BMC Public Health [Internet]. 2015 Dec 12 [cited 2024 Dec 2];15(1):290. Available from: https://pmc-ncbi-nlm-nih-gov.mu.idm.oclc.org/articles/PMC4404270/
60. Crowley D, Murtagh R, Cullen W, Keevans M, Laird E, McHugh T, et al. Evaluating peer-supported screening as a hepatitis C case-finding model in prisoners. Harm Reduct J [Internet]. 2019 Jul 5 [cited 2024 Dec 2];16(1):1–10. Available from: https://harmreductionjournal.biomedcentral.com/articles/10.1186/s12954-019-0313-7
61. World Health Organization. WHO implementation tool for pre-exposure prophylaxis (PrEP) of HIV infection Provider module for oral and long-acting PrEP [Internet]. 2024 [cited 2024 Dec 2]. Available from: https://iris.who.int/bitstream/handle/10665/378164/9789240097230-eng.pdf
62. Moazen B, Mauti J, Meireles P, Černíková T, Neuhann F, Jahn A, et al. Principles of condom provision programs in prisons from the standpoint of European prison health experts: a qualitative study. Harm Reduct J [Internet]. 2021 Dec 1 [cited 2024 Dec 2];18(1):1–8. Available from: https://harmreductionjournal.biomedcentral.com/articles/10.1186/s12954-021-00462-y
63. United Nations Office on Drugs and Crime. UNODC-Handbook for starting needle exchange [Internet]. 2011 [cited 2024 Dec 2]. Available from: https://www.unodc.org/documents/hiv-aids/publications/Prisons_and_other_closed_settings/ADV_COPY_NSP_PRISON_AUG_2014.pdf
64. EUDA. European Drug Report 2023: Trends and Developments [Internet]. 2023 [cited 2024 Dec 2]. Available from: https://www.euda.europa.eu/publications/european-drug-report/2023_en
65. HRI. Making the investment case: Cost-effectiveness evidence for harm reduction [Internet]. 2021 [cited 2024 Dec 2]. Available from: https://www.hri.global/files/2021/12/01/HRI-BRIEFING-APRIL-2020-NOV21-LOWRES.PDF
66. Gisev N, Shanahan M, Weatherburn DJ, Mattick RP, Larney S, Burns L, et al. A cost-effectiveness analysis of opioid substitution therapy upon prison release in reducing mortality among people with a history of opioid dependence. Addiction (Abingdon, England) [Internet]. 2015 Dec 1 [cited 2024 Dec 2];110(12):1975–84. Available from: https://pubmed.ncbi.nlm.nih.gov/26212260/
67. Coffin PO, Sullivan SD. Cost-effectiveness of distributing naloxone to heroin users for lay overdose reversal. Ann Intern Med. 2013 Jan 1;158(1):1–9.
68. Sander G, Shirley-Beavan S, Stone K. The Global State of Harm Reduction in Prisons. Journal of Correctional Health Care [Internet]. 2019 Apr 1 [cited 2024 Dec 2];25(2):105–20. Available from: https://www-liebertpub-com.mu.idm.oclc.org/doi/10.1177/1078345819837909
69. Danroth R. On pins and needles: More support for prison needle exchanges. BC Medical Journal. 2018;60(2):121–3.