Pharmacist-led harm reduction outreach for veterans who inject drugs: A quality improvement evaluation

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Abstract

Introduction: Injection drug use (IDU) increases risk for preventable infections and drug overdose. Within the Veterans Health Administration, dedicated syringe services programs (SSP) aim to reduce these harms; however, identifying and engaging Veterans with recent IDU remains challenging. This quality improvement (QI) project evaluated a clinical pharmacist practitioner (CPP)-led outreach model designed to increase SSP engagement and harm reduction resource access among Veterans with IDU receiving care at a single Veterans Affairs (VA) Health Care System.

Methods: This was a prospective single-arm cohort QI project completed July 2024-April 2025. Veterans with past-year IDU were identified via the national VA Syringe Service Program Dashboard and verified via retrospective chart review. A CPP-led team contacted Veterans by phone and in-person outreach, offered education, and provided harm reduction resources. The primary outcome was engagement with outreach; secondary outcomes included acceptance of infection screening, antimicrobial treatment/prophylaxis, and supplies for safer injection, infection prevention, safer sex, and overdose prevention. Descriptive statistics were used to evaluate results.

Results: Veterans (n=53) were age 57.6 ± 12.3 years, primarily assigned male at birth (n=51, 96.2%), unknown gender identity (n=32, 60.4%), White/Caucasian (n=27, 50.9%), and straight/heterosexual (n=31, 58.5%). Fourteen (26.4%) engaged with the CPP-led outreach. Among those, most (n=13, 92.9%) accepted ≥ 1 resource: supplies for overdose prevention (n=11, 78.6%), infection prevention (n=10, 71.4%), safer injection (n=9, 64.3%), and safer sex (n=4, 28.6%), plus infection screening (n=6, 42.9%) and hepatitis B virus vaccine (n=1, 7.1%). None accepted HIV pre-exposure prophylaxis. Among the remaining Veterans, 21 (39.6%) were not reached, 15 (28.3%) declined, and 3 (5.7%) were deceased.

Conclusion: Approximately one in four Veterans with past-year IDU engaged with the CPP-led team. Outreach resulted in new linkages to resources that reduce infection and overdose risk. These findings highlight the potential value of low barrier, dashboard-driven harm reduction outreach, and further evaluation is warranted.

Keywords: veterans; harm reduction; substance use

Introduction

Injection drug use (IDU) increases the risk of preventable infections, including human immunodeficiency virus (HIV), hepatitis C virus (HCV), and skin and soft tissue infections.[1] IDU is also linked to low rates of condom use during vaginal sex and increased prevalence of sexually transmitted infections (STIs), including chlamydia, gonorrhea, syphilis, and genital herpes.[2-5] Evidence-based strategies, such as sterile syringes, condoms, HIV pre-exposure prophylaxis (PrEP), and doxycycline post-exposure prophylaxis (DoxyPEP), can reduce risk.[6-8]

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However, significant patient-, provider-, and system-level barriers persist. These include stigma, structural inequities, limited access to transportation or low-cost services, and provider discomfort, lack of training, or experience in harm reduction care.[7-10]

Historically, the United States (U.S.) Department of Veterans Affairs (VA) lacked a standardized approach to identifying Veterans with recent IDU. In response to this gap, the national VA Syringe Service Program (SSP) Dashboard was developed to improve care coordination and outreach.[11] The dashboard integrates data from natural language processing of electronic medical records (EMR) and national data sets to 1) identify Veterans with past-year IDU, 2) summarize relevant clinical information (e.g., infection diagnoses, urine drug screen results, prescriptions for harm reduction supplies, including sterile syringes), and 3) facilitate targeted outreach.[11]

This quality improvement (QI) project aimed to leverage the national VA SSP Dashboard to proactively identify Veterans with past-year IDU at a single VA health care system and offer them evidence-based harm reduction services. These include

infection screening, treatment, and prophylaxis; safer injection and infection prevention supplies; safer sex supplies; and overdose prevention resources.

Methods

Setting

This QI project was conducted at the San Francisco Veterans Affairs Health Care System (SFVAHCS), which serves more than 310,000 U.S. Veterans at the San Francisco VA Medical Center and nine community-based outpatient clinics located in downtown San Francisco, Oakland, San Bruno, Santa Rosa, Ukiah, Clearlake, and Eureka, California. The project was implemented by the SFVAHCS Harm Reduction and SSP, a clinical pharmacist practitioner (CPP)-led program which aims to end drug-related stigma and discrimination in health care, prevent the spread of drug-related infections and overdose deaths, and increase connections to services. The program provides infection testing, antimicrobial treatment and prophylaxis, and access to essential harm reduction supplies to mitigate IDU-related health risks. CPPs are well-positioned to lead these harm reduction efforts due to their expertise in medication management, infection prevention, and patient education.[12,13] Their accessibility within healthcare systems, combined with their ability to build trust through nonjudgmental, patient-centered communication, allows CPPs to effectively engage Veterans in conversations about safer use practices, preventive screenings, and resource navigation.[12,13]

Design

A prospective, single-arm cohort QI intervention was completed July 2024 to April 2025. Team members included a CPP, post-graduate year-1 pharmacy practice resident, and psychiatric nurse practitioner (NP). The Revised Standards for Quality Improvement Reporting Excellence (SQUIRE 2.0) were used in project planning and results reporting.[14]

Participants

Veterans were identified via national VA SSP Dashboard, engaged in care with the SFVAHCS, and had IDU documented in the past year (confirmed via retrospective EMR review). Veterans with no documented IDU in the past year or deceased were excluded (n=252).

Outcome Measures

The primary outcome was the number of Veterans who accepted ≥ 1 harm reduction resource. Secondary outcomes evaluated the number of Veterans who accept ≥ 1 type of 1) infection screening, 2) antimicrobial treatment/prophylaxis, 3) safer injection supplies, 4) infection prevention supplies, 5) safer sex supplies, and 6) overdose prevention supplies.

Intervention, Data Collection, and Data Analysis

During planning (July to August 2024), this project was approved as non-research QI project (VA Office of Research and Development Electronic Determination Aid algorithm), and CPP and NP team members validated dashboard data. During development (September to October 2024), a telephone script (Supplemental File 1) and standardized data collection form were developed (Microsoft Excel version 2504). A pre-existing Harm Reduction Program note template was also used to document Veteran engagement in the EMR. Team members collected baseline characteristics via retrospective EMR review: age, race, ethnicity, birth sex, self-identified gender identity, sexual orientation, percent service connection, and past diagnoses (opioid use disorder, stimulant use disorder, alcohol use disorder, HIV, HCV).

Table 1. Harm Reduction Resources Offered to Veterans

Infection Screening and Treatment Linkage	• HIV • HBV • HCV • Chlamydia and gonorrhea • Syphilis
Antimicrobial Prophylaxis	• HBV vaccine • HIV PrEP* DoxyPEP*
Safer Injection Supplies	• Safer injection kits (syringes, sharps containers, alcohol swabs, cottons) • Sterile syringes • Sharps containers
Infection Prevention Supplies	• Alcohol pads • Bandages • Antibiotic ointment • Sterile saline and water • Gauze and tape • Gloves
Safer Sex Supplies	• Condoms • Lubricant • Vaginal contraceptive gel and moisturizer
Overdose Prevention Supplies	• Intranasal naloxone 4mg • Fentanyl test strips • Harm reduction vending machine access

*Education and prescription offered

Abbreviations: HIV, human immunodeficiency virus; HBV, hepatitis B virus; HCV, hepatitis C virus; PrEP, pre-exposure prophylaxis; DoxyPEP, doxycycline post-exposure prophylaxis.

During implementation (November 2024 to April 2025), team members completed initial outreach by phone (up to 3 attempts; if no contact, letter and program pamphlet mailed) and/or in-person in supportive housing settings (where the CCP has a current clinical practice). Visits were completed one-on-one with the Veteran and clinician. Veterans were offered harm reduction resources (Table 1) and ongoing monthly check-ins via phone or in-person outreach. Outcome data were prospectively collected. During evaluation (April 2025),

descriptive statistics were used to evaluate results (Microsoft Excel version 2504).

Results

Demographics

As shown in Table 2, Veterans (n=53) were a mean age of 57.6 ± 12.3 years, primarily assigned male at birth (n=51, 96.2%), with gender identity not documented (n=32, 60.4%), white (n=27, 50.9%), straight/heterosexual (n=31, 58.5%), and had a mean percent service connection of 41.9% ± 43.3%. Stimulant, opioid, and alcohol use disorders were common, at nearly 83%, nearly 58%, and just over 44%, respectively. More than 61% of Veterans were diagnosed with HCV and over 17% with HIV. Notably, most Veterans had prior interactions with the SSP (n=40, 75.5%), with 31 (58.5%) having had interactions within the past year.

Table 2. Demographics of Included Veterans (n=53)

Demographics		**No. (%)**
Age, mean ± SD		57.6 ± 12.3
Sex assigned at birth	Male	51 (96.2)
	Female	2 (3.8)
Gender identity	Man	18 (34.0)
	Transgender woman	2 (3.8)
	Gender-fluid	1 (1.9)
	Unknown/not documented	32 (60.4)
Race/ethnicity	White	27 (50.9)
	Multiple race/ethnicity	9 (17.0)
	Black or African American	7 (13.2)
	Hispanic/Latino	2 (3.8)
	Unknown/not documented	8 (15.1)
Sexual orientation	Straight/heterosexual	31 (58.5)
	Lesbian/gay	5 (9.4)
	Bisexual	4 (7.5)
	Pansexual	1 (1.9)
	Unknown/not documented	12 (22.6)
*Percent service connection, mean ± SD		41.9 ± 43.3
Substance use disorder diagnoses	Stimulant use disorder	43 (82.7)
	Opioid use disorder	30 (57.7)
	Alcohol use disorder	23 (44.2)
Infection diagnoses	HCV	32 (61.5)
	HIV	9 (17.3)

*Medical conditions or disabilities caused by or worsened during a Veteran's military service.

Abbreviations: HCV, hepatitis C virus; HIV, human immunodeficiency virus.

Outcomes

As shown in Figure 1, 14 Veterans (26.4%) engaged with the CPP-led outreach at least once; three 3 (5.7%) engaged for the first time. Veterans completed an average of 2.4 ± 1.5 visits (range of 1 – 6). Most (n=13, 92.9%) accepted ≥ 1 resource, with the most common being harm reduction supplies for overdose prevention (n=11, 78.6%), infection prevention (n=10, 71.4%), and safer injection (n=9, 64.3%). Among the remaining Veterans, 21 (39.6%) were not reached, 15 (28.3%) declined, and 3 (5.7%) were deceased at the time of planned outreach (cause of death not documented, n=2; drug overdose death, n=1).

Figure 1. Engagement with CPP-Led Harm Reduction Outreach Among Veterans with Past-Year IDU (n=53)

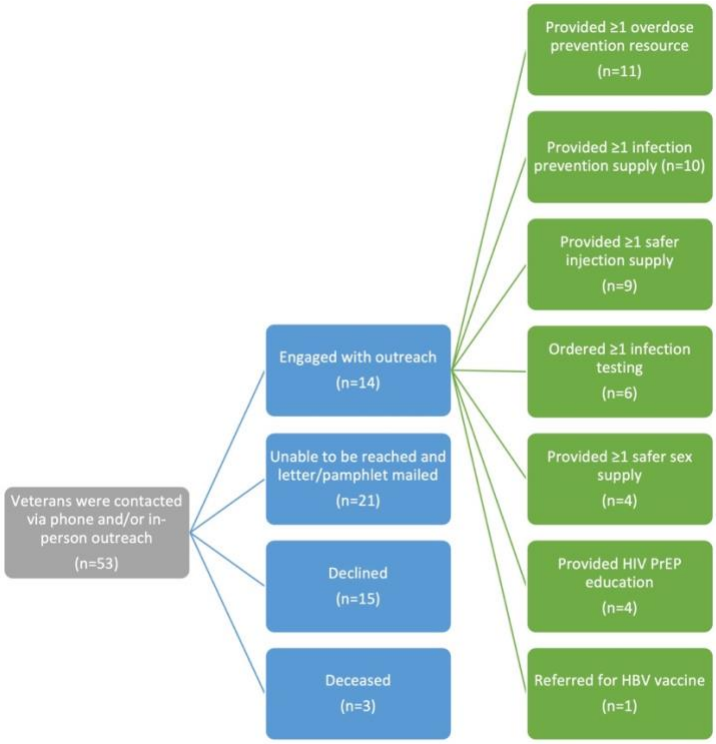

Figure Legend: Figure 1 illustrates the outcomes of CPP-led harm reduction outreach to Veterans with past-year IDU. Veterans who engaged with the team were provided resources for overdose prevention, infection prevention, safer injection, infection testing, safer sex, education on HIV PrEP, and linkage to HBV vaccine. Abbreviations: HIV PrEP, (human immunodeficiency virus pre-exposure prophylaxis); HBV, (hepatitis B virus); CPP, clinical pharmacist practitioner; IDU, injection drug use.

Discussion

This QI project demonstrated that direct outreach via phone and in-person visits can successfully engage Veterans with past-year IDU, including those not previously connected to services. Approximately one in four Veterans in this quality improvement project completed a CPP-led visit and accepted a harm reduction resource. Many who engaged continued monthly follow-up, suggesting sustained interest and value in the services provided. The most frequently accepted supplies included naloxone, safer injection equipment, and infection

prevention tools, which are critical to preventing drug-related harm, including overdose and infectious disease transmission.

Despite education and resource availability, no Veterans initiated HIV PrEP or DoxyPEP. Potential barriers include stigma, mistrust, low perceived risk, concerns about side effects, limited awareness of benefits or structural obstacles such as cost, access to care and the burden of ongoing monitoring.[15,16]

Interdisciplinary team members, including a CPP, pharmacist resident, and psychiatric NP, effectively delivered one-on-one harm reduction services with Veterans across multiple modalities. Building on our own prior QI initiatives within the SFVAHCS and partner community settings—led by the same CPP—we demonstrated increased engagement with and access to harm reduction resources.[17-20] For example, in past initiatives, CPP- and NP-led in-person outreach in supportive housing increased naloxone availability and overdose education.[17] Collaborative efforts by the CPP, pharmacy trainees, social workers, registered nurses, and a physician expanded Veteran access to harm reduction resources in supportive housing.[18,19] Further, CPP, interdisciplinary trainee, and Harm Reduction Program logistics technician outreach efforts at a community-based organization linked people at risk for or experiencing homelessness with harm reduction resources.[20] These team-led efforts in the same settings informed the present project's design, staffing, and outreach modalities.

While the CPP-led outreach model in this project showed promise, implementation barriers emerged. For example, retrospective validation of dashboard data to identify eligible Veterans was labor-intensive and may not be scalable without access to more automated tools. Consistent with prior QI work, the large proportion of Veterans who were not reached highlights persistent communication barriers, particularly in populations experiencing housing instability or with limited phone access.[19]

One Veteran, upon receiving supplies and support, referred to the team as "Harm Reduction Angels", a powerful reflection of compassion and impact. This expression of gratitude speaks to the human connection built through low-barrier, judgement-free engagement. Incorporating expressions of Veteran gratitude and appreciation for harm reduction programs can help foster trust, reduce stigma, and personalize engagement efforts by highlighting the value and impact these services have had on their peers, thereby enhancing receptivity among Veterans who may be hesitant to engage.

This outreach model may be scalable to other VA and non-VA health systems. Central to its success was the integration of structured data tools (the VA SSP Dashboard), interdisciplinary collaboration, and low-barrier outreach (e.g., phone, in-person, mail). While the VA SSP Dashboard is VA-specific, similar data-driven approaches could be developed or leveraged in other health systems using EMR data, clinical flags, or screening algorithms to identify individuals who may be at risk of drug-related harms. In integrated healthcare systems like the VA, staffing models centered on CPPs and advanced practice providers are flexible and replicable. Key elements for successful scale-up include access to harm reduction supplies, culturally responsive education materials, and healthcare system commitment to trauma-informed, stigma-free care. Embedding such outreach efforts into existing clinical workflows (e.g., substance use disorder treatment, infectious disease, primary care, or housing support programs) may further enhance feasibility and sustainability across diverse settings. Future QI efforts should explore streamlined approaches for identifying eligible Veterans, expand outreach modalities, and incorporate Veteran feedback in future program evaluations and modifications. Collectively, this work highlights how pharmacist-led harm reduction initiatives can bridge critical care gaps for Veterans who use drugs and offers a roadmap for expansion across healthcare systems committed to equity and evidence-based care.

Limitations

Single-site design and modest sample size limit generalizability. We used descriptive statistics without a control group; causal inference is not possible. Nearly 40% of Veterans were unable to be reached via telephone or in-person outreach, which may have impacted the level of interest and uptake of harm reduction services. Challenges with patient contact were often due to disconnected or missing phone numbers, highlighting a structural barrier that may disproportionately impact people with IDU. Additionally, the VA SSP Dashboard may not identify all Veterans with recent IDU, as it relies on natural language processing and EMR documentation. Incomplete, inconsistent, or outdated documentation, as well as human error in manual dashboard validation, may result in missed outreach opportunities or misclassification. Finally, this project did not capture patient-reported outcomes, acceptability, or long-term impacts of resource engagement, which may be important for future evaluation and program sustainability.

Conclusions

Approximately one in four Veterans with recent IDU engaged with the CPP-led SSP team, and many continued monthly phone or in-person outreach. This low-barrier approach helped connect Veterans to vital harm reduction resources, including naloxone, safer injection supplies, and infection prevention materials, despite outreach barriers. While no Veterans initiated HIV PrEP or DoxyPEP, many expressed longstanding awareness of infection risks and strategies to mitigate them, which may have influenced uptake. Although the outreach model required minimal ongoing effort, the initial validation of dashboard data was time intensive. Taken together, dashboard-driven identification and CPP-led

outreach represent a feasible, low-barrier strategy to engage Veterans with recent IDU in evidence-based harm reduction services; future work should evaluate implementation at scale, strategies to improve PrEP uptake, and cost-effectiveness.

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