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Case Report

HIV Prevention and Management Through a Street Medicine Approach: A Case Report on Community-Based Care for Vulnerable Populations

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Introduction

Individuals experiencing homelessness and engaging in sex work are disproportionately affected by Human Immunodeficiency Virus (HIV) and other communicable diseases.

Barriers such as unstable housing, stigma, and limited access to healthcare impede traditional prevention and treatment strategies [1-3]. Street medicine, an innovative, community-based approach, brings healthcare directly to these vulnerable populations, allowing for point-of-care testing, treatment initiation, and follow-up in non-traditional settings [4]. The overarching theme in street medicine to bring healthcare directly to the people in need, at the very spot they reside.

Background

The prevalence of HIV among people experiencing homelessness (PEH) is substantially higher than in the general population. The Centers for Disease Control and Prevention (CDC) reports that homelessness increases risk behaviors associated with HIV acquisition and transmission, such as unprotected sex and substance use, while reducing access to prevention tools and treatment [5]. Stable housing has been shown to be a structural intervention that improves Anti-Retroviral Therapy (ART) adherence and decreases HIV risk behaviors [5,6].

Street medicine models provide a critical framework to address these issues. Such models have demonstrated improved health outcomes through decentralized care delivery, harm reduction, and trust-building among marginalized populations [4,7]. A local Street Medicine Program was developed to address these barriers through on-the-ground, NP-led care, with a focus on HIV prevention and treatment. This case report details the methodology and outcomes data collected through the use of this street medicine team approach.

Methods

A multidisciplinary team was mobilized for street-based outreach. This team consisted of a nurse practitioner (NP), often an NP student, two medical assistants, two community outreach workers that serve dual roles in harm reduction and housing and shelter placement, a program manager, and a remote medical director. Daily outreach was conducted across four to five sites, targeting individuals experiencing homelessness, sex workers, and a disproportionate number of transgender individuals that were either unhoused and/or involved in sex work.

The program's core interventions included point-of-care HIV testing, followed by same-day antigen/antibody serum confirmation for positive results. For patients who tested positive, ART was initiated promptly, typically using Biktarvy or Dovato, unless contraindicated. Pre- exposure prophylaxis (PrEP) was offered to high-risk HIV-negative individuals using Truvada or Descovy, with medication delivered by the street team to ensure continuity and adherence. The team also performed Hepatitis-C Virus (HCV) POC testing with follow-up confirmation if results were positive.

Patients underwent evaluation for potential drug interactions, including those involving rifampin, phenytoin, and metformin. Monitoring for ART side effects—such as fatigue, nausea, insomnia, and gastrointestinal discomfort—was standard, as was vigilance for rare complications like lactic acidosis and immune reconstitution syndrome. This proactive, street medicine care team model emphasized real-time decision-making and individualized patient care and support.

Results

The street medicine team identified a substantial number of new HIV cases among individuals who would not have accessed conventional healthcare. Many of those who

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were found to be HIV positive were initiated immediately on ART and achieved an undetectable viral load within one to three months, validating the effectiveness of prompt, street-based intervention. Consistent, nonjudgmental care that aligned with the patients' lived experiences fostered meaningful engagement and trust.

In terms of HIV prevention, dozens of high-risk individuals were started on PrEP, and follow-up was maintained through persistent community presence. Common challenges included stigma, difficulty adhering to daily medication, and medication loss due to factors like police sweeps or theft. Nevertheless, compliance improved when the street team assumed responsibility for medication delivery and refill management.

The program's expansion to include hepatitis C services also yielded impressive results. Patients testing positive for HCV were provided with confirmatory testing, genotyping, and antiviral therapy—primarily with Epclusa or Mavyret—achieving cure rates exceeding 95% among those who completed treatment.

Despite the success, several barriers persisted. Law enforcement activities disrupted patient access, and transient living conditions complicated follow-up. Mental illness and substance use disorders were common, as was distrust in medical interventions.

Additionally, stigma surrounding ART and PrEP often deterred engagement. Yet, the program's commitment to frequent contact, cultural sensitivity, and visible community presence proved pivotal in overcoming these obstacles and improving health outcomes among marginalized populations.

HIV Street Medicine Program - 1 Year Outcomes Data

Metric / Activity	Outcome / Notes
HIV Rapid Screening Tests	192 tests conducted
Positive HIV Results	14 positive results
Follow-up for Positive Cases	Confirmation labs, referrals, social work, near immediate ART initiation
ART Initiation	All 14 started on ART at point of care (POC); 2 lost to follow-up over 1 year
PrEP	68 individuals placed on PrEP; noted barriers to acceptance
Reach of Program	Population likely not reachable without Street Medicine; likely prevented community spread
Community Response	Increasing requests for street-based HIV testing by the unhoused
Behavioral Change	Population actively seeking prevention care
Trust Development	Trust earned within street and sex worker communities
Sustainability Efforts	Grant applications submitted to support HIV testing and prevention continuation

Conclusion

This case study demonstrates that street medicine is a highly effective model for HIV prevention, detection and management among marginalized populations. The utilization of a primary care provider enables real-time assessment, testing, diagnosis, treatment, as well as longitudinal follow-up in a setting that meets patients where they are—physically and psychologically.

Trust, consistency, and harm reduction are critical components of successful interventions. With increased investment and policy support, this model can be expanded to other regions to combat disparities in HIV care. Additionally this model and evidence could be translated to address other determinates of healthcare that we struggle with locally, regionally, and possibly even worldwide.

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