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Supervised injection facilities and harm prevention in recreational drug users

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Background

Overdose related deaths due to recreational drug use have steadily increased over the past 30 years. The most commonly overdosed drugs are heroin, cocaine, and opioids,¹ with the highest overdose rates reported in polydrug use,² combined use of multiple illicit or prescription drugs. In the US, overdose related deaths due to any recreational drug increased by 5% annually on average since 1979,¹ and in the last decade, overdose related deaths due to illicit drug use were the leading cause of premature death in North America.³ In the United Kingdom between 1974 and 1992 there was a 1186% increase in mortality due to heroin injection alone.¹ It is also worth noting however that in the US during the past decade overdoses due to illicit drugs have plateaued or decreased while overdoses due to prescription medications or recreational opioid use have dramatically increased.¹

Since 2006 there has been a steady increase in opioid prescriptions in the US, reaching a peak level in 2012 and gradually decreasing since then.⁴ Control of opioid medication prescriptions has improved through tighter regulations and increased accountability for prescribers and patient opioid database programs. However, tighter control of opioid prescribing practices and subsequent decrease in the number of opioid prescriptions, was associated with an increase in illicit drug use and opioids acquired from illegal sources.⁴ Although opioid prescriptions have decreased since 2012, overdose deaths due to opioid medications have continued to increase in many US states.¹

Historically, recreational drug users have increased barriers to medical care relative to the average population. Homelessness, psychiatric disorders, poverty, and social marginalization are increased in this population and are associated with decreased access to medical services.⁵ In countries with criminalization of illicit drug use, such as the US, recreational drug users are further deterred from seeking medical care. In addition to decreased access, continuity of care is difficult

in homeless or psychiatric populations and among recreational drug users at risk of relapses. With a lack of access to medical care, and limited continuity of care, it proves difficult to make meaningful progress in rehabilitative or harm prevention treatment programs.⁵ The majority of recreational drug users report being more likely to use emergency department services rather than primary care,⁶ however these services are aimed at stabilization rather than prevention or management of chronic conditions. Additionally, provider survey data suggest that the majority of emergency and primary care providers have little to no training in management of substance abuse.⁶

Another distinct barrier to care is lack of recognition of drug addiction as a medical issue from within the medical community and by the general public. Recreational drug users report feeling a lack of empathy from medical providers and experience judgement when seeking care for conditions related to their drug use.⁷ Despite this sense of judgement, recreational drug use is associated with many life threatening and impairing comorbidities. For example, recreational drug users are at increased risk of blood borne pathogens such as HIV and Hepatitis, injection site reactions and sepsis with possible limb amputations, psychiatric emergencies, symptoms of withdrawal, and respiratory depression or acute overdose.⁵

Supervised Injection Facilities (SIF) are a proposed public health intervention for improving access to medical care, decreasing comorbidities related to drug use and overdose related deaths, as well as changing drug use patterns. SIF are medically staffed clinics where drug users may bring and consume their own illicit drugs. Medical staff are available to intervene and stabilize patients in cases of overdose, but can also instruct patients on safe venous access, provide access to clean needles, give prescriptions for narcan, and provide symptomatic treatment for withdrawal symptoms. Some clinics are also beginning to offer counseling and psychiatric services

as well as providing resources connecting patients to rehabilitation facilities and suboxone and methadone clinics. These clinic models have been implemented in various locations in North America, Europe, and Australia.

Discussion

SIF decrease harm by reducing high risk behaviors and drug use habits. Some high risk drug use behaviors include improper disposal of needles and needle sharing, improper or non-sterile injection technique, using injectable drugs outside or on the street, and using larger doses of drugs or dangerous combinations of multiple drugs. A study examining self-reported drug use habits from drug users utilizing a SIF in Copenhagen in 2013 investigated changes in high risk drug behaviors before and after utilizing the clinic. 76% of drug users at this clinic reported safer habits after utilizing clinic services.⁸

Needle Disposal

Prior to using the SIF, the majority of participants (68%) reported throwing used needles in the garbage or just dropping the needles on the ground. Additionally, 5% report giving their used needles to another drug user. After utilization of the SIF, 86% of users reported turning in used needles to the needle exchange program offered at the clinic, with no participants reporting needle sharing as a primary means of disposal.⁸ This change in behavior decreases risk of accidental needle sticks not only to drug users, but also to surrounding populations and sanitation workers who may otherwise be exposed to improperly disposed needles.

Needle Sharing

In addition to encouraging safe disposal of needles, needle exchange programs also decrease needle sharing and reuse. 54% of Copenhagen SIF users reported no longer sharing needles at all after utilizing clinic services.⁸ In survey data from SIF users across Denmark, 74%

of users report utilization of SIF for better access to clean injectable supplies.⁹ Reduction in needle sharing reduces risk of transmission of blood borne pathogens such as HIV and hepatitis.

Injection Technique

In a survey of users of four different SIF across Denmark, 51% of participants report being educated about safer injection techniques and 98% of users reported that the education was useful. 61% report being instructed on proper injection hygiene and 98% found it to be useful.⁹ Common injection education includes disposing of needles after every skin puncture, use of tourniquets, finding a vein, sterilizing the injection site, and injecting in the direction of the heart. After utilizing services in Copenhagen, 63% of users reported feeling less rushed in injection practices, which is associated with more careful injection and better injection technique. 56% reported being less likely to inject outdoors, and 44% reported cleaning the injection site prior to injecting.⁸ In a qualitative review of data gathered from many SIF across continents, users reported that the environment of the SIF allowed users to feel safer, and reported that these settings were more conducive to practicing safe injection techniques.¹⁰ Increased implementation of safer injection techniques and hygiene can prevent local injection site infections and more serious conditions such as sepsis, necrotizing fasciitis, and cardiac damage due to septic emboli. Safer injection techniques alone can lead to a reduction in comorbidities and preventable deaths.

Overdose

In many cases, drug composition and purity is largely unknown, even when sourced from consistent suppliers. This leads to potentially unpredictable reactions to drug use, making it inherently dangerous to drug users. In survey data from four Danish SIF, 55% of users report using the clinic services to prevent death due to overdose, and 54% report being better prepared to prevent overdose.⁹ Examination of population based overdose rates before and after the opening

of a SIF in Vancouver showed a 35% decrease in overdose related deaths within 500 meters of the SIF and a 9% overall decrease across Vancouver.³ In Sydney, there was a 68% decrease in overdose related ambulance calls during the operational hours of the SIF.⁵ Reduction in overdose related deaths is likely due partially to the ability of providers and nurses to monitor patients for signs of overdose and to provide immediate intervention, for example through administration of naloxone and airway stabilization in heroine or opioid use or administration of nitroglycerine, aspirin, and beta blockers in cocaine or stimulant overdose. At one SIF in Sydney, providers reported 409 overdoses and no deaths from 2001 to 2002. Between 2003 and 2008, they reported 336 overdoses, but no deaths. Of these cases, 87% were managed with oxygen administration, 27% with naloxone, and 21% with hospital transfer.⁵

In addition to interventional prevention, overdose rates may have also decreased due to drug users being able to inject in a stable non-rushed environment.¹¹ Injecting outside or in a hurry is associated with increased risk of overdose. When drug users are in a SIF, they are more likely to “taste test” their drug supply initially to determine how strongly they respond to it before determining their normal usage dose through incrementally increased drug dosages. When using drugs on the street, due to fear of arrest or other social factors, users are more likely to prioritize trying to use more quickly rather than incrementally to determine safe dosage levels.¹¹ Based on observational and interview data collected from five different Danish SIF, staff at those sites prevented overdose by immediate response and stabilization as well as providing information to drug users. Staff collected information from drug users regarding types of drugs used as well as their sources. They monitored what local sources were likely to have stronger responses as well as what sources were more likely to contain other drugs or contaminants. This information was

utilized to caution drug users when they should adjust their drug dosing or use an incremental increase approach.¹²

Changes in Dosage and Frequency

The Copenhagen study SIF study reported 66% of users reporting that their injection frequency was unchanged after using the SIF. 12% reported a decrease in drug use frequency, and 5% reported an increase in drug use frequency.⁸ Data is too limited to suggest that SIF are consistently associated with a decrease in drug use frequency, however there is no data to suggest that they are associated with an increase in drug use frequency,⁸ as is commonly proposed as a potential downside to SIFs.

Use of Rehabilitation and Addiction Therapies

In a cohort study of 1316 drug users utilizing a SIF in Vancouver Canada, addiction therapy and detoxification services were concurrently offered on site at the SIF. 11% of drug users at the SIF reported enrolling in the detoxification services. Users were more likely to enroll in services if they utilized the SIF more frequently.¹³ SIF that do not have addiction therapy services onsite still play a role in encouraging drug users to pursue these options.

In a qualitative study across Danish SIF, staff approached drug users in a non-confrontational manner, which was reported as being associated with an increased sense of trust within healthcare settings. Drug users reported feeling more open to having frequent conversations with staff about their health concerns and goals, including goals to decrease drug consumption or to quit. Staff would utilize these opportunities to discuss local resources available for assistance with quitting.¹² In a qualitative synthesis of data reported across several different SIF, trust was believed to be a critical factor in mediating access to healthcare and addiction therapy resources. Users reported that the SIF examined in this study developed their trust through consistent non-

judgmental approaches to treatment and a perception of safety within the SIFs.¹⁰ Drug users in this study were more likely to accept referrals for addiction therapies and rehabilitative treatment from providers at SIFs than those provided by other medical providers. This is especially important as the majority of drug users utilizing services at SIFs are often the most marginalized populations and frequently have disproportionately low access to primary care resources or a history of negative experiences and mistrust of the healthcare system.⁷

Limitations

SIFs are a relatively novel approach to harm reduction in people who use drugs. Implementation of these services is still limited or criminalized in the majority of countries including the US. As a result, the majority of studies discussed are based on data from Northern Europe, Canada, and Australia. In addition, the data provided in these studies is based largely on survey, self-reported drug use habits and perspectives, qualitative studies, and longitudinal cohort studies. Due to the complex legal and ethical nature of drug use and the marginalization of the target study population, targeted study design is difficult to implement and consistent participant follow up is limited.

Conclusions: SIF are associated with overall harm reduction in recreational drug users as well as the surrounding communities. People who utilize these facilities are more likely to safely dispose of needles and less likely to share or reuse needles, thereby reducing risk of accidental needle sticks as well as reduced risk of spread of bloodborne pathogens such as HIV and Hepatitis. Users are more likely to inject using sterile and SIF and therefore less likely to experience injection site infections and septic emboli. In addition, SIF lead to a reduction in overdose mortality as well as a better understanding on how to prevent future overdoses. They have not been shown to lead to an increase in drug use frequency or dosage quantities. However, they may play a role in

decreasing drug use through possibly increasing access to addiction therapies and rehabilitative treatments and improved access to social and healthcare resources. To further investigate the potential benefits and risks associated with SIF, collection of additional data from long term community outcomes and drug use population statistics after implementing SIF as well as studies from the opening of additional clinic sites around the world should be encouraged.

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