

Supervised Injection Facilities:

What the research shows

Hannah Branton

University of Central Arkansas

March 4, 2019

Introduction/Background

It has been estimated in 2016 over 2 million people in North America were injection drug users, and almost 10% of them had been diagnosed with Human Immunodeficiency Virus (HIV) (United Nations Office on Drugs and Crime, n.d.). In the United States, this public health issue has been addressed with increased law enforcement, which has led to a severe increase in the prison population. Addiction is a powerful disease and has proven difficult to defeat, even if the drug of choice is illicit.

According to The Foundations Recovery Network (2019), those who become addicted to illicit drugs typically do not start by injecting drugs, they first inhale or ingest their drug of choice. However, as their need for a faster and stronger effect increases, many addicts begin to inject their drugs either by subcutaneous, intramuscular, or intravenous injection. The most prevalent health issues associated with this type of drug use include HIV, Hepatitis C Virus (HCV), subcutaneous infections, and overdose (The Foundations Recovery Network, 2019). According to the Centers for Disease Control and Prevention (CDC) (2018a), between the years of 2004 and 2014, the United States rates of HCV for those between 18 and 29 years of age increased over 400%, and the rate of admission to drug treatment for opioid injection increased by over 600%.

To continue, in 2017 the United States had 38,739 new HIV diagnoses (CDC, 2018b). Of those diagnosed, 6% contracted due to injection drug use, and 52% of all new diagnoses were in the southern region of the country (CDC, 2018b). From 2012 to 2016, the Northeast and Midwest regions of the United States saw a decrease in their HIV diagnoses by 17% and 6%, but the Southern and Western regions saw no change at all (CDC, 2018c). This could be due to

many things including lack of education, lower socioeconomic status, and low community acceptance of harm reduction methods. Appendix I shows the rates of HIV infection by region in the United States.

In addition to HIV infection, as mentioned above, overdose is another major health risk associated with injection drug use. According to the National Institute on Drug Abuse (2019), the drug overdose death rate in the United States has quadrupled between 1999 and 2017, increasing from 16,849 to 70,237 deaths. Within that same 18-year span, the overdose deaths due to heroin overdose (one of the most common drugs used by injection) grew from 1,960 to 15,482 deaths (National Institute of Drug Abuse, 2019).

If increased law enforcement is not solving the issue of illicit drug use, what else can be done to reduce the rates of deaths and infections mentioned above? Some countries have chosen to concentrate on harm reduction strategies like needle exchange programs, which many states in America now utilize. However, some countries have gone a step further and have utilized Supervise Injection Facilities (SIFs). These facilities are safe zones for injection drug users to bring already-obtained drugs and inject them under the supervision of medical staff (Gordon, 2018). Due to the fact that some of these facilities operate “under the radar” and unsanctioned, it is difficult to give an exact number of these facilities; it is estimated at least 100 legally sanctioned SIFs operate world-wide (Gordon, 2018). There is no legally sanctioned facility currently operating in the United States.

The first SIF was opened in Berne, Switzerland in 1986 and has since been adopted by 11 other countries, including the United States’ neighboring country of Canada (Drug War Facts, 2019). These facilities claim to reduce overdose deaths and health-related costs, decrease

public disorder, and increase treatment admissions (Drug Policy Alliance, n.d.). But do they accomplish these goals? What is the public opinion of these facilities? The goal of this literature review is to discuss the benefits of SIFs and prove the need for further research on the public opinion of the establishment of such facilities in the United States.

Methods

In this small-scale literature review, 14 studies relevant to the topic are discussed and compared. The findings are separated into thematic categories and broken into commonalities and unique findings if need be. When selecting studies, no discriminations were made based on methodology. This review was conducted using the search engines Google Scholar and Pubmed.

Effect on Overdose Deaths and Infectious Disease

Perhaps the most important aspect to address of these facilities is whether they are effective at changing behaviors and/or reducing the rates of infection and overdose deaths. Insite, the SIF in Vancouver, Canada, which was established in 2003, has been proven to decrease overdose deaths (Marshall, Milloy, Wood, Montaner, and Kerr, 2011; Andresen and Boyd, 2010). Marshall et al (2011) focused their study on the number of overdose deaths which occurred among persons who inject drugs (PWID) approximately 3.5 years before and after Insite was established. It was found that overdose deaths were reduced from 254 before the facility opened to 165 after the facility opened; this is a 35% decrease within just 3.5 years (Marshall et al, 2011).

Insite, has also been proven to increase safer injecting practices among PWID (Stoltz, Wood, Small, Li, Tyndall, Montaner, and Kerr, 2007). Stolz et al (2007) studied 760 people who

utilized Insite, and they sought to compare the injection practices of those who use the facility on a regular basis and those who do not. The researchers found that those who use the facility on a regular basis were less likely to reuse syringes and/or share them, decreasing their chances of contracting HIV or HCV. They also found that these individuals were more likely to feel less rushed while injecting (decreasing chances of infection) and less likely to inject in public. Finally, the researchers found these individuals to be more likely to find a clean place to inject, cook/filter drugs prior to injection, and dispose of syringes in a safe manner (Stoltz et al, 2007).

Finally, measuring the effect of SIFs on HIV infection is a difficult task, considering it would involve proving that infections which would have taken place in fact did not take place. However, several researchers have taken on the challenge and have used mathematical models to predict this very outcome. These studies look at how many HIV infections would have likely taken place, given the average injection practices of PWID, and the reduction in needle sharing among those who use already established SIFs. The overall findings suggest that SIFs do in fact reduce HIV transmission among PWID (Bayoumi and Zaric, 2008; Andresen and Boyd, 2010). Bayoumi and Zaric (2008) went so far as to say that Insite averts almost 120 new HIV infections per year. Andresen and Boyd (2010) took a more conservative standpoint and found that Insite averts 35 new HIV infections every year (Andresen and Boyd, 2010). Of course, the limitation of these studies is the fact that one cannot prove that an infection would have taken place had there been no SIF established.

Cost Savings

The next important topic to address is whether these facilities cost or save money. Obviously, these facilities would require money to be established, but do they continue to cost

society money in the long run, or do they start to save money? Upon research into the studies conducted on this topic, it was found that SIFs save money in several ways and the amount of money potentially saved is impactful (Lloyd-Smith, Wood, Zhang, Tyndall, Sheps, Montaner, and Kerr, 2010; Salmon, Beek, Amin, Kaldor, and Maher, 2009; Andresen and Boyd, 2010; Bayoumi and Zaric, 2008).

To begin, in 2010 Lloyd-Smith et al published a study focusing on money saved in hospital costs for cutaneous injection related infections (CIRI). Their cohort study took place over four years, January of 2004 to January of 2008, and included 1083 PWID recruited from within Insite. They compared hospital admissions for these individuals and admissions of PWID who do not use the facility. They found those who utilized Insite were more likely to have their infections detected early, and therefore were admitted to the hospital for fewer days (four days versus 12 for those who do not use the facility). According to their analysis, this reduction in hospital stays saved 2,136 Canadian dollars per admission, or \$1,618 per admission. Another finding in this study was being referred by a nurse in the SIF was positively associated with being admitted to the hospital. This study proves two important facts: SIFs save money in hospital admissions for CIRI, and utilization of SIFs increases proper medical treatment (and early detections) among PWID. However, one major limitation of this study was that they chose only one hospital (St. Paul's) to include (Lloyd-Smith et al, 2010).

To continue, another way SIFs have been proven to reduce costs is through reduced ambulance callouts, as found by Salmon et al (2010). This study took place in Sydney, Australia over an eight-year period (May of 1998 to May of 2006), which included the three years before Sydney's medically supervised injection center (MSIC) opened and the five years following. The

researchers compared the “suspected opioid overdose” ambulance calls within the two time periods, and analyzed them based on their distance from the injection facility: the immediate vicinity (within 2.1 square km), the neighboring area (1.5 square km outside of the immediate vicinity), and the rest of North South Wales (NSW). The researchers went one step further and compared ambulance call volumes during and outside of MSIC’s operating hours in all the mentioned areas (Salmon et al, 2010).

Salmon et al (2010), found that the opening of MSIC significantly reduced the number of “suspected opioid overdose” ambulance call outs in all areas included in the study, but most significantly in the immediate vicinity and during operating hours. The immediate vicinity saw a decrease of 80% in their ambulance call outs during operating hours. There was a 45% decrease in callouts in the neighboring area, and a 60% decrease in the rest of NSW. Appendix II shows the effect of MSIC on ambulance calls overall, and appendix III shows the amount of average reduction in ambulance callouts stratified by location and operating hours of MSIC. It is important to note that even outside of MSIC’s operating hours, the immediate vicinity still experienced a 70% decrease in average ambulance callouts (Salmon et al, 2010). Though the cost of each ambulance call-out is not mentioned in this study, this amount of decrease could represent a significant cost-saving opportunity. It is also important to note that due to the fact that the most significant impact takes place in the immediate vicinity of the facility, the location of a SIF must be carefully chosen in order to do the greatest good (Salmon et al, 2009).

Studies have also been conducted to analyze the overall cost-saving abilities of SIFs. The majority of cost-effective analyses are conducted upon the SIF in Vancouver, Canada; the two studies which will be discussed analyze this facility (Andresen and Boyd, 2010; Bayoumi and

Zaric, 2008). They both found Insite to be extremely cost-effective, but each chose to consider different outcomes for their analyses. Both estimations are significant in size and cannot be overlooked, even given the limitation of estimating the cost of infections and deaths which did not actually take place. First, Andresen and Boyd (2010) chose to focus on only two outcomes: the number of new HIV infections Insite prevents each year, which they estimated to be 35, and the number of overdose deaths prevented each year, which was estimated to be 3. According to their analysis, Insite saves approximately \$6,000,000 per year after the costs of operating the facility are taken out (Andresen and Boyd, 2010).

In comparison, Bayoumi and Zaric (2008) studied the potential cost savings of Insite over a prospective 10-year period; each year they discounted the savings by 5%. The three outcomes they chose to focus on were decreased needle sharing, increased safe injection practices, and increased referral to methadone treatment programs. Through their analysis, they found the savings to be approximately \$1,800,000 per year or approximately \$18,000,000 over 10 years after the cost of the facility (Bayoumi and Zaric, 2008).

Finally, projections have been made about the potential cost savings for San Francisco, California in the United States. In 2016, Irwin, Jozaghi, Bluthenthal, and Kral conducted an analysis of the potential savings to the city if one SIF, the size of Insite, were established. Insite is approximately 1,000 square feet in size and has 13 injection stations. The outcomes they considered were reductions in new HIV and HCV cases, a reduction in overdose deaths, reduced hospital stays for CIRI, and increased medication assisted treatment (MAT). They also estimated that the facility would cost approximately \$2,000,000 to establish, and \$2,600,000 annually to operate based on costs SIFs currently experience. Based on their calculations, they

found each outcome alone, in the most conservative calculation, would generate enough savings to offset approximately half of the annual costs of operation (approximately \$1.3 to \$1.7 million). This means they estimate this hypothetical facility could potentially save \$5.2 to \$6.8 million every year in reduced HIV/HCV diagnoses, reduced overdose deaths, reduced hospital costs for CIRI treatment, and increasing uptake of medication assisted treatment (Irwin et al, 2016). The major limitation with this type of study is assuming this facility would have the same effect on San Francisco that Insite had on Vancouver.

Community Acceptance

Public opinion, or community acceptance, of programs such as SIFs is of great concern. These facilities obviously must be established somewhere and gaining the opinions of those living, as well as those who work/own a business, in those areas is imperative. Research on this topic conducted both in the United States and Canada have many commonalities, and there are also a few unique findings.

Commonalities.

To begin, it has been found that if researchers want to gain opinions of stakeholders on the issue of SIFs, information about these facilities needs to be presented to the participants beforehand (Wolfson-Stofko, Elliott, Bennett, Curtis, and Gwadza, 2018; Strike, Watson, Kolla, Penn and Bayoumi, 2015; Wenger, Arreola, and Kral, 2011). Wolfson-Stofko et al (2018) took the feedback from the participants in the studies conducted by Wenger et al (2011) and Strike et al (2015) and provided information about SIFs to their participants before conducting their interviews. Whereas the previous two studies found more opposition from stakeholders due to lack of knowledge, Wolfson-Stofko et al (2018) found more receptiveness of these facilities

from their participants. This study included 15 service industry employees in three different boroughs of New York City, New York. Of those who participated, 73% had encountered injection drug use in the bathroom of their place of employment, 93% of interviewees supported SIFs, and 73% believed the facilities would decrease public drug use (Wolfson-Stofke et al, 2018).

Another commonly agreed upon finding is that use of SIFs is positively associated with unstable housing (Kral and Davidson, 2017; Harris, Richardson, Frasso, and Anderson, 2017). Both of the above studies sought to gain information/opinions of PWID in regard to SIFs. Harris et al (2017) conducted their study at a syringe exchange program in Philadelphia. They conducted free listing exercises with 42 PWID and 20 healthcare providers, as well as in-depth interviews with 19 PWID. Most of the participants supported SIFs, which is not surprising considering they were already participating in a harm reduction program. It was also found that the majority of the PWID who were in support of SIFs were those who suffer from unstable housing (Harris et al, 2017).

In comparison, Kral and Davidson (2017) conducted a survey at an unsanctioned SIF at an “undisclosed location” in the United States. They surveyed 2,574 injection drug users who used the facility while it operated from 2014 to 2016. Among their many demographic findings about the participants, they found 80.5% were “currently homeless”. They also found that if the participants were not injecting in the facility, the majority (92.2%) would have been injecting in a public restroom, the street, a park, or a parking lot (Kral and Davidson, 2017). As above-mentioned studies have found, these findings suggest that SIFs should be strategically

placed not only in areas with a high volume of PWID, but areas that also have a high volume of those who are homeless.

To continue, it has been found that frequent contact with some aspects of injection drug use is positively associated with support of SIFs (Wolfson-Stofko et al, 2018; Katz, Leonard, Wiesenfeld, Perry, Thiruganasambandamoorthy, and Calder, 2017). Wolfson-Stofko et al (2018), as mentioned before, was a study conducted among service industry employees, the majority of which had been in contact with injection drug use while working. Katz et al (2017) conducted a nationwide survey in Canada of emergency physicians in order to gain their opinions of these facilities. Of the 1,393 emails sent, there were 250 eligible responses received (18.5%). The majority of respondents reported they would support a SIF (74.5%), and a majority would also refer a patient to such a facility (84.6%). The common reasons for support were related overall to harm reduction (reduction in disease transmission and overdose death) (Katz et al, 2017).

A final commonality found was those stakeholders who did not support SIFs felt that the money which would be used to operate the facility could be put to better use in other areas of need (Wolfson-Stofko et al, 2018; Strike et al, 2015; Katz et al, 2017). Concerns were expressed in the study conducted by Strike et al (2015) that money which could be used for drug rehabilitation/treatment might be withdrawn to support an SIF. In the study conducted by Wolfson-Stofke et al (2018), there was a comment made that the money would be better spent on feeding the hungry.

Unique findings.

There were two unique findings by Strike et al (2015), both coming from those stakeholders in Toronto and Ontario, Canada who do not support SIFs. First, many felt that the goals of SIFs were not broad enough. There were comments made about the importance of including mental health services and housing options. Some felt that communities would be more receptive if the goals of the SIF were not solely aimed at “just a clean place for these drugs”. Second, these stakeholders were concerned that this type of facility would need constant evaluation to prove effectiveness, and constant monitoring of community acceptance; they felt the SIF should be shut down “in the event of adverse outcomes”. There was also a comment made which suggested that residents in the community might be more receptive of a temporary SIF, not one which was intended to be permanent (Strike et al, 2015).

Finally, a unique finding by Strike, Jairam, Kolla, Millson, Shepherd, Fischer, Watson, and Bayoumi (2014) in their survey conducted in 2003 (the year Insite opened in Vancouver) and six years later in 2009, suggests that the opinions of SIFs could improve in years following the establishment of such a facility. Their findings consisted of the following: agreement with the establishment of SIFs to encourage safer injection behaviors increased by 9.7%, agreement that SIFs should be established to reduce overdose deaths and disease transmission increased by 21.3%, agreement that SIFs should be made available if they increase contact with health and social workers increased by 22.3%, and agreement that SIFs should be established if they are shown to reduce neighborhood problems increased by 24.7%. It should be noted that disagreement with all of these statements decreased at a much lower rate than the increases in agreement (0.85%, 1%, 1.2%, 1.9%, and 2.2%). Also, despite the increase in agreement with

these facilities, at least half of the population still did not agree a SIF should be established under any of the above-mentioned situations (Strike et al, 2014).

Discussion

As mentioned before, this was a small-scale literature review aimed at exploring what the current research shows about the effectiveness of SIFs in meeting their goals. These goals include reducing overdose deaths and health-related costs, decreasing public disorder, and increase treatment admissions. The final aim of this literature review was to explore recent studies on the public opinions of SIFs, and how acceptable these facilities are by those effected by their establishment.

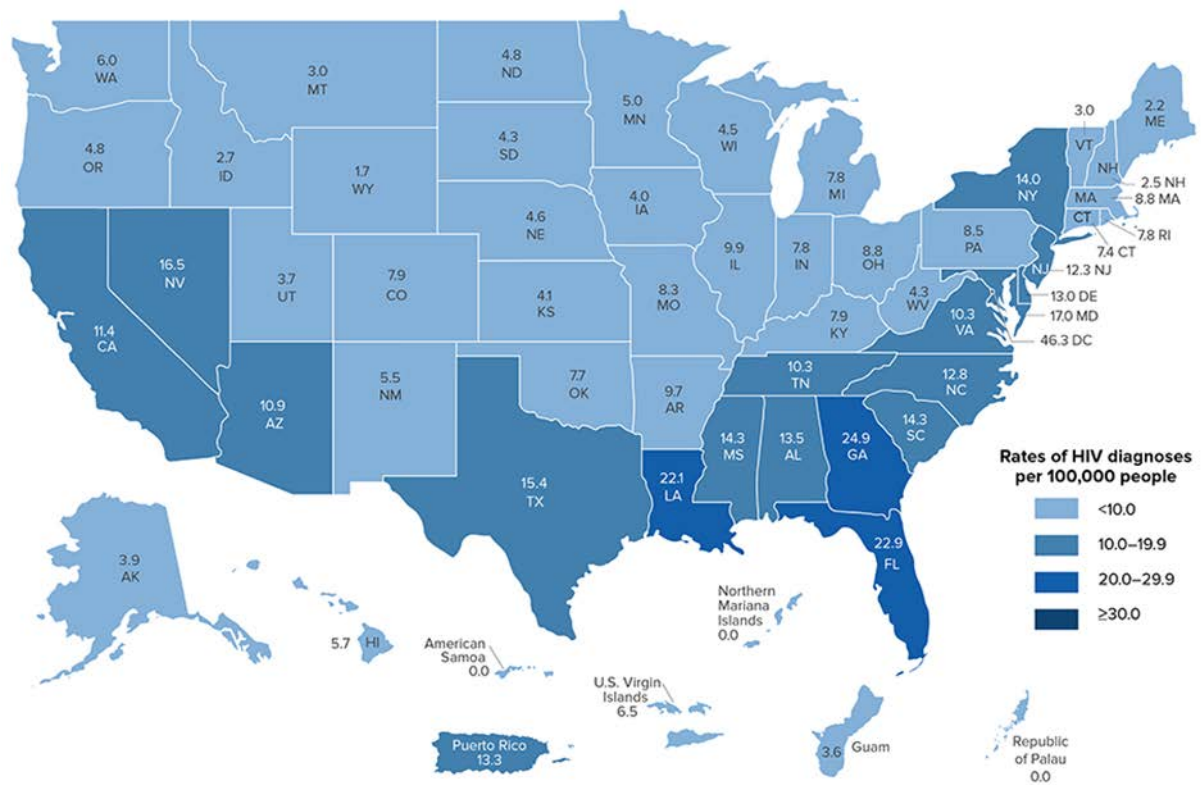
It can be concluded that these facilities do in fact meet their goals (Marshall et al, 2011; Stoltz et al, 2007; Bayoumi and Zaric, 2008; Andresen and Boyd, 2010; Lloyd-Smith et al, 2010; Salmon et al, 2009; Andresen and Boyd, 2010; Bayoumi and Zaric, 2008). However, as mentioned in Lloyd-Smith et al (2010), the benefits to PWID, and the cost savings to healthcare, are limited to within a certain distance from the facility. This serves as proof of the importance of thorough investigation into the appropriate location to establish a SIF. Location should also be carefully chosen due to the fact that the majority of those who use, or say they would use, a SIF are in an unstable housing situation (Kral and Davidson, 2017; Harris, Richardson, Frasso, and Anderson, 2017). SIFs should be established only in areas with high volumes of public drug use, homelessness, and injection drug use.

In conclusion, further research is needed regarding the opinions of citizens in the United States on the establishment of this type of facility. Given the overdose death rates in this country, a SIF may be the next step. As mentioned above, the southern region of the United

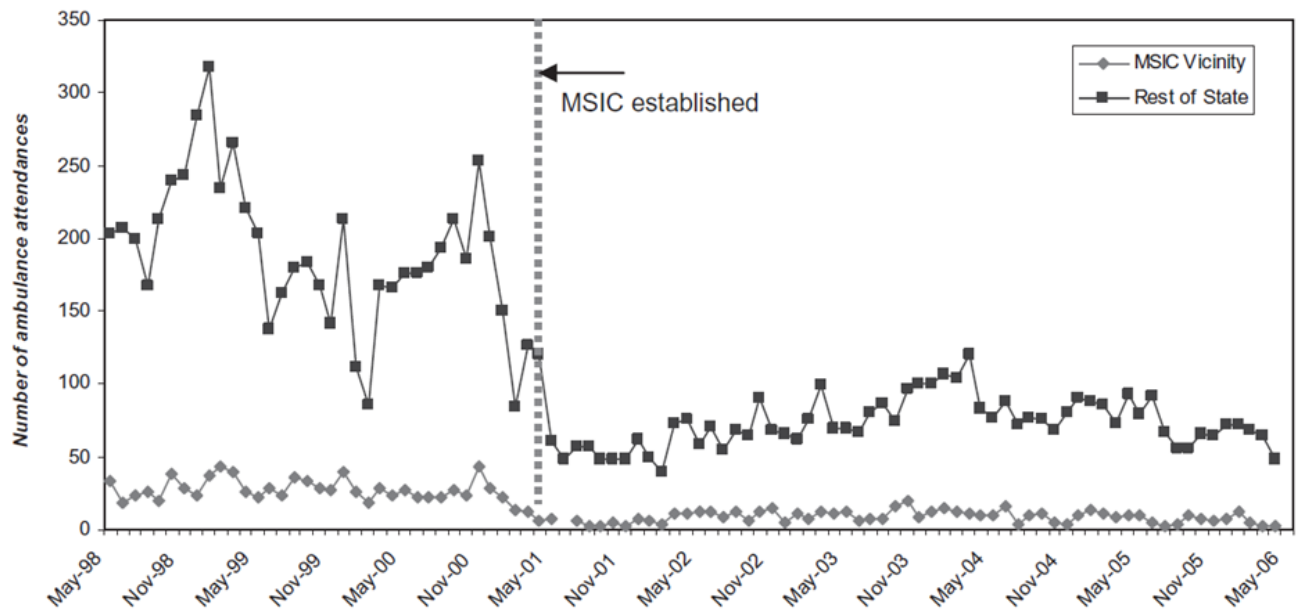
States has the highest HIV rates, and this has not changed significantly over the years (CDC, 2018c). This could show need for a facility such as this in the southern region of the United States, yet there is no research published on the opinions of those who live in the south regarding SIFs. More research is also needed on the overdose rates in this area, not just overdose deaths. Since these facilities could potentially reduce ambulance callouts for drug overdoses, an estimate could be made on money saved if the numbers were known. All in all, if a country wishes to reduce costs, HIV and HCV rates, and overdose rates a SIF needs to be considered.

Appendix I

Rates of HIV Diagnoses in the US, 2017

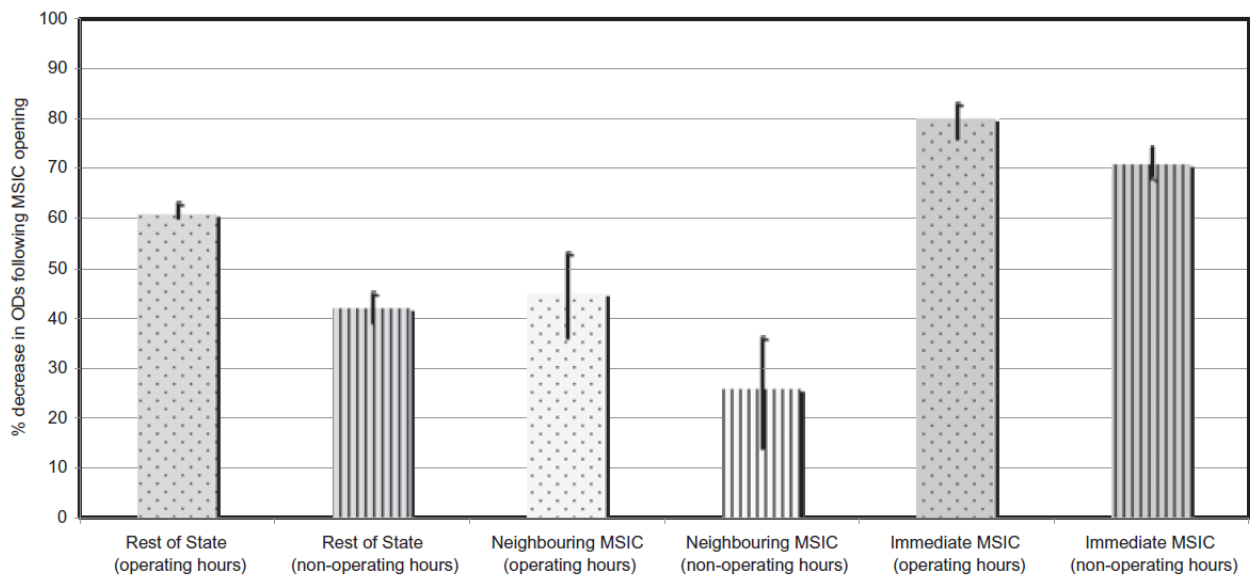


Appendix II



Appendix III

MSIC: Medically Supervised Injecting Centre; o/h: operating hours; NSW: New South Wales; CI: confidence interval. ^aMSIC operating hours.



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