

NEEDLE EXCHANGE SITES: AN ANALYSIS OF OPINION AND LAW IN
ARIZONA

By

KELSEY LYNN COMPTON



A Thesis Submitted to The Honors College
In Partial Fulfillment of the Bachelors degree
With Honors in
Health and Human Values

THE UNIVERSITY OF ARIZONA

MAY 2020

Approved By:

Leila Barraza JD, MPH

Table of Contents

ABSTRACT.....	2
TERMS TO KNOW.....	2
INTRODUCTION.....	3
BACKGROUND.....	4
PAST SUCCESS.....	5
CURRENT NEEDLE EXCHANGE PROGRAMS.....	7
LOOKING AT THE LAW.....	7
PERCEPTIONS.....	9
AGAINST NEEDLE EXCHANGE SITES.....	10
METHODS.....	11
RESULTS.....	12
DISCUSSION.....	13
LIMITATIONS.....	20
CONCLUSION.....	21
REFERENCES.....	22
APPENDICES.....	26

ABSTRACT

This project aims to discuss the history of needle exchange programs in the United States, as well as to document and understand knowledge, awareness, and perceptions of the legality and success of needle exchange programs in Arizona. A survey was distributed between January and February 2020 to students of various fields of study attending the University of Arizona. This survey asked questions regarding students' knowledge, understanding, and opinions of needle exchange programs, as well as knowledge and perceptions of their legality and effects. Several factors including age and field of study were shown to influence knowledge and support of the programs. Overall, respondents had positive attitudes of needle exchange programs but had fewer positive responses when asked to imagine the programs operating near their property. The results showed a lack of awareness and support of the legal status of NEPs in Arizona despite an understanding of the positive effects of the programs.

TERMS TO KNOW

IDU: Injection drug users

NEPs : Needle exchange programs

PWID: People who inject drugs

SSPs: Syringe service programs

INTRODUCTION

Harm reduction is defined by the Harm Reduction Coalition as a set of practical strategies and ideas aimed at reducing negative consequences associated with drug use. Harm reduction is also a movement for social justice built on a belief in, and respect for, the rights of people who use drugs. This is an important concept in the United States today, as increasing levels of deaths from opioid overdoses has triggered a nationwide situation, deemed the Opioid Crisis. This project focuses specifically on needle exchange programs (NEPs) and syringe service programs (SSPs). NEPs are public health measures which aim to reduce the spread of blood-borne infections, including HIV and HCV, among people who inject drugs (PWID) through the distribution of sterile injection equipment, but do not intend to reduce drug dependency in the process (Wilson et al., 2015). They operate in different contexts and can provide a range of services that include the provision of injection equipment, education, and information on reduction of drug-related harms, referral to drug treatment, medical care, legal services, and social services (Wilson, et al., 2015). NEPs operate in a variety of settings, including fixed sites, mobile services, and one-to-one programs (de Saxe Zerden, O'Quinn, & Davis, 2015). These programs, despite boasting several decades of positive results in the U.S. and around the world, are still outlawed in many states. The legalization and acceptance of these programs becomes more important as the Opioid Crisis worsens, as the Centers for Disease Control and Prevention (CDC) estimates that syringe sharing among injection drug users (IDU) account for 8% of all new HIV infections and 16% of all AIDS cases within the U.S. (2012). With no change in intervention it is estimated that we can expect 235,000 opioid related deaths from 2016-2020 (Pitt, Humphreys & Brandeau, 2018). The Opioid Crisis is also affecting Arizona, where NEPs are implicitly outlawed under drug paraphernalia laws. Since 2013, opioid-involved deaths have risen 76% in Arizona (National Institute on Drug Abuse, 2019). Among females, 22.5% of new

HIV cases were attributed to injection drug use (National Institute on Drug Abuse, 2019). These cases are significant, as use of contaminated syringes can be prevented by providing drug users access to clean injection equipment, which is possible through NEPs. It is these avoidable cases that provide the importance of legalizing NEPs in Arizona.

While many public health professionals see the worth and benefit in NEPs, they have a history of negative public perception and political changes that greatly impact their legality. This review contains peer-reviewed sources examining the success of NEPs in their infancy in the U.S., as well as current studies investigating impacts, opinions, and laws surrounding these sites in the last ten years. The goal of this review is to describe the history of needle exchanges while also examining peoples' perceptions and the legality of NEPs

BACKGROUND

When the connection between AIDS and injection drug use was uncovered in the early years of the AIDS pandemic, leaders in many developed Western nations began legalizing and encouraging syringe exchange as a tactic to limit the spread of HIV (Heller, 2011). The United States did not follow these examples due to several factors. In the 1980's, the U.S. experienced rising use of crack cocaine and drug-related crime, and in response in 1988 the government imposed a ban on federal funding of syringe exchanges (Bramson et al., 2015). This law, the Health Omnibus Program Extension (HOPE) Act, supported investment in HIV testing, prevention and education, but specifically stated that, “[n]one of the funds provided under this Act... shall be used to provide individuals with hypodermic needles or syringes so that such individuals may use illegal drugs” (Heller,2011). This ban had devastating effects as studies from 1997 determined that expanding NEPs instead would have reduced HIV incidence by 15-33% (Green et al., 2012). This ban, along with growing societal stigma against drug users and

the zero tolerance of the War on Drugs has contributed to the prevention of NEPs being implemented in the U.S. (Heller, 2011). Despite the negative perceptions, needle exchanges were still implemented in 55 U.S. cities by 1994 (Hurley, Jolley & Kaldor, 1997). Eventually, federal and state level laws did change regarding these programs. After more than twenty years, the federal ban on funding syringe exchange was rescinded at the close of 2009 (Heller, 2011). This was instated once more in 2012, but by December of 2015 the Consolidated Appropriations Act of 2016 removed parts of that funding restriction yet again. In 2016, the Surgeon General of the United States called for the growth of NEPs, describing them as cost effective prevention strategies that have shown success in reducing HIV transmission without increasing rates of drug use (Christie et al., 2019).

PAST SUCCESS

With an understanding of the legal history, it is imperative to recognize the success NEPs have achieved across the U.S. and other countries. One academic study sought to determine syringe borrowing, syringe lending, and HIV incidence rates from a cohort of 1,228 injection drug users in Vancouver (Kerr et al., 2010). The results include a decrease in syringe borrowing from 20.1% to 9.2%, as well as a decrease in syringe lending from 19.1% to 6.8% over the study period of five years (Kerr et al., 2010). They concluded that a “period resulting in increased access to sterile syringes was independently associated with substantial reductions in syringe borrowing, syringe lending, and HIV incidence” (Kerr et al., 2010). Studies conducted at city and state levels have reported the same benefits. A reduction in HIV prevalence among injection drug users has been observed in Philadelphia, NYC, and North Carolina (Maurer et al., 2016, Heller, 2011, Davis et al., 2014). Philadelphia embodies immense success, as trend analyses of drug users among Philadelphia needle exchanges found reductions in HIV transmission rates in

IDU from 46.0% in 1992 to 11.1% in 2009 and 5.4% by June of 2014 (Maurer et al., 2016). Several recent studies have concluded that NEPs reduce HIV incidence and needle sharing among IDU (Aspinall et al., 2013, Kerr, 2010, de Saxe Zerden, O'Quinn, & Davis, 2015). A study recently published used an agent-based model to simulate HIV transmission in Scott County, Indiana, a rural county that has a 1.7% prevalence of injection drug use (Goedel et al., 2019). The model concluded that a total of 176 infections would occur with no NEP present, but 154 of these infections would have been averted by proactive NEP implementation, decreasing prevalence by 90.3% (Goedel et al., 2019). Even if the NEP was utilized ten months after the first infection in an HIV outbreak, 107 infections would be averted with a 60.8% reduction in incidence (Goedel et al., 2019). This study expresses that the benefits of reducing HIV incidence is still a proven benefit of NEPs today.

NEPs also provide other community benefits. Goedel's model determined that NEP implementation has "spill-over effects," including reducing HIV transmission to non-drug users as well (Goedel et al., 2019). A 2015 study in North Carolina found an association between access to syringe exchanges and a reduction in needle stick injuries among law enforcement (Wilson et al., 2015). In addition, NEPs are shown to reduce the number of improperly disposed injection equipment and the likelihood of unintentional exposure by children, sanitation, police, emergency, and firefighting personnel (Rich & Adashi, 2015). Evaluations of NEPs have determined that they are associated with increased rates of entry into treatment programs for addiction (Kerr, 2010). NEPs have proven to benefit injection drug users as well as the surrounding communities.

CURRENT NEEDLE EXCHANGE PROGRAMS

It is important to understand where NEPs stand today. As of 2019, there are 334 known NEPs operating in the US, with 6 in Arizona (amfAR, 2019). Individual programs have seen large increases in the number of clients, with Prevention Point Philadelphia reporting 20,621 new individuals registered for syringe exchange between 1999 to 2014 (Maurer et al., 2016). These programs also do more than just exchange needles. For example, 89% of NEPs allowed for secondary exchange, permitting clients to take extra syringes and equipment to exchange with peers who did not attend the physical needle exchange (Des Jarlais et al., 2009). The vast majority of programs also offered HIV counseling and testing, referrals to substance abuse treatment, and education regarding blood borne illnesses (Des Jarlais et al., 2009). More than half provided HCV counseling and testing, and half of the programs provided HAV, HBV, and STD screenings (Des Jarlais et al., 2009). Current guidelines recommend that NEPs be easy to enroll in, harm reduction oriented, actively attract clients to services, be integrated with other services where possible and offer referrals to drug treatment, legal aid, family and housing advice, and safe consumption spaces where available (Goedel et al., 2019)

LOOKING AT THE LAW

While federal approval of NEPs has fluctuated between support and opposition, NEPs remain excluded from the federal drug control policy in the U.S. This is likely due to a combination of legal, political, and moral objections combined with stigma and a perception of drug use as criminal behavior (Kulesza et al., 2015). One of the only federally-supported opportunities to bring NEPs to communities is when reactive implementation occurs, which is when legalization or organization of a NEP occurs in response to the detection of a major health event, such as an HIV outbreak (Goedel et al., 2019). As a result, NEP legalization often comes down to a state level. Many states, such as California and New York, have laws specifically

legalizing NEPs, while others have laws specifically outlawing them. Many states fall somewhere in between – they are not specifically outlawed but are criminalized under other drug laws. Arizona and Indiana fall into this category as they have drug paraphernalia laws which criminalize actions including exchanging and possessing needles, but no laws specifically discussing NEPs. Arizona drug paraphernalia laws make possession, distribution, and advertising of needles and syringes a Class 6 felony. Overall, 23 states criminalize distribution or possession of syringes through drug paraphernalia, syringe prescription, controlled substances, and pharmacy laws (Rich & Adashi, 2015).

Even in states without legalization, these programs still function. However, legalization of these programs is associated with greater success. Law enforcement practices that work to reduce access to NEPs are key factors that influence both disease transmission and racial disparities in HIV rates (Davis et al., 2014). Policing work directed at low level offenses have historically threatened access to syringe exchange programs and threatened the participation of drug users (Heller, 2011). A total of 29% of NEPs in 2009 reported that police harassment of participants was a problem in program operation (Des Jarlais et al., 2009). A study performed in 2011 looking specifically at the role of state law and syringe exchanges found that “43% of respondents reported at least monthly client harassment, and 26% uninvited police appearances at program sites at least every 6 months” (Beletsky et al., 2011).

Another significant factor is that programs that are not explicitly legalized often do not receive funding to operate. As of 2012, 79% of NEP funding came from state and local governments, with the remainder from private sources (Green et al., 2012). In an in-depth review of NEPs in 2009, it was found that 56% of sites reported a lack of funding (Des Jarlais et al., 2009). Public funding of NEPs is associated with lower rates of HIV infections, higher rate of

syringe distribution, and larger numbers of health and social services provided (Bramson et al., 2015). Reducing threats to participants and improving funding are significant benefits of the legalization of NEPs.

PERCEPTIONS

Attitudes and perceptions towards the NEPs impact the likelihood that NEPs are made available, so it is important to understand these perceptions (Christie et al., 2019). Opponents of NEPs argue several points including that they contribute to, condone, encourage drug use, and contradict the zero-tolerance policy of the U.S. war on drugs (de Saxe Zerden, O'Quinn, & Davis, 2015 & Rich & Adashi, 2015). Other arguments include ideas that NEPs dissuade drug users from getting help, provide governmental acceptance of criminal acts, perpetuates drug crimes, draw drug activity into communities, contradicts law enforcement efforts, and threatens public health and safety (Rich & Adashi, 2015). Despite this, several studies conducted within the last ten years have actually found that NEPs do not increase drug use or draw drug users into communities (Kulesza et al., 2015, & Kerr et al., 2010). A comprehensive study was done through surveying NEP participants, and findings determined that only 3.8% of participants came to that area to use the NEPs (Williams & Ouellet, 2010). These findings contradict the notion that NEPs draw drug users into communities, rather they establish the programs in areas that already see a high volume of drug users (Williams & Ouellet, 2010). Additionally, a study of NEPs run by pharmacists in New York found no increase in crime following the program introduction (Watson & Hughes, 2012). The same New York study found that an additional benefit of the programs was increased entry and retention of drug users in drug treatment programs, and increased opportunity for harm reduction advice and education (Watson & Hughes, 2012). Many of these commonly held perceptions have been disproven, providing

questions as to what else contributes to perception. In 2015, a web-based study of 899 participants looked at attitudes towards NEPs and found the majority of participants were supportive of the programs (Kulesza et al., 2015). Greater support of NEPs was predicted by more liberal political ideology, agreement that injection drug users deserve help rather than punishment, older age, and male gender (Kulesza et al., 2015). Rage, religious identity, and education were not predictors of support or opposition (Kulesza et al., 2015). It is important to note however that this study was conducted via the internet, and the study population was majority Caucasian and liberal, so direct generalizations may not be accurate (Kulesza et al., 2015). Similar studies have been conducted on specific populations to determine support or opposition of NEPs, often including those working in relation to drug users. A survey of predominantly male law enforcement officers in North Carolina found that 63% believed legalizing NEPs would be good for the community, and 60% agreed it would be good for law enforcement, would reduce HIV, and that they had a generally positive view of the programs (Davis et al., 2014). A 2018 study found that more than two-thirds of surveyed community pharmacists agree that access to clean injection equipment is important to prevent infections such as HIV and hepatitis (Goodin et al., 2018). There is little awareness of population's perceptions of NEPs beyond these studies, because very little research looks into current perceptions of NEPs. The lack of surveys and studies of perceptions in the literature reveals a large gap. This is especially true in Arizona, as no studies have ever been conducted to determine Arizonans perceptions of NEPs.

AGAINST NEEDLE EXCHANGE SITES

While it is true that NEPs boast decades of evidence supporting their success, it must be noted that they are not the perfect solution. While implementing these programs within Arizona

and the U.S. would benefit drug users, communities, and HIV/AIDS transmission rates, they will not completely solve the problem. It was concluded in several studies that no single harm reduction approach is sufficient (Wilson et al., 2015 Aspinall et al.,2013, Humphreys & Brandeau, 2018). Several other harm reduction programs exist for injection drug users such as ART (Addiction and Research Treatment), OST (opioid substitution therapy), Test & Treat, and naloxone availability. The combination of these treatments provided together with NEPs would provide a much larger effect on injection drug user health and HIV rates (Wilson et al., 2015, Bernard et al., 2017, Aspinall et al.,2013 & Pitt, Humphreys & Brandeau, 2018).

METHODS

The goal of this project is to determine knowledge and perception of NEPs among University of Arizona students. To achieve this goal, an anonymous survey was sent out via email. This survey was twenty-two questions long and took less than fifteen minutes to complete. The questions determined a minimal amount of demographic information including age and field of study but was focused around NEPs. The survey asked participants about their understanding and awareness about NEPs, Arizona laws regarding NEPs, and opinions and perceptions of NEPs regarding crime, drug use, and acceptance of the programs. A detailed list of the questions can be found in Appendix 1. In an attempt to understand a variety of understanding and opinions as well as determine influencing factors, the survey was distributed to several different colleges within the University. The survey was distributed to students in the College of Medicine, the College of Humanities, General Studies, the College of Science, and the College of Art. A total of 448 responses were collected over a one-month period. Data from the survey was then utilized to see if factors of age range, field of study, and knowledge or awareness of NEPs correlated with knowledge of legality and health benefits as well as positive perceptions of the programs.

RESULTS

Throughout the month-long distribution of the survey, the questions were answered by students from twenty-seven different fields of study. Approximately 79% of these students were between the ages of 16 and 24, and 93.25% were between 16 and 30. Of these students, only 26.62% recorded that they knew what the term harm reduction means, while 51.67% knew what a needle exchange or syringe access program is. The respondents also had a majority positive view of the programs, with 59.71% marking that they held a generally positive attitude of NEPs. While there was a general awareness of the sites, deeper understanding and knowledge was far less common. Only 4.66% of survey takers answered that they understood needle exchange sites extremely well, while 48.03% said they understood them only slightly well, or not at all. When asked generally how much they know about the programs, survey respondents overwhelmingly responded with a little or nothing at all. This lack of awareness and understanding also applies to the legal status of NEPs in Arizona, as 53.55% of respondents were unsure of the programs' legal status in Arizona. The survey also sought to understand the populations basic perceptions, attitudes, and opinions regarding NEPs. The results found that 79.02% of respondents gave answers indicating they believed NEPs should be legal in Arizona. Despite this view, it seems that many of the respondents still hold somewhat negative. While 48.18% felt they would be unaffected if a NEP was being operated near their property, 44.54% said they would feel uncomfortable, unsafe, or worried. Additionally, while 34% said they would be unaffected if a program was run near their business, 40.25% had negative responses to the same questions, including feeling uncomfortable, fearing for their business, being angry or irritated, and taking action to shut down the program. When looking at the impact of NEPs on other factors, results were more balanced. 37.47% responded Yes or Maybe when asked if needle exchange sites increase drug use, while 37.22% said no, and 25.32% said Maybe. When asked how the

programs impact drug use, 20% said they have no impact on drug use, 17.92% said they increase drug use, and 14.34% said they decrease drug use. There were three questions regarding legality and effects of needle exchange that significantly leaned to one choice. The first questions asked to what extent the respondents agreed to the statement “staff of needle exchange sites should be charged with a crime under drug paraphernalia laws.” Over 45% of respondents said strongly disagree, while another 30% also disagreed. A similar question was asked about clients of needle exchanges and 65.24% disagreed to some extent. The third question with a skewed response regarded HIV transmission and asked if respondents agreed that NEPs reduce transmission of blood borne illness such as HIV. To this statement, 85.78% of respondents stated they agreed to some extent.

DISCUSSION

The main purpose of the survey was to determine several factors regarding needle exchange programs and students at the University of Arizona. These factors included knowledge about the programs, depth of knowledge, knowledge and awareness of law surrounding the programs, perceptions, and opinions of the program, and finally how these factors influenced and impacted each other. Overall, awareness and knowledge of needle exchange programs was relatively high. When asked if they knew what the terms harm reduction and then needle exchange sites meant, over half of respondents declared they did. When asked how well they understood the concept of needle exchange sites, over 75% stated they understood at least slightly well. These responses were surprising. Since many perceptions of needle exchange sites are negative, it was assumed this was because many people did not have a strong understanding of the sites. It was also my assumption that while pre-medicine, medicine, public health, and other health related students may know about the programs, most others would know little to

nothing. While having a science or medicine related field did correlate with a higher understanding of needle exchange programs, other fields also had high numbers. Looking at the most popular majors among the survey respondents we can see this. The top five fields of study were Science, Social and Behavioral Sciences, Public Health, Medicine, and Humanities.

	Q3: What field of study are you in? - Selected Choice					
	Total	Humanities	Medicine	Public Health	Science	Social and Behavioral Sciences
Total Count	341	46	55	64	102	74
No	27.3%	37.0%	3.6%	14.1%	44.1%	27.0%
Somewhat	16.4%	17.4%	3.6%	12.5%	21.6%	21.6%
Unsure	3.2%	4.3%	0.0%	3.1%	2.9%	5.4%
Yes	53.1%	41.3%	92.7%	70.3%	31.4%	45.9%

Figure 1: Awareness of NEPs vs. Field of Study

As shown in Figure 1, the fields of medicine and public health had the highest percentage of respondents affirming that they know what NEPs are. However, the field of science had the lowest percentage with only 31.4% affirming knowledge of NEPs. This was lower than both Social and Behavior Science and Humanities, which saw 45.9% and 41.3% respectively. Studying health and medicine seems to have a positive effect on the knowledge of needle exchange sites, but other majors still reported high levels of understanding. Scientific majors of any kind did not predict a high understanding. Age is another possibly influencing factor due to past research and because older students may have had both more educational experience and more life experience.

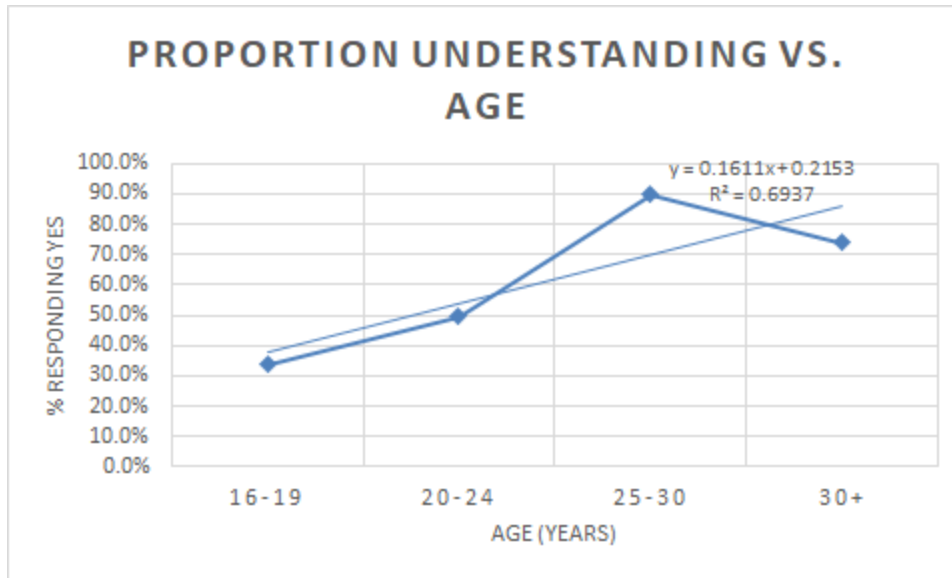


Figure 2: Proportion Understanding vs. Age of Student

Looking at the data in Figure 2 displays that age of the respondent is positively correlated with respondents understanding NEPs. This trendline is clearly positive and a r^2 value of .69 tells us it explains the majority of the data. It is interesting to see that age influences understanding of NEPs seemingly more than the field of study does. This finding is similar to the results of study performed by Kulesza, discussed in the literature review, that found that older age was a predictor of greater support of NEPs (Kulesza et al., 2015). Age is a significant factor in both knowledge and perception of NEPs.

It is important to also look at awareness of the laws surrounding NEPs. Because Arizona only implicitly outlaws needle exchange sites through drug paraphernalia laws, many may not be aware of the legal status of NEPs. These assumptions were found true among the study population. Among the respondents, 53.33% said they were unsure if the programs were legal, 19.51% said yes, and only 27.16% said No. This means approximately three fourths of the study population was unaware or wrong about the legal status of NEPs in Arizona. Awareness of the law is important, and there is a clear lack of it in this scenario. While so many respondents knew

what the programs were, few knew of their legal status in their community, meaning there is a clear disconnect between awareness of the idea and the reality of the programs. This is significant as it was established in the literature review that legalization of these programs is associated with higher success rates and higher funding (Davis et. al, 2014 & Des Jarlais et al., 2009). Despite relatively high knowledge, there is miscommunication and lack of awareness of the legalization of NEPs in Arizona.

With a sense of the knowledge and awareness of NEPs in Arizona, it is imperative to understand the perceptions and opinions surrounding this knowledge. Overall, there was a majority positive attitude toward needle exchange programs, with 59.71% of respondents saying they had a positive opinion, and only 8.25% having a negative attitude. In addition, 79% of respondents had a positive reaction when asked if they thought NEPs should be legalized in Arizona. In addition, while most respondents responded positively to straightforward questions about attitudes and the law, there was more diversity in answers based around behaviors.

While responses to questions asking general attitudes and opinions about NEPs resulted in mostly positive responses, Figures 3 and 4 below display a larger range of responses. Respondents were to assume NEPs were legal in Arizona, and they were being operated near either personal or commercial property. When asked about their response when operated near personal property, responses were much less positive. Specifically, 48% of respondents said they would be unaffected, 44.5% would feel uncomfortable or unsafe, and 7% would be angry or irritated.

Q15 - Assume needle exchange programs are legal. If a needle exchange program was being operated near your personal property, how would you respond? Choose all that apply

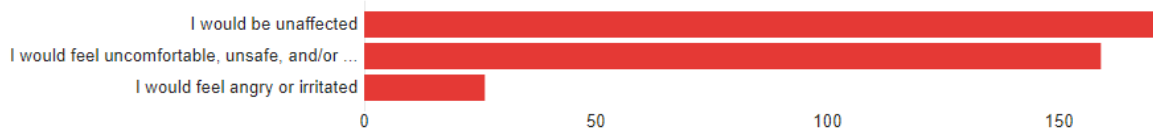


Figure 3: - Reaction to Program Operation Near Personal Property

When looking at the question regarding commercial property, responses were even more distributed. Large numbers of respondents would be unaffected, 34%. However, four responses had somewhere between 11-19% of respondents choose it. These responses included feeling uncomfortable or unsafe, being worried for business, being glad, or not knowing. It is interesting to see that there is both an increase in negative response, positive response, and an unsure response.

Q16 - Assume needle exchange programs are legal. If a needle exchange program was being operated near your business or commercial property, how would you respond?

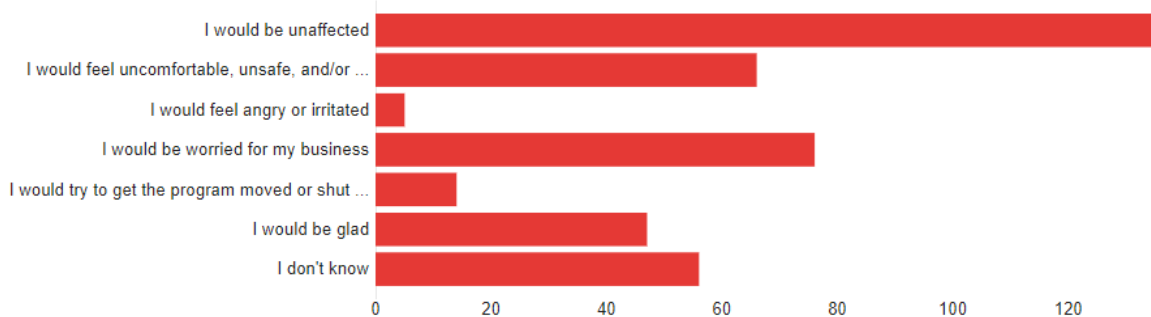


Figure 4: Reaction to Program Operation Near Commercial Property

These questions asked the respondents to imagine themselves in a scenario where they directly interacting or being affected by NEPs, rather than asking their general opinion. If 70% of respondents claimed they had a positive attitude towards NEPs, it would be logical that around

70% of respondents would have positive or neutral responses to their implementation near their property. In reality, only 45% responded neutrally or positively to a NEP being run near their business, and only 48% responded they would be unaffected if programs were operated near their personal property. There is a clear disconnect between positive attitudes in a general sense and being accepting of the idea of a NEP physically operating. This is significant - relying only on the general question, it would be simple to say overall the survey respondents were extremely accepting and positive. Yet, because of the division, this may not be true. The negative response to programs near personal or commercial property however does not appear to be linked to the misconceptions frequently associated with NEPs, including an increase in crime and drug use. Only 10.89% of the study population think the needle exchange sites increased drug use, and 25% think the programs increase the amount of drug use or number of drug users. In addition, respondents seem to understand the positive impacts of NEPS, as 85% agreed to some extent that the programs reduce transmission of blood borne illnesses. There is a variety of opinions and perceptions around the needle exchange programs.

Finally, it is important to look at how this study population views Arizona law. Arizona drug paraphernalia laws make possession, manufacture, and delivery of drug paraphernalia a Class 6 felony. This means that participants of NEPs who are receiving and possessing needles and syringes, and staff operating the programs who are delivering them could face charges under the law. Seventy-eight percent of respondents think needle exchange programs should be legal in Arizona. Going beyond this, 64% do not think the clients of NEPs should be charged with a crime under drug paraphernalia laws while 75% do not think program staff should be charged with crimes. Once learning the reality of the law today, the majority of respondents disagreed with the status quo.

Analyzing the data from this survey has revealed several important factors. First, while the majority of respondents did know what needle exchange programs are, there is still a lack of awareness around NEPs, especially when regarding their legal status. Secondly, the awareness and knowledge of these sites is affected by both age and field of study. Medicine and public health students were more likely to understand the programs than general science or humanities students, and older students were more likely to understand the programs than younger ones. Additionally, the majority of the study population had a generally positive view of needle exchange programs. The majority also agreed that neither the clients (people who inject drugs), or the staff members of needle exchange program sites should be charged with a crime under drug paraphernalia law. Finally, many respondents said they would feel unsafe, worried, uncomfortable, or even angry and irritated if NEPs were being operated near their personal or commercial property. This displays a disconnect between perceived perceptions and actions. While many of these participants stated they have a positive view, it is plausible that the questions regarding their feelings when confronted with proximity to a NEP were a more accurate measure of opinions and attitudes.

Overall, the study population holds interesting views that do not line up with past examinations on perceptions around needle exchange programs. Negative opinions of needle exchange programs often branch from the belief that the programs will increase drug use, number of drug users, and criminal activity. The majority of the respondents did not agree with these beliefs, yet a significant proportion either stated they had a negative view of the programs or stated they would have negative feelings if a program was operating near their property. This is significant, as it reveals that misconceptions may not be the only factor causing negative perceptions of needle exchange programs. While this study intended to fill a gap in research and

knowledge surrounding needle exchange sites, it also reveals that the research that does exist may not apply to all states or cities within the U.S. Similarly, studying a health field did correlate with a high level of knowledge, but other fields of study saw similar levels. Against assumptions, students from all areas of study were aware of harm reduction and needle exchange programs. Not all results went against previous research and assumptions. These results found that a higher age corresponded with a higher understanding and support of needle exchange programs. This agrees with the findings from the 2015 study of needle exchange program support (Kulesza et al., 2015). The majority of respondents disagreed with Arizona law threatening both clients and staff of NEPs. Despite a positive view of needle exchange programs, and a negative view of the law, these programs continue to be at risk under the law in Arizona and several other U.S. states. Arizona is lacking in research surrounding NEPs as well as legal actions to support their success.

LIMITATIONS

This study does have several limitations. First, this study was conducted within the University of Arizona. Participants were all students, meaning the study population was not representative of the entire state. Several factors such as age and political beliefs may be very different in the University of Arizona population than the greater Arizona population. This specific population means results may not be representative of the entire state. Secondly, the population responding to the survey was relatively small. At 448 participants, this represents only a fraction of the U of A population, and an even smaller fraction of the Arizona population. Increasing the scope of this survey to reach all areas of Arizona would not only increase the study population but would be far more representative of the state. Finally, the factors of gender and political belief could have been included in the survey. These are factors that have been

studied as influences on the perception of NEPs, and therefore would have been helpful in this study. Increasing the geographical span of this survey, the number of respondents, and the inclusion of additional factors in the future will reduce the limitations of this study.

CONCLUSION

Needle exchange sites have demonstrated positive effects on blood borne disease transmission, needle sharing, improper needle disposal, drug use treatment, and have been proven to not increase drug use or criminal activity. In Arizona, these sites are neither explicitly legal or illegal, so staff and participants are at risk to be criminalized for their activities despite receiving local support for operation. Despite a large background of evidence for the programs, little to no work has been done to determine people's perceptions and opinions of the programs in the current day, and no research has been conducted for Arizona specifically, revealing a gaping hole in the literature. This project sought to begin to fill that gap. Survey results from University of Arizona students highlighted that in the area of Tucson, Arizona, knowledge of these programs is a relatively high across many fields of study. Research participants had a good understanding of needle exchange programs and their benefits of reducing blood borne disease, but few had a deep understanding of the program or their legal status in Arizona. The majority of respondents did not think these programs should be illegal, yet many still said they would have a negative response if the programs were being operated near their personal or commercial property. There is still a clear separation between knowledge, perception, and law. More research needs to be done to understand why these programs are not legalized in Arizona, and what perceptions and opinions Arizonans hold regarding these programs.

REFERENCES

- amfAR. (2019). Syringe Exchange Programs. Retrieved December 12, 2019, from https://opioid.amfar.org/indicator/num_SSPs.
- Aspinall, E. J., Nambiar, D., Goldberg, D. J., Hickman, M., Weir, A., Van Velzen, E., ... & Hutchinson, S. J. (2013). Are needle and syringe programmes associated with a reduction in HIV transmission among people who inject drugs: a systematic review and meta-analysis. *International journal of epidemiology*, *43*(1), 235-248.
- Beletsky, L., Grau, L. E., White, E., Bowman, S., & Heimer, R. (2011). The roles of law, client race and program visibility in shaping police interference with the operation of U.S. syringe exchange programs. *Addiction*, *106*(2), 357-365.
- Bernard, C. L., Owens, D. K., Goldhaber-Fiebert, J. D., & Brandeau, M. L. (2017). Estimation of the cost-effectiveness of HIV prevention portfolios for people who inject drugs in the United States: a model-based analysis. *PLoS medicine*, *14*(5), e1002312.
- Bramson, H., Des Jarlais, D. C., Arasteh, K., Nugent, A., Guardino, V., Feelemyer, J., & Hodel, D. (2015). State laws, syringe exchange, and HIV among persons who inject drugs in the United States: History and effectiveness. *Journal of public health policy*, *36*(2), 212-230.
- Burt, R. D., & Thiede, H. (2016). Reduction in needle sharing among Seattle-area injection drug users across 4 surveys, 1994–2013. *American journal of public health*, *106*(2), 301-307.
- Christie, N. C., Hsu, E., Iskiwitch, C., Iyer, R., Graham, J., Schwartz, B., & Monterosso, J. R. (2019). The moral foundations of needle exchange attitudes. *Social Cognition*, *37*(3), 229-246.
- Cooper, H. L., Des Jarlais, D. C., Tempalski, B., Bossak, B. H., Ross, Z., & Friedman, S. R. (2012). Drug-related arrest rates and spatial access to syringe exchange programs in New

- York City health districts: combined effects on the risk of injection-related infections among injectors. *Health & place*, 18(2), 218-228.
- Davis, C. S., Johnston, J., de Saxe Zerden, L., Clark, K., Castillo, T., & Childs, R. (2014). Attitudes of North Carolina law enforcement officers toward syringe decriminalization. *Drug and alcohol dependence*, 144, 265-269.
- de Saxe Zerden, L., O'Quinn, E., & Davis, C. (2015). Evidence-based policy versus morality policy: The case of syringe access programs. *Journal of evidence-informed social work*, 12(4), 425-437
- Des Jarlais, D. C., McKnight, C., Goldblatt, C., & Purchase, D. (2009). Doing harm reduction better: syringe exchange in the United States. *Addiction*, 104(9), 1441-1446.
- Green, T. C., Martin, E. G., Bowman, S. E., Mann, M. R., & Beletsky, L. (2012). Life after the ban: an assessment of U.S. syringe exchange programs' attitudes about and early experiences with federal funding. *American Journal of Public Health*, 102(5), e9-e16.
- Goedel, W. C., King, M. R., Lurie, M. N., Galea, S., Townsend, J. P., Galvani, A. P., ... & Marshall, B. D. (2019). Implementation of Syringe Services Programs to Prevent Rapid Human Immunodeficiency Virus Transmission in Rural Counties in the United States: A Modeling Study. *Clinical Infectious Diseases*.
- Goodin, A., Fallin-Bennett, A., Green, T., & Freeman, P. R. (2018). Pharmacists' role in harm reduction: a survey assessment of Kentucky community pharmacists' willingness to participate in syringe/needle exchange. *Harm reduction journal*, 15(1), 4.
- Heller, D., & Paone, D. (2011). Access to sterile syringes for injecting drug users in New York City: Politics and perception (1984–2010). *Substance Use & Misuse*, 46(2-3), 140-149.

- Hurley, S. F., Jolley, D. J., & Kaldor, J. M. (1997). Effectiveness of needle-exchange programmes for prevention of HIV infection. *The Lancet*, *349*(9068), 1797-1800.
- Jarlais, D. C. D., Nugent, A., Solberg, A., Feelemyer, J., Mermin, J., & Holtzman, D. (2015). Syringe service programs for persons who inject drugs in urban, suburban, and rural areas—United States, 2013. *Morbidity and mortality weekly report*, *64*(48), 1337-1341.
- Kerr, T., Small, W., Buchner, C., Zhang, R., Li, K., Montaner, J., & Wood, E. (2010). Syringe sharing and HIV incidence among injection drug users and increased access to sterile syringes. *American journal of public health*, *100*(8), 1449-1453.
- Kulesza, M., Teachman, B. A., Werntz, A. J., Gasser, M. L., & Lindgren, K. P. (2015). Correlates of public support toward federal funding for harm reduction strategies. *Substance abuse treatment, prevention, and policy*, *10*(1), 25.
- Maurer, L. A., Bass, S. B., Ye, D., Benitez, J., Mazzella, S., & Krafty, R. (2016). Trend Analyses of Users of a Syringe Exchange Program in Philadelphia, Pennsylvania: 1999–2014. *AIDS and Behavior*, *20*(12), 2922-2932.
- National Institute on Drug Abuse. (2019, March 30). Arizona Opioid Summary. Retrieved from <https://www.drugabuse.gov/drugs-abuse/opioids/opioid-summaries-by-state/arizona-opioid-summary>.
- Pitt, A. L., Humphreys, K., & Brandeau, M. L. (2018). Modeling health benefits and harms of public policy responses to the U.S. opioid epidemic. *American journal of public health*, *108*(10), 1394-1400.
- Rich, J. D., & Adashi, E. Y. (2015). Ideological anachronism involving needle and syringe exchange programs: lessons from the Indiana HIV outbreak. *Jama*, *314*(1), 23-24.

- Watson, T., & Hughes, C. (2012). Pharmacists and harm reduction: a review of current practices and attitudes. *Canadian Pharmacists Journal/Revue des Pharmaciens du Canada*, 145(3), 124-127.
- Williams, C. T., & Ouellet, L. J. (2010). Misdirected opposition: evidence opposing “not in my back yard” arguments against syringe exchange programmes. *International Journal of Drug Policy*, 21(5), 437-439.
- Wilson, D. P., Donald, B., Shattock, A. J., Wilson, D., & Fraser-Hurt, N. (2015). The cost-effectiveness of harm reduction. *International Journal of Drug Policy*, 26, S5-S11.

APPENDICES

Appendix A: Survey Questions

27

Appendix A

Q1 You are being asked to participate in a research study. Your participation in this research study is voluntary and you do not have to participate. This document contains important information about this study and what to expect if you decide to participate. Please consider the information carefully. This project seeks to understand University of Arizona student's opinions on subjects surrounding harm reduction, drug use, and needle exchange programs. This survey will take less than 15 minutes to complete. There are no expected risks to you as a result of participating in this study. You will not benefit directly from participating in this study. The information that you give in the study will be anonymous. Your name will not be collected or linked to your answers. The information that you provide in the study will be handled confidentially. However, there may be circumstances where this information must be released or shared as required by law. The University of Arizona Institutional Review Board may review the research records for monitoring purposes. For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact the Human Subjects Protection Program at 520-626-6721 or online at <http://rgw.arizona.edu/compliance/human-subjects-protection-program>. By clicking I agree below, you are agreeing to the following statement. I have read (or someone has read to me) this form, and I am aware that I am being asked to participate in a research study. I have had the opportunity to ask questions and have had them answered to my satisfaction. I voluntarily agree to participate in this study. If you select I do not agree, you will exit the survey.

- I agree
- I do not agree

Q2 What is your age range?

- 16-19
- 20-24
- 25-30
- Other

Q3 What field of study are you in?

- Engineering
- Public Health
- Anthropology
- Accountancy
- Art
- Economics
- Social and Behavioral Sciences
- Pre- Med
- Medicine
- Other

Q4 Do you know what the term Harm Reduction means?

- Yes
- Somewhat
- No
- Unsure

Q5 Harm reduction is defined as “a set of practical strategies and ideas aimed at reducing negative consequences associated with drug use.” Does this definition make sense?

- Yes
- Somewhat
- No

Q6 Does this definition match your previous definition?

- Yes
- Somewhat
- No
- I did not have a previous definition

Q7 Do you know what a needle exchange or syringe access program is?

- Yes
- Somewhat
- No
- Unsure

Q8 Needle exchange (or syringe access programs) are community-based prevention programs that allow injection drug users to exchange used needles and syringes for clean products. They can also provide a range of services, including linkage to substance use disorder treatment, vaccination, testing, and linkage to care and treatment for infectious diseases. Does this definition make sense?

- Yes
- Somewhat
- No

Q9 Does this definition match your previous definition?

- Yes
- Somewhat
- No
- I did not have a previous definition

Q10 How would you describe your general attitude toward needle exchange programs?

- Positive
- Neutral
- Negative
- Unsure/No opinion

Q11 How well do you understand needle exchange sites?

- Extremely well
- Very well
- Moderately well
- Slightly well
- Not well at all

Q12 How much do you know about needle exchange sites

- A great deal
- A lot
- A moderate amount
- A little
- None at all

Q13 Do you think needle exchange programs are legal in Arizona?

- Yes
- No
- Unsure

Q14 If these programs are not legal in Arizona, do you think they should be

- Yes, definitely
- I guess so
- Probably Not
- No, absolutely not
- Unsure

Q15 Assume needle exchange programs are legal. If a needle exchange program was being operated near your personal property, how would you respond? Choose all that apply

- I would be unaffected
- I would feel uncomfortable, unsafe, and/or worried
- I would feel angry or irritated
- I would try to get the program moved or shut down
- I would be glad
- I don't know

Q16 Assume needle exchange programs are legal. If a needle exchange program was being operated near your business or commercial property, how would you respond

- I would be unaffected
- I would feel uncomfortable, unsafe, and/or worried
- I would feel angry or irritated
- I would be worried for my business
- I would try to get the program moved or shut down
- I would be glad
- I don't know

Q17 Drug paraphernalia laws in Arizona make it a Class 6 felony to possess, distribute, or advertise drug paraphernalia, which is any product or accessory used to make, use, or conceal drugs. This includes items like drug kits, pipes, and syringes. Does this definition make sense?

- Yes
- Somewhat
- No

Q18 To which extent do you agree or disagree with the following statement:

Clients of needle exchange sites should be charged with a crime under drug paraphernalia laws.

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

Q19 To which extent do you agree or disagree with the following statement: Staff of needle exchange sites should be charged with crime under drug paraphernalia laws

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree

Somewhat disagree

Disagree

Strongly disagree

Q20 To which extent do you agree or disagree with the following statement. Needle exchange sites reduce transmission rates of blood borne illness such as HIV.

Strongly agree

Agree

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Disagree

Strongly disagree

Q21 Do you think needle exchange sites increase drug use?

Yes

Maybe

No

Probably not

Q22 How do you think needle exchange sites impact drug use? Select all that apply

They have no impact on drug use

They increase amount of drug use

They increase number of drug users

They decrease amount drug use

They decrease number of drug users

Unsure