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Syringe Exchange in Monterey County: A Study of Syringe Disposal Practices of Intravenous Drug Users in Monterey County

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Abstract

Central Coast HIV & AIDS Services (CCHAS) is a nonprofit organization that currently administers the only syringe exchange program in Monterey County as a part of its HIV prevention program. State and local public funding for HIV prevention purposes has been drastically reduced, and CCHAS may no longer be able to fund the syringe exchange program. The use of syringe exchange programs is endorsed by many national and international organizations as effective strategies for preventing the transmission of HIV, hepatitis B virus (HBV), and hepatitis C virus (HCV) among intravenous drug users (IDUs) and to encourage proper syringe disposal by IDUs. This study reviewed the syringe disposal habits among IDUs in Monterey County, and concludes that the abandonment of the Monterey County syringe exchange program would result in an increased amount of syringes being disposed of improperly. This study provides four recommendations based on the responses of key informant interviews with Monterey and Santa Cruz County public health officials, surveys of other California county public health officials, questionnaire data collected from syringe exchange program participants and secondary data analysis. First, the Monterey County Board of Supervisors should provide $45K of funding immediately to enhance the syringe exchange program. Second, the Monterey County Public Health and Environmental Health Departments should provide additional proper disposal options for IDUs in the form of kiosks and public drop-off sites. Third, Monterey County Public Health should begin an educational campaign to inform policy makers and the public about the benefits of syringe access for IDUs. Finally, the Board of Supervisors should convene a task force to devise and implement a comprehensive syringe services program to reduce the incidence of HIV and viral hepatitis infections in Monterey County.

Chapter 1 Introduction

Syringe Exchange in Monterey County: A Study of Syringe Disposal Practices of Intravenous Drug Users in Monterey County

As defined by Des Jarlais, et al.'s 2006 study on the diffusion of the Drug Abuse Resistance Education program (commonly known as the D.A.R.E. program) and syringe exchange programs in the 1980's, "The defining characteristic of syringe exchange programs is the exchange of new, sterile needles and syringes to reduce HIV transmission among IDUs" (p. 1355). Many of today's syringe exchange programs have evolved to include other implements for safer intravenous drug injection with a focus on the prevention of transmission of blood borne pathogens such as hepatitis B and hepatitis C (HBV and HCV), referral services to drug treatment centers, referral services to housing and other social services programs, and free testing for HIV/AIDS, HBV and HCV.

Syringe exchange programs have had a controversial history in the United States since their inception in the late 1980s. Despite evidence that syringe exchange programs are effective in preventing infections associated with blood borne pathogens, the federal government has not financially supported syringe exchange programs as a part of a comprehensive program to reduce the transmission of HIV and viral hepatitis among IV drug users. Opponents of syringe exchange programs often cite that syringe exchange programs condone illegal activities, and they often express concern that syringe exchange programs may lead to increased drug use and increases in syringes being discarded publicly. In addition, opponents of syringe exchange programs question the validity of studies that state syringe exchange programs are effective, and argue that even if the programs are effective in reducing the spread of disease that they still promote drug use, presenting a moral or ethical dilemma (Lee, 2014).

Monterey County has been affected by this lack of financial support from government sources. Monterey County's first syringe exchange program was a drop-in center in the city of Salinas called Street Outreach Services that was founded in the mid-1990s by a group of community activists in response to the high risk of HIV infection among local IDUs. While the County Board of Supervisors did not financially support the exchange, the Board allowed the syringe exchange program to operate legally in the County. This nonprofit exchange was privately funded, and after nearly 10 years of private sponsorship was unable to sustain itself financially and merged its services with the local HIV/AIDS nonprofit group CCHAS (then known as John the 23rd AIDS Ministry). Incorporating syringe exchange into the organization's HIV/AIDS outreach and prevention programming, CCHAS has maintained Monterey County's only syringe exchange program for the last 10 years.

State and local funding for syringe exchange has been limited throughout this time period. Public funding for syringe exchange programs has been authorized for some facets of syringe exchange programs, like outreach worker salaries, but never for the syringes or safer injection supplies. This has left a gap in funding throughout this program's existence. In 2009, the state of California's Office of AIDS budget was reduced by more than 50%, resulting in the inability of the state and local agencies, including Monterey County, to continue funding for many HIV/AIDS prevention programs. This has resulted in the complete dissolution of public funding for syringe exchange programs in Monterey County. Therefore, since 2010, CCHAS has operated the syringe exchange program without any public financial support.

The CCHAS program offers a one-for-one syringe exchange, whereby program participants bring used syringes to be disposed of properly and are given a clean, sterile syringe and safer injection supplies for each syringe exchanged. Also available through CCHAS is

confidential HIV and HCV testing, drug treatment referral services, medical treatment and housing referral services. The goal of the one-for-one aspect of the exchange is to encourage program participants to dispose of used syringes properly and to keep used needles out of circulation to prevent the spread of HIV, HBV and HCV that occurs through the use of shared needles, reused needles and accidental needlestick injuries of community members who may come into contact with syringes.

In the year 2011, CCHAS exchanged 78,912 syringes; in 2012, CCHAS exchanged 60,536 syringes; in 2013, CCHAS exchanged 53,161 used syringes from IDUs participating in their syringe exchange program in Monterey County (Kim Keefer, Executive Director at Central Coast HIV & AIDS Services via personal communication, July 17, 2014). CCHAS anticipates that the current year exchange numbers will decrease slightly from the 2012-2013 numbers due to limited supply for exchange (Jocelyn Brady, Development Director at Central Coast HIV & AIDS Services via personal communication, June 23, 2014). Ms. Keefer attributes the downward trend in needles exchanged to the fact that the organization has had to reduce their overall exchange budget each year by cutting staff hours and scaling back the number of syringes that each user can exchange per visit. Without financial support from the community, it is likely that CCHAS will have to abandon its syringe exchange program in the near future. If the syringe exchange program is abandoned, the community will lose this resource for the proper disposal of syringes used by IDUs.

The literature review looks in greater detail at the history and efficacy of syringe exchange programs in the United States and beyond and why the proper disposal of syringes is a public health concern. This study intends to inform the community about how the possible closure of the syringe exchange program could affect the syringe disposal habits of IDUs in the

community and to propose policy recommendations based on those findings. The main research question and sub-questions that were analyzed in conjunction with this study will be provided in Chapter 3.

Chapter 2 Literature Review

Currently, the United States government provides no federal funding for syringe exchange programs, despite a prevalence of evidence that suggests syringe exchange programs are effective in preventing the transmission of HIV and other blood borne infections in the IDU community. AVERT, a British based international AIDS nonprofit organization (formerly known as AIDS Education & Research), reports that research specific to the United States has consistently shown that syringe exchange programs are a key component to addressing HIV prevention in the United States at a significantly lower financial cost than treating infections, yet the United States government has not acted by expanding access to syringe exchange programs ("Needle Exchange & HIV Prevention", 2013). The *National HIV/AIDS Strategy for the United States* concurs that access to sterile needles and syringes is an effective method of reducing HIV transmission and "substantially reduces the risk of HIV infection, increases the probability that they will initiate drug treatment, and does not increase drug use" (White House Office of National AIDS Policy, 2010, p. 16). Syringe exchange programs have been proven effective at preventing the transmission of blood borne illnesses among IDUs without otherwise encouraging or increasing drug use, and have been used internationally with the support of organizations such as the World Health Organization and the United Nations. According to AVERT:

> There has been a long-standing opposition to needle exchanges in the United States of America, with a ban on federal funding for them being in place for more than twenty years. This funding ban was overturned in 2009 but while in place denied needle exchanges a crucial source of funding. Unfortunately, the lifting of the ban was short lived, and in 2012, a ban on federal-funding for needle exchanges was reinstated. Needle

> exchange coverage is therefore very poor compared to many other countries of similar economic development ("Needle Exchange & HIV Prevention", 2013).

Some researchers have concluded that the United States' historical "war on drugs" and "zero tolerance" policy stance towards illegal drug use have fed the controversial nature of SEPs, leading to continued opposition of such programs on the basis that they encourage drug abuse and will cause an increase in drug use (Des Jarlais, 2006; Drucker, 2012; Tempalski, 2007). Contrary to the claims of those who oppose syringe exchange programs, the Institute of Medicine published a report brief regarding syringe exchange programs stating that "a common concern is that sterile needle and syringe access may produce unintended results, including more new drug users, expanded networks of high-risk users, more frequent injection, and more discarded needles in the community. However, studies do not find evidence of such outcomes" ("Preventing HIV Infection among Injection Drug Users in High Risk Countries", 2006, p. 3).

Len Deo, President of the New Jersey Family Policy Council and former member of the New Jersey Governor's Council on HIV/AIDS opposes syringe exchange programs on the grounds that they are ineffective and disputes the validity of scholarly works that provide evidence to the contrary. In reference to the Institute of Medicine's 2006 report Mr. Deo writes that there is "no concrete proof that any needle exchange scheme works to reduce the spread of HIV. A comprehensive 2006 Institute of Medicine (IOM) study of NEPS states 'Evidence regarding the effect on HIV incidence is limited and inconclusive.' If proponents seriously believe that giving out free clean needles reduces the spread of HIV and other blood-borne diseases, then they should get private funding to do valid scientific research" (Deo, "No Reason to fund Needle Exchanges", n.d.). In context, the publication that Mr. Deo refers to, "Preventing HIV Infection among Injecting Drug Users in High Risk Countries: An Assessment of the Evidence", the authors state that many studies of the effect of syringe exchange programs on

HIV incidence are observational studies that do not provide for control group analysis of risk behaviors associated with IV drug use. The authors' conclusions in regards to comprehensive HIV prevention programs that include syringe exchange programs as a component states: "Modest evidence also points to decreasing trends in HIV prevalence in selected cities studied over time. Although many of the studies have design limitations, the consistency of these results across a large number of studies supports these conclusions." (National Research Council, 2006, p.154).

Syringe Exchange opponents Pearson and Sprague argue, "Needle exchange programs are a tacit admission of defeat by governments and communities trying to cope with intravenous drug users" (Pearson & Sprague, 2014, p.2). Their position paper concludes that they oppose syringe exchange programs because they encourage drug addiction (Pearson & Sprague, 2014) although they offer no tangible evidence to support this assertion. Pearson & Sprague acknowledge that syringe exchange programs offer opportunities for drug addiction treatment and referral services but they neglect to discuss syringe exchange programs in the context of their effectiveness at targeting their primary goal – to reduce HIV infection.

Des Jarlais et al. argue that opponents of syringe exchange programs "may be using a loss aversion strategy, because they believe implementation of syringe exchange programs will send the wrong message about drug use and may undermine all other zero tolerance antidrug programs" (2006, p. 1357). In the Des Jarlais 2006 study, the authors compared the diffusion of the D.A.R.E. (Drug Abuse Resistance Education) drug prevention program for school-aged children with syringe exchange programs. They found that D.A.R.E. programs quickly became widespread and accepted public policy despite evidence that the program was not effective at reducing illicit drug use, while syringe exchange programs were limited in their ability to expand

without federal support even though they were widely accepted as effective at preventing the transmission of HIV without increasing drug use. Tempalski, et al.'s (2007) *American Journal of Public Health* article asserts that the controversial nature of syringe exchange in the United States is a "compelling example of the politics of disease" (p. 437) and indicates that the historical zero tolerance and law enforcement response towards drug use has encouraged opposition to syringe exchange programs. Elizabeth Bowen (2012) examines the controversial nature of syringe exchange policy in the United States using the morality policy framework. Bowen states "A rational model of policymaking does not explain the federal government's inaction on needle exchange policy…It is a charged issue, largely driven by values and morals, instead of logic, economics or principles of public health" (Bowen, 2012, p. 122).

Des Jarlais, et al. (2009) reports that although there has been a continuous lack of federal support there has been increased investment from state and local governments, foundation funders, and the private community in syringe exchange programs. This is evidenced by the growth of syringe exchange programs in the United States since the late 1980s. Tempalski et al. (2007) concluded, "when community needs are at odds with national policy, activism and mobilization at the local level are essential in implementing public health programs such as SEPs" (p. 445). The response of community activists and local government policies to implement syringe exchange despite the federal funding ban has led to the operation of 203 syringe exchange programs operating in 34 states in the United States (www.nasen.org).

While needlestick injuries to the general population are uncommon, community generated syringes are not subject to the same regulation as syringes disposed of within the health care setting. Data suggests that more than three billion syringes are used in the community in the United States annually, and as many as one-fourth of the community generated

needles are thought to be from IDUs (Burris, 2002). Due to the high rate of blood-borne infections among IDUs, proper disposal of syringes generated in the IDU community are an important public health goal to ensure the safety of solid waste and custodial workers who are at high risk of coming into contact with used syringes (Coffin, et al., 2007). Syringes that are disposed of improperly, and especially those left out in public spaces such as community parks, streets, public trails and homeless encampments present a danger to any community member who may come in contact with them. The American Foundation for AIDS Research (amfAR) reports in their Issue Brief (March 2013) that syringe exchange programs "reduce the risk that people – including children playing in parks, people putting trash in public trash cans, and medical personnel responding to emergencies – will accidentally come into contact with used and potentially dangerous needles and syringes" (www.amfAR.org).

The public has little tolerance toward the idea of syringes being disposed of in places where they may come in contact with them. Public pressure from complaints that syringes were being discarded publicly led to the closure of a syringe exchange site in Windham, Connecticut (Doherty, et al., 2000). Broadhead, Van Hulst, & Heckathorn's (1999) report on the impact of the closure of a syringe exchange site in Windham, Connecticut, reported that the number of syringes discarded in public and recovered by police, public works employees and outreach worker staff increased by nearly one and a half times the pre-closure numbers in back to back annual reporting cycles. Their study concluded that when the syringe exchange closed in March of 1997, the rate of syringes disposed of in public spaces increased by 53% (Broadhead, Van Hulst, & Heckathorn, 1999). Community members who may be at an increased risk of needlestick injury include emergency medical personnel, public safety officials, and nonprofit outreach personnel who work with the IDU population. In a study of occupational needlestick

injuries among police officers in San Diego it was reported that 30% of police officers surveyed had been stuck by a needle at least once, and more than 27% of those officers reported having had two or more needlestick injuries (Lorentz, Hill, and Samimi, 2000).

Responding to concern that syringe exchange programs might cause an increase in the number of syringes disposed of in public locations, Doherty, et al. (2000) conducted a study that investigated the number of syringes discarded publicly over the two year period immediately following the establishment of a syringe exchange program in Baltimore, Maryland. Citing previous short term studies findings that syringe exchange programs do not increase but may actually decrease the amount of syringes disposed of in public spaces, Doherty et al.'s study sought to provide more insight into the long term effect of syringe exchange on IDU disposal habits. Their study concluded with the finding that the establishment of a syringe exchange program did not result in an increase in the number of syringes disposed of in public locations over the 2 year study period despite having distributed over 600,000 new syringes to IDUs and removing over 250,000 used syringes from circulation, and "the needle exchange program did not increase the burden of discarded needles in the community and therefore could not have elevated the risk of accidental needle sticks with potentially infectious needles" (Doherty, et al., 2000, p. 939).

Tookes, et al.'s comparison study of syringe disposal practices among IV drug users (IDUs) in San Francisco versus Miami sought to highlight the differences in disposal practices between a city that has syringe exchange programs versus a city that does not have needle and syringe programs. This was the first article that the authors were aware of that directly compared the number of improperly disposed syringes in a city with syringe exchange programs versus a city without syringe exchange programs (Tookes, et al., 2011). The authors compiled their

research using two methods of data collection and analysis. The first method included performing visual inspections of public spaces within each city to compare the number of syringes found disposed of improperly in public spaces. The second method included trained interviewers surveying IDUs regarding their syringe disposal practices.

The visual inspection findings of the Tookes, et al. study showed a substantially lower amount of syringes improperly disposed of in public places in San Francisco versus Miami. It was reported that during visual inspection walkthroughs eight times the number of syringes disposed of improperly in public spaces were found in Miami versus San Francisco. Syringe disposal practices as reported in qualitative interviews by IDUs in San Francisco versus Miami also showed a substantially lower amount of syringes improperly disposed of in public places in San Francisco versus Miami. It was reported that 69% of IDUs in Miami indicated disposing of syringes in a public space compared to 11% of IDUs in San Francisco. The authors feel that the results of this comparison study coupled with prior research indicates that syringe exchange programs reduce the risk of viral infection transmission amongst IDUs as well as community members at large, providing evidence that syringe exchange programs provide a public benefit.

Chapter 3 Research Methods

One primary research question and five research sub-questions were examined in order to perform this study. The main research question examined by this study is:

> If the current Monterey County syringe exchange program offered by the nonprofit organization Central Coast HIV/AIDS Services is abandoned, will there be an increase in the amount of syringes that are disposed of improperly, representing a public health risk?

Sub-questions that were considered to perform the study and its implications are:

1) Are syringe exchange programs effective at preventing HIV and HCV in similar sized California counties?
2) How have other counties or cities been affected by syringe exchange program closures?
3) Would police officers and the general public see an increase in used syringes disposed of

improperly and in public spaces?
4) Would the dissolution of the syringe exchange program create a public safety issue for employees who have to locate and/or remove syringes that are disposed of improperly?
5) What measures have other counties or cities taken to reduce the prevalence of used syringes disposed of improperly?

Operational Definitions

For the purposes of this study, the following operational definitions contain the framework for the analysis of the primary research question and research sub-questions:

CCHAS: Central Coast HIV/AIDS Services is dedicated to improving the lives of people affected by HIV/AIDS and reducing the incidence of HIV infection in Monterey and San Benito Counties, California. The syringe exchange program operated by CCHAS falls under the reduction or prevention arm of the organization.

Syringe Exchange Program: CCHAS offers a one-for-one syringe exchange program. This means that for every used syringe that a program participant brings in CCHAS will provide one clean syringe and "rig" up to a total of 7 sets per exchange. Included with the rig are items needed to promote safer IV drug use: sterile alcohol wipes, cotton and a cooking device. The primary goal of the program is to reduce the rate of new HIV infections among the IV drug using population in the County. The secondary goals are to reduce the rate of new Hepatitis B & C infections among IV drug users and to ensure the proper disposal of used syringes to prevent public health risks of the spread of infectious diseases and needlestick injuries. With a one-for-one exchange, in order for program participants to receive a sterile needle and rig they must bring their used syringes to be disposed of properly at the syringe exchange site. This serves to provide an incentive for IV drug users to dispose of their used syringes properly. In previous years, CCHAS provided more than 7 syringes per exchange, however; budget limitations have caused a decrease in the amount of syringes and supplies that are provided.

Abandoned: Without financial support from the community, it is very likely that CCHAS will end the syringe exchange program at the end of the current fiscal year. Once available supplies are depleted CCHAS would no longer be able to support the program financially, and the service would end abruptly.

Increase in the Amount of Syringes Disposed of Improperly: For the purposes of this study an increase in the amount of syringes disposed of improperly would be represented by a 15% or greater increase compared to the current amount of used syringes left out in a public space, thrown in a trash receptacle, or disposed of in a non-sanitary manner. This potential increase will be identified through key informant interviews with public health officials and program administrators, a survey of other County Public Health officials, and questionnaires administered among program participants.

Proper and Improper Syringe Disposal: Proper disposal of syringes encompasses placement of syringes into a medical waste sharps disposal container. Once the collection container is full, the container is turned over to the Monterey County Environmental Health Department. Additionally, disposal of syringes at syringe exchange sites will be considered proper disposal. Improper disposal includes any other method of syringe disposal, such as leaving syringes out in a public space (littering) or throwing a used syringe in a trash receptacle.

Public Health Risk: For the purposes of this study a public health risk will represent an increase in potential exposure to blood borne pathogens associated with improper syringe disposal. This will include the potential spread of infectious disease through accidental needlesticks. Some of the infectious diseases of highest risk are HIV and Hepatitis B & C. This potential risk will be measured through key informant interviews with public health and public safety officials,

questionnaires administered among program participants, and analysis of the literature pertaining to the risks associated with needlestick injuries.

Analysis Technique

This study used three distinct methods of primary data collection. The first method of primary data collection used by this study included three key informant interviews with Dr. Ed Moreno and Amanda Mihalko, Health Officer & Director of Public Health and the HIV/AIDS Program Coordinator for Monterey County (Key Informant Interview #1), respectively, Dr. Lisa Hernandez, Medical Services Director/County Health Officer for Santa Cruz County (Key Informant Interview #2), and Kim Keefer, Executive Director of CCHAS (Key Informant Interview #3). The second method of primary data collection employed survey requests to nine California county public health departments requesting information about the presence of syringe exchange programs in their counties (County SEP Survey). The third method of primary data collection included administering questionnaires to syringe exchange program participants at each of CCHAS' syringe exchange sites regarding their syringe disposal habits (SEP Questionnaire). Analysis of secondary data was also performed to inform the study regarding the likelihood of a public health risk that could be associated with improper disposal of syringes, namely secondary infection due to an increased risk of accidental needlestick injury that could be associated with increased improper syringe disposal.

The key informant interview questions were designed to elicit the specific knowledge that each of the key informants could provide in regards to the research sub-questions. The interview questions that were provided to Dr. Ed Moreno and Ms. Amanda Mihalko for Key Informant Interview #1 were designed to answer the primary research question and research sub-questions

1, 3 and 4, and to request the insight of Monterey County public health officials in determining policy recommendations that could improve the syringe exchange program.

Key Informant Interview Questions, Dr. Ed Moreno, Director of Public Health, Monterey County and Amanda Mihalko, HIV/AIDS Program Coordinator, Monterey County

Q1. Do you feel that syringes/needles being disposed of improperly by IV drug users presents a public health risk in Monterey County to law enforcement officials, waste management workers and the community in general?

Q2. Do you think that the syringe exchange program currently run by CCHAS is effective at preventing used syringes/needles from being disposed of improperly? Does the County take any additional measures to prevent used syringes from being disposed of improperly?

Q3. How do you think the program could be improved in regards to encouraging proper needle disposal?

Q4. If CCHAS had to close their syringe exchange program do you think that we would see an increase in used syringes being disposed of improperly? Do you feel that law enforcement personnel, medical responders, waste management workers and the community in general would have an increased risk of coming in to contact with used needles? Do you think we would see an increase in HIV, HBV and HCV infections in the IDU community?

Q5. If CCHAS had to close their syringe exchange program, do you think the County would respond by taking other measures to prevent used needles from being disposed of improperly, and if so, what measures would you recommend?

Q6. Do you have any knowledge or first hand experience with syringe exchange programs in other California counties?

The interview questions that were provided to Dr. Lisa Hernandez for Key Informant Interview #2 were designed to answer the primary research question and research sub-questions 1 and 5, and to request the insight of neighboring Santa Cruz County in determining policy options that may be reasonably applied to Monterey County. Santa Cruz County's "Syringe Services Program" provides a comprehensive syringe access program including a publicly

funded and administered syringe exchange program. In addition, Dr. Hernandez preceded Dr. Moreno as the Health Officer & Director of Public Health for Monterey County, making her uniquely qualified to provide information regarding the policies of both counties.

Key Informant Interview Questions, Dr. Lisa Hernandez, Medical Services Director/Public Health Officer, Santa Cruz County

Q1. I have read the Santa Cruz County Syringe Services Program Annual Report 2014. It states that the "goal of the SSP is to protect and promote the County of Santa Cruz resident's health and safety by preventing the spread of infectious diseases associated with injection drug use, and by decreasing the number of improperly disposed syringes in the community". Can you tell me how the goal of decreasing the number of improperly disposed syringes is being met with the SSP's format? Which of the components of the program do you think contribute the most to this effort?

Q2. Santa Cruz County's Syringe Services Program is comprehensive, and I would also say progressive, compared to many other California counties that I have studied. Why do you think that Santa Cruz County has enacted such a comprehensive program in their efforts to prevent the spread of diseases associated with IV drug use and prevent syringes from being disposed of improperly in the community?

Q3. Can you think of any ways in which you could strengthen or improve your program? What do you think is the most vital component of the SSP in preventing syringes from being disposed of improperly?

Q4. If the Santa Cruz County Syringe Services Program was abandoned by the County, what do you think would be the results in terms of public health? Do you think that the number of needles disposed of improperly, especially in public places, might increase?

The interview questions that were provided to Kim Keefer for Key Informant Interview #3 were designed to answer the primary research question and research sub-questions 3 and 4, and to provide in-depth program knowledge about the Monterey County SEP administered by CCHAS to the research study. Additionally, questions posed to Ms. Keefer were designed to provide an opportunity for Ms. Keefer to provide policy recommendations that could work to

strengthen the partnership between CCHAS and the Monterey County Public Health Department in its joint efforts to reduce the incidence of new HIV and viral hepatitis infections in Monterey County.

Key Informant Interview Questions, Kim Keefer, Executive Director,
Central Coast HIV & AIDS Services

Q1. How long have you been with CCHAS and in which positions? How long have you run the SEP?

Q2. How many syringes were collected by the SEP in the years 2011, 2012, 2013?

Q3. Do you have any experiences with public disposal? Citizens calling? Law enforcement or public employee complaints?

Q4. Are local police seeing more needles? If so, why do you think they are? Homelessness? Not enough disposal options for IDUs? Less needles available?

Q5. Do you think that the SEP is effective at keeping needles off the streets (disposed of improperly)? How do you think it could be improved?

Q6. Do you think that the number of needles disposed of improperly will increase if CCHAS has to abandon the SEP?

Q7. What measures do you think the County and/or CCHAS could take to prevent needles from being disposed of improperly?

Survey requests were sent to the nine California counties that are nearest in population size to Monterey County: San Joaquin County, Stanislaus County, Sonoma County, Tulare County, Santa Barbara County, Solano County, Placer County, San Luis Obispo County, and Merced County. Santa Cruz County was exempted in lieu of the key informant interview with Dr. Hernandez. The County SEP Surveys were administered via telephone and via email, depending upon the respondents' preferred method of communication. Of the nine survey

requests distributed, five surveys were completed. The participating counties were: Merced County, Placer County, Santa Barbara County, Solano County, and Tulare County. The survey questions were designed to answer research sub-questions 2 and 5, and to inform the study regarding possible policy recommendations that could be applicable to Monterey County. This survey provided multiple-choice responses for questions 1-3, with an open-ended response format for question 4. The survey in its entirety is attached as Appendix A.

California County Syringe/Needle Exchange Programs Survey Questions

Q1. Do you feel that syringes/needles being disposed of improperly by IV drug users presents a public health risk in your County to law enforcement officials, waste management workers and the community in general?

Q2. Does your county have a syringe/needle exchange program for IV drug users that is run by either a public or private agency?

2a.If your County has a syringe/needle exchange program, how is it funded?
2b. If your county has a syringe/needle exchange program, is it administered by:
2c. If your county has a syringe/needle exchange program, is it effective at preventing the spread of blood borne infectious diseases such as HIV/AIDS and Hepatitis C?

2d. If your county used to have a syringe/needle exchange program that is now closed, was there an increase observed in the number of needles disposed of improperly in public spaces after the program was closed?

Q3. Does your county take any other measures to reduce the improper disposal of syringes/needles used by IV drug users, such as the use of community sharps collection sites at transit centers, hospitals, police or fire stations?

Q4. Would you like to add any additional insight into your county's blood borne illness prevention methods and/or programs that target the IV drug user population in your county? If so, please feel free to comment.

The SEP Questionnaire was designed to answer the primary research question and research sub-questions 3 and 4. Questionnaires were administered to syringe exchange program

participants at the Central Coast HIV & AIDS Services syringe exchange program sites in Salinas, CA and Seaside, CA. On July 11, 2014, a total of 39 people used the syringe exchange program in Salinas, California, and 26 syringe exchange program users agreed to participate in the study on that day. On July 17, 2014, a total of 1 person used the syringe exchange program in Seaside, CA, and 1 person agreed to participate in the study on that day. On July 18, 2014, a total of 47 people used the syringe exchange program in Salinas, CA, of which 15 new users agreed to participate in the study on that day. Questionnaire respondents were offered bottled water, granola bars and an assortment of candy in exchange for their participation in the study. The SEP Questionnaire was administered individually and in person by the researcher.

The questionnaire provided multiple-choice selections for all responses; however, when possible, the researcher recorded specific responses to all of the questionnaire questions and recorded all additional comments made by questionnaire participants in an effort to provide additional insight into the disposal habits of syringe exchange program users. Questions 4 and 5 included an open-ended format option for respondents to provide specific answers if none of the given multiple choice options were applicable.

To provide additional insight into policy and program recommendations, the researcher collected demographic data from each of the SEP Questionnaire participants. The researcher collected this data by observation only, and did not ask SEP Questionnaire participants for any identifying characteristics to ensure the privacy and anonymity of those who chose to participate in the study. Data collected included the gender identity, approximate age, and race of SEP Questionnaire respondents. Following is the list of questions asked of SEP Questionnaire participants. The original questionnaire format is attached as Appendix B. A complete list of

questionnaire responses and open-ended responses is attached as Appendix C. A breakdown of the observed demographic data is attached as Appendix D.

Syringe/Needle Exchange Participant Questionnaire Questions

Q1. How many needles do you normally use in one week?

Q2. How many needles do you normally dispose of at syringe/needle exchange sites in one week?

Q3. How many needles do you dispose of in places besides syringe/needle exchange sites in one week?

Q4. When you don't dispose of needles at a syringe/needle exchange site where do you dispose of them?

Q5. If this syringe/needle exchange site was not available, where would you be the most likely to dispose of used needles that you would normally bring for exchange?

Limitations

This study has several limitations. Recent changes to the syringe exchange program hours were instituted shortly before the SEP Questionnaire was administered, lowering the amount of syringe exchange participants who normally use the program. Some participants who would normally have used the syringe exchange during evening hours may not have been able to attend, especially those that have daytime jobs. Those participants who are employed are also more likely to be housed, and it is possible that those IDUs have more resources available to them for syringe access and proper disposal.

Additional factors may have posed threats to the internal validity of this study such as seasonal weather patterns in drug use, differences in the urban landscape and differences in the local community outreach and support services for IDUs. Questionnaire respondents may have

been reluctant to answer questions regarding their syringe disposal habits and drug use honestly, especially if their syringe disposal habits include the improper disposal of used syringes. This could lead to limitations of the reliability of questionnaire responses. In order to best preserve internal validity of this portion of the study, questionnaires were anonymous and confidential and all potential respondents were informed that their participation was completely voluntary and would not affect their ability to use the syringe exchange program. Key informants and secondary data were utilized to add reliable data to this portion of the study.

This study should have external validity with counties of similar IDU population distributions, urban landscape and financial support for syringe exchange programs.

Chapter 4 Results and Findings

Main Research Question: If the current Monterey County syringe exchange program offered by the nonprofit organization Central Coast HIV/AIDS Services is abandoned, will there be an increase in the amount of syringes that are disposed of improperly, representing a public health risk?

The study resulted in three key findings related to the main research question. The first key finding supports the main research assumption that the abandonment of the SEP would result in an increase in improper syringe disposal by IV drug users, but does not appear to support the assumption that improper disposal may pose a public health risk. Results from all of the key informant interviews, secondary data analysis, and questionnaire data support this finding.

Dr. Moreno and Ms. Mihalko of Monterey County Public Health Department both stated that they felt that the syringe exchange program administered by CCHAS is effective at preventing IDUs from disposing of used syringes improperly (personal communication, July 21, 2014). During Key Interview #3, the syringe exchange program administrator also reported that she feels the program is effective at keeping used syringes off the streets because the one-for-one

exchange provides an incentive for IDUs to bring their syringes back to the program (K. Keefer, personal communication, July 17, 2014).

When asked Questionnaire Q5, "If this syringe/needle exchange site was not available, where would you be the most likely to dispose of used needles that you would normally bring for exchange?" nearly all or 95%[1] of respondents reported that they would dispose of used syringes improperly. The majority, or 60%, of respondents indicated that they would dispose of used syringes in the trash, 19% indicated that they would dispose of used needles in public spaces, 12% indicated that they would save and reuse syringes, and only 5% indicated that they would dispose of used syringes in a medical waste sharps container. The large number of respondents indicating that they would dispose of their used syringes in the trash would support an affirmative response to sub-question four that the dissolution of the syringe exchange program could create a public safety issue for employees who have to locate and/or remove syringes that are disposed of improperly. This could pose an increased risk of puncture wounds and secondary infection to waste management workers in Monterey County, and to law enforcement officials and community outreach workers who work with the IDU community.

In addition to supporting the assumption that the abandonment of the Monterey County SEP would result an increase in needles being disposed of improperly by IV drug users, these responses indicate that proper disposal options for IV drug users in Monterey County are limited, and that an increase in risk behaviors associated with an increase in HIV and viral hepatitis could also result from the lack of syringe access that the Monterey County SEP currently provides. Further analysis of these implications will be discussed in the remaining key findings of this study.

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[1] Please see Appendix C for a complete breakdown of responses

The second key finding of the study provides that proper disposal options for the IV drug using community that is served by the SEP are extremely limited and the abandonment of the Monterey County SEP would likely exacerbate this problem. In Key Informant Interview #1, when asked Q2 "Do you think that the syringe exchange program currently run by CCHAS is effective at preventing used syringes/needles from being disposed of improperly? Does the County take any additional measures to prevent used syringes from being disposed of improperly", Dr. Moreno replied that he feels that the Monterey county SEP is effective at reducing the amount of syringes disposed of improperly, however; there is no evidence to support this assertion (personal communication, July 22, 2014). Additionally, Dr. Moreno stated that the County does not specifically offer any additional proper disposal opportunities targeted at the IDU community, but that some cities in Monterey County do offer medical waste sharps disposal containers in their facilities (personal communication, July 22, 2014).

In contrast, additional proper disposal opportunities are provided for IDUs in neighboring Santa Cruz County. Key Informant Interview #2, when asked Q1 "…Can you tell me how the goal of decreasing the number of improperly disposed syringes is being met with the SSP's format? Which of the components of the program do you think contribute the most to this effort?" Dr. Lisa Hernandez responded that providing more disposal opportunities through access to large sharps medical waste disposal kiosks that are available 24 hours a day for public use, in addition to having the syringe exchange program, is an important component of their syringe services program in decreasing improper syringe disposal (personal communication, July 18, 2014). Dr. Hernandez provided that a third kiosk location is currently an expansion project for Santa Cruz County, and is planned to be installed in an area that is in close proximity to some of their County's government and social services and is in an area known to be frequented by the

homeless IDU community (personal communication, July 18, 2014). Additionally, the Santa Cruz "Syringe Services Program" offers syringe exchange five days a week, including some evening hours, and operates out of two locations.

Respondents of the study SEP Questionnaire also indicate a need for additional proper disposal options. When asked, Q4 "When you don't dispose of needles at a syringe/needle exchange site where do you dispose of them", 40%[2] of respondents reported that they either keep all other syringes not disposed of at the Monterey County SEP or that they only bring them to the SEP for disposal, 36% responded that they would dispose of used syringes in the trash, and 9% responded that they dispose of used syringes in public spaces, and only 5% of respondents reported disposing of used syringes in a medical waste sharps container. A large number of syringe exchange program users served by CCHAS are homeless. The number of respondents who report keeping or saving syringes has implications for the need for additional proper disposal opportunities and the need for additional syringe access. If many respondents are saving used syringes, this could be indicative of a short supply. Considering that the syringe exchange program has had to reduce the amount of syringes exchanged in recent years it is likely that syringe coverage in the IDU community is not adequate, and if expanded could be more effective at meeting its prevention goals.

The third key finding of the study is that an increase in the incidence of new HIV/AIDS or viral hepatitis infections is a greater public health risk than that posed by secondary infections as a result of needlestick injuries from improper syringe disposal. The risk of contracting HIV/AIDS or viral hepatitis that can be associated with accidental needlestick injuries is very small; therefore, the possibility of increased viral infections that could result from the

[2] Please see appendix C for a complete breakdown of responses

abandonment of the SEP is a more critical public health risk. Results from questionnaire respondents, secondary data analysis and key informant data all support this finding.

The large percentage of questionnaire respondents (40%) who reported that they keep or do not dispose of syringes other than at the SEP could be an implication that they are already reusing syringes. In addition, 5% of respondents indicated that they give away syringes. Reusing and sharing syringes are risk behaviors associated with an increased incidence of HIV and viral hepatitis infection. The number of SEP questionnaire respondents that reported increased risk behaviors associated with viral infections implies that current syringe access levels are insufficient to meet the demand of the IDU community, and the abandonment of the syringe exchange program could lead to increased HIV and viral hepatitis infections, due to the lack of sterile syringe supplies. Those newly infected are then at risk of transmitting these infections to their sexual partners and family members, spreading these diseases to the general public. The costs associated with treating these diseases are significant, and would pose a significant public health risk.

During Key Informant Interview #1, when asked Q1 "Do you feel that syringes/needles being disposed of improperly by IV drug users presents a public health risk in Monterey County to law enforcement officials, waste management workers and the community in general", Dr. Ed Moreno explains:

> There is probably a risk for injury from puncture wounds for needles in places where they aren't expecting them… I'm not sure there is a public health risk in terms of acquiring a communicable disease or blood born disease, specifically HIV or Hepatitis C because the viruses don't live very long on the needle…The main reason communities would offer or make available SEP is to reduce the transmission of HCV and HIV in the substance abusing community. (E. Moreno, personal communication, July 22, 2014).

Analysis of secondary data provides a greater depth of understanding regarding the increased risk to public health through needlestick injury secondary infections. In a study of community-

acquired needlestick injuries treated at United States hospitals in the years 2001-2008, Dr. Janine Jason asserts that secondary infection such as HIV or viral hepatitis resulting from an accidental needlestick injury is "extraordinarily unlikely" given that worldwide only three cases of HBV and one case of HCV transmission of non-healthcare needlestick injuries have been reported, and no cases of HIV transmission from non-healthcare related needlestick injuries have been reported (Jason, 2013, p.426). Additional information from the CDC reports that the average risk of contracting an HIV infection from a needlestick or other sharp instrument contaminated with HIV positive blood is only 0.3%, the average risk of contracting HCV from a needlestick or other sharp instrument contaminated with blood from an HCV positive person is about 1.8% (CDC, Infection Control in Dental Settings, 2013). With this evidence in mind, the public health risk that could be posed by the number of syringes disposed of improperly should the Monterey County SEP be abandoned would represent a limited public health risk.

During Key Informant Interview #2, in relation to the Syringe Service Program in Santa Cruz County, Dr. Hernandez was asked if she felt that the abandonment of their program would cause an increase in HIV infections, viral hepatitis infections and syringes being disposed of improperly in public. Dr. Hernandez responded emphatically: "Yes, yes, and yes!" indicating that the syringe exchange program is effective at preventing all three of these consequences (personal communication, July 18, 2014). In Santa Cruz County, public health officials believe that their syringe services program have contributed to the decrease of the incidence of HIV in IDUs, and statistics from Santa Cruz HIV/AIDS surveillance shows that in 2012 and 2013 Santa Cruz had no new HIV infections with IDU as a risk factor (Hernandez, 2014, p.3).

Research sub-question #1: Are syringe exchange programs effective at preventing HIV and HCV in similar sized California counties?

Data collected from Key Informant Interview #2 provides affirmative support to sub-question #1. In regards to the effectiveness of syringe exchange programs, Dr. Hernandez stated "I believe that this really does serve a purpose to reduce transmission of HIV and hepatitis and hopefully serve with the harm reduction approach increasing the chance that someone's going to get off drugs" (personal communication, July 18, 2014). Data collected from the County SEP Survey did not produce enough results to determine if syringe programs are effective in other counties. Of the five counties that participated in the survey, only Santa Barbara County had a syringe exchange program. In response to Question 2c "If your county has a syringe/needle exchange program, is it effective at preventing the spread of blood borne infectious diseases such as HIV/AIDS and Hepatitis C?" the survey respondent, Adriana Almaguer, HIV/AIDS Program Coordinator for Santa Barbara County, indicated that she was "not sure" if the program was effective as it was "hard to measure" (personal communication, July 21, 2014).

Research sub-question #2: How have other counties or cities been affected by syringe exchange program closures?

Only secondary data is available in regards to sub-question #2 as none of the counties that participated in the County SEP Survey reported that they had been affected by a syringe exchange program closure. Findings from a study addressing the impact of a syringe exchange closure in Windham, Connecticut suggest that the closure of a syringe exchange program can lead to an increase in syringes being disposed of in public spaces. In comparing the number of used syringes found publicly discarded prior to closure of the exchange and after the closure of the exchange, researchers found that there was a 53% increase in the amount of used syringes found discarded publicly (Broadhead, et. al., 1999).

Research sub-question #3: Would police officers and the general public see an increase in used syringes disposed of improperly and in public spaces?

Key Informant Interview #1 and SEP Questionnaire data support an affirmative response to research sub-question #3. During Key Informant Interview #1, Dr. Moreno discussed with the researcher the conclusions of several studies that looked at the link between the presence of syringe exchange programs and decreased public disposal of used syringes, and the absence of syringe exchange programs linked with greater incidence of public disposal of used syringes. Dr. Moreno feels that "generally speaking, its reasonable to suspect that we might find similar changes to syringes disposed of improperly in Monterey County" in reference to secondary data that is available in the absence of quantitative data that would be specific to Monterey County. SEP Questionnaire data also indicates that the abandonment of the syringe exchange program would cause an increase in used syringes being disposed of in pubic spaces. In response to Q4, 9% of respondents indicated that they dispose of used needles in public spaces. In response to Q5, 19% of respondents indicated that they would dispose of used needles in public spaces. Based on this data, it is reasonable to conclude that if the Monterey County syringe exchange program were abandoned, more IDUs would dispose of used needles in public spaces such as streets, parks, homeless encampments, and wilderness areas. This practice would increase the risk of community acquired accidental needlestick injuries.

Research sub-question #4: Would the dissolution of the syringe exchange program create a public safety issue for employees who have to locate and/or remove syringes that are disposed of improperly?

SEP Questionnaire data supports an affirmative response to research sub-question #4. In response to Q4, 36% of respondents reported that they currently dispose of used syringes in the trash. In response to Q5, 60% of respondents reported that they would dispose of used syringes in the trash if the syringe exchange was not available. This practice would increase the risk of

occupational injury related to puncture wounds among waste management personnel, and also present the risk of secondary infection to law enforcement and community outreach workers in Monterey County who come into contact with IDUs.

Research sub-question #5: What measures have other counties or cities taken to reduce the prevalence of used syringes disposed of improperly?

Data collected from the County SEP Survey and Key Informant Interview #2 provide policy ideas for providing additional proper disposal options for IDUs. Santa Barbara County was the only participating jurisdiction from the County SEP Survey that indicated that they take additional measures to encourage proper disposal of used syringes. In addition to their syringe exchange program, Santa Barbara County offers a "no questions asked" sharps collection location at the Department of Public Health offices (A. Almaguer, personal communication, July 21, 2014). As previously discussed, Santa Cruz County also provides additional proper disposal options for the IDU community. In addition to their syringe exchange program, Santa Cruz County provides two large medical waste drop-off kiosks that are available 24 hours a day for any member of the public to dispose of used syringes (L. Hernandez, personal communication, July 18, 2014).

Chapter 5 Conclusions

This study concludes that the key findings support the assumption that if the Monterey County syringe exchange program is abandoned, there will be an increase in the amount of needles disposed of improperly by IV drug users, representing a public health risk. As demonstrated by the study results, 95% of SEP Questionnaire respondents stated they would dispose of used syringes improperly if the syringe exchange program was not available. Supporting evidence from all three Key Informant Interviews and secondary data analysis also

indicate that the closure of the syringe exchange program would lead to an increase in improper disposal. Should the CCHAS syringe exchange program be abandoned, it is likely that IDUs who frequent the syringe exchange program will engage in risk behaviors that increase their chances of contracting HIV and viral hepatitis. Further research on the syringe coverage levels and program components that would be needed to make the Monterey County syringe exchange program optimally effective at preventing new HIV and viral hepatitis infections should be analyzed and implemented. In response to these key findings, the following recommendations are provided to Monterey County to improve the effectiveness of the syringe exchange program at encouraging proper syringe disposal and enhancing current HIV and viral hepatitis prevention programming.

Chapter 6 Recommendations

Recommendation #1: Provide Funding to CCHAS to expand the current syringe exchange program

It is recommended that the Monterey County Board of Supervisors should immediately provide funding to CCHAS to bring the level of syringes exchanged to meet the demands of the IDU community that uses the exchange. The number of respondents reporting that they currently save or keep used syringes indicates that there is a need in the community for additional syringe coverage. The gradual decrease in syringes and safer injecting equipment being supplied to the IDU community through the use of the syringe exchange program has been a direct result of the loss of financial support from the state and local community. Numerous studies have concluded that syringe exchange programs are essential at preventing blood borne illness among IDUs, and from these studies recommendations for effective programs have been published by many organizations including the World Health Organization, the Centers for

Disease Control and Prevention, the United Nations Joint Programme on AIDS (UNAIDS) and the American Medical Association. As provided by UNAIDS, programs that provide IDUs with the requested amount of syringes needed for safe injecting rather than capped or strict one-for-one exchange are likely to achieve higher syringe coverage (UNAIDS, 2007) and therefore are more effective at prevention of HIV and viral hepatitis. The current capped one-for-one exchange program does not provide adequate syringe coverage to the Monterey County IDU community, and could be made more effective at achieving its primary goal of reducing HIV and viral hepatitis infection if increased supplies were available.

CCHAS currently administers the syringe exchange program with an annual budget of $13,910 (K. Keefer, personal communication, August 5, 2014). This program budget is made up entirely of private funding. CCHAS submitted a program budget proposal to the County Public Health Department at a funding level of $42,064 that would increase exchange syringe coverage by providing funds for additional staff and supplies, expanding the hours and amount of sterile syringes that could be provided by the syringe exchange program. Approving and funding this proposal could prevent new HIV and viral hepatitis infections in the IDU community served by the exchange. As previously stated in the key findings section of this study, the greater public health risk that would be associated with the abandonment of the syringe exchange program is the possibility of increased blood borne infections commonly associated with IV drug use.

According to the Centers for Disease Control and Prevention (CDC), the annual estimated cost in 2010 of treating a single HIV infection was $23,000, with an estimated lifetime cost of treating HIV infection $379,668 (CDC, *HIV Cost-effectiveness,* 2013). The CDC also provides that syringe exchange programs are a cost effective method of preventing HIV, and have estimated the cost of administering syringe exchange programs at $4,000 to $12,000 per

HIV infection prevented (CDC, *Syringe Exchange Programs,* 2005). The greater public health risk that is involved in treating HIV and viral hepatitis infections are considerably higher costs than the cost of prevention. Considering that most of the syringe exchange program participants have very low or no income, the burden of health care costs associated with treating new infections would come from publicly supported health insurance programs.

Recommendation #2: Provide additional proper syringe disposal options

The Monterey County Health Department and Environmental Health Departments should expand opportunities for proper disposal options. This can be accomplished through providing disposal opportunities in addition to syringe exchange. Santa Cruz County currently provides drop-off kiosks that are available to the general public 24 hours a day in addition to a syringe exchange that is open 5 days a week. Santa Barbara County provides a "no questions asked" medical sharps collection site at their public health department office in addition to a syringe exchange program that is open 3 days a week. Both of these options can be used by the community at large for disposal of sharps used for prescription medications as well as by IDUs. Medical waste sharps containers are not readily accessible to the IDU community; many SEP Questionnaire respondents reported that the syringe exchange program is the only place that they dispose of their needles. The proposed kiosk and collection site disposal options provide no cost disposal options to those who cannot utilize medical waste management services or sharps mail back programs due to unstable housing or the lack of financial resources and should serve to encourage the proper disposal of community generated syringes.

In addition, Monterey County should consider forming collaborative agreements with local pharmacies to provide proper syringe disposal collection sites. Enlisting pharmacies in the collection of syringes can provide proper disposal opportunities to both prescription medication

injectors and IDUs. Providing these proper disposal options should also serve to lessen the public health risk of occupational needlesticks to waste management personnel, law enforcement personnel, community outreach workers, and the general public.

Recommendation #3: Implement a community education and outreach campaign

The Monterey County Public Health Department should implement a community education and outreach campaign that provides policy makers and the general public with the evidence needed to understand the public health benefits of syringe access services to IDUs. The public perception of syringe exchange is generally negative, perhaps in part due to fear that coming into contact with contaminated syringes could lead to secondary infection such as HIV and viral hepatitis. To overcome this fear, the educational campaign should provide evidence demonstrating the low risk of secondary infection associated with needlestick injuries, and supporting evidence that syringe exchange programs do not cause the unintended consequences commonly referred to by opponents of syringe exchange: increased drug use, increased frequency of drug use, and an increase in syringes disposed of in public. Evidence should also be provided that presents the benefits of syringe access: decreased risk of HIV and viral hepatitis infections, decreased risk of public exposure to needlestick injury and secondary infections, and opportunities for community outreach services to assist IDUs with housing, medical treatment and substance abuse treatment options. In addition, this campaign should include facts about the public health risk associated with the costs of prevention of HIV and viral hepatitis through the use of syringe exchange services compared with the costs of treating HIV and viral hepatitis infections.

Recommendation #4: Develop a task force to develop and implement a comprehensive syringe services program for IDUs

The Monterey County Board of Supervisors should convene a task force to develop and implement a comprehensive syringe services program. This program should include increased investment in syringe exchange as previously outlined in recommendation #1, and the development of a task force made up of stakeholders that will devise and implement a comprehensive syringe services plan that is effective at preventing blood borne infections, preventing improper syringe disposal, and capitalizes on opportunities for additional community outreach services to the IDU community in Monterey County. The syringe exchange program should provide an outreach opportunity for the community to connect IDUs with valuable social services such as substance abuse recovery and treatment programs, housing assistance, mental health interventions, and other medical services. Kim Keefer explains that valuable improvements could be made to the existing program through a greater local investment in substance abuse recovery programs and mental health programs to assist IDUs in ending their dependence on drugs (personal communication, July 17, 2014). This could be achieved through case management services, linking participants to housing services, mental health services and developing plans for entry into substance abuse treatment (K. Keefer, personal communication, July 17, 2014).

A task force should be formed made up of Monterey County stakeholders to provide insight into developing a comprehensive syringe services program that will be effective based on the specific needs of the local IDU community. Santa Cruz County provides a successful model that could be referred to for guidance. Participation should be requested from county law enforcement personnel, public health officials, medical professionals, substance abuse counselors, CCHAS, former and current IDUs, pharmacists, waste management personnel, the

Health Services Committee of the Board of Supervisors of Monterey County, and area city managers in designing a comprehensive syringe services program aimed at the prevention of new HIV and viral hepatitis infections that also includes an increased investment in recovery and substance abuse treatment as HIV/HCV prevention for IDUs. Many programs neglect to enlist the IDU community in developing programs that are intended to serve them. Developing a program that recognizes the needs based on the perspective of those who will use it could greatly improve the outcomes. Once developed and implemented this program should be evaluated regularly to ensure that it continues to meet its prevention goals and the demands of the IDU community, and can be continuously improved to elicit the best outcomes.

Recommendations for Further Research

Further research should be conducted to analyze the efficacy of the syringe exchange program at preventing HIV and viral hepatitis infections. Currently, Monterey County's syringe exchange program is unable to meet the demand levels of some of its participants. A study of the levels of syringe access needs of the local IDU community coupled with research pertaining to practices that provide the best HIV and viral hepatitis prevention methods could be used to determine ways in which the program could be improved.

Analysis of the demographic profile of syringe exchange users could be studied to provide insight into specific education and outreach services that should be provided to the at-risk IDU community to prevent public health risks. For example, for those participants who responded that they dispose of used syringes publicly, education and outreach efforts can be targeted to reach the specific types of IDUs that are most likely to engage in this practice. If there are specific groups of participants who are more likely to engage in higher risk behaviors, such as needle sharing or reuse, outreach education can be targeted at addressing these risk

behaviors with the specific groups of people who are the most likely to engage in them. By targeting those IDUs most likely to engage in specific risk behaviors, it is possible that outreach and education efforts would be more effective at preventing HIV and viral hepatitis outbreaks in the community.

Additionally, linkages between substance abuse and homelessness should be studied. Substance abuse may contribute to homelessness, and homelessness may lead to increased risk behaviors in the IDU community. For example, when asked how many syringes she normally used in a one-week period, one SEP Questionnaire participant commented that her method of ingesting drugs changed from smoking heroin to injecting when she lost her place to live. As injection drug use is a leading risk factor that contributes to the contraction of HIV and viral hepatitis, this participant's homelessness seems to have contributed to her engaging in this risk behavior. Understanding and acting on the prevention this type of escalation in substance abusers may also contribute to a decrease in new HIV and viral hepatitis infections. Additionally, opportunities for collaboration among community outreach groups could provide a framework for permanently reducing drug dependence in this population. If the community can capitalize on the outreach opportunities provided by the syringe exchange program to engage with IDUs and assist them into recovery and then transition from recovery into stable housing and employment, perhaps the cycle of homelessness and engaging in risk behaviors can be broken. Ultimately, ending drug dependence is the best prevention tool for reducing the risk of HIV and viral hepatitis infection in the IV drug using community.

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Appendix A

California Syringe/Needle Exchange Programs Survey

Please indicate your selection by choosing the answer that best fits your county's current programming. Thank you for your participation.

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1. Do you feel that syringes/needles being disposed of improperly by IV drug users presents a public health risk in your County to law enforcement officials, waste management workers and the community in general?
   a. Yes
   b. No
   c. Not sure

2. Does your county have a syringe/needle exchange program for IV drug users that is run by either a public or private agency?

   a. Yes (If selected, please answer questions 2a-2c below)
   b. No, my county has never had a syringe/needle exchange program (If selected, please skip to question 3 below)
   c. No, my county had a syringe/needle exchange program but it has closed (If selected, please skip to question 2d below)

   2a. If your County has a syringe/needle exchange program, how is it funded?
      a. Publicly funded
      b. Privately funded
      c. A combination of public and private funding

   2b. If your county has a syringe/needle exchange program, is it administered by:
      a. a public agency
      b. a private agency
      c. public-private partnership

   2c. If your county has a syringe/needle exchange program, is it effective at preventing the spread of blood borne infectious diseases such as HIV/AIDS and Hepatitis C?
      a. Yes
      b. No
      c. Not sure

   2d. If your county used to have a syringe/needle exchange program that is now closed, was there an increase observed in the number of needles disposed of improperly in public spaces after the program was closed?
      a. Yes
      b. No
      c. Not sure

3. Does your county take any other measures to reduce the improper disposal of syringes/needles used by IV drug users, such as the use of community sharps collection sites at transit centers, hospitals, police or fire stations?
   a. Yes (please specify) _____
   b. No

4. Would you like to add any additional insight into your county's blood borne illness prevention methods and/or programs that target the IV drug user population in your county? If so, please feel free to comment.

Appendix B

Syringe/Needle Disposal Questionnaire

Instructions:

Please answer the following questions by circling the answer from the list of responses that best fits your syringe disposal habits. There are no personal identifying questions, and all answers shall remain anonymous and confidential. Your participation is completely voluntary and will not impact your ability to use the syringe exchange program. Your answers will be used as a part of a graduate student's research project. Thank you for your participation today.

1) **How many needles do you normally use in one week?**
   a. 0-5
   b. 6-10
   c. 11-15
   d. 16-20
   e. More than 20

2) **How many needles do you normally dispose of at syringe/needle exchange sites in one week?**
   a. 0-5
   b. 6-10
   c. 11-15
   d. 16-20
   e. More than 20

3) **How many needles do you dispose of in places besides syringe/needle exchange sites in one week?**
   a. 0-5
   b. 6-10
   c. 11-15
   d. 16-20
   e. More than 20

4) **When you don't dispose of needles at a syringe/needle exchange site where do you dispose of them?**
   a. Private trash can
   b. Public trash can
   c. Street/ground, trail, wilderness area, or other public space
   d. Medical waste sharps container
   e. Other (please fill in where) _____

5) **If this syringe/needle exchange site was not available, where would you be the most likely to dispose of used needles that you would normally bring for exchange?**
   a. Private trash can
   b. Public trash can
   c. Street, ground, trail, wilderness area, or other public space
   d. Medical waste sharps container
   e. Other (please fill in where) _____

Appendix C

	Question 1	Question 2	Question 3
Respondent 1	d	b	a
Respondent 2	a	b	b
Respondent 3	d	b	a
Respondent 4	e	e	No response
Respondent 5	e	b	a
Respondent 6	b	e	a
Respondent 7	b	b	a
Respondent 8	e	c	e
Respondent 9	c	c	e
Respondent 10	b	b	q
Respondent 11	e	e	a
Respondent 12	a	b	a
Respondent 13	b	b	a
Respondent 14	a	c	a
Respondent 15	b	b	a
Respondent 16	a	b	a
Respondent 17	b	b	a
Respondent 18	a	b	a
Respondent 19	c	c	a
Respondent 20	c	c	a
Respondent 21	e	a	b
Respondent 22	b	b	a
Respondent 23	c	c	a
Respondent 24	b	b	a
Respondent 25	b	c	a
Respondent 26	b	d	a
Respondent 27	c	d	a
Respondent 28	e	c	a
Respondent 29	b	b	a
Respondent 30	e	c	e
Respondent 31	b	e	a
Respondent 32	c	e	a
Respondent 33	a	b	a
Respondent 34	e	b	d
Respondent 35	a	a	a
Respondent 36	b	c	a
Respondent 37	a	a	a
Respondent 38	a	b	c
Respondent 39	b	b	a
Respondent 40	a	a	a
Respondent 41	c	c	b
Respondent 42	a	d	a

	Question 4	Comments	Question 5	Comments
Respondent 1	e	keep them	b	
Respondent 2	b		b	
Respondent 3	e	both a or b	b	
Respondent 4	c		b	
Respondent 5	b		b	
Respondent 6	c		e	wherever they land or trash
Respondent 7	a		a	
Respondent 8	b		e	anywhere
Respondent 9	e	b or save them	b	
Respondent 10	e	I don't	e	burn them
Respondent 11	e	keep them	e	use until broken, then put them in public or private trash
Respondent 12	e	keep them in a bottle	e	b or keep them
Respondent 13	e	keep them	e	break and put them in a fireplace or private trash
Respondent 14	e	burn them	e	burn them
Respondent 15	e	break them and put in public trash	e	
Respondent 16	b		e	When I use more they end up wherever
Respondent 17	e		b	
Respondent 18	e	keep & give to friends to exchange	e	sharpen them and reuse them instead
Respondent 19	e	save them	e	throw them in a toilet and flush them
Respondent 20	e	wherever	c	c or wherever they land
Respondent 21	c		c	
Respondent 22	e	keep them	b	break them and put in public trash can
Respondent 23	e	wherever	b/c	where no one can see or public trash can
Respondent 24	b		b	
Respondent 25	b		b	
Respondent 26	b		b	
Respondent 27	e	save in container/bag or public	e	destroy them so no one know they are needles or gets hurt
Respondent 28	e	save until exchange	e	save until I find an exchange somewhere else

Respondent 29	b	break the tip off first	b	break the tip off and put them in a public trash can
Respondent 30	b	break them first	b	break the needles off and put them in a milk jug then public dumpster
Respondent 31	e	keep them	e	save and reuse them
Respondent 32	e	I bring them all to exchange	e	I don't know what I would do with them
Respondent 33	b		b	
Respondent 34	e	save or a medical waste container	e	save until I can find a medical sharps container
Respondent 35	e	I only brign them to the exchange	b	break them and throw them in a public trash can
Respondent 36	e	give them away	b	break the needles off and thrown them in a public trash
Respondent 37	e	save them	e	keep them and use them until they break
Respondent 38	e	keep them	c	I'd leave them out of sight somewhere
Respondent 39	d		e	save until I can find a bag or container
Respondent 40	e	bring them all here	b	bag them and put them in a public trash can
Respondent 41	e	keep them	b	save until the break and throw them away in a dumpster
Respondent 42	e	save them	b/c	break off needle, put them in a plastic bag and dispose of them outside of chinatown

Appendix D
Demographic Profile of SEP Questionnaire Participants

Respon-dent #	Gender	Race	Age
R1	M	W	3
R2	M	W	3
R3	M	H	3
R4	M	W	3
R5	F	H	3
R6	M	W	3
R7	M	B	3
R8	T	H	1
R9	M	H	2
R10	M	H	2
R11	M	W	2
R12	M	B	2
R13	M	W	3
R14	M	W	4
R15	F	W	4
R16	F	W	3
R17	M	W	4
R18	M	W	4
R19	F	H	4
R20	M	A	1
R21			
R22	F	W	4
R23	F	H	1
R24	M	H	3
R25	F	B	1
R26	M	H	2
R27	M	H	3
R28	F	W	1
R29	M	W	1
R30	M	H	3
R31	F	W	4
R32	F	W	3
R33	M	W	4
R34	M	H	3
R35	M	W	4
R36	F	W	4

Gender Values M = Male
F = Female
T = Transgender

Race Values W = White
H = Hispanic
B = Black
A = Asian/Pacific Islander

Age Values 1 15-25
2 26-34
3 35-44
4 45-64
5 65+

R37	M	H	4
R38	M	H	1
R39	F	W	4
R40	F	W	3
R41	M	H	1
R42	F	H	4

Appendix E
County SEP Survey Results

	County Survey Results	Q1-Do you feel IDU improper disposal is a public health risk	Q2-Have SEP?	Q2a- private or public funding	Q2b- Is it administered by private, public or partnership	Q2c-is SEP effective at prevention of HIV/HCV	Q2d-If SEP is closed, increase in needles improperly disposed of?	Q3-Does your county take other measures to reduce improper disposal?	Q4-Comments on programs targeting IDU
C1	**Tulare County**	Yes	No	n/a	n/a	n/a	n/a	No	n/a
C2	**Santa Barbara County**	Yes	Yes	Privately Funded	Public/Private	Not sure hard to measure	n/a	Yes, PHD has a no questions sharps dropoff	n/a
C3	**Solano County**	Yes	No	n/a	n/a	n/a	n/a	No	Testing/education, "Healthcare for the Homeless", needle purchase thru participating pharmacies
C4	**Placer County**	Not sure - any are a risk	Not sure	n/a	n/a	n/a	n/a	No	n/a
C5	**Merced County**	not sure	no	n/a	n/a	n/a	n/a	Yes sharps recycle/medical	No programs are offered, thinks they don't have a large IDU population