Syringe Exchange in Sacramento

Prepared by: Harm Reduction Services - 2015

Local Politics

Yolo County:
California: Supervisors Split, but OK Extension of Syringe Program

From CDC National Prevention Information Network

August 12, 2008

Despite complaints about discarded syringes in Woodland City, Yolo County supervisors voted 3-2 to extend and fund a needle exchange program for another year.

The county health officer said the Syringe Exchange Program (SEP) is warranted to prevent HIV and hepatitis from spreading among injection drug users (IDUs). "These are expensive diseases we're trying to prevent," said Dr. Bette Hinton, director of the county Health Department.

Launched last year, the SEP serves about 150 IDUs. It has distributed nearly 62,000 syringes, with an 82 percent needle-recovery rate. Of the clients, approximately 70 percent are homeless, most are men, and many are over age 50, Hinton said. Sixty-four percent inject methamphetamine, while the remaining use heroin or other drugs, county data show.

However, Woodland City workers have in recent months complained about having to pick up more hypodermic needles in Freeman Park, near the county courthouse. And members of Woodland Council were surprised to discover an exchange operated in the park.

Kathy Lambert, who lives in a historic part of Woodland, said she was angered recently to discover her 10-month-old puppies chewing on syringes in her fenced-in backyard. Lambert blamed the exchange's clients for tossing needles over her fence.

County Supervisor Matt Rexroad voted against the extension and $100,000 in SEP funding, saying the money would be better spent elsewhere. His suggestion to put needle refuse boxes in city parks was rebuffed, he noted. The supervisors who supported the SEP said its costs could be offset by the health savings resulting from fewer HIV and hepatitis C infections.

Sacramento

Doctor know

By Cosmo Garvin
cosmog@newsreview.com

This article was published on 09.08.11.

So much drama in Sacramento politics lately. There was the supposed scourging of Oak Park by redistricting. Then the great chicken liberation of 2011. Instead of real issues, we've got our own little reality TV show—all shrill and fake and weirdly hard to look away from.

Mesmerized and a little depressed, Bites nearly missed the one thing that happened at city hall in the last couple of weeks that will actually make a difference in people's lives.

Sacramento's public health officer, Dr. Glennah Trochet came before the city council on August 30 to report that the city's policy of allowing needle exchangeprograms and the sale of clean syringes at local pharmacies is saving lives.

The percentage of new HIV cases in Sacramento caused by injection drug use has dropped steadily since the programs were launched, from 20.4 percent in 2007 to just 12.7 percent last year.

"It means that access to clean syringes is working. As we expected," Trochet told Bites.

Whoa. It's almost as if science really is a good foundation for public policy. Who knew?

The doctor knew, of course. Back in 2005, Trochet spent months banging her head against a wall, trying to convince local government leaders to look at the evidence showing access to clean needles cuts down on disease and protects public health.

Everywhere Trochet went, she was followed by the same law-enforcement lobbyist who repeated the same mantra, access to clean needles is condoning and encouraging drug use.

"It's like saying access to glasses increases the use of wine. It's not true. What increases drug use is the access to drugs," Trochet said.

She went to the Sacramento County Board of Supervisors, and to the city councils of Elk Grove, Rancho Cordova, Folsom, Citrus Heights and Galt. "They all turned me down. It was pretty depressing."

But the next year then Sacramento City Councilman Ray Tretheway approached Trochet and asked for help putting together an ordinance allowing pharmacies to sell syringes without a prescription. It passed, and the next year, another ordinance was passed allowing needle exchange in the city of Sacramento.

Rachel Anderson executive director of the Sacramento Safer Alternatives through Networking and Education, one of the two local programs authorized to do needle exchange work in the city, says her organization makes about 1,200 contacts a year, distributing 400,000 clean syringes. That includes the City of Sacramento and Yolo County, which adopted a similar measure back in 2008. SANE also distributes information about drug rehabilitation and protection against STDs and other health information as they go.

None of it costs the city anything—other than some brain power and political will—it's all supported by grants and private donations.

Trochet says the county doesn't have the resources to investigate new Hepatitis C cases the way it does HIV. But she's willing to bet the needle programs are making a dent in that disease as well.

"Glennah Trochet is a hero," says Anderson. As for the Sacramento County Board of Supervisors: "We've dumped truckloads of data on them. We're into the third decade of this epidemic. The evidence is just overwhelming. But we just get these stupid responses from the board."

Trochet thinks she might be able to change some minds, "If I were staying." But she's decided to step down from her job this month and go back to family medicine. And what of her quixotic campaign to bring the county supervisors into the 21st century? "I think it might be a good thing for my successor to try to do," Trochet said.

Public Health Officer Reports 2008-2010
**see attachment A*

Dr. Neil Flynn MD, MPH - Research
Dr. Neil Flynn, a long time infectious disease specialist in Sacramento, references a study he conducted in the late 90's, in which he found a 7% positivity rate of HIV among injection drug users (IDU), in Sacramento County.
The rate of HIV infection among IDU's is now less than 1%.
Personal communication with Dr. Neil Flynn, MD, MPH

Current Scope of Infectious Disease Associated with IDU
IDU is the 3rd most frequently reported risk factor for HIV infection. IDU is considered the primary cause of HCV in the U.S. *CDC – HIV Surveillance Supplemental Report 2012*

HIV/AIDS:
According to the California Department of Public Health, *June 2014*, Sacramento is in the Top 10 AIDS counties in CA, with 4227 cases.

CDPH also reported 1627 cases of HIV, *June 2014*

HRS conducted 1000 HIV tests in 2014, reporting 6 new infections

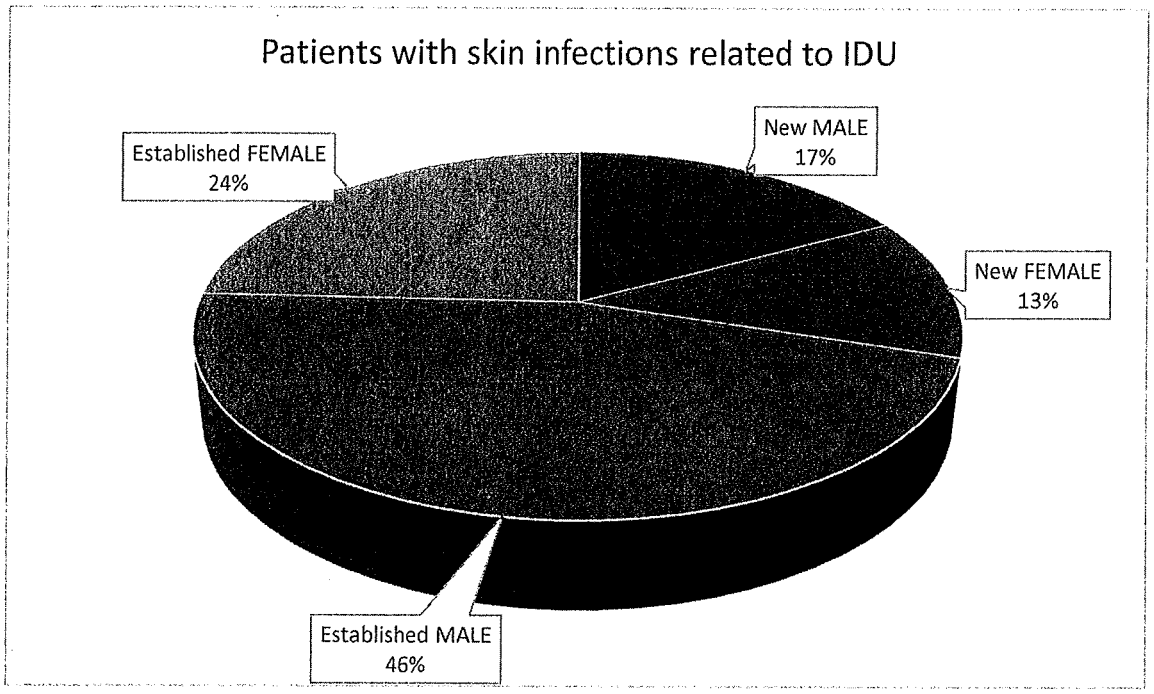
Hepatitis C (HCV):
Sacramento County reported 4175 cases of Hepatitis C as of 2012
Sacramento County Public Health Officer, Health Status Report 2014

HRS conducted 240 HCV tests in 2014, reporting 51 new infections

Skin Infections

Most people with skin infections (abscesses), related to injection drug use, will not seek medical attention at a hospital, emergency room, or primary health center. About 2/3 of those with infections will either self treat the wounds at home, or commonly people will access Harm Reduction Services' free medical service, Joan Viteri Memorial Clinic (JVMC).

In 2014 (1/1/14 – 12/31/14), JVMC had 407 patient visits. Of those, 111 (27%), were for skin infections (abscesses), related to injection drug use. *79 of those were unduplicated.* Additionally, 16 were for other complications related to injection drug use such as disease testing and maintenance.



A recent study being conducted on abscesses among IDUs in Sacramento, by one of our JVMC doctors, revealed the following:

Of 38 people interviewed:

Characteristics

Mean Age	38.7	Mean Yrs. Injecting	15
Female	29%	Mean Injections Per Day	4
Caucasian	68%	Mean # Times Reusing Needle	7
Stable Housing	53%	Mean # Times Reusing Cooker	27
MRSA+	26%	Mean # Times Reusing Cotton	7
HIV+	0		
HCV+	47%		

= increase in abscesses & disease transmission

Access to Supplies

% Who Always Have Supplies	26%
Item Most Often Missing or Reused	
Needle	53%
Cooker	24%
Cotton	13%
Other (alcohol swabs, tourniquets)	10%

Syringe exchange County wide would have a huge impact on this.

Abscesses

Mean Lifetime # of Abscesses	17
Primary Source of Abscess Care	
Emergency Room	48%
Self or Non-Medical Person	26%
Free/Mobile Clinic	16%
Syringe Exchange	3%

Overdose

Opioid overdose is the leading cause of accidental death in the U.S., surpassing motor vehicle accidents. *CDC – 2013*

CA State Department of Alcohol & Drug Program reported 10.4 overdose deaths per 100,000 people in CA. *(2008)*

California Department of Public Health reported Sacramento having 15.4 overdose deaths per 100,000. *(2009-2011)*

150 people will die from accidental overdose in Sacramento County this year.

Harm Reduction Services designed and implemented an Overdose Prevention & Response Training program when the law changed to support syringe access programs dispensing Naloxone (Narcan), opioid overdose reversal medication, in January 2014. Our most recent numbers reflect 139 laypeople (substance users, family, friends) trained to respond to overdose, resulting in 24 lives saved (overdose reversals).

Be AWARE
Overdose is the #1 cause of Accidental Deatth in the US

This is how many people will die in the US of an Accidental Overdose in the next 72 hours...

EDUCATE
Yourself and others

These loved ones could not be saved maybe some one you love can...

END the STIGMA
END the SHAME
Harm Reduction Saves lives

**The girl standing at center bottom, is Sammy, she is local to this region. Her mom made this poster of people who have died of accidental overdose, it represents the number of people who will die of overdose in the U.S., in the next 72 hours.*

Current Laws
**See attachments B - D*

Sharps Disposal
**See attachment E (Sacramento County Sharps Disposal)*
Most people will not use individual drop off of Sharps at County facilities due to fear, stigma, and lack of resources. However, the County will not accept the household generated Sharps that we collect for the public health safety of this County.

Current Efforts
Harm Reduction Services - **see attachment F*
F - Snapshot of the population HRS serves and the impact of those services.

SANE – *information requested to be sent directly to PHAB*

Other Supporting Documents
**see attachments G – J*
G – Syringe Exchange Programs in California: An Overview
H – State & Federal Reports in Favor of Syringe Exchange and Pharmacy Sale of Syringes
I – Hepatitis and Liver Cancer: A National Strategy for Prevention and Control of Hepatitis B and C
J – Syringe Exchange in the United States: A National Level Economic Evaluation of Hypothetical Increases in Investment

Websites:
http://www.cdph.ca.gov/programs/aids/Pages/OASyringeAccess.aspx

http://www.cdph.ca.gov/programs/aids/Documents/SEP_Map041014.pd
*which counties and cities have SEP

http://www.cdph.ca.gov/programs/aids/Documents/CALegalCode10_1_2014.pdf
*state statutes as described by Office of AIDS

http://www.cdph.ca.gov/programs/aids/Pages/SyringeExchangeCertificationProgram.aspx
*the process of getting State approval should we not get County or City approval locally

RECOMMENDATIONS

***Those who have been advocating for the legalization of SEPs for several years, ask that the County follow our lead on any publications, public comment, and/or policy work regarding syringe exchange. It is important that we are strategic in approach and work closely with the State Office of AIDS representatives, local lobbyist, local SEP's, politicians, and individuals invested in this important public health issue for several years.**

***We greatly appreciate the Public Health Advisory Board's interest and support.**

Long-term Recommendations

Sacramento County legalize syringe exchange

All Sharps disposal thru County (from SEPs)

Interim Recommendations

Solicit current Sherriff support

Support efforts to get individual City governments to legalize SEP

ATTACHMENT

A

Report Transmittal Form

MEETING DATE: May 6,2008 ☒ **2:00 p.m.** ☐ **7:00 p.m.**

Title: Annual Report to the Sacramento City Council on Access to Clean Syringes Programs

Presenting to the following Legislative Bodies:

☒	City Council	☐	Financing Authority
☐	Redevelopment Agency	☐	Economic Development Commission
☐	Housing Authority	☐	Other

Type of Report: (check below)

☐	Administrative Matters	☐	Public Hearing	☐	Information
☐	Special Presentation		Noticing completed:	☐	Regional
☐	Consent	☒	Staff		

Special Requirements: (check below)

☒	Majority Vote	☐	Color Inserts (30 sets)
☐	2/3 Vote	☐	VHS-DVD Presentation
☐	Suspend Competitive Bidding	☐	PowerPoint Presentation
☐	Other	☐	Material On File in Clerks Office

Report Review

Fiscal Impact:

- ☐ Budget Change?
- ☐ General Fund
- ☐ Other Fund
- ☐ Fund Number(s)
- ☐ Change FTE?

Budget Office Review

☐ Yes	☐ No	Resolution
☐ Yes	☐ No	Budget Impact
☐ Yes	☐ No	EB/RB Needed

Policy Issues:

- ☐ Emerging Small Business Development Issues: (ESBD) Note on Report
- ☐ Environmental Issues: Note on Report
- ☐ Legal Issues: Note on Report
- ☐ Other:

Budget Office Comments:

Other Comments:

Department:	County Health Officer	**Division:**	
Report Author/Contact:	Glennah Trochet	**Phone**	916-875-5881
Report Coordinator	Yvette Rincon	**Phone:**	5827

Department Code: For Department Use

REPORT TO COUNCIL
City of Sacramento

915 I Street, Sacramento, CA 95814-2604
www. CityofSacramento.org

Staff Report
May 6, 2008

Honorable Mayor and
Members of the City Council

Title: Annual Report to the Sacramento City Council on Access to Clean Syringes Programs

Location/Council District: City-wide

Recommendation: 1) Receive and File the first annual report on Access to Clean Syringes Programs in the City of Sacramento and 2) Direct staff to work with the County Public Health Officer on a plan to deal with syringe disposal as it relates to the syringe exchange programs and the new state law that takes effect September 1, 2008 and return to Mayor and Council for approval of the plan.

Contact: Glennah Trochet M.D. Sacramento County Public Health Officer (916) 875-5881

Presenters: Glennah Trochet M.D.

Department: Sacramento County Department of Health and Human Services

Division: Public Health

Organization No: x

Description/Analysis

Issue: In November 2006, the Mayor and City Council approved the over-the-counter pharmacy sales of clean syringes in the City of Sacramento. And in January 2007 the City of Sacramento Mayor and City Council authorized the operation of clean syringe exchange programs in the City of Sacramento. The ordinances required an annual report detailing the status of the programs. This report includes information on blood borne infections associated with needle sharing activities, as well as a description of the implementation of both programs and known outcomes as of February 29, 2007.

In Sacramento, the use of illegal drugs and sharing of syringes is the second most common way in which HIV is transmitted and the most common in which Hepatitis C is transmitted. From the beginning of the epidemic in 1982 until December, 2007, Sacramento County has recorded 3,605 cases of AIDS. Of these 72 % (2,858) were living in the City of Sacramento at the time of the report. As of the end of 2007 there were 1,204 cases of HIV reported in the county, of these, 78% (944) lived in the City of Sacramento at the time the report was

made.

It is estimated that 600,000 people in California are infected with Hepatitis C. If this is so, then we project that 22,100 people in Sacramento County must also be infected. In 2007 there were 795 new cases of Hepatitis C reported in Sacramento County, compared to 982 cases reported in 2006. Of these, 554 reported cases in 2006 and 432 reported cases in 2006 lived within the City of Sacramento limits.

Disease Prevention Demonstration Project (DPDP): There are currently **twenty-four** registered pharmacies participating in the project in the City of Sacramento including thirteen Rite Aid pharmacies, four Longs Drugs pharmacies, five Leader pharmacies, and the Center for AIDS Research and Education Services (CARES) pharmacy. Since the inception of the project, one pharmacy location has dropped out of the project. The reason given was fear that the project would attract criminal and undesirable patrons to the pharmacy.

Two surveys of pharmacies have taken place, which show that all locations are selling at least 10 syringes per month, and most are averaging 100-500 syringes a month in the DPDP. All pharmacies report distributing the required brochure with each purchase of syringes, most of which are sold in packages of 10. Pharmacies reported very few adverse events: one incident of verbal abuse to the pharmacist by a patron was reported, and a few incidents where the syringes were not sold because the individual requesting to buy was under age.

Syringe Exchange Programs: Two Syringe Exchange programs are in place in the City of Sacramento. Harm Reduction Services (HRS) is a community based organization that works with high risk clients providing education, prevention and HIV and Hepatitis C testing. Their clients include current drug users, men who have sex with men, sex workers and the homeless. Of their clients, 55% are male and 45% female. They range from 25 to 45 years of age, and approximately 45% are people of color.

Clean syringes for exchange, and testing services, are available at their office Tuesday through Friday from 10 am to 1 pm. and Saturday from 11 am to 5 pm. Also, the HRS outreach van conducts street based services three afternoons a week from 1 to 4:30 pm. and Saturday evenings from 10 pm to 1 am at various locations in the City of Sacramento. HRS staff collects used syringes during outreach contacts. Biohazard waste containers are provided to participants when possible.

HRS hosts the Joan Viteri Memorial Clinic (JVMC) in partnership with the UC Davis Medical School. The clinic's services include abscess treatment, Hepatitis vaccinations and other medical services for injection drug users. It is located at the HRS offices in Oak Park. Clean syringes are distributed, used ones are collected for disposal and clients can also receive various supplies to prevent infections.

From November 2007 to February 2008 HRS distributed 42,000 new syringes.

They have vaccinated 40 individuals against Hepatitis A and Hepatitis B and more than 1,500 individuals received information about drug treatment, medical care and how to prevent the spread of blood borne diseases. The JVMC clinic saw more than 400 patients for medical services in 2007. HRS staff is trained to use the rapid HIV test. Out of 140 individuals tested for HIV, three were found to be HIV positive, and were connected to medical treatment and other services.

Safer Alternatives thru Networking and Education (SANE) is the second syringe exchange program. SANE utilizes social network representatives (designated by members of the social network) to deliver the greater part of the HIV risk reduction supplies and prevention education to local injection drug users (IDU.) Social network representatives (SNR), maintain regular, direct contact with SANE staff and systematically deliver education and supplies to other IDU that do not contact SANE directly.

Three staff are available on pager Monday through Saturday, 10 am – 8 pm. A return call to IDU is made within 48 hours of receiving a voice page. During the return phone call a time and place for the contact is arranged. Most frequently, program services are provided in participants' homes and regular gathering places which allow staff to work with IDU on risk reduction strategies in the environment in which they actually use drugs.

Used syringes are collected by staff during outreach (exchange) contacts (usually in biohazardous waste containers provided to participants by SANE) and disposed appropriately. Staff respond to calls from community members who have household-generated waste (e.g. diabetics) or who have seen syringes discarded in public places by traveling to the identified area and collecting the syringes in an appropriate manner (e.g. with gloves, tongs, sharps containers). SANE employees often collect publicly-discarded syringes in their neighborhoods after receiving training in proper collection procedures. IDU are provided with the locations of pharmacies participating in the Disease Prevention Demonstration Project ("pharmacy sales" program).

From February 20, 2007 to February 29, 2008 SANE distributed 149,741 syringes during 605 exchange episodes. One percent of exchanges were conducted with IDU under the age of 30. Forty-six percent of exchanges in this time period were conducted with women and 11% were conducted with women of color. Nineteen percent of exchanges were conducted with people of color (African American 4%, Latina/o 10%, Asian, Native American and other 5%) and 39% were conducted with individuals who reported injecting primarily methamphetamines in the previous six months.

Both syringe exchange programs collect used syringes that are returned either loosely or in containers. Because the containers are not opened, it is difficult to know the number of syringes that are disposed of. Both syringe exchange programs distribute information on the proper disposal of used syringes and HRS distributes labels and instructions to people on how to create their own safe containers. Recently the Health Officer met with waste management staff in the City of Sacramento to discuss the best way to dispose of used syringes.

In addition to syringe disposal for the exchange program, the City will have to address syringe disposal due to a new State law that will be effective as of September 1, 2008. This new law will prohibit residents from disposing of their used syringes in their household garbage cans. Residents will be required to dispose of their syringes at the City's hazardous waste facility or other qualified sites. Currently, residents are allowed to place their used syringes in their garbage cans as long as they are in appropriate containers. It is unknown at this time what the total impact will be for the City when this new law takes effect. However, staff expects that there will have to be a public educational component for this change in law as well as some coordination with the private sector and medical sector to maximize disposal drop off sites within the City.

We would note that the City of Sacramento Police Department and the City's Parks and Recreation Department have had no incidents reported to them related to either the Pharmacy Sales of Syringes or the Needle Exchange programs. In addition, according to the District Attorney's office there have been no adverse events reported to them regarding pharmacy sales of syringes or syringe exchange programs.

Policy Considerations: The State of California Office of AIDS is tasked with the evaluation of the Disease Prevention Demonstration Program, prior to 2010, when the authorizing legislation sunsets. Syringe exchange programs are recognized in the Public Health literature as a valuable adjunct to other programs to decrease the spread of HIV, Hepatitis C and other blood borne diseases.

Environmental Considerations: None

Rationale for Recommendation: Receive and file.

Financial Considerations: Due to the success of one of the syringe exchange programs to date and the ramping up of the second syringe program there is a possible cost to the City when the programs are fully implemented. Staff is recommending that we come back to Mayor and Council after a year's worth of data to provide a better estimate on any financial impacts of the programs. In addition, staff will also have a better understanding of the cost implications of the new state law which will prohibit residents from discarding syringes in their household garbage cans. Staff recommends that Mayor and Council direct staff to work with the County Public Health Officer on a plan to deal with syringe disposal as it relates to the syringe exchange programs and the new state law that takes effect September 1, 2008 and return to Mayor and Council for approval of the plan.

Emerging Small Business Development (ESBD): N/A

Submitted by: _____
Dr. Glennah Trochet
County of Sacramento Public Health Officer

Approved by: _____
Patti Bisharat
Director of Governmental Affairs

Recommendation Approved:

_____
Ray Kerridge
City Manager

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Report Transmittal Form

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Staff Report
August 6, 2009

Honorable Mayor and
Members of the City Council

Title: Annual Report to the Sacramento City Council on Access to Clean Syringes Programs

Location/Council District: City-wide

Recommendation: 1) Receive and File the second annual report on Access to Clean Syringes Programs in the City of Sacramento

Contact: Glennah Trochet M.D. Sacramento County Public Health Officer (916) 875-5881

Presenters: Glennah Trochet M.D.

Department: Sacramento County Department of Health and Human Services

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Organization No: x

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In Sacramento, the use of illegal drugs and sharing of syringes is the second most common way in which HIV is transmitted and the most common in which Hepatitis C is transmitted. From the beginning of the epidemic in 1982 until December, 2008, Sacramento County has recorded 3,654 cases of AIDS. Of these 79 % (2,896) were living in the City of Sacramento at the time of the report. As of the end of 2008 there were 1,331cases of HIV reported in the county, of these, 78% (1,032) lived in the City of Sacramento at the time the report was made.

It is estimated that 600,000 people in California are infected with Hepatitis C.

If this is so, then we project that 22,100 people in Sacramento County must also be infected. In 2008 there were 2,621 new cases of Hepatitis C reported in Sacramento County. Of these, 946 cases reported in 2008 lived within the City of Sacramento limits. From 2007 to 2008 there was a three-fold increase in reports of Hepatitis C chronic carriers to the Health Department. This is believed to be due to an increase in case finding and awareness within the medical community and the public.

Disease Prevention Demonstration Project (DPDP): Disease Prevention Demonstration Project (DPDP):
There are **twenty-four** registered pharmacies that continued to participate in the project in the City of Sacramento in 2008. The participants are fourteen Rite Aid pharmacies, four Longs Drugs pharmacies, five Leader pharmacies, and the Center for AIDS Research and Education Services (CARES) pharmacy.

The most recent survey conducted with the DPDP Pharmacies indicated the there have been few if any incidents/concerns attributable to the DPDP project. The survey also shows that all locations are selling at least 10 syringes per month, and most are averaging 100-500 syringes a month. According to the responses received, pharmacists have referred customers to drug and alcohol services, provided verbal consultation to customers regarding appropirate needle use and treatment availability. The pharmacies also provide sharps containers to customers for purchase. Several pharmacists requested additional signage/ promotional materials for the program and the majority indicated that they would like additional educational materials to provide to customers. The Division of Public Health is able to provide these to the pharmacies who requested them.

Syringe Exchange Programs: Two Syringe Exchange programs are in place in the City of Sacramento. Harm Reduction Services (HRS) is a community based organization that works with high risk clients providing education, prevention and HIV and Hepatitis C testing. Their clients include current drug users, men who have sex with men, sex workers and the homeless. Of their clients, 55% are male and 45% female. They range from 25 to 45 years of age, and approximately 45% are people of color.

Clean syringes for exchange, and testing services, are available at their office Tuesday through Friday from 10 am to 1 pm. and Saturday from 11 am to 5 pm. Also, the HRS outreach van conducts street based services three afternoons a week from 1 to 4:30 pm. and Saturday evenings from 10 pm to 1 am at various locations in the City of Sacramento. HRS staff collects used syringes during outreach contacts. Biohazard waste containers are provided to participants when possible.

HRS hosts the Joan Viteri Memorial Clinic (JVMC) in partnership with the UC Davis Medical School. The clinic's services include abscess treatment, Hepatitis vaccinations and other medical services for injection drug users. It is located at the HRS offices in Oak Park. Clean syringes are distributed, used ones are collected for disposal and clients can also receive various supplies to prevent infections.

In calendar year 2008 HRS distributed 135,000 syringes, and recovered a similar amount of used ones. The amount is difficult to count exactly because they are returned in biohazard containers and the number is estimated by the weight of the countainer. They documented serving 1,260 SEP clients. The monthly rate of syringe distribution was averaging about 5,000 syringes per month at the beginning of the year, since October it has averaged more than 10,000 per month. At least 90% of the outreach contacts received referrals to other opportunities for recovery or treatment and/or information about eligibility.

Used syringes are collected by staff during outreach (exchange) contacts and disposed appropriately. Staff respond to calls from community members who have household-generated waste (e.g. diabetics) or who have seen syringes discarded in public places by traveling to the identified area and collecting the syringes in an appropriate manner

Safer Alternatives thru Networking and Education (SANE) is the second syringe exchange program. SANE utilizes social network representatives (designated by members of the social network) to deliver the greater part of the HIV risk reduction supplies and prevention education to local injection drug users (IDU.) Social network representatives (SNR), maintain regular, direct contact with SANE staff and systematically deliver education and supplies to other IDU that do not contact SANE directly.

In 2008, 92% of exchange contacts were conducted with Social Network Representatives. SANE established a Training & Support Program for Social Network Representatives which provides monthly education/networking meetings to improve their knowledge of risk reduction, infectious diseases transmission and treatment, syringe exchange operational procedures, local resource availability, and peer education and outreach work issues (e.g. establishing boundaries, "burnout" avoidance and management, etc.). The Training and Support Program is a peer-based, multiple contact intervention that increases the involvement and investment of local IDU in HIV/HCV prevention, testing, and care programs and contributes to positive changes in community norms regarding HIV and other high-risk behaviors. A California Office of AIDS program that is evaluating the Social Network Representative methodology provides a significant portion of the support for SANE's Training and Support Program. SANE, one of five California Syringe Exchange Programs participating in the evaluation, is considered a leader in Social Network Representative program design and operation.

Used syringes are collected by staff during outreach (exchange) contacts (usually in biohazardous waste containers provided to participants by SANE) and disposed appropriately. Staff respond to calls from community members who have household-generated waste (e.g. diabetics) or who have seen syringes discarded in public places by traveling to the identified area and collecting the syringes in an appropriate manner (e.g. with gloves, tongs, sharps containers). SANE employees and Social Network Representativies often collect publicly-discarded syringes in their neighborhoods after receiving training in proper

collection procedures.

SANE provides services 10 am to 8 pm, Monday through Saturday. Individuals contact SANE by phone or pager to arrange the time and place of contact; voice or numerical messages left outside of business hours are returned within 24 hours. Most frequently, SANE provides services in participants' homes and regular gathering places which allow staff to work with IDU on risk reduction strategies in the environment in which they actually use drugs (which increases the likelihood of sustained behavior change). Program participants also are provided with the locations and contact information of pharmacies participating in the Disease Prevention Demonstration Project ("pharmacy sales" program.)

In calendar year 2008, SANE distributed 263,727 syringes during 809 exchange episodes. This is a 73% increase in syringe volume over the volume of syringes exchanged/distributed in the previous year (determined by comparing monthly exchange rates). The average age of participants is 42 years with 8% of contacts conducted with IDU younger than 26 years. Other outcome measures for 2008 include: one third (33%) of exchanges were conducted with women, 10% were conducted with women of color, 22% were conducted with people of color ((African American 4%, Latina/o 13%, Asian 2%, Native American 3%), and 46% were conducted with individuals who reported injecting primarily methamphetamines in the previous six months. Fourteen percent of contacts occurred with individuals who reported income below the federal poverty level, 70% had a high school education or more, 17% reported they were homeless, and about 10% are commercial sex workers. Due to a combination of improved documentation, targeted outreach, and the effects of authorization, the number of contacts with members of the LGBT community (Lesbian/Gay/Bisexual/ Transgender) increased from 9% in the first year to almost 25% in 2008. Additionally, several participants spontaneously reported their status as Iraq and/ or Afghanistan combat veterans. One hundred eighteen individuals contacted the program for the first time during this period.

We would note that the City of Sacramento Police Department have had no incidents reported to them related to either the Pharmacy Sales of Syringes or the Needle Exchange programs.

Policy Considerations: The State of California Office of AIDS is tasked with the evaluation of the Disease Prevention Demonstration Program, prior to 2010, when the authorizing legislation sunsets. Syringe exchange programs are recognized in the Public Health literature as a valuable adjunct to other programs to decrease the spread of HIV, Hepatitis C and other blood borne diseases.

Environmental Considerations: None

Rationale for Recommendation: Receive and file.

Financial Considerations: In 2008 the two needle exchange programs did not result in additional costs to the city. Each program has found ways of disposing of the used sharps in cooperation with other organizations or paying the disposal fee at the City

Household Hazardous Waste site. The County Public Health Officer is cooperating with City and County waste management staff to develop a long-term plan to deal with the issue of sharps disposal.

Emerging Small Business Development (ESBD): N/A

Submitted by: _____
Glennah Trochet M.D.
County of Sacramento Public Health Officer

Approved by: _____
Patti Bisharat
Director of Governmental Affairs

Recommendation Approved:

_____
Ray Kerridge
City Manager

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Report pg. 1

Report Transmittal Form

LATE ☐

MEETING DATE: August 31, 2010

☐ **6:00** p.m.

Title: Annual Report to the Sacramento City Council on Access to Clean Syringes Programs

Presenting to the following Legislative Bodies:

☒	City Council	☐	Financing Authority
☐	Redevelopment Agency	☐	Economic Development Commission
☐	Housing Authority	☐	Other

Type of Report: (check below)

☐	Special Presentation	☐	Public Hearing	Noticing completed:
☐	Consent	☐	Information	
☒	Staff	☐	Regional	

Special Requirements: (check below)

☒	Majority Vote	☐	Color Inserts (30 sets)
☐	2/3 Vote	☐	VHS-DVD Presentation
☐	Suspend Competitive Bidding	☐	PowerPoint Presentation
☐	Other	☐	Material On File in Clerks Office

Report Review

Fiscal Impact:

- ☐ Budget Change?
- ☐ General Fund
- ☐ Other Fund
- ☐ Fund Number(s)
- ☐ Change FTE?

Budget Office Review

☐ Yes	☐ No	Resolution
☐ Yes	☐ No	Budget Impact
☐ Yes	☐ No	EB/RB Needed

Policy Issues:

- ☐ Emerging Small Business Development Issues: (ESBD) Note on Report
- ☐ Environmental Issues: Note on Report
- ☐ Legal Issues: Note on Report
- ☐ Other:

Budget Office Comments:

Other Comments:

Department:	City Manager's Office	**Division:**	Governmental Affairs
Report Author/Contact:	Dr. Glennah Trochet	**Phone**	916-875-5881
Report Coordinator	Michelle Heppner	**Phone:**	916 808-1226

Department Code: For Department Use

REPORT TO COUNCIL
City of Sacramento

915 I Street, Sacramento, CA 95814-2604
www. CityofSacramento.org

Staff Report
August 31, 2010

Honorable Mayor and
Members of the City Council

Title: Annual Report to the Sacramento City Council on Access to Clean Syringes Programs

Location/Council District: City-wide

Recommendation: Receive and File the Third Annual report on Access to Clean Syringes Programs in the City of Sacramento.

Contact: Glennah Trochet M.D. Sacramento County Public Health Officer, 875-5881

Presenters: Glennah Trochet M.D. Sacramento County Public Health Officer

Department: Sacramento County Department of Health and Human Services

Division: Public Health

Organization No: N/A

Description/Analysis

Issue: In November 2006, the Mayor and City Council approved the over-the-counter pharmacy sales of clean syringes in the City of Sacramento. And in January 2007 the City of Sacramento Mayor and City Council authorized the operation of clean syringe exchange programs in the City of Sacramento. The ordinances required an annual report detailing the status of the programs. This report includes information on blood borne infections associated with needle sharing activities, as well as a description of the implementation of both programs and known outcomes as of December, 2009.

Policy Considerations: The California Department of Public Health, Office of AIDS, is charged with evaluating the DPDP and presenting the findings with recommendations to the State legislature. The report to the legislature is attached. The DHHS Division of Public Health is prepared to continue the project, should the law that enables it be continued. Syringe exchange programs are recognized in the Public Health literature as a valuable adjunct to other programs to decrease the spread of HIV, Hepatitis C and other blood borne diseases.

Environmental Considerations:

California Environmental Quality Act (CEQA): Under the California Environmental Quality Act (CEQA) guidelines, continuing administrative activities do not constitute a project and are therefore exempt from review.

Sustainability Considerations: N/A

Commission/Committee Action: N/A

Rationale for Recommendation: Receive and file.

Financial Considerations: In 2009 the two needle exchange programs did not result in additional costs to the city. Each program has found ways of disposing of the used sharps in cooperation with other organizations or paying the disposal fee at the City Household Hazardous Waste site.

Emerging Small Business Development (ESBD): N/A

Respectfully Submitted by: _____
Glennah Trochet M.D.
County of Sacramento Public Health Officer

Approved by: _____
Patti Bisharat
Interim Assistant City Manager

Recommendation Approved:

_____
GUS VINA
Interim City Manager

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Attachment 1

BACKGROUND

In November 2006, the Mayor and City Council approved the over-the-counter pharmacy sales of clean syringes in the City of Sacramento. And in January 2007 the City of Sacramento Mayor and City Council authorized the operation of clean syringe exchange programs in the City of Sacramento. The ordinances required an annual report detailing the status of the programs. This report includes information on blood borne infections associated with needle sharing activities, as well as a description of the implementation of both programs and known outcomes as of December, 2009.

In Sacramento, the use of illegal drugs and sharing of syringes has been the second most common way in which HIV is transmitted and the most common in which Hepatitis C is transmitted. From the beginning of the epidemic in 1982 until December, 2009, Sacramento County has recorded 3,701cases of AIDS. Of these 79 % (2,928) were living in the City of Sacramento at the time of the report. As of the end of 2009 there were 1,434 cases of HIV reported in the county, of these, 77% (1,104) lived in the City of Sacramento at the time the report was made.

It is estimated that 600,000 people in California are infected with Hepatitis C. If this is so, then we project that 22,100 people in Sacramento County must also be infected. In 2009 there were 1,050 new cases of Hepatitis C reported in Sacramento County. Of these, 501 cases reported in 2009 lived within the City of Sacramento limits.

Disease Prevention Demonstration Project (DPDP): Disease Prevention Demonstration Project (DPDP):

There are **twenty-two** registered pharmacies that continued to participate in the project in the City of Sacramento in 2009. The participants are thirteen Rite Aid pharmacies, four CVS (formerly Longs Drugs) pharmacies, four Leader pharmacies, and the Center for AIDS Research and Education Services (CARES) pharmacy. The two pharmacies that dropped out did so out of concerns about attracting undesirable customers.

The most recent survey conducted with the DPDP Pharmacies indicated the there have been few incidents/concerns attributable to the DPDP project. The incidents that have occurred have not deterred the pharmacies from continuing the program.

The survey also shows that the locations that responded are selling at least 10 syringes per month, and most are averaging 100-500 syringes a month. One location reported selling up to 1,000 syringes a month.

According to the responses received, pharmacists have referred customers to drug and alcohol services, provided verbal consultation to customers regarding appropriate needle use and treatment availability. The pharmacies also provide sharps containers to customers for purchase. Several pharmacists requested additional signage/promotional materials for the program and the majority indicated that they would like additional educational materials to provide to customers. Because the DPDP sunsets this year pharmacies were asked if they would continue this program if it should be extended. They all responded that they would continue in the program if it is extended. The evaluation report from the California Department of Public Health regarding this project is available on Attachment 2 of this report.

Syringe Exchange Programs: Two Syringe Exchange programs are in place in the City of Sacramento. Harm Reduction Services (HRS) is a community based organization that works with high risk clients providing education, prevention and HIV, Gonorrhea, Chlamydia and Hepatitis C testing. Their clients include current drug users, men who have sex with men, sex workers and the homeless. Of their clients, 55% are male and 45% female. They range from 18 to 60 years of age, and approximately 45% are people of color.

Clean syringes for exchange, and testing services, are available at their office and through an outreach van at several locations during the week. HRS staff collects used syringes during outreach contacts. Biohazard waste containers are provided to participants when possible.

HRS hosts the no cost Joan Viteri Memorial Clinic (JVMC) in partnership with the UC Davis Medical School. The clinic's services include abscess treatment, Hepatitis vaccinations and other medical services for injection drug users. It is located at the HRS offices in Oak Park. Clean syringes are distributed, used ones are collected for disposal and clients can also receive various supplies to prevent or treat infections.

In calendar year 2009 HRS distributed 290,435 syringes. They documented serving 2,860 syringe exchange clients. The rate of exchange more than doubled from last year, based on wider relationships and more active volunteers. A large quantity of health supplies including cotton, alcohol wipes, cottons, tape, gauze, antibiotic ointment and sharps containers were given out along with the syringes. During the SEP process 37 people were vaccinated against Hepatitis A/B, 598 were tested for HIV and156 were tested for HCV.

HRS operates another satellite SEP location at the office of Golden Rule Services and Breaking Barriers in midtown Sacramento. At least 95% of all outreach contacts there received referrals to other opportunities for recovery or treatment and/or information about eligibility.

Used syringes are collected by staff during outreach (exchange) contacts and disposed of appropriately. Staff responds to calls from community members who have household-generated waste (e.g. people with diabetes) or who have seen syringes discarded in public places by traveling to the identified area and collecting the syringes in an appropriate manner

Safer Alternatives thru Networking and Education (SANE) is the second syringe exchange program. SANE utilizes social network representatives to deliver the greater part of the HIV risk reduction supplies and prevention education to local injection drug users (IDU.) Social network representatives maintain direct contact with SANE staff, receive regular continuing-education training, and systematically deliver education and supplies to other IDU that do not contact SANE directly. The methodology allows SANE to increase services and expand its reach in the community without significant increases in administrative and personnel costs.

In 2009, 93% of exchange contacts were conducted with Social Network Representatives. SANE established a Training & Support Program for Social Network Representatives which provides monthly education/networking meetings to improve their knowledge of risk reduction, infectious diseases transmission and treatment, syringe exchange operational procedures, local resource availability, and peer education and outreach work issues (e.g. establishing boundaries, "burnout" avoidance and management, etc.).

The Training and Support Program is a peer-based, multiple contact intervention that increases the involvement and investment of local IDU in HIV/HCV prevention, testing, and care programs and contributes to positive changes in community norms regarding HIV and other high-risk behaviors. A California Office of AIDS program was evaluating the Social Network Representative methodology and provided a significant portion of the support for SANE's Training and Support Program. SANE, one of five California Syringe Exchange Programs participating in the evaluation is considered a leader in Social Network Representative program design and operation. Due to State budget cuts, the Office of AIDS cancelled its financial support and scientific evaluation of the programs. Results obtained prior to the cancellation can be found on the Office of AIDS' web site, in the Satellite Syringe Exchange section.

Used syringes are collected by staff during outreach (exchange) contacts (usually in bio-hazardous waste containers provided to participants by SANE) and disposed appropriately. Staff respond to calls from community members who have household-generated waste (e.g. diabetics) or who have seen syringes discarded in public places by traveling to the identified area and collecting the syringes in an appropriate manner (e.g. with gloves, tongs, sharps containers). SANE employees and Social Network Representatives often collect publicly-discarded syringes in their neighborhoods after receiving training in proper collection procedures.

Individuals contact SANE by phone to arrange the time and place of contact. In 2010, participants will be able to request services and/or schedule exchanges through SANE's web site (www.cleanneedles.org). Most frequently, SANE provides services in participants' homes and regular gathering places which allow staff to work with IDU on risk reduction strategies in the environment in which they actually use drugs (which increases the likelihood of sustained behavior change). Program participants also are provided with the locations and contact information of pharmacies participating in the Disease Prevention Demonstration Project ("pharmacy sales" program). Additionally, SANE conducts Overdose Prevention, Recognition, and Response trainings.

In calendar year 2009, SANE distributed 331,209 syringes during 810 exchange episodes. This is a 10% increase in syringe volume over the volume of syringes exchanged/ distributed in the previous year. The average age of participants is 42 years with 24% of contacts conducted with IDU younger than 30 years. Other outcome measures for 2009 include: one third (39%) of exchanges were conducted with women, 8% were conducted with women of color, 16% were conducted with people of color, and 40% were conducted with individuals who reported injecting primarily methamphetamines in the previous six months. Fourteen percent of contacts occurred with individuals who reported income below the federal poverty level, 70% had a high school education or more, 22% reported they were homeless, about 10% are commercial sex workers, and 15% are Lesbian/Gay/ Bisexual/Transgender. Additionally, an increasing number of participants are disclosing their status as Iraq and/or Afghanistan combat veterans. One hundred thirty eight individuals contacted the program for the first time during this period and SANE received reports of more than 65 lives saved by OD training participants.

ATTACHMENT

B - D

California Code Related to Access to Sterile Needles and Syringes

Syringe Exchange Programs

California Health and Safety (H&S) Code Section 11364.7(a) establishes that no public entity, its agents, or employees shall be subject to criminal prosecution for distribution of syringes to participants in syringe exchange programs (SEPs) authorized by the public entity.

California Business and Professions (B&P) Code 4145.5(e) (added effective January 1, 2012 by Senate Bill (SB) 41, Yee, Chapter 738, Statutes of 2011) requires SEPs to provide their clients with one or more of three disposal options: 1) onsite disposal, 2) provision or sale of sharps containers that meet applicable state and federal standards, and/or 3) provision or sale of mail-back sharps containers.

Local Authorization of SEPs

H&S Code Section 121349.1 allows local governments to authorize SEPs in consultation with the California Department of Public Health (CDPH), as recommended by the U.S. Secretary of Health and Human Services, subject to the availability of funding, as part of a network of comprehensive services, including treatment services, to combat the spread of HIV and blood-borne hepatitis infection among injection drug users.

H&S Code Section 121349.2 requires that local government and health officials, law enforcement and the public be given an opportunity to comment on SEPs in order to address and mitigate any potential negative impact of SEPs. Assembly Bill (AB) 604 (Skinner, Chapter 744, Statutes of 2011) changed the public comment requirements from annual to biennial, effective January 1, 2012.

H&S Code Section 121349.3 requires the local health officer to present information about SEPs at an open meeting of the local authorizing body. The information is to include, but is not limited to, relevant statistics on blood-borne infections associated with syringe sharing and the use of public funds to support SEPs. AB 604 changed the reporting requirements from annual to biennial, effective January 1, 2012.

State Authorization of SEPs

H&S Code Section 121349.1 (as amended by AB 604 (Skinner, Chapter 744, Statutes of 2011), allows CDPH to authorize SEPs in locations where the conditions exist for the rapid spread of viral hepatitis, HIV or other potentially deadly diseases. The provisions of AB 604 sunset on January 1, 2019. More information.

Individual Possession of Needles and Syringes

H&S Code Section 11364.1 governs the possession of drug paraphernalia. Effective January 1, 2012, SB 41 (Yee, Chapter 738 Statutes of 2011) amends California statute to allow individuals to possess up to 30 syringes for personal use if acquired from a physician, pharmacist, authorized SEP or any other source that is authorized by law to provide sterile syringes or hypodermic needles without a prescription.

If this provision is not reauthorized by subsequent legislation before the January 1, 2015 sunset date, then the number of syringes an individual may possess for personal use if obtained from an authorized source will revert to ten, and will apply only to syringe possession in counties and cities which have a locally-authorized Disease Prevention Demonstration Project.

Individuals may also possess an unlimited number of syringes which have been containerized for safe disposal in a container that meets state and federal standards for disposal of sharps waste.

Nonprescription Sale of Syringes (NPSS) in Pharmacies

SB 41 (Yee, Chapter 738, Statutes of 2011) allows nonprescription sale of syringes (NPSS) by pharmacies in California. The bill eliminates the need for local government and pharmacies to opt into a program in order to sell syringes over the counter, and eliminates the need for county health departments to manage an NPSS program. The provisions of the bill sunset on January 1, 2015. More information.

The Disease Prevention Demonstration Project (DPDP) which was established by H&S Code Section 121285 and B& P Code Section 4145, was a pilot to evaluate the long-term desirability of allowing licensed pharmacies to sell nonprescription syringes to prevent the spread of blood-borne pathogens. Statutes related to the DPDP are inoperative until January 1, 2015. If the provisions of SB 41 are not reauthorized by subsequent legislation before the sunset date, the sections of California Code related to the DPDP will once again be in operation. More information.

Syringe Disposal

B&P Code Section 4146 permits pharmacies to accept the return of needles and syringes from the public if contained in a sharps container, which is defined in H&S Code Section 117750 as "a rigid puncture-resistant container that, when sealed, is leak resistant and cannot be reopened without great difficulty."

H&S Code Section 118286 prohibits individuals from discarding home-generated sharps waste in home or business recycling or waste containers.

H&S Code Section 118286 also requires that home-generated sharps waste be transported only in a sharps container or other container approved by the applicable enforcement agency, which may be either the state (CalRecycle program) or a local government agency. Home-generated sharps waste may be managed at household hazardous waste facilities, at "home-generated sharps consolidation points," at the facilities of medical waste generators, or by the use of medical waste mail-back containers approved by the state.

B&P Code 4145.5 (added by SB 41) requires SEPs and pharmacies that sell or provide nonprescription syringes to also provide consumers with one or more of three disposal options: 1) onsite disposal, 2) provision of sharps containers that meet applicable state and federal standards, and/or 3) provision of mail-back sharps containers.

Disease Prevention Demonstration Project (DPDP)

H&S Code Section 121285 and B& P Code Section 4145 established the DPDP, a collaborative

between pharmacies and local and state health officials to evaluate the effects of allowing licensed pharmacists to sell hypodermic needles or syringes to prevent the spread of bloodborne pathogens, including HIV, hepatitis B and hepatitis C, without requiring a prescription. Statutes related to the DPDP will be inoperative until January 1, 2015. If the provisions of SB 41 are not reauthorized by subsequent legislation before the sunset date, the sections of California Code related to the DPDP will once again be in operation.

CDPH was required to convene an uncompensated evaluation panel for the DPDP, conduct an evaluation of the project, and report the findings to the Governor and Legislature on or before January 15, 2010.

The DPDP requires pharmacies to register with their local health department in order to participate in the project by providing a contact name and related information. Pharmacies must also certify that they will provide written or verbal counseling at the time of selling needles and syringes on how to access drug treatment, how to access testing and treatment for HIV and hepatitis C, and how to safely dispose of sharps waste. Additionally, pharmacies must properly store needles and syringes so that they are only available to authorized personnel, provide on-site safe disposal of needles and syringes, or furnish or sell mail-back or personal sharps disposal containers that meet state and federal standards.

Participating local health departments must maintain a list of all pharmacies registered under the project and make available to pharmacies written information that can be provided at the time of selling nonprescription syringes. Counties and/or cities may participate in the program only after authorization by local government, either the county board of supervisors or the city council.

Related Legislation

AB 604 (Skinner, Chapter 744, Statutes of 2011) permits, until January 1, 2019, CDPH, Office of AIDS (OA) to authorize entities that apply to CDPH and meet certain conditions to provide hypodermic needle and syringe exchange services. This bill requires CDPH SEP authorization be made after consultation with local health officers (LHOs) and local law enforcement officials, and after a 90-day public comment period. In making the authorization determination, CDPH is required to balance the concerns of law enforcement with the public health benefits. CDPH SEP authorizations extend for two years. Before the end of the two year period, CDPH may reauthorize the SEP in consultation with the LHO and local law enforcement officials. AB 604 also changes requirements for LHOs who must report to city or county government on locally-authorized SEPs by requiring the report to be made on a biennial, rather than an annual, basis. Additionally, AB 604 specifies that SEP staff and volunteers not be subject to criminal prosecution for possession of needles and syringes acquired from an authorized SEP.

SB 41 (Yee, Chapter 738, Statutes of 2011) permits nonprescription syringe sales (NPSS) through licensed pharmacies throughout the state until January 1, 2015. It makes inoperative until January 1, 2015, provisions of California code related to the DPDP, a pilot program which allows NPSS in counties and cities which authorize it, and for which authorizing statute sunsets on December 31, 2018. This bill allows customers 18 years of age and older to purchase and possess up to 30 syringes for personal use when acquired from an authorized source. It specifies that pharmacists, physicians and SEPs are authorized sources of nonprescription syringes for disease prevention purposes. SB 41 requires pharmacies and SEPs which offer

NPSS to provide options for safe syringe disposal. The bill also requires pharmacies that offer NPSS to provide education to customers on how to safely dispose of sharps waste and how to access drug treatment, and testing and treatment for HIV and hepatitis C virus. CDPH, OA and the California Board of Pharmacy are required by the bill to post this same information on how consumers can access testing and treatment for HIV and viral hepatitis; safely dispose of sharps waste; and access drug treatment on their websites.

AB 1701 (Chesbro, Chapter 667, Statutes of 2010) extends the December 31, 2010 sunset date to the DPDP until December 31, 2018, to continue to allow NPSS in registered pharmacies. AB 1701 continues the current provisions, which: 1) permit cities and/or counties to authorize the project; and 2) require pharmacies which wish to participate to register with their local health department. This bill also extends until December 31, 2018 the provision which allows individuals to possess up to ten syringes for personal use pursuant to local authorization of a DPDP.

SB 821 (Senate Committee on Business, Professions and Economic Development - Omnibus, Chapter 307, Statutes of 2009) authorizes licensed pharmacies to accept home-generated sharps waste for disposal.

AB 110 (Laird, Chapter 707, Statutes of 2007) authorizes a public entity that receives State General Fund money from the California Department of Public Health for HIV education and prevention to use that money to support SEPs authorized by the public entity, including purchasing sterile needles and syringes.

SB 1305 (Figueroa, Chapter 64, Statutes of 2006) prohibits individuals from discarding home-generated sharps waste in home or business recycling or waste containers.

AB 547 (Berg, Chapter 692, Statutes of 2005) authorizes a city or county to establish an SEP without a declaration of a local emergency. AB 547 also: 1) exempts public entities, agents, or employees from criminal prosecution for distributing syringes at authorized SEPs; 2) requires the local health officer to present an annual report on the status of SEPs at an open meeting of the authorizing body (board of supervisors or city council); and 3) gives the public and local stakeholders an opportunity annually to provide feedback to supervisors or city council members on the impact of SEPs.

SB 1159 (Vasconcellos, Chapter 608, Statutes of 2004) creates the DPDP, a collaboration between local and state health officials, and licensed pharmacies who have registered with their local health department to sell ten or fewer syringes for personal use without a prescription. SB 1159 also authorizes a person to possess up to ten hypodermic needles or syringes if acquired through an authorized source, and exempts from prosecution any individual carrying syringes containerized for disposal. The legislation required OA to evaluate the pilot and report to the Governor and Legislature on specified measures.

SB 1362 (Figueroa, Chapter 157, Statutes of 2004) authorizes the hazardous waste element of the California Integrated Waste Management Act of 1989 to include a program for safe collection, treatment, and disposal of sharps waste generated by households.

AB 136 (Mazzoni, Chapter 762, Statutes of 1999) exempts from criminal prosecution public entities and their employees/agents distributing syringes to SEP participants, when such a program has been authorized by the local governing body.

February 2, 2014

From: Glenn Backes, Public Policy Research & Consulting

Re: California statutes that allow for syringe exchange programs and legal possession of syringes by drug users and other adults

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- California statutes allow adults to possess an unlimited number of syringes solely for personal use
- California statutes allow syringe exchange services to be authorized by any of the following:
  - City Councils
  - County Board of Supervisors
  - California Department of Public Health, Office of AIDS

Syringe Exchange:
Section 121349 of the Health and Safety Code
121349. (a) The Legislature finds and declares that scientific data from needle exchange programs in the United States and in Europe have shown that the exchange of used hypodermic needles and syringes for clean hypodermic needles and syringes does not increase drug use in the population, can serve as an important bridge to treatment and recovery from drug abuse, and can curtail the spread of human immunodeficiency virus (HIV) infection among the intravenous drug user population.
(b) **In order to reduce the spread of HIV infection and bloodborne hepatitis among the intravenous drug user population within California, the Legislature hereby authorizes a clean needle and syringe exchange project pursuant to this chapter in any city, county, or city and county upon the action of a county board of supervisors and the local health officer or health commission of that county, or upon the action of the city council, the mayor, and the local health officer of a city with a health department, or upon the action of the city council and the mayor of a city without a health department.**
(c) **In order to reduce the spread of HIV infection, viral hepatitis, and other potentially deadly bloodborne infections, the State Department of Public Health may, notwithstanding any other law, authorize entities that provide services set forth in paragraph (1) of subdivision (d), and that have sufficient staff and capacity to provide the services described in Section 121349.1, as determined by the department, to apply for authorization under this chapter to provide hypodermic needle and syringe exchange services consistent with state standards in any location where the department determines that the conditions exist for the rapid spread of HIV, viral hepatitis, or any other potentially deadly or disabling infections that are spread through the sharing of used hypodermic needles and syringes. Authorization shall be made after consultation with the local health officer and local law enforcement leadership, and after a period of public comment, as described in subdivision (e). In making the determination, the department shall balance the concerns of law enforcement with the public health benefits. The authorization shall not be for more than two years. Before the end of the two-year period, the department may reauthorize the program in consultation with the local health officer and local law enforcement leadership.**
(d) In order for an entity to be authorized to conduct a project pursuant to this chapter, its application to the department shall demonstrate that the entity complies with all of the following minimum standards:
(1) The entity provides, directly or through referral, all of the following services:
(A) Drug abuse treatment services.
(B) HIV or hepatitis screening.
(C) Hepatitis A and hepatitis B vaccination.
(D) Screening for sexually transmitted infections.

(E) Housing services for the homeless, for victims of domestic violence, or other similar housing services.
(F) Services related to provision of education and materials for the reduction of sexual risk behaviors, including, but not limited to, the distribution of condoms.
(2) The entity has the capacity to commence needle and syringe exchange services within three months of authorization.
(3) The entity has adequate funding to do all of the following at reasonably projected program participation levels:
(A) Provide needles and syringe exchange services for all of its participants.
(B) Provide HIV and viral hepatitis prevention education services for all of its participants.
(C) Provide for the safe recovery and disposal of used syringes and sharps waste from all of its participants.
(4) The entity has the capacity, and an established plan, to collect evaluative data in order to assess program impact, including, but not limited to, all of the following:
(A) The total number of persons served.
(B) The total number of syringes and needles distributed, recovered, and disposed of.
(C) The total numbers and types of referrals to drug treatment and other services.
(e) If the application is provisionally deemed appropriate by the department, the department shall, at least 90 days prior to approval of the application, provide for a period of public comment as follows:
(1) Post on the department's Internet Web site the name of the applicant, the nature of the services, and the location where the applying entity will provide the services.
(2) Send a written and an e-mail notice to the local health officer of the affected jurisdiction.
(3) Send a written and an e-mail notice to the chief of police, the sheriff, or both, as appropriate, of the jurisdictions in which the program will operate. (f) The department shall establish and maintain on its Internet Web site the address and contact information of programs providing hypodermic needle and syringe exchange services pursuant to this chapter.
(g) The authorization provided under this section shall only before a clean needle and syringe exchange project as described in Section 121349.1.
(h) This section shall become inoperative on January 1, 2019, and as of that date is repealed.

Possession:
Section 11364 of the Health and Safety Code
(a) **It is unlawful to possess an opium pipe or any device, contrivance, instrument, or paraphernalia used for unlawfully injecting** or smoking (1) a controlled substance specified in subdivision (b), (c), or (e) or paragraph (1) of subdivision (f) of Section 11054, specified in paragraph (14), (15), or (20) of subdivision (d) of Section 11054, specified in subdivision (b) or (c) of Section 11055, or specified in paragraph (2) of subdivision (d) of Section 11055, or (2) a controlled substance that is a narcotic drug classified in Schedule III, IV, or V.
(b) **This section shall not apply to hypodermic needles or syringes that have been containerized for safe disposal in a container that meets state and federal standards for disposal of sharps waste.**
(c) Until January 1, 2021, as a public health measure intended to prevent the transmission of HIV, viral hepatitis, and other bloodborne diseases among persons who use syringes and hypodermic needles, and to prevent subsequent infection of sexual partners, newborn children, or other persons, **this section shall not apply to the possession solely for personal use of hypodermic needles or syringes if acquired from a physician, pharmacist, hypodermic needle and syringe exchange program, or any other source that is authorized by law to provide sterile syringes or hypodermic needles without a prescription.**

Senate Floor Alert
AB 1743 Ting/Monning
HIV/AIDS & Hepatitis Prevention

AB 1743 (Ting) will allow pharmacists the discretion to furnish sterile syringes to an adult as part of California's comprehensive strategy to prevent HIV/AIDS, hepatitis B and C. Over 200 studies from the US and abroad prove that allowing adults to safely possess sterile syringes for their own use reduces rates of HIV and viral hepatitis without contributing to increased rates of drug use, crime or unsafe discard of syringes. AB 1743 will allow adults to spend their own money to protect their health and the health of the community, and save taxpayers hundreds of millions of dollars in healthcare costs.

Passed Senate Public Safety 7-0.

SUPPORT:
California Medical Association
California Nurses Association
California Pharmacists Association
California Retailers Association
California Society of Addiction Medicine
County Alcohol & Drug Program Administrators Association of California
Drug Policy Alliance (sponsor)
Asian Pacific Islander Wellness Center
National Viral Hepatitis Roundtable
American Civil Liberties Union of California
Planned Parenthood Affiliates of California
L.A. Gay & Lesbian Center
San Francisco AIDS Foundation (sponsor)
Transgender Law Center
UCSF Alliance Health Project
California Public Defenders Association
AIDS Legal Referral Panel
Parents for Addiction Treatment and Healing (PATH)
Center for Living and Learning
Dolores Street Community Services
Friends Committee on Legislation of California
HealthRIGHT360
HIV Prevention Justice Alliance
San Francisco HIV/AIDS Provider Network
San Francisco Medical Society
Tarzana Treatment Centers
Homeless Health Care Los Angeles
AIDS Foundation of Chicago
Steffanie A. Strathdee, Ph.D.,
Chief, Division of Global Health Sciences,
University of California San Diego

Honorary Board
Former Mayor
Former Defense Secretary
Former Police Chief
Former Attorney General
Former Police Chief
Former Police Commissioner
Former Mayor
Former Secretary of State
Former Chairman of the Federal Reserve Paul Volcker

International Honorary Board
Former President of Iran Bani Sadr
Former President of Iran Gandi
Rigoberta Menchu Tum
Sting

For more info:
Glenn Backes, Drug Policy Alliance
916-202-2538
Evan Minton, Office of Assembly Member
Phil Ting
916-319-2019

OFFICE OF AIDS
California Department of Public Health

Fact Sheet

October 2014

NONPRESCRIPTION SYRINGE SALE IN CALIFORNIA LEGISLATION AND REQUIREMENTS

California Department of Public Health (CDPH) Office of AIDS data indicate that of the reported 117,553 people living with HIV/AIDS in California in 2012, approximately 15 percent reported a history of injection drug use. The CDPH Office of Viral Hepatitis estimates that at least 60 percent of hepatitis C virus (HCV) infections in the state are associated with injection drug use. Lack of access to new, sterile injection equipment is one of the primary risk factors that may lead to sharing of hypodermic needles and syringes ("syringes"), which puts people who inject drugs at high risk for HIV and HCV, as well as for hepatitis B infection.

California's Disease Prevention Demonstration Project, a pilot program that ran from 2005 – 2010 in fifteen counties and four cities, established that increasing access to sterile syringes through pharmacies can significantly reduce rates of syringe sharing. Researchers who evaluated the pilot program reported that counties that allowed nonprescription syringe sales (NPSS) in pharmacies observed lower injection-related risks among people who inject drugs. Additionally, evaluators of the pilot project found lower levels of unsafe discard of used syringes, no increase in the rate of accidental needle-stick injuries to law enforcement and no increase in rates of drug use or drug-related crime.*

As a result of the success of the pilot, legislation was passed in 2011 that expanded NPSS from the limited number of counties that participated in the pilot to allow NPSS in pharmacies throughout the state. The most recent legislation, Assembly Bill (AB) 1743 (Ting, Chapter 331, Statutes of 2014) further expands access by removing the 30-syringe limit that had been placed on nonprescription syringe purchase, possession, sale and provision. AB 1743 also allows customers to purchase and possess an unlimited number of syringes. The law goes into effect January 1, 2015.

Key Provisions of AB 1743

AB 1743 permits licensed pharmacists throughout the state to sell or furnish syringes without a prescription to customers age 18 and older, and allows adults to purchase and possess syringes for personal use when acquired from a physician or pharmacist. Health and Safety Code [HCS] Section 11364.1 and HSC Section 11364.7 specify that authorized syringe exchange programs are also legal sources of nonprescription syringes.

AB 1743 removes the prior limit of 30 that had been placed on nonprescription syringe provision

*The full report of the evaluation can be accessed on the California Department of Public Health, Office of AIDS website.

by pharmacies and physicians, and removes the 30-syringe limit that had been placed on individual purchase and possession of nonprescription syringes.

AB 1743 requires pharmacies and syringe exchange programs that provide NPSS to "counsel consumers on safe disposal" of syringes.

AB 1743 deletes the prior sunset date of January 1, 2015 and extends until January 1, 2021 the authorization to sell or furnish syringes without a prescription.

AB 1743 deletes provisions related to the pilot Disease Prevention Demonstration Program.

Additional California Law Related to Nonprescription Syringe Sale in Pharmacies

Under Business and Professions Code Section 4145.5, California pharmacies:

- May sell syringes without a prescription or permit to customers 18 years of age and older;
- Are required to store needles and syringes in a manner that ensures that they are not accessible to unauthorized persons;
- Are not required to keep a log of NPSS sales: the log book requirement was removed from state statue in 2004;
- Are not required to check customer identification in order to provide NPSS;
- Must counsel customers who purchase nonprescription syringes about safe disposal and provide for the safe disposal of needles and syringes through one or more of the following options:
    - providing an on-site syringe collection and disposal program that meets applicable state and federal standards for collection and disposal of medical sharps waste;
    - furnishing or making available mail-back sharps disposal containers that meet state and federal standards for the transport of medical sharps waste; and/or
    - furnishing or making available sharps containers that meet applicable state and federal standards for collection and disposal of medical sharps waste;
- Must provide written information or verbal counseling to NPSS customers at the time of sale on how to:
    - access drug treatment;
    - access testing and treatment for HIV and HCV; and
    - safely dispose of sharps waste.

A *Patient Information Sheet* developed by the California Department of Public Health (CDPH), Centers for Infectious Disease, Office of AIDS and available for download on the Office of AIDS website covers the information above and can be provided to pharmacy customers.

Under Health and Safety Code Section 121281, CDPH/Office of AIDS is required to:

- Develop and maintain information on the Office of AIDS website to assist pharmacists in

educating consumers at risk of blood-borne infections about:

- how consumers can access testing and treatment for HIV and viral hepatitis;
- how consumers can safely dispose of syringes, needles, and other sharps waste; and
- how consumers can access drug treatment.

- The California Board of Pharmacy must post, or post a link to, this same information.

Under current law local governments:

- Are not required to authorize pharmacies to provide NPSS.

Under current law local health departments:

- Are not required to register pharmacists to provide NPSS;

- Are not required to maintain a list of pharmacies that provide NPSS; and

- Are not required to provide pharmacists with educational materials for customers about drug treatment, HIV and HCV testing and treatment, and proper syringe disposal. These materials are provided by the CDPH/Office of AIDS website.

Related Information:

- Syringe access information from CDPH/Office of AIDS
- *Patient Information Sheet* about syringe disposal and other referrals
- AB 1743 (Ting, Chapter 331, Statutes of 2014) full text

For more information, contact Alessandra Ross, Injection Drug Use Specialist, OA, by phone at (916) 449-5796 or by e-mail at: alessandra.ross@cdph.ca.gov.

ATTACHMENT

E

3000 POWER INN RD.
SACRAMENTO,
CALIFORNIA 95826

TEL 916.455.2800
FAX 916.736.2931

Safety Bulletin

To all of our valued customers and employees:
Atlas Disposal is committed to the safety of our customers, employees and vendors. In the course of collecting, processing or disposing of recycling and waste material, human contact is inevitable. The threat of needle punctures and exposure to biohazards is a major concern. We are asking for your help to comply with Best Management Practices in order to safeguard all parties involved in the handling of your recycling and waste.

As of September 1, 2008, it is illegal to dispose of sharps (needles) waste in recycling and waste containers (Section 118286 of the California Health and Safety Code). Sharps are defined as; hypodermic needles, pen needles, lancets, and other devices that are used to penetrate the skin for the delivery of medications derived from a household.

No Fee Options

To accommodate Sacramento County residents, the County provides for the proper disposal of sharps at **no charge**. The Kiefer Landfill, located at 12701 Kiefer Boulevard and the North Area Recovery Station, located at 4450 Roseville Road are both designated Household Hazardous Waste collection sites that accept sharps. The needles must be delivered to either County facility in sealed hard plastic or metal containers. For more information, visit www.wmr.saccounty.net/Pages/HazardousWasteDropoffCenters.aspx or contact Sacramento County at 916-875-5555.

Fee Based Options

Sacramento Recycling and Transfer Station provides for the proper disposal of sharps at a charge, $4.85 per pound. This site is a designated Household Hazardous Waste collection site located at 8491 Fruitridge Road.

Mail Back Service

Mail back services are also available. Private companies offer mail-back services at a cost. A list of sharps waste mail-back services authorized for use in California is available at the Medical Waste Management Program of the California Department of Public Health website; www.cdph.ca.gov/certlic/medicalwaste/Pages/MailBack.aspx.

Home Needle Destruction

Additionally, home needle destruction devices are available. Several manufacturers sell products that allow you to destroy needles at home by either melting or breaking them.
There are two products that are FDA approved for in home-use for needle destruction. The "Disintegrator Plus" is a needle destruction device that melts the needles to be discarded as common household trash. The "Q-103" is another needle destruction device that breaks off the needle portion from the syringe. Visit www.qcareintl.com.

Thank you for helping Atlas Disposal make Sacramento County a safe and healthy community.

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HARM REDUCTION SERVICES: SYRINGE EXCHANGE IN SACRAMENTO

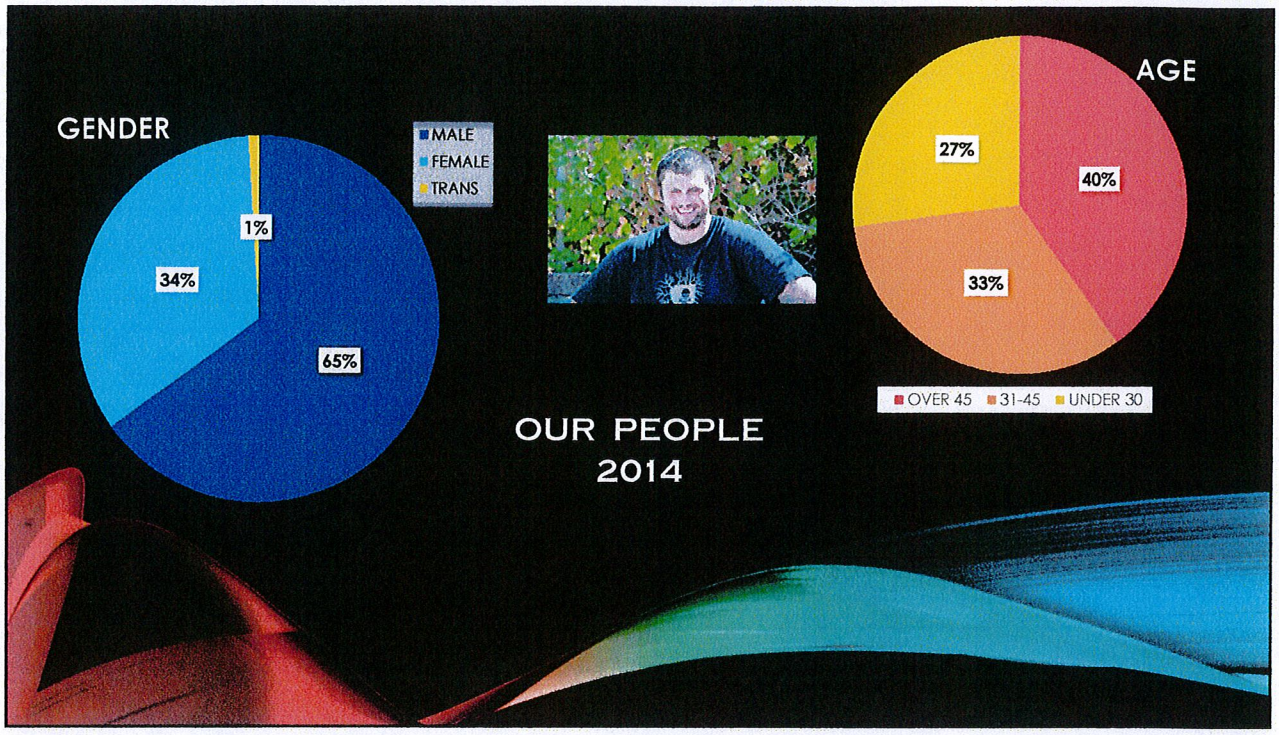
Snapshot

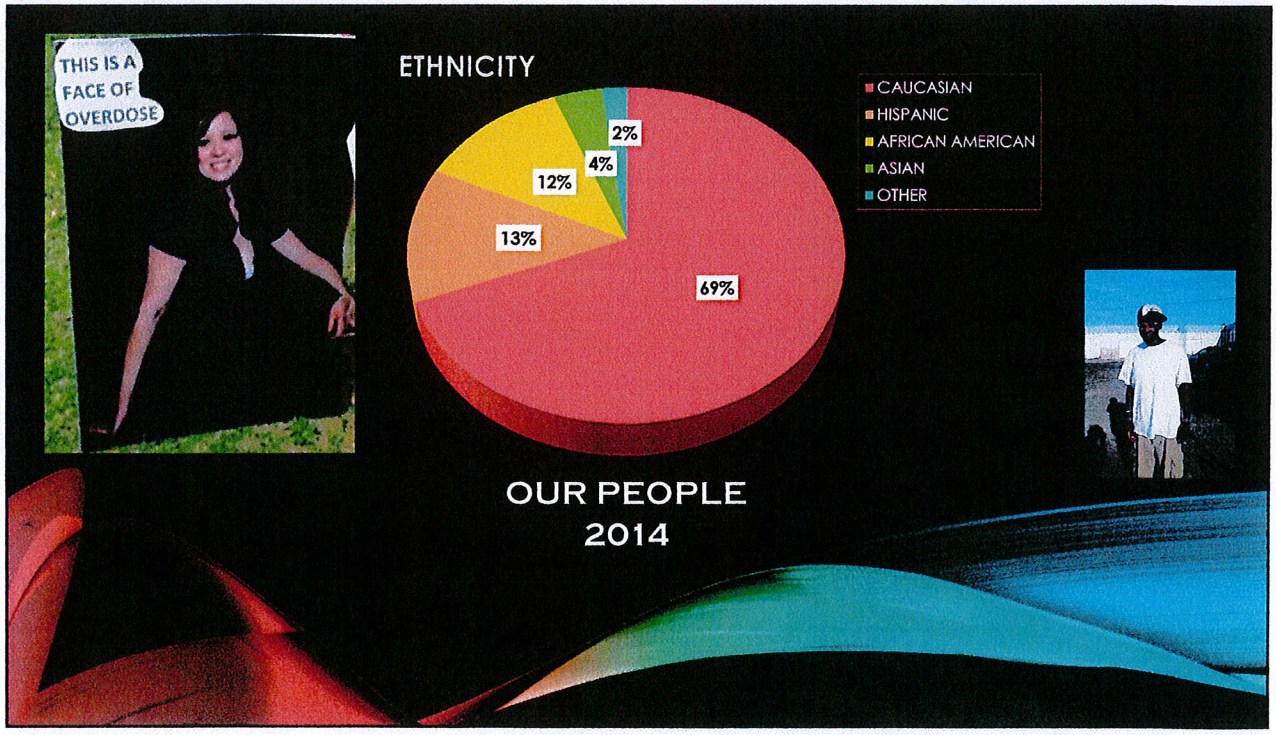
It is estimated that there are
OVER 25,000 DAILY INJECTION DRUG USERS in SACRAMENTO COUNTY

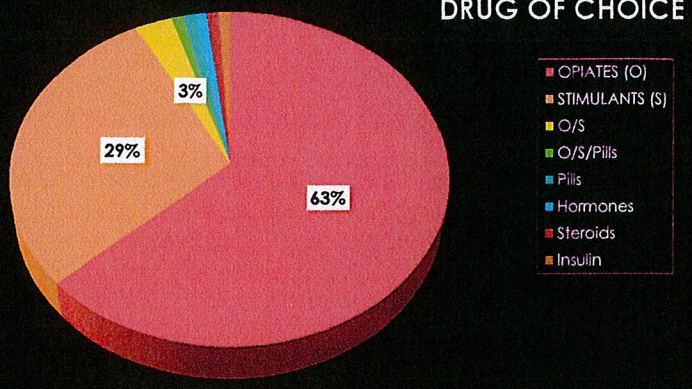
HARM REDUCTION SERVICES CONDUCTED
OVER 8000 EXCHANGES in 2014

DISTRIBUTED OVER 350,000 in 2014
Increasing to over 750,000 in 2015

DISPOSED OVER 4000 lbs. in 2014
Increasing to nearly 8000 lbs. in 2015


GENDER
MALE
FEMALE
TRANS
1%
34%
65%
AGE
27%
40%
33%
OVER 45
31-45
UNDER 30
OUR PEOPLE
2014


THIS IS A FACE OF OVERDOSE
ETHNICITY
CAUCASIAN
HISPANIC
AFRICAN AMERICAN
ASIAN
OTHER
2%
4%
12%
13%
69%
OUR PEOPLE
2014



OUR PEOPLE
2014

GENERAL RISKS ADDRESSED THROUGH SYRINGE EXCHANGE

HCV
HIV
HBV

OVERDOSE
SKIN INFECTIONS
ENDOCARDITIS

Cost Effective

* Pay for HIV prevention now or AIDS later

* Access to sterile syringes spares lives and saves taxpayer money

* Syringe access programs lower health care costs

* The majority of hepatitis C cases are related to injection drug use

* The costs of treating hepatitis C are staggering

* Syringe access programs are the cornerstone of disease prevention, medical & mental health access, overdose prevention, AOD treatment, safer environment

* Syringe access programs provide an essential link to health services for uninsured and marginal populations that do not have access to traditional health care

ATTACHMENT

G - J

Syringe Exchange Programs in California: An Overview

Syringe exchange programs (SEPs) have been operating in California, providing sterile syringes, collecting used ones, and acting as a point of access to health education and care for injection drug users (IDUs) since the late 1980s. Since 1999, the California State Legislature has acted several times to expand access to sterile syringes through SEPs authorized by local government, and in 2012, Assembly Bill (AB) 604, (Skinner, Chapter 744, Statutes of 2011) went into effect. The new law permits the California Department of Public Health, Office of AIDS to establish a process through which qualified entities may apply directly to the Department for authorization to provide syringe exchange services, a process which the Department will term SEP "certification." Regulations for the certification program are currently under development.

Local governments retain the authority to authorize SEPs and set local standards as appropriate.

Currently:

- There are 37 SEPs operating in California, more than in any other state.
- California SEPs provide a wide range of services in addition to syringe dispensing and disposal, including HIV testing and risk-reduction counseling, overdose prevention education, and referrals to drug treatment, housing, and mental health services. Most SEPs also provide first aid and basic supplies, such as clean socks and bottled water, to meet the needs of homeless clients.
- California SEPs operate in a variety of settings, including health clinics, mobile vans, storefronts and churches. Some offer street-based services in multiple locations; others offer services daily during standard business hours; still others provide home delivery services.

Research in California: the CalSEP Study[1]

- The Centers for Disease Control and Prevention-funded California Syringe Exchange Program (CalSEP) study found that for most SEP clients, contact with SEPs was the only contact IDUs had with health care or social services of any kind. Of 10 recommended preventive services received by SEP clients, 76 percent were received from SEPs.
- In addition to syringe exchange, eighty-three percent of SEPs participating in the study offered HIV counseling and testing on site and 63 percent offered screening for hepatitis C virus. All SEPs offered safer sex materials, first aid, and referrals to

[1] Bluthenthal, R. Syringe Exchange Program Diversity and Correlates of HIV Risk: Preliminary results from the California Syringe Exchange Program Study. Presentation to the California Department of Health Services, Office of AIDS, April 22, 2003. Sacramento, CA.

drug treatment. Many SEPs also offered overdose prevention education and materials.

- In a survey of 75 clients recruited from 25 California SEPs, more than 90 percent would recommend SEPs to friends with similar needs.

Research Findings:

- A study of 81 cities around the world compared HIV infection rates among IDUs in cities that had SEPs to cities that did not. In the 29 cities with SEPs, HIV infection rates decreased by an average of 5.8 percent per year. By contrast, in the 52 cities without SEPs, HIV infection rates increased by 5.9 percent per year.[2]

- Researchers studying a San Francisco SEP found that the program did not encourage drug use, either by recruiting young or new IDUs, or by increasing drug use among current IDUs. In fact, during the five-year study period, injection frequency among IDUs decreased from 1.9 injections per day to 0.7, and the percentage of new IDUs in the community decreased from 3 percent to 1 percent.[3]

- Economic studies have predicted that SEPs could prevent HIV infections among clients, their sex partners, and offspring at a cost of about $13,000 per infection averted.[4] This is significantly less than the lifetime cost of treating an HIV-infected person, which is estimated to be $385,200.

- Hundreds of studies on SEPs have been conducted and have been summarized in a series of federally funded reports beginning in 1991. Each of the eight reports has concluded that SEPs do not appear to lead to increased drug use, increased neighborhood crime, or increased syringe litter in the communities that are home to these programs.[5]

- A comprehensive review of international studies on syringe access programs, including both syringe exchange and nonprescription pharmacy sale concluded, "There is compelling evidence that increasing the availability, accessibility, and both the awareness of the imperative to avoid HIV and utilization of sterile injecting equipment by IDUs reduces HIV infection substantially."[6]

- The National Institutes of Health Consensus Panel on HIV Prevention stated that:

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[2] Hurley, S.F., Jolley, D.J., Kaldor, J.M. Effectiveness of needle-exchange programmes for prevention of HIV infection. Lancet 1997; 349:1797-1800.
[3] Watters, J.K., Estilo, M.J., Clark, G.L., et al. Syringe and needle exchange as HIV/AIDS prevention for injection drug users. Journal of the American Medical Association 1994; 271:115-120.
[4] Cohen, D.A., Wu, S-Y., Farley, T.A. Cost-effective allocation of government funds to prevent HIV infection. Health Affairs 2005; 24:915-926.
[5] Report from the NIH Consensus Development Conference. February 1997.
[6] Wodak A, Cooney A. Do needle syringe programs reduce HIV infection among injecting drug users: a comprehensive review of the international evidence. Subst Use Misuse. 2006;41(6-7):777-813.

"An impressive body of evidence suggests powerful effects from needle exchange programs....Studies show reduction in risk behavior as high as 80 percent, with estimates of a 30 percent or greater reduction of HIV in IDUs."[7]

Related California Legislation:

- Senate Bill 41 (Yee, Statutes of 2011) went into effect January 1, 2012. The law allows licensed pharmacies throughout California to sell up to 30 syringes to adults without a prescription, without requiring pharmacies to register in order to do so. It allows customers 18 years of age and older to purchase and possess up to 30 syringes for personal use when acquired from an authorized source. It specifies that pharmacies, SEPs and physicians are authorized sources of sterile syringes. SB 41 also requires pharmacies and SEPs which offer non-prescription syringe sales to provide options for safe syringe disposal.

- AB 547 (Berg, Statutes of 2005): Simplified the process for authorization of SEPs by eliminating the need to declare a local state of emergency. The law requires that California Department of Public Health, Office of AIDS (OA) be consulted prior to authorization, annual reports on SEP operation and local epidemiology be made to the local authorizing body, and that local stakeholders have an opportunity to comment at an annual open meeting of the Board of Supervisors or City Council.

- AB 604 (Skinner, Statutes of 2011) added the California Department of Health, Office of AIDS (OA) to the list of government entities that may authorize SEPs. Starting January 1, 2012 until January 1, 2019, OA has authority to establish a program that allows entities to provide syringe exchange services anywhere in the state where OA determines that the conditions exist for rapid spread of HIV, viral hepatitis, or other blood-borne diseases. Regulations are being developed to implement the program.

Additional Fact Sheets:

- What the Law Says: California Legal Code Related to Access to Sterile Syringes (PDF, New Window)
- Public Safety, Law Enforcement, and Syringe Exchange (amfAR)
- Syringe Exchange Programs and Hepatitis C (Harm Reduction Coalition)

For more information, contact:

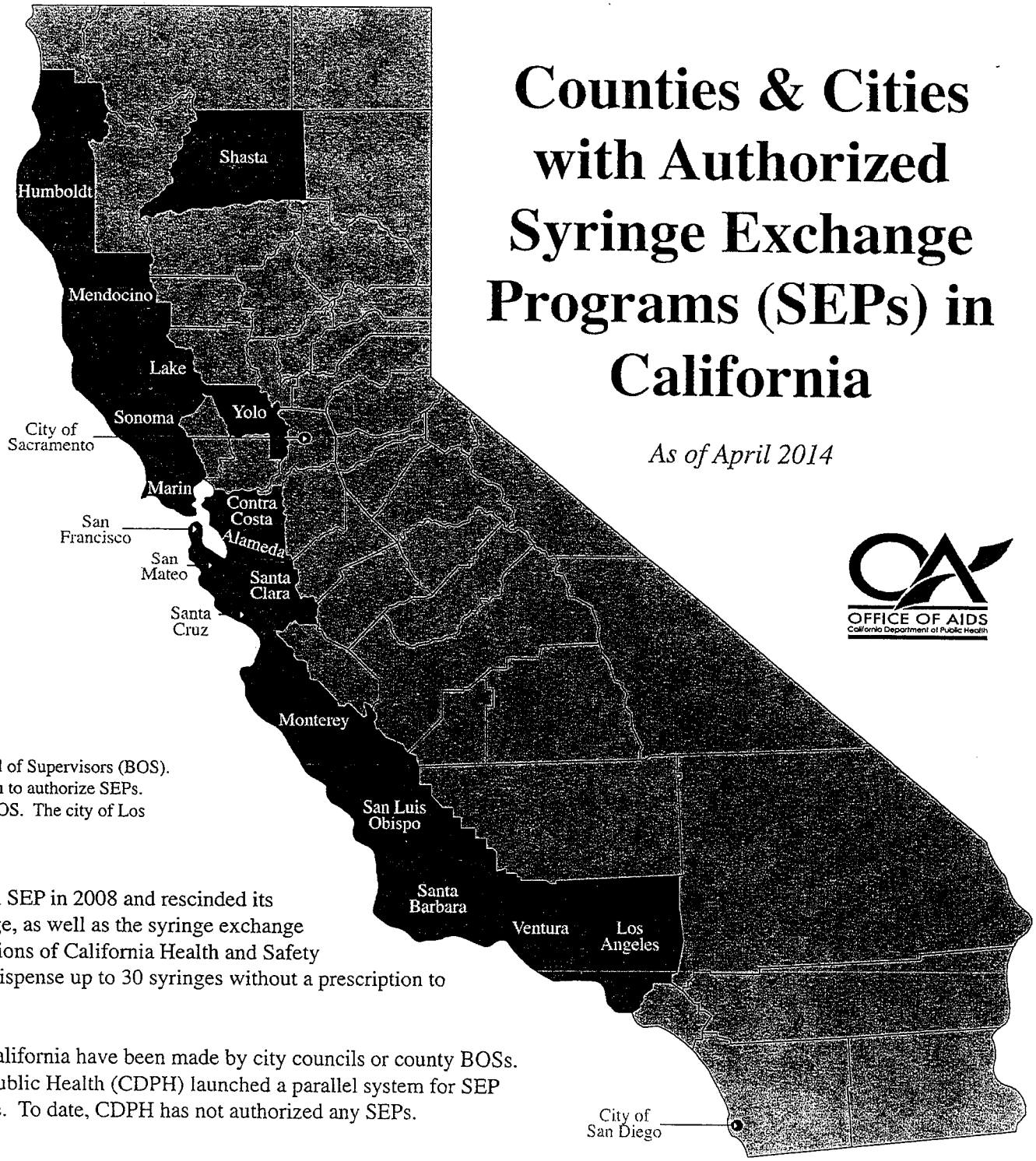
Alessandra Ross
Injection Drug Use Specialist
California Department of Public Health, Office of AIDS
Alessandra.Ross@cdph.ca.gov or (916) 449-5796

[7] National Institutes of Health. Consensus development statement. Interventions to prevent HIV risk behaviors, February 11-13,1997;7-8.

Counties & Cities with Authorized Syringe Exchange Programs (SEPs) in California

As of April 2014

Alameda*
City of Sacramento
City of San Diego
Contra Costa
Humboldt
Lake
Los Angeles*
Marin
Mendocino
Monterey
San Francisco
San Luis Obispo
San Mateo
Santa Barbara
Santa Clara
Santa Cruz
Shasta
Sonoma
Ventura
Yolo



OFFICE OF AIDS
California Department of Public Health

* SEPs authorized county-wide by the Alameda County Board of Supervisors (BOS). The cities of Berkeley and Oakland also took separate action to authorize SEPs.
**SEPs authorized county-wide by the Los Angeles County BOS. The city of Los Angeles also took separate action to authorize SEPs.

Note: The Fresno County BOS authorized its local SEP in 2008 and rescinded its authorization in 2011. The Fresno Needle Exchange, as well as the syringe exchange program in Modesto, both operate under the provisions of California Health and Safety Code Section 11364.1, which allow physicians to dispense up to 30 syringes without a prescription to individuals age 18 and older.

As of April 1, 2014 all authorizations of SEPs in California have been made by city councils or county BOSs. In December 2013, the California Department of Public Health (CDPH) launched a parallel system for SEP authorization through direct application to the State. To date, CDPH has not authorized any SEPs.

State & Federal Reports in Favor of Syringe Exchange and Pharmacy Sale of Syringes 2010-2011

OFFICE OF AIDS – CALIFORNIA DEPARTMENT OF PUBLIC HEALTH September 2011

> "Research shows that access to sterile syringes is associated with reduced risk of HIV infection and lower frequency of unsafe injection. California law permits local government to expand access to sterile syringes through both syringe exchange programs (SEPs) and through over-the-counter syringe sales in pharmacies.
>
> "Access to sterile syringes is unquestionably vital in the struggle to reduce the spread of HIV, HCV, and other blood-borne infections among IDUs, their sex partners, and their children."
> http://www.cdph.ca.gov/programs/aids/Pages/OASyringeAccess.aspx

US DEPARTMENT OF HEALTH & HUMAN SERVICES
National Viral Hepatitis Action Plan – May 2011

US Health & Human Services Agency published **Combating the Silent Epidemic of Viral Hepatitis: Action Plan for the Prevention, Care and Treatment of Viral Hepatitis** that "outlines actions, based on scientific evidence and extensive real-world experience that will serve as a roadmap for reaching the Healthy People objectives."

Recommendations include:

> "Federal, state, and local agencies should expand programs to reduce the risk of hepatitis C virus infection through injection-drug use by providing comprehensive hepatitis C virus prevention programs. **At a minimum, the programs should include access to sterile needle syringes and drug-preparation equipment because the shared use of these materials has been shown to lead to transmission of hepatitis C virus."** (p 60)
>
> *"Coordinate federal, state, and local resources to expand and enhance IDU* (injection drug users) *access to sterile syringes and hepatitis prevention interventions."*
> "Access to syringe service programs through comprehensive, community- and pharmacy-based syringe programs can help prevent HBV and HCV infection in IDUs. In accordance with local laws, coordination of federal, state, and local resources will reduce

barriers, maximize development of syringe service programs, and increase access to these programs." (p 44)
http://www.hhs.gov/ash/initiatives/hepatitis/actionplan_viralhepatitis2011.pdf

OFFICE OF AIDS – CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
SB 1159 Report: An Evaluation of Over-the-Counter Sale of Sterile Syringes in California – July 2010

On July 17, 2010, the California Department of Public Health (CDPH) published a report to evaluate the desirability of allowing pharmacists to provide syringes to adults without a prescription, as is the practice in most U.S. states. Independent researchers from University of California, Rand Corporation, and elsewhere collaborated with CDPH to evaluate the policy and write the report.

KEY FINDINGS:

- Rate of syringe sharing among injection drug users is lower in cities and counties that authorized nonprescription syringe sale. More time will be needed to see a change in overall rates of HIV & hepatitis C, but risk of infection is much lower in cities and counties with safe, legal access to sterile syringes. (p4-5)
- No effect on rates of drug use. (p5)
- No effect on unsafe discard of syringes. Syringe waste near pharmacies remained rare and unchanged. (p5)
- No effect on rates of crime. (p4-5)
- No change in rate of accidental needle-stick injury to law enforcement. (p5)
- Pharmacy access may be reaching a different group of drug injectors than syringe exchange programs (p45). Latino and White injection drug users and amphetamine injectors were more likely to report pharmacies as a source of syringes than other groups. (p85)
- Barriers to implementation: "Finding barriers such as lack of time, resources, and interest, but not lack of need for syringes, suggests that the two-step authorization process for legalizing OTC [over-the-counter] syringe sales (i.e., first on the county or city level and second on the pharmacy level) limited potential risk-reduction intentions of the legislation and deletion of this stipulation from a future bill could provide better access to this important prevention intervention. (p83-84)
- "Implementation barriers cited by LHJs [local health jurisdictions] suggest that leaving DPDP implementation to the discretion of local government entities could require more time and commitment than some already over-burdened health departments can handle. (p. 84)

WHITE HOUSE
National HIV/AIDS Strategy -- July 2010

"President Obama committed to developing a National HIV/AIDS Strategy with three primary goals:
1) Reducing the number of people who become infected with HIV,
2) Increasing access to care and optimizing health outcomes for people living with HIV, and
3) Reducing HIV-related health disparities." (p vii)

"One of the hardest lessons of the HIV/AIDS epidemic is that there is no single 'magic bullet' that will stem the tide of new HIV infections. In the past, some have focused on one method of HIV prevention in favor of others. The public discourse has over-simplified the policy issues and has led some people to believe that a single solution, whether it is education, condom use, or biomedical innovations, held the key to reducing HIV infections. Our prevention efforts have been hampered by not deploying adequate overlapping, combination approaches to HIV prevention." (p 15)

"The following are scientifically proven biomedical and behavioral approaches that reduce the probability of HIV transmission:

- Abstinence from sex or drug use: Abstaining from sexual activity and substance use reduces the risk of HIV infection. In cases where this may not be possible, limiting the number of partners and taking other steps can lower the risk of acquiring HIV.
- HIV testing: There is evidence that people who test HIV-positive take steps to keep others from being exposed to the virus. People who are unaware of their HIV status for an extended period of time may also enter care too late to have the maximum benefit from therapy, and they may unintentionally expose others to HIV.
- Condom availability: Condom use is the most effective method to reduce risk of HIV infection during sexual activity. Correct and consistent use of male condoms is estimated to reduce the risk of HIV transmission by 80 percent.
- **Access to sterile needles and syringes: Among injection drug users, sharing needles and other drug paraphernalia increases the risk of HIV infection. Several studies have found that providing sterilized equipment to injection drug users substantially reduces risk of HIV infection, increases the probability that they will initiate drug treatment, and does not increase drug use."** (p 15-

16)
http://www.aids.gov/federal-resources/policies/national-hiv-aids-strategy/nhas.pdf

US DEPARTMENT OF HEALTH & HUMAN SERVICES -- February 2011

"Syringe service programs (SSP) are widely considered to be an effective way of reducing HIV transmission among individuals who inject illicit drugs and there is ample evidence that SSPs also promote entry and retention into treatment (Hagan, McGough, Thiede, et al., 2000, Journal of Substance Abuse Treatment, 19, 247– 252). According to research that tracks individuals in treatment over extended periods of time, most people who get into and remain in treatment can reduce or stop using illegal or dangerous drugs. In addition to promoting entry to treatment, there are studies that document injection reductions for drug users who participate in SSPs. Hagan, et al., found that, not only were new SSP participants five times more likely to enter drug treatment than non-SSP participants, former SSP participants were more likely to report significant reduction in injection, to stop injecting altogether, and to remain in drug treatment. A summary of the research on SSPs is available at http://www.samhsa.gov/ssp.

Federal Register/Vol. 76, No. 36/Wednesday, February 23, 2011/Notices

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
California Adult Viral Hepatitis Prevention Strategic Plan 2010-2014
January 2010

Under Recommendations and Action Steps:

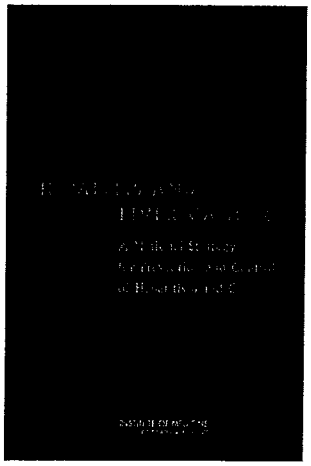
"Increase Access to Syringe Exchange and Harm Reduction Services:
a. Leverage existing resources, including federal dollars when the federal syringe exchange funding ban is lifted, to increase access and other safe injection equipment....
b. Encourage pharmacists... to participate in pharmacy syringe sale programs.
c. Create and expand syringe exchange ....with the goal of every IDU having one sterile syringe per injection.
d. Remove structural barriers to access to syringes and other safe drug-using equipment for IDUs..."
http://www.cdph.ca.gov/Documents/California_Adult_Viral_Hepatitis_Prevention_Strategic_Plan,_2010-2014.Final.pdf

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES
Advising the nation / Improving health

For more information visit www.iom.edu/viralhepatitis

Hepatitis and Liver Cancer

A National Strategy for Prevention and Control of Hepatitis B and C



Up to 5.3 million people—2 percent of the U.S. population—are living with chronic hepatitis B or hepatitis C. These diseases are more common than HIV/AIDS in the U.S. Yet, because of the asymptomatic nature of chronic hepatitis B and hepatitis C, most people who have them are unaware until they have symptoms of liver cancer or liver disease many years later. Each year about 15,000 people die from liver cancer or liver disease related to hepatitis B and hepatitis C.

Hepatitis B and hepatitis C can be either acute or chronic. The acute form is a short-term illness that occurs within the first six months after a person is exposed to hepatitis B virus (HBV) or hepatitis C virus (HCV) which cause hepatitis B and hepatitis C, respectively. The diseases can become chronic, although this does not always happen and, particularly in the case of hepatitis B, the likelihood of this becoming a chronic disease depends on a person's age at the time of infection.

. . . because of the asymptomatic nature of chronic hepatitis B and hepatitis C, most people who have them are unaware until they have symptoms of liver cancer or liver disease many years later.

Although the number of people with acute hepatitis B is declining in the U.S., mostly because of the availability of hepatitis B vaccines, about 43,000 people still develop acute hepatitis B each year. People at risk for hepatitis B include infants born to women with the disease and those who have sexual contact or share injection drug equipment with a person with the disease. People who received a blood transfusion before 1992 and past or current injection-drug users are at risk for chronic hepatitis C.

In 2008, the Institute of Medicine convened a committee to assess current prevention and control activities for hepatitis B and hepatitis C and to determine ways to reduce new cases of HBV and HCV infections and illnesses and deaths from chronic viral hepatitis. The committee concludes that chronic

hepatitis B and hepatitis C are important public health problems and that there are several barriers to prevention and control efforts, such as a lack of knowledge and awareness about chronic viral hepatitis among health care providers, at-risk populations, and the public. Improved surveillance and better integration of viral hepatitis services are needed to fix this problem.

Surveillance

Surveillance information better prepares policy makers to allocate sufficient resources to viral hepatitis prevention and control programs. Monitoring viral hepatitis in the U.S. is challenging because surveillance data currently do not provide accurate estimates of the current burden of disease and are insufficient for program planning and evaluation. The committee recommends that the Centers for Disease Control and Prevention (CDC) conduct a comprehensive evaluation of the national hepatitis B and hepatitis C public health surveillance system to determine its current status. In addition, the committee recommends that the CDC develop specific agreements with all state and territorial health departments to support core surveillance for acute and chronic hepatitis B and hepatitis C, and conduct targeted active surveillance to monitor incidence and prevalence of hepatitis B and hepatitis C in populations not fully captured by core surveillance.

Knowledge and Awareness

A major challenge to preventing hepatitis B and hepatitis C is the lack of knowledge and awareness about these diseases among health care providers, social service providers, and the public, especially among members of specific at-risk populations. This insufficient understanding about chronic viral hepatitis can contribute to continued transmission, missed opportunities for early diagnosis and medical care, and poor health outcomes in infected people. To improve knowledge and awareness, the committee recommends that the CDC work with stakeholders to develop hepatitis B and hepatitis C educational programs for health care and social service providers. As a way to increase awareness about hepatitis B and hepatitis C among at-risk populations and the general public, the committee recommends that the CDC work with stakeholders to develop, coordinate, and evaluate innovative outreach and education programs. Such programs should be offered in a variety of languages and should be integrated into existing health programs that serve at-risk populations.

Immunization

Through the years, the hepatitis B vaccine has been effective in the reduction of new HBV infections. CDC's Advisory Committee on Immunization Practices (ACIP), which provides recommendations on the control of vaccine-preventable diseases, recommended that all infants and children and at-risk adults (people at risk for HBV infection from infected household contacts and sex partners, from exposure to infected blood or body fluids, and from travel to regions with high or intermediate levels of endemic HBV infection) receive the hepatitis B vaccine. To prevent transmission of HBV from mothers to their newborns, ACIP recommended that infants born to mothers who have hepatitis B receive a first dose of the hepatitis B vaccine within 12 hours of birth. Despite the ACIP recommendation, first doses of the vaccine are being missed or delayed, which the committee believes is due to the lack of a delivery-room policy for hepatitis B vaccination. Missing or delaying the first dose for infants born to women with hepatitis B substantially increases the risk that they will develop chronic hepatitis B, and therefore, the IOM committee recommends that all full-term infants born to women with hepatitis B receive the hepatitis B vaccine in the delivery

A major challenge to preventing hepatitis B and hepatitis C is the lack of knowledge and awareness about these diseases among health care providers, social service providers, and the public, especially among members of specific at-risk populations.

room as soon as they are stable and washed.

School-entry mandates have been shown to increase hepatitis B vaccination rates and to reduce disparities in vaccination rates. Therefore, the committee recommends that all states mandate the hepatitis B vaccine series be completed or in progress as a requirement for school attendance. Because only about half of at-risk adults have received the hepatitis B vaccine, the committee recommends that additional federal and state resources be devoted to increasing hepatitis B vaccination in this population.

Viral Hepatitis Services

Due to the lack of health services related to viral hepatitis prevention at the federal, state, and local levels, the committee finds that a coordinated approach is necessary to reduce the numbers of new HBV and HCV infections and the illnesses and deaths associated with chronic viral hepatitis. Comprehensive viral hepatitis services should have five core components: outreach and awareness, prevention of new infections, identification of infected people, social and peer support, and medical management of chronically infected people.

The committee identifies major gaps in viral hepatitis services for the general population, including specific groups that are disproportionately affected by hepatitis B and hepatitis C, such as foreign-born people from countries with high occurrence of these diseases and illicit-drug users.

Recommendations for Populations Considered At-Risk:

For foreign-born populations:

The CDC, in conjunction with other federal agencies and state agencies, should provide resources for the expansion of community-based programs that provide hepatitis B screening, testing, and vaccination services that target foreign-born populations.

For illicit-drug users:

Federal, state, and local agencies should expand programs to reduce the risk of hepatitis C virus infection through injection-drug use by providing comprehensive hepatitis C virus prevention programs. At a minimum, the programs should include access to sterile needle syringes and drug-preparation equipment because the shared use of these materials has been shown to lead to transmission of hepatitis C virus.

Federal and state governments should expand services to reduce the harm caused by chronic hepatitis B and hepatitis C. The services should include testing to detect infection, counseling to reduce alcohol use and secondary transmission, hepatitis B vaccination, and referral for or provision of medical management.

For pregnant women:

The CDC should provide additional resources and guidance to perinatal hepatitis B prevention program coordinators to expand and enhance the capacity to identify chronically infected pregnant women and provide case-management services, including referral for appropriate medical management.

For incarcerated populations:

The CDC and the Department of Justice should create an initiative to foster partnerships between health departments and corrections systems to ensure the availability of comprehensive viral hepatitis services for incarcerated people.

Committee on the Prevention and Control of Viral Hepatitis Infections

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The committee concludes that it is important for the general population to have access to screening services so that people who are at risk for viral hepatitis can be identified. Therefore, the committee recommends that federally-funded health insurance programs such as Medicare, Medicaid, and the Federal Employees Health Benefits Program, incorporate guidelines for risk-factor screening for hepatitis B and hepatitis C as a required core component of preventive care. This will allow at-risk people to receive blood testing for HBV and HCV and chronically infected patients to receive medical treatment.

Conclusion

The current approach to the prevention and control of chronic hepatitis B and hepatitis C is not working. These diseases are not widely recognized as serious public health problems in the U.S. As a result, inadequate resources are being allocated to viral hepatitis prevention, control, and surveillance programs. Increased knowledge and awareness about chronic viral hepatitis, improved surveillance for hepatitis B and hepatitis C, and better integration of viral hepatitis services are needed to remedy this problem. Unless action is taken to prevent chronic hepatitis B and hepatitis C, thousands more Americans will die each year from liver cancer or liver disease related to these preventable diseases.

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Syringe Exchange in the United States: A National Level Economic Evaluation of Hypothetical Increases in Investment

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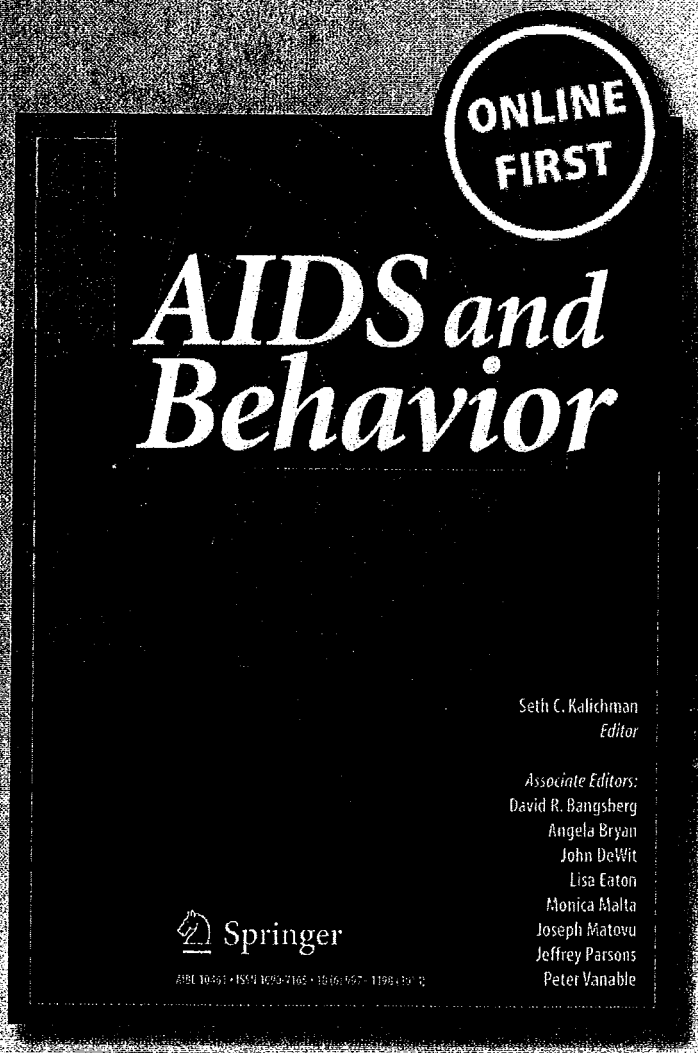
AIDS and Behavior
ISSN 1090-7165
AIDS Behav
DOI 10.1007/s10461-014-0789-9



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AIDS Behav
DOI 10.1007/s10461-014-0789-9

ORIGINAL PAPER

Syringe Exchange in the United States: A National Level Economic Evaluation of Hypothetical Increases in Investment

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Abstract To examine whether increasing investment in needle/syringe exchange programs (NSPs) in the US would be cost-effective for HIV prevention, we modeled HIV incidence in hypothetical cases with higher NSP syringe supply than current levels, and estimated number of infections averted, cost per infection averted, treatment costs saved, and financial return on investment. We modified Pinkerton's model, which was an adaptation of Kaplan's simplified *needle circulation theory* model, to compare different syringe supply levels, account for syringes from non-NSP sources, and reflect reduction in syringe sharing and contamination. With an annual $10 to $50 million funding increase, 194–816 HIV infections would be averted (cost per infection averted $51,601–$61,302). Contrasted with HIV treatment cost savings alone, the rate of financial return on investment would be 7.58–6.38. Main and sensitivity analyses strongly suggest that it would be cost-saving for the US to invest in syringe exchange expansion.

Keywords Cost-effectiveness · Mathematical model · Syringe exchange · Injection drug use · HIV

Electronic supplementary material The online version of this article (doi:10.1007/s10461-014-0789-9) contains supplementary material, which is available to authorized users.

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Introduction

HIV infections cause significant human suffering and exact substantial financial costs, with each infection in the United States estimated to result in a loss of between 9 and 21.1 years of life [1–3], between 5.33 and 6.433 quality-adjusted life years [2, 3], and $379,668 (2010 dollars) in lifetime treatment costs [4]. The sharing of drug injection equipment is the second-most common route of HIV transmission—approximately 9.4 % of new HIV infections in the United States in 2009 occurred among persons who injected drugs (PWID) and 2.7 % occurred among men who had sex with men and injected drugs (MSM/PWID) [5].

Access to sterile needles and syringes (herein referred to as "syringes") is a proven approach for reducing HIV transmission enumerated in the 2010 National HIV/AIDS Strategy for the United States [6]. The evidence in favor of needle/syringe exchange programs (NSP) is well-documented, with economic evaluations repeatedly showing that NSPs are cost-effective and cost-saving for the prevention of HIV [7–14]. The 2012 US President's Emergency Plan for AIDS Relief (PEPFAR) Blueprint envisions an AIDS-free generation within our lifetime, calling for "smart investments based on sound science", and establishing NSPs as one of the three central elements of the PEPFAR comprehensive prevention package for PWID, in

Published online: 15 May 2014

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addition to community-based outreach programs and drug treatment [15].

The 2010 National HIV/AIDS Strategy set the objective of reducing the annual number of new HIV infections by 25 % by year 2015 [6]. This objective was elaborated in the Centers for Disease Control and Prevention's (CDC) Strategic Plan for 2011–2015 as reducing HIV infections in each of several vulnerable populations including PWID by at least 25 % [16]. Although NSPs may be an essential strategy for achieving this goal, none of the funds in the CDC HIV prevention budget (approximately $750 million for fiscal year 2013 [17]) could be used to support NSPs, as federal funding of NSPs has been banned since 1988 with the exception of a 2-years period from December 2009 to December 2011 [18, 19]. Private donors and state and local governments provided approximately $24 million in 2009 to support over 200 NSPs in the US [20]. Despite these local efforts to reduce injections with non-sterile syringes, NSP syringe coverage in the US remains low. Tempalski et al. [21] found that the number of sterile syringes from NSPs in 35 large metropolitan areas was equal to only about 3 % of the number of drug injections. Although new syringes are also obtained through pharmacies and other means, there is evidence to suggest that the vast majority of drug injections are with syringes that are not new [22, 23].

No single intervention will be sufficient for reaching the goal of an AIDS-free generation, but scaling up NSPs may be an important component for reducing HIV infections among PWID. What benefits might be realized through increased investment in NSPs? What would be the cost-savings or cost-effectiveness of different levels of investment? The answers to these questions are essential for informing national policy development and funding decisions, but to our knowledge no previous study has estimated the potential costs and benefits of increasing investment in NSPs in the US.

NSPs are diverse in the range of services they provide. The key component shared across programs is syringe exchange, which increases access to sterile syringes and speeds up removal of used and potentially HIV-contaminated syringes from circulation, thereby reducing HIV transmission through shared syringes. In addition to this key component, many NSPs provide additional services such as referrals to drug treatment programs, HIV testing and counseling, and condom distribution [24], which have other possible direct and indirect benefits: changing social norms among PWID towards safer injecting, facilitating entry into drug treatment and cessation of drug use, increasing condom use, increasing testing and treatment of HIV and other sexually transmitted infections (STI) leading to lower HIV viral load and infectivity, increasing testing, treatment and vaccination for hepatitis viruses, and reducing drug overdoses.

The present study aimed to estimate the impact on HIV transmission of hypothetical increases in syringe exchange investment. Its focus is the impact of the most essential component of NSPs: increasing access to sterile syringes and faster removal of used syringes. With this purpose, our analysis took into consideration the costs associated specifically with the supply and exchange of syringes, and its impact on syringe sharing and syringe contamination, and based on which estimated the number of HIV infections averted and HIV treatment costs avoided. The method was mathematical modeling using existing data. We applied with modification the model that Pinkerton [13] used to evaluate Vancouver's Insite program, which was an adaptation from Kaplan's simplified *needle circulation theory* model [25–27].

The impacts of the additional NSP services listed above are outside the scope of this paper. To evaluate their cost-effectiveness, other modeling approaches would be needed, and additional research would be required to generate the data needed for modeling inputs.

Methods

From existing data, we derived estimates for the current situation in the US: the number of syringes supplied by NSPs in a year and the number of people who contract HIV due to drug injecting risk in a year. The key question is if NSP syringe supply were increased by a certain amount, what would happen to the number of people contracting HIV—it is expected to go down, but by how much. If we could answer this question, we could evaluate the cost-effectiveness of such hypothetical increase in NSP syringe supply by costing it and estimating savings resulting from infections averted.

The Model

The strategy for answering this question is to start from an equation for the *number of new HIV infections* due to injection drug use over a 1-year period, and to relate parameters in this equation to *syringe supply*. Such equation would allow us to estimate how a hypothetical increase in syringe supply would affect the number of new infections.

The initial equation is based on the premise that the number of new infections in a year equals the number of uninfected (thus at risk) persons times the probability that an uninfected person becomes infected over the course of the year. It is:

$$I \approx N(1-\alpha)Bc\gamma.$$

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I is the number of new HIV infections due to drug injecting risk in the US in a year. N is the number of PWID in the US and α is HIV prevalence among PWID, therefore $N(1-\alpha)$ is the number of uninfected PWID who are at risk of contracting HIV. The product $Bc\gamma$ is an approximation for the probability that an uninfected PWID becomes infected in the year, with B being the average number of times a PWID injects drugs with a receptively shared syringe (or number of "borrows") in a year, c being the proportion of shared syringes that are contaminated with HIV, and γ representing the probability of getting infected through one injection with an HIV-contaminated syringe. The probability γ averages risk over the heterogeneity of syringe contamination including variation in blood amount and variation in viral load in the blood—the latter being a mixture of low levels (from HIV-positive persons who have viral suppression as a result of antiretroviral treatment) and high levels (from those without viral suppression).

We use these notations to refer to parameters in the current situation, or the status quo, which we call the *base case*. In a *hypothetical case* with increased NSP syringe supply, the number of new HIV infections due to injection risk in a year is denoted by I'. The number of borrows and the contaminated proportion are expected to decrease as a result of increased syringe supply; we denote them with B' and c'. The other parameters N, α and γ are conservatively assumed to stay the same. As such,

$$I' \approx N(1-\alpha)B'c'\gamma.$$

We are interested in estimating number of infections averted as a result of increasing syringe supply ($A = I - I'$). It is more tractable, however, to compare I' to I using the ratio:

$$\frac{I'}{I} = \frac{N(1-\alpha)B'c'\gamma}{N(1-\alpha)Bc\gamma} = \frac{B'}{B}\cdot\frac{c'}{c}.$$

Once I'/I has been worked out, the number of infections averted can be estimated:

$$A = I - I' = I\left(1 - \frac{I'}{I}\right).$$

To estimate the ratio of syringe contamination proportions (c'/c), we applied Kaplan's simplified *needle circulation theory* model [25–27], which was adapted and used by Pinkerton in his evaluation of Vancouver's InSite program [13]. Based on this model, the proportion of syringes that are contaminated is proportional to the rate at which syringes become contaminated, which in turn is proportional to the ratio of the number of injections with a borrowed syringe to the number of injections with either a new or a borrowed syringe. Thus:

$$\frac{c'}{c} = \frac{B'/(B'+S')}{B/(B+S)}$$

where S and S' denote the number injections with brand new syringes per PWID per year, in the base case and in the hypothetical case.

Results from the *needle circulation theory* are based on an average 1-to-1 exchange assumption; greater exchange ratios (more dirty syringes for a new one) would result in greater reduction in contamination. While programs vary in exchange policies and may not rigorously enforce 1-to-1 exchange, the overall result is close to 1-to-1 exchange and the assumption holds for our calculations. Data on syringes distributed by and returned to NSPs (available from the North American Syringe Exchange Network [20]), and discounting for syringes being unused/lost and for NSP syringes replacing the use of syringes from other sources (see details about such discounting below), point to an effective ratio of 1 new syringe for 1.04 or 1.06 old syringes (for 2009 and 2008).

From the contamination ratio above, it follows that

$$\frac{I'}{I} = \frac{B'}{B}\cdot\frac{c'}{c} = \frac{B'}{B}\cdot\frac{B'/(B'+S')}{B/(B+S)} = \left(\frac{B'}{B}\right)^2\cdot\frac{B+S}{B'+S'}.$$

The infections ratio thus depends on base case and hypothetical case values of two parameters: (1) the number of injections with new syringes per PWID per year, which is also the average number of new syringes used by a PWID per year; and (2) the number of borrows per PWID per year. The question is how these two parameters would change as a result of an increase in NSP syringe supply.

First, the average number of new syringes a PWID uses in a year (S) is a combination of syringes from NSPs (S_{NSP}) and syringes from other sources (S_{nonNSP}). Of the total volume of syringes supplied by NSPs to PWID in the US over 1 year (V_{NSP}), we assume that a certain proportion (w) go unused, and the average number of new NSP syringes used by a PWID in a year is:

$$S_{NSP} = \frac{V_{NSP}(1-w)}{N}.$$

With an increase in NSP syringe supply of ΔV_{NSP}, the number of new NSP syringes used per PWID per year is increased by:

$$S'_{NSP} - S_{NSP} = \frac{\Delta V_{NSP}(1-w)}{N}.$$

We assume also that as NSP syringe supply increases, a proportion (r) of the additional NSP syringes would replace

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syringes that otherwise would have been obtained from non-NSP sources, such that:

$$S'_{nonNSP} - S_{nonNSP} = -r\left(S'_{NSP} - S_{NSP}\right) = -\frac{\Delta V_{NSP}(1-w)r}{N}.$$

Summing each side of the two equations above, we have:

$$S' - S = \frac{\Delta V_{NSP}}{N}(1-w)(1-r).$$

Let f denote $(1-w)(1-r)$, representing a discount for both the NSP syringes that would go unused and the replacement of non-NSP syringes, and name it the "supply increase discount factor". The hypothetical case number of syringes used per PWID per year is:

$$S' = S + \frac{\Delta V_{NSP}}{N}f.$$

Second, how would an increase in NSP syringe supply affect the number of borrows (B)? While the number of injections per PWID per year (M) is expected to remain the same, the number of injections with a new syringe per PWID per year (S) would increase with increased NSP syringe supply. The number of injections with a syringe that is not new ("non-new" injections, for short), which is $(M-S)$, would go down, and this number includes injections with borrowed syringes (B) and injections with reused syringes. To our knowledge, no previous study has examined the relationship between S and B. Our own exploratory analysis of site level data from the NIDA Cooperative Research Evaluation Study indicated that proportions of non-new injections that occurred with borrowed syringes were independent of proportions of injections with new syringes. We assume that the proportion of non-new injections that occur with borrowed syringes $(B/(M-S))$ would remain constant:

$$\frac{B}{M-S} = \frac{B'}{M-S'}.$$

This implies a reduction in the number of borrows:

$$B' = B\left(\frac{M-S'}{M-S}\right).$$

Finally, by supplying estimates (based on existing data and assumptions) for the number of PWID in the US (N), annual number of new HIV infections due to injection risk (I), per-PWID per-year numbers of injections (M), injections with a new syringe (S), and injections with a borrowed syringe (B), and the supply increase discount factor (f), the number of HIV infections averted with increased NSP syringe supply can be estimated. For a given increase in NSP syringe volume $((\Delta V_{NSP}))$, the number of HIV infections averted is:

$$A = I\left(1 - \frac{I'}{I}\right) = I\left[1 - \left(\frac{B'}{B}\right)^2 \cdot \frac{B+S}{B'+S'}\right]$$

where

$$B' = B\left(\frac{M-S'}{M-S}\right) \text{ and } S' = S + \frac{\Delta V_{NSP}}{N}f.$$

Computations

Calculations started with levels of hypothetical additional investment, which we set to range from zero to 50 million US dollars (in 2011 currency). Dividing the additional investment by the estimated cost per NSP syringe distributed (U) provided an estimate of the increase in US NSP syringe supply ΔV_{NSP}, from which the number of infections averted (A) was calculated. HIV treatment costs avoided as a result of averting those infections were derived by multiplying the number of infections averted by the estimated per person lifetime HIV treatment cost (T), which was represented in net present value (i.e., discounting future costs to present time), so that these savings could be compared to investment.

Parameter Values

The model requires the specification of several parameters, with values drawn from or estimated based on existing data. Where there was uncertainty about a value, a range of credible values was examined through sensitivity analysis. A worst-case scenario sensitivity analysis was also conducted, combining the least favorable values on all parameters. These parameter values, their basis/sources and the value ranges for sensitivity analysis are presented in Table 1. The reasoning behind the selection of such values is provided below.

Number of new HIV infections due to drug injection risk in the US per year in the base case (I) = 2,575 infections. HIV incidence estimates available for the most recent year (2009) served as the basis for our analysis, with 4,500 new HIV infections acquired by PWID and 1,300 by MSM/PWID [5]. For this analysis, only infections due to drug injection risk are of interest, and existing research suggests that HIV sexual transmission among PWID is common. Male PWID who engage in homosexual activity are more likely to become infected [28–30]. Female PWID who have a drug-injecting sex partner, have had an STI [30], or engage in prostitution [28] are more likely to become infected. Findings from studies comparing the sexual risk of PWID and people who use non-injecting drugs are

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Table 1 Parameter values and sources

Parameter	Main value	Sources/basis	Sensitivity analysis value range
I: number of new HIV infections due to drug injection risk in the US per year in the base case	2,575	Based on CDC's 2009 HIV incidence estimates [5], assuming 50 % of infections in PWID category and 25 % in MSM/PWID category are due to injection risk	2,060–3,090 infections (corresponding to 40 % to 60 % of PWID category and 20 % to 30 % of MSM/PWID category)
N: number of persons who injected drug in the past year in the US	1.55 m	Based on PWID population size estimation by Brady et al. [35]	0.76–1.85 million PWID
M: number of drug injections per PWID per year	812.02	= 365.25 days * 2.8 injections per day * 0.794 Number of injections per day is from Lurie et al. [38]; Tempalski et al. [21]. The factor 0.794 adjusted for the cycling in and out of injection, based on data in Galai et al. [39]	720–900 injections
B: number of injections with a borrowed syringe (or number of borrows) per PWID per year in the base case	81.20	= *M* * 10 % 10 % (proportion of all injections) was based on calculation using data from NIDA Cooperative Research Evaluation Study presented in by McCoy et al. [40], with down adjustment to account for reduction in borrowing over time	64.96–105.56 borrows (corresponding to 8 % to 13 % of all injections)
S: average number of brand new syringes a PWID uses per year in the base case	146.16	= $(M - B)/5$ On average, a PWID uses a syringe he/she owns five times, based on Heimer et al. [41] and Huo and Ouellet [22]	104.40–182.71 syringes (corresponding to 7–4 uses per own syringe)
f: supply increase discount factor	0.855	= $(1 - w)(1 - r)$ Assuming that *w* (proportion of NSP syringes that go unused) = 5 % and that *r* (proportion of NSP syringes that replace non-NSP syringes which would have been used otherwise) = 10 %	0.8–0.9
U: syringe exchange unit cost	$0.48 per syringe	Based on cost data reported in NASEN survey	$0.43–$0.53
T: lifetime HIV treatment cost per person (net present value)	$391.2 k	CDC published cost in 2010 dollars [4] converted into 2011 dollars using CPI for medical costs in US cities	

mixed: one found less sexual risk among PWID [30], another found comparable risk [31].

A recent study with 337 PWID in New York City [32] found a significant association between HSV-2 and HIV infection and no association between HCV and HIV infection, and thus concluded that most HIV infections in this sample occurred through sexual transmission. While New York City is one of the cities in the US most active in meeting PWID's safe injection needs and therefore may have less parenteral transmission than in other areas, this finding suggests generally that in settings where interventions to reduce parenteral transmission are effective, sexual transmission may account for a large part of HIV infections among PWID.

Given the lack of precise estimates, we assumed that 50 % of the infections in the PWID category and 25 % of the infections in the MSM/PWID category were due to injection risk—a total of 2,575 infections in 2009—and used this as the *base case number of new HIV infections due to injection risk per year*. To address the uncertainty of these proportions, we conducted sensitivity analysis on the range of 2,060–3,090 infections (corresponding to 40–60 % of PWID category and 20–30 % of MSM/PWID category).

Number of persons who injected drugs in the past year in the US (*N*) = 1.55 million. Using anchor PWID population estimates of 1.75 million in 1992 [33] and 1.35 million in 1998 [34], Brady et al. estimated the size of

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the US PWID population for the period of 1992–2002 based on drug treatment, HIV testing and AIDS diagnosis data, and validated their estimates through correlations with unemployment rate, hepatitis C mortality and poisoning mortality [35]. Their analysis suggests that the PWID population was relatively stable between 1992 and 2002, and the average PWID population over this period was about 1.55 million. Since this is the most rigorous PWID population estimation to date, we used this estimate as a basis for our analysis. There is significant uncertainty around this population size, however. An analysis of self-reporting data from several household surveys—which were likely to miss people who are homeless, without stable housing, or in residential treatment, and to suffer from under-reporting due to the behavior's sensitivity—provided a much lower estimate of nearly 760 thousand PWID in 2009 [36]. On the other hand, a review of the global epidemiology of injection drug use and HIV listed for the US an PWID population of 1.86 million, calculated based on experts' reports [37]. Our sensitivity analyses thus examined a range of 0.76–1.86 million.

Number of injections per PWID per year (M) = 812.02 injections. This estimate assumed a mean of 2.8 injections per day, based on two main sources. Using data from the NIDA Cooperative Research Evaluation Study, Lurie et al. [38] estimated 2.8 injections per PWID per day for 1996. Based on a review of the literature and consultation with various experts, Tempalski et al. [21] arrived at the same estimate of 2.8 injections per PWID per day in 2000. This is equivalent to 1,022.7 injections over a year of 365.25 days. However, not every PWID injects for the whole year. Galai et al. [39] tracked how PWID in Baltimore moved in and out of drug injecting. Using data from their paper, we found that people in this sample were injecting drugs for only 79.4 % of the time they would be classified as past-year injectors. This means on average, each PWID had 1,022.7 injections * 79.4 % = 812.02 injections per year. Sensitivity analyses examined a range of 720–900 injections.

Number of borrows per PWID per year in the base case (B) = 81.20 borrows. This was based on an estimate of the proportion of injections that occur with borrowed syringes, out of all injections. Pinkerton estimated this proportion to be 0.083 in Vancouver, by multiplying the proportion of PWID who borrowed with the proportion of injections by those who borrowed that were with borrowed syringes [13]. To estimate this proportion for the US, we used data from the NIDA Cooperative Research Evaluation Study, presented in an early paper by McCoy et al. [40]. Of 12,323 active PWID recruited from 19 sites, 31.9 % reported sharing both syringes and drug preparation tools in the past 30 days; another 8.6 % reported sharing syringes only. Those in the first group reported using syringes previously used by another PWID on average 29.4 times in the past 30 days; those in the second group reported 14.1 times. Combining this with the injection frequency of 2.8 times per PWID per day, we could estimate borrowing = (31.9 % * 29.4 times + 8.6 % * 14.1 times)/(30 days * 2.8 times) = 12.6 %. The NIDA study is dated, however. One could expect borrowing behavior to have declined over time as a result of HIV prevention efforts. To incorporate this expectation, instead of 12.6 %, we used 10 %, and arrived at number of borrows = 812.02 injections * 10 % = 81.20 borrows. Sensitivity analyses examined a range of 64.96–105.56 borrows (corresponding to 8–13 % of injections).

Number of brand new syringes used per PWID per year in the base case (S) = 146.16 syringes. Apart from injections that happen with borrowed syringes, the rest ($M - B$ = 730.82 injections) occur with syringes a PWID owns (or "own syringes", for short). This number, divided by the number of injections per own syringe, would give the number of brand new syringes a PWID uses per year (S). Estimates of the number of injections per own syringe are available from several sources. Heimer et al. [41] studied the number of injections per syringe among NSP clients in four cities in the early and mid 1990s. With the implementation of NSP, they found that the mean number of injections per syringe in Chicago decreased from a mean of 6.83 (median 5) before the start of NSPs to a mean of 1.4 (median 1) after, and in Baltimore decreased from 12.4 (median 6) to 3.6 (median 2). In New Haven, the number of injections per syringe decreased from 7.14 to 3.97 when individuals began using an NSP. Using data collected between 1997 and 2000 in Chicago, Huo and Oullet found that the median number of injections per own syringe among PWID who reused their syringes was 3 for NSP users and 5 for non-users [22]; including PWID who did not reuse any syringes in their analyses would have resulted in medians that were lower. Given the range of available values above, we assumed that on average a PWID in the US uses a syringe he/she owns for five injections. Thus the number of brand new syringes a PWID uses in a year is 730.82 injections/5 injections per syringe = 146.16 syringes. Sensitivity analyses examined a range of 104.40–182.71 syringes (corresponding to 7–4 injections per own syringe).

Supply increase discount factor (f) = 0.855. This was based on an assumption of 5 % NSP syringes going unused, and 10 % of the increased NSP syringe supply replacing non-NSP syringes. As no data are currently available to suggest what these proportions should be, these estimates were based on author consensus. Sensitivity analyses examined an f range of 0.8–0.9.

NSP unit cost (U) = \$0.48 per syringe. The Beth Israel Medical Center/North American Syringe Exchange

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Network (NASEN) Survey provides information on the budgets of and number of syringes distributed by NSPs in the US. However, these programs provide a number of services beyond syringe distribution, while our analysis focused on the costs and benefits of increased syringe supply. For this purpose we estimated programmatic costs for a minimal set of services including syringe exchange, referrals to off-site services and no more than one additional on-site service such as HIV testing or condom distribution. Analysis of costs data reported to the NASEN survey by programs that provide such level of service gives an average cost of $0.48 per syringe (in 2011 USD).

Lifetime HIV treatment cost per infected person (T) = $391,223 (in 2011 USD). The CDC published that on average, the lifetime treatment cost of an HIV positive case, discounted to net present value, was $379,668 in 2010 USD [4]. Adjusted for inflation in medical care costs, this is equivalent to $391,223 in 2011 USD.

Results

In the base case scenario with no additional syringe exchange funding, an estimated 2,575 HIV infections occur in a year due to drug injection risk. Based on lifetime treatment costs of $391,223 in 2011 USD per infection, the total treatment costs for these infections is $1.01 billion.

Figure 1 displays the estimated effects of hypothetical increases in syringe exchange funding, including number of HIV infections averted and savings in lifetime HIV treatment costs that result from averting them. Table 2 presents the same estimates plus cost per infection averted, net savings (i.e., treatment cost savings minus investment increase), and average and marginal rates of financial return on investment.

Based on the model and parameter estimates, an additional $10 million investment for NSPs providing a minimal set of services in a year would avert 194 HIV infections and result in treatment cost savings of $75.8 million. A $50 million increase in funding would avert 816 infections and save $319.1 million in treatment costs. The cost per infection averted would range from $51,601 (in case of $10 million additional investment) to $61,302 (in case of $50 million additional investment). This corresponds to a rate financial return of investment of 7.58 to 1 in the former case and 6.38 to 1 in the latter case.

The US National HIV/AIDS Strategy specified a goal of 25 % HIV incidence reduction. Based on our model, to reduce by 25 % the number of HIV infections among PWID attributable to injection risk that occur in a year, an increase in annual NSP funding of slightly less than $40 million would be needed.

Figure 2 presents the findings of sensitivity analyses with two outputs, the number of infections averted (top panel) and net savings (bottom panel). The uncertainty in three parameters, B (injections with a borrowed syringe), S (injections with a new syringe) and f (discount factor for syringe supply increase) caused minimal change in modeling results. Variations in M (injections per PWID per year) and U (cost per syringe distributed) corresponded to slightly bigger changes, and variations in I (HIV incidence) caused the most substantial change. The low value for N (number of PWID) resulted in very high estimates of infections averted. Over all these sensitivity analyses, the conclusion that additional investment in syringe exchange would be highly cost-saving does not change.

In the worst-case scenario sensitivity analysis, the least favorable values of all the seven parameters were combined (Fig. 2). Under this scenario, an investment increase of $10 million would avert 99 infections, save $38.76 million in HIV treatment costs, and represent a rate of financial return on investment of 3.88–1. An investment increase of $50 million would avert 445 infections, save $173.97 million in HIV treatment costs, and represent a rate of return on investment of 3.48 to 1. Even in this worst-case scenario, additional investment in syringe exchange would be highly cost-saving.

Discussion

These analyses indicate that it would be highly cost-saving to invest additional funds to expand syringe exchange services in the US. Over the course of 1 year an additional investment of only $10 million would avert an estimated 194 HIV infections and avoid $75.8 million in lifetime HIV treatment costs (saving $65.8 million net), representing a rate of financial return on investment of 7.58. If the investment increase were $50 million, it would also be highly cost-saving: approximately 816 HIV infections would be averted, equivalent to nearly one-third (32 %) of the annual number of new HIV infections due to drug injection risk; $319.1 million of lifetime HIV treatment costs would be avoided (net savings $269.1 million), representing a 6.38 rate of financial return on investment. Sensitivity analyses showed that when uncertainties about parameter values were accounted for, investment increase remained highly cost-saving.

Our analyses were conservative in scope, focusing on the effects of increased NSP syringe supply in terms of reducing number of injections with borrowed syringes and reducing HIV contamination of syringes in circulation. We did not account for the impacts of other services provided by NSPs on HIV transmission, such as referrals for drug treatment which may reduce the number of PWID at risk

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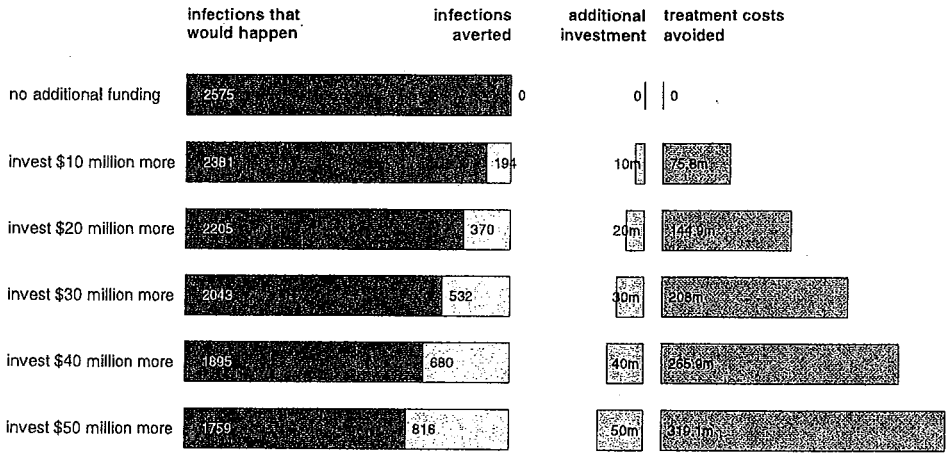

Fig. 1 Modeled effects of hypothetical increases in syringe exchange funding: HIV infections averted in a 1 year time frame, and resulting savings in lifetime HIV treatment costs (net present value, in 2011 USD)

Table 2 Estimated effects of hypothetical increases in syringe exchange funding: HIV infections, HIV infections averted, cost per infection averted, HIV treatment costs avoided, net savings, and rate of return on investment

Additional investment	Infections	Infections averted	Cost per infection averted	HIV treatment costs avoided	Net savings	Rate of return on investment	
						Average	Marginal
$0	2575	0	–	$0	$0	–	–
$10 million	2381	194	$51,601	$75.8 million	$65.8 million	7.58	7.58
$20 million	2205	370	$53,999	$144.9 million	$124.9 million	7.25	6.91
$30 million	2043	532	$56,414	$208.0 million	$178.0 million	6.93	6.31
$40 million	1895	680	$58,849	$265.9 million	$225.9 million	6.65	5.79
$50 million	1759	816	$61,302	$319.1 million	$269.1 million	6.38	5.32

All currency values are in 2011 US dollars. Future treatment costs savings are discounted and presented in net present value

for HIV, HIV testing and counseling which may reduce risk behavior and lead to earlier initiation of HIV treatment and reduced infectivity, condom distribution which may reduce sexual transmission among PWID and their sex partners, etc.; and did not account for reductions in secondary HIV infections. We also did not estimate benefits of increased NSP syringe supply on hepatitis C infections. In calculating return on investment, our study was also conservative in including only savings in HIV treatment costs, without estimating the additional social and economic costs avoided, or assigning a monetary value to the lives and life years saved.

As the scope of our study was restricted to the cost-effectiveness of increased syringe supply (the most essential component of NSPs), we estimated programmatic costs associated with a minimal set of services. This level of cost ($0.48 per syringe) allows for what is offered by the leanest programs: the exchange of syringes plus referrals to off-site services and no more than one additional on-site service. As such, our study did not estimate the benefits of services beyond syringe exchange. If instead of this $0.48 per syringe we used the average cost from all NSPs surveyed by NASEN including programs with more comprehensive services (which if divided by the syringe volume would be about $0.72), even without accounting for the additional benefits of the broader range of services, this would still lead to the conclusion that increased investment would be highly cost-saving.

That is not to say that the other effects of NSP services should be neglected. They represent a gap in the syringe exchange literature, so their magnitudes are not known. No study has estimated, for example, NSPs' potential effect on the HIV treatment cascade, from increased counseling and testing, to earlier treatment initiation, to viral suppression, to reduced infectivity, even though it has been established that early treatment [42] and viral suppression [43] reduces

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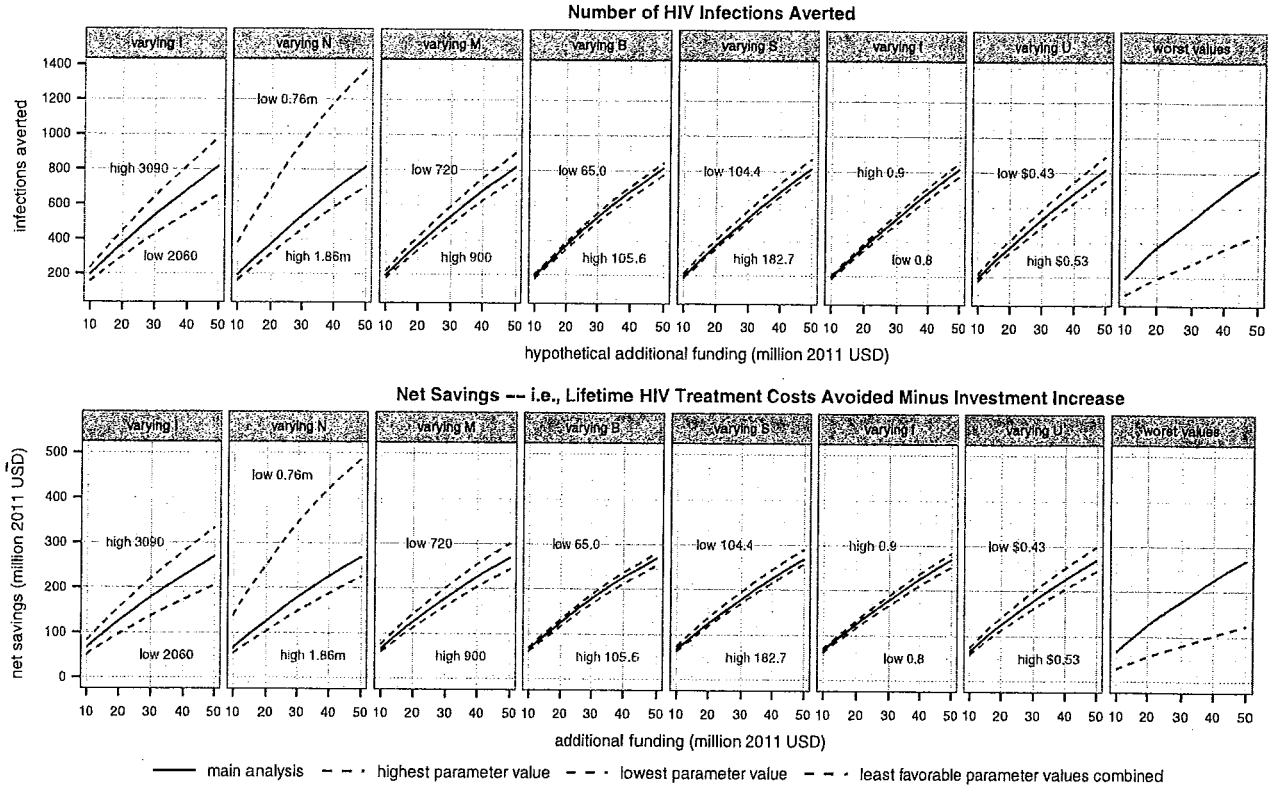

Fig. 2 Sensitivity analyses with higher/lower values on each parameter + combining all least favorable values

infectivity and sexual transmission. To estimate such effect requires data that causally link NSP attendance to earlier initiation of HIV treatment, which currently do not exist. As more data become available on the various effects of NSPs, cost-effectiveness analyses should incorporate them so that the impacts of NSPs could be captured fully and the package of NSP-related services could be tailored to optimize the cost-benefit tradeoff.

Two parameters in our model—HIV prevalence and the average infectivity of an HIV-contaminated syringe—were conservatively assumed to be the same in the hypothetical case as well as the base case, while theoretically, they could go down over time in the hypothetical case, relative to the base case. Higher syringe supply means fewer new infections, which could make prevalence in the hypothetical case lower than in the base case. NSP attendance could lead to earlier HIV testing and treatment initiation, which would reduce the amount of virus contaminating syringes, lowering the overall infectivity of syringes. Since the short (1-year) time frame being considered means these effects would likely be very small, and due to lack of estimates for them, we excluded them from this analysis. These effects, however, could not be ignored in studies that project HIV incidence over several or more years into the future.

One unconservative aspect of our model is that it does not address the competing risk of sexual transmission. The individuals who avoided injection-related infections in the hypothetical case would remain in the pool of people at risk for infection through sex. If we applied the population average sexual transmission rate among PWID (based on the data on new infections and PWID population size used in this study), out of the 194 persons who avoid injection-related infections in the $10-million-investment-increase scenario, we would expect 0.21 persons to become infected sexually; out of the 816 persons in the $50-million-investment-increase scenario, we would expect 0.88 persons to become infected sexually; both of these are small numbers. This, however, assumes no correlation between sexual and parenteral transmission risks, but it is difficult to estimate the correlation of these risks and the relevant sexual transmission incidence rate for these individuals. We have thus excluded this detail from our analysis. When more data are available on risk correlation, this issue should be revisited. On the other hand, NSPs typically provide HIV testing and condoms, both of which may be associated with reduction of sexual risk behavior. Thus, expansion of NSPs may actually be associated with reduced sexual transmission. As we believe that this effect

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would be small within a 1-year time frame, and do not have the data needed to estimate this effect, we have not included it in the model.

It should be mentioned that the model we used in this analysis is a relatively simple model that requires a small number of parameters. This was deemed suited for a national level analysis, because of limited data availability and our hesitation to make too many assumptions. In other words, the gain in big picture comes with a certain loss in resolution. In local level analyses, other researchers have used more complex models. For example, Vickerman et al. incorporated estimates of PWID who do not share syringes or have different levels of sharing and injection network characteristics [44, 45]. Bobashev et al. [46] proposed agent-based models that allow simulating HIV transmission under different NSP syringe coverage scenarios. For our purpose of national level analysis, data were too sparse to allow reasonable assumptions about individual PWID behaviors and their injection networks to use any of these complex models.

The quality of a cost-effectiveness analysis depends on the quality of the data that inform the values of modeling parameters. As our analysis was at the national level, we were able to draw from data from different national and local studies for different parameters. Many of the parameters, however, were estimated from either older data from national studies or more contemporaneous data from localized studies, which may or may not accurately reflect contemporary national epidemiology of HIV and injection practices among PWID. There was uncertainty about quite a few parameters, such as the size of the PWID population, HIV incidence due to injection drug use, sharing/borrowing practices, number of injections per syringe, and the quantity of non-NSP syringes.

To address these issues, we relied on multiple data sources to reduce bias and conducted sensitivity analyses covering ranges of plausible parameter values to account for the uncertainty in each parameter. Even when the least favorable values of all these parameters were combined, the results indicated substantial cost savings, making it clear that the conclusion about increased syringe exchange funding being highly cost-saving is robust to uncertainties in parameter values. When more precise data for the parameters in this model become available, updating the analysis may provide more accurate estimation of the degree of effectiveness of syringe exchange expansion.

A feature of the model that should be mentioned is that it is an average model that assumes parameter values are similar across different geographical locations in the United States. To be precise, it assumes that the ratio of new infections in the hypothetical case to the base case (I'/I) is the same (or similar), which means B, c (and B', c') are similar, in different parts of the country. This is an inaccurate assumption but was necessary for the model to be estimated, because data on B (number of borrows) were not widely available. While we produced one estimate of cost-effectiveness for the country based on this average model, for funding decisions, we would like to highlight that if investment increase were to be targeted, it would be more cost-effective and cost-saving in areas where syringe coverage is lower and borrowing is more prevalent (higher B than average, which means increased syringe supply will displace more borrows, leading to a smaller I'/I ratio), and where HIV incidence is high (higher I for PWID population than average), as these conditions combined give rise to a larger number of infections averted ($I - I'$). Local NSP cost is also an important factor—in areas where NSP operating costs are lower, investment increase would be more cost-effective.

To inform local funding decisions, it would be even better to have local analyses, especially in areas where injecting drug use, HIV among PWID, and syringe exchange have been extensively researched, and local data are thus available for model parameters (for an example about how such data could be used for local analysis, see the spreadsheet available online as supplemental material). Data availability may even allow the consideration of one or more of the more complex models mentioned above.

Conclusions

With an estimated total syringe coverage of about 18 % of drug injections (including 2.8 % coverage by NSPs), there is tremendous unmet need for clean syringes among PWID in the US. From a public health perspective, more investment is needed for syringe exchange, to avert infections and save lives. From a financial management perspective, in a time of difficult economic conditions constricting resources for public spending, it is especially important to invest in interventions that are effective and cost-effective. Investment in syringe exchange not only meets these two criteria but also would save more resources than what needs to be spent. Given that about three-fourths of HIV treatment costs in the US are borne by the public sector [47], expanding syringe exchange could contribute to reducing the country's public budget deficit in the long run. These are important factors that US policy makers should consider in deciding whether or not to support expansion of syringe exchange.

Acknowledgments The authors acknowledge the valuable data from the annual surveys of NSPs which Beth Israel Medical Center and North American Syringe Exchange Network conduct with support from amFAR/The Foundation for AIDS Research using funding

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from the Elton John Foundation and the Irene Diamond-Tides Foundation. Trang Q. Nguyen acknowledges the funding from the Sommer Scholars Program, and Brian W. Weir acknowledges the funding from the National Institute on Drug Abuse (Grant F31 DA026763), for their doctoral training.

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