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1.0 INTRODUCTION

The best evidence supports the recommendation that implementation of a community needle exchange program (NEP) be considered when bloodborne pathogen transmission is occurring in the intravenous drug-using population through the sharing of needles.

BCCDC acknowledges Dr. Timothy Christie, PhD, Health Care Ethicist, BC Centre for Excellence in HIV/AIDS for his development of these guidelines.

2.0 GOAL

The goal of a NEP is to eliminate the spread of blood borne pathogens via the use of injection equipment.

3.0 OBJECTIVES

Objective 1: To ensure every needle used is new

Objective 2: Eliminate needle and syringe sharing

Objective 3: To protect the public from inappropriately discarded injection equipment and drug paraphernalia.

Objective 4: To provide those who use injection equipment with harm reduction information, free access to clean injection equipment, referrals for health care services, and other referral services.

Note: *All needle exchange programs should strive to achieve at least one of the above objectives. Acceptable programs can range from low-threshold, where objectives 1 and/or 2 are the primary focus, to more robust programs that try to meet all four objectives. Likewise, retrieval programs that focus on objectives 3 and/or 4 are entirely appropriately. A variety of programs are needed.*

4.0 EXCHANGE PROCEDURES FOR NEEDLES, SYRINGES, AND OTHER SUPPLIES

- All programs should strive to provide maximum access to harm reduction related medical supplies, including clean needles and syringes, sterile water, condoms, lubricant, etc.

- Access to supplies should extend to whoever needs them regardless of the person's age, gender, race, drug using status, or drug of choice.

- All programs should strive to distribute as many supplies as the individual client requires to meet that client's particular needs. For instance, the individual should receive enough needles and syringes to be able to use a clean one for each injection.

- If the client does not have any needles to exchange "loaners" are appropriate. Determine how many needles and syringes the client will need and provide him or her enough for a 24-hour period. Depending on whether the client is injecting heroin or cocaine the number of "loaners" could be substantial.

- It is possible that the person seeking supplies from the NEP is not seeking supplies for him or herself. In these situations it is acceptable to provide supplies (i.e., runners) for the purpose of secondary distribution.

- All programs should retrieve as many used supplies as possible, particularly used needles and syringes. The program should strive for 100% recovery. There should be a strong emphasis placed on encouraging people to either return their used needles and syringes or to dispose of them properly.

Discussion:

In order for clients to use a clean needle for every injection it is necessary that NEPs provide that particular client with a sufficient number of needles to achieve this recommended standard. A consequence of this may be that the NEP distributes more needles than it retrieves or gives the client more needles than he or she has to exchange, particularly in the case of loaners.

Furthermore, there is a concern about people getting free supplies from the needle exchange and selling them. For instance, some people will sell clean needles for $1 each. If this situation occurs it should be an indication to the NEP that there is an unmet need in the community and strategies need to be developed for addressing this need. Limiting supplies to these people is not an effective way of meeting an unmet need.

In anticipation of an increased number of needles in circulation, the NEP should make every attempt to become a contributing member of that community emphasizing that its clients are all members of that community not only the IDU segment. This will include conducting sweeps of areas where it is known that injection occurs in hopes of retrieving inappropriately discarded injection equipment.[2,5,9,14,15,23]

5.0 SAFE DISPOSAL OF NEEDLES AND SYRINGES

- To help monitor the program each NEP should maintain a count of the number of needles given out, the number returned, and the number inappropriately discarded in the community.

- Each NEP will have a plan for the safe transportation and disposal of needles.

- Where possible the NEP will formulate an overall plan for the safe disposal of all needles in their community. Agreements with the police and other relevant agencies will be part of the plan. The plan will address:
    - The provision of sharps containers in supervised settings;
    - The pick up of discarded needles from streets, schoolyards, parks and alleys;
    - The provision of small sharps containers to clients, etc.

- To avoid occupational exposure by NEP workers or volunteers, all NEPs should use good sharp disposal containers, universal precautions and should not try to recap, bend or break needles before disposal. The disposal container should be a puncture-resistant container that is not filled too more than three quarter capacity. Glass containers should not be used. If recapping cannot be avoided, a mechanical devise designed for holding the needle sheath should be employed.

- Where possible the NEP will make information available to the community about its plan for the safe disposal of needles and the numbers distributed and returned.

Discussion:

The recovery and safe disposal of syringes and needles is important in maintaining widespread and ongoing support from the community for needle exchange programs. There is no evidence to suggest that this will

have any impact on the spread of blood borne pathogens but the evidence does suggest that it will help generate public support for the program.[5,21,39]

For more information on preventing occupational exposure to bloodborne pathogens see the following documents: Preventing the Transmission of Bloodborne Pathogens in Health Care and Public Services Settings (pages 19-21). CCDC 1997; 23S3. & Prevention and Control of Occupational Infections (217-221). CCDR 2002;28S1.

6.0 FACILITATING ACCESS TO HIV/STD, HEPATITIS, TB AND OTHER DISEASE TESTING, MANAGEMENT AND TREATMENT

- As an integral part of its needle exchange practice each NEP will develop client referral pathways that are user friendly and perceived by clients as accessible, to services such as:
    - Housing;
    - Financial assistance;
    - Food services;
    - Alcohol and Drug counseling/treatment;
    - Pregnancy advice;
    - Parenting assistance;
    - Mental health counselling services;
    - Legal services/victim services; and,
    - Other related services.

- Each NEP that does not provide testing and counseling services will develop client referral pathways that are user friendly and perceived by clients as accessible, as an integral part of the needle exchange service.

Discussion:

Needle Exchange users are predominantly a marginalized group in terms of their access to health care services. Disease testing, management, and treatment are essential services for this high-risk population.[7,13,19,34,42]

7.0 EDUCATION

- As an integral part of its needle exchange practice each NEP will include, but not limit, educational programming to clients regarding:

    - Safer injection practices including discussion about vein maintenance and the limited effectiveness of bleach; Safe needle disposal;
    - Safer sex practices;
    - Harm reduction information; and,
    - The principles of general health and well being.

Discussion:

Provision of education to clients about safer needle use, safer sex practices, and personal health care are important components of health promotion and disease prevention for this group of clients.[16] *For a more detailed discussion of the effectiveness of bleach see Tweed, A., and Krajden, M., "The Effectiveness of Bleach in the Prevention of Hepatitis C Transmission, BCCDC (2002)."*

Note Gender Differences:

Special efforts should be made to counsel women about unique vulnerabilities. The evidence suggests that women are more likely to be expected to use used equipment and there is significant overlap between women's drug and sexual networks. NEPs must make women aware of high-risk situations.[1,8,25,28,30]

8.0 LITERATURE REVIEW 2002

1. Bennett, G.A., Velleman, R.D., Barter, G., and Bradbury, C., **"Gender differences in sharing injecting equipment by drug users in England,"** *AIDS Care*, v. 12, n. 1., (2000), pp. 77-87.

   - This study was conducted in two cities in the U.K., Bournemouth and Bath. The focus was on studying gender differences in sharing needles, syringes, and other drug injecting paraphernalia. There was also a clarification between "passing on" used works and "receiving" used works. It was found that women received needles and syringes, and syringes significantly more often than men did.

2. Bluthenthal, R.N., Kral, A.H., Gee, L., Erringer, E.A., and Edlin, B.R., **"The effect of syringe exchange use on high-risk injection drug users: a cohort study,"** *AIDS*, v. 14, (2000), pp. 605-611.

   - This Oakland, California study followed a cohort of injection drug users from 1992-1996 to determine whether syringe exchange programs were associated with cessation of syringe sharing. It was conducted in a setting where it was illegal to buy syringes through pharmacies and therefore syringe exchange programs were the only source of clean syringes. 204 of 340 (60%) reported quitting syringe sharing. One important finding was that steady sex partners of injection drug users continued to share needles. Also, youth and people beginning their injection drug-using career were a lot more likely to share needles.

3. Bluthenthal, R.N., Lorvick, J., Kral, A.H., et al., **"Collateral damage in the war on drugs: HIV risk behaviours among injection drug users,"** *International Journal of Drug Policy*, v. 10, (1999), pp. 25-38.

   - This study analyzes whether two "war on drugs" initiatives have lead to an increase in HIV infection among injection drug users: first, the ban on syringes and other drug paraphernalia, and second, the disqualification of drug users from the Supplemental Security Income program. It found that injection drug users who were concerned about being arrested because of the ban on syringes and other paraphernalia were 1.5 times more likely to share syringes and over 2 times more likely to share other injection paraphernalia. Among former Supplemental Security Income program recipients 16.7% reported

sharing in the 30 days prior to the study compared to 0% still receiving these benefits.

4. Bluthenthal, R.N., Kral, A.H., Erringer, E.A., and Edlin, B.R., **"Drug paraphernalia laws and injection-related infectious disease risk among drug injectors,"** *Journal of Drug Issues,* v. 29, n. 1., (1999), pp. 1-16.

   - This study looked at two variables. First, it tried to assess concern with potential arrest while carrying drug paraphernalia. Second, it looked at the relationship between being arrested for drug paraphernalia possession and HIV related risk behaviours. Concern about being arrested while carrying drug paraphernalia was reported by 150 (35%) of study participants. It was also found that IDU concerned about being arrested while possessing drug paraphernalia were over twice as likely to share syringes and more that three times as likely to share "drug works" as other IDUs. Homelessness was also independently associated with both syringe sharing and sharing of other injection supplies.

5. Boradhead, R., Van Hulst, Y., and Heckathorn, D.D., **"Termination of an established needle-exchange: a study of claims and their impact,"** *Social Problems*, v. 46, n. 1., (1999), pp. 48-66.

   - This important article looks at the effects on a community of a needle exchange's closure. In 1997 the Windham, Connecticut needle exchange was closed because of public outrage over the needle exchange's poor return rate of used needles (88%), the employees poor attitude toward the community, and the unfortunate needle stick injury of a little girl. The study evaluated risk behaviours of injection drug users before and after the closure of the needle exchange. Before the exchange closed 86% of IDUs got their needles from a pharmacy or needle exchange. After the closure 51% of IDUs got their needles from what is considered an unsafe source (family, friends, street source.) For instance, a new phenomena called pirating occurred, which means creating a usable needle and syringe out of a number of broken needles and syringes. (Much like what occurs in prisons.) After the needle exchanges closure virtually all HIV related risk behaviours increased: reuse of syringes, sharing of syringes, sharing of cookers/filters, sharing of water, etc. "Thus, the Windham experience suggests that, as needle exchanges become established, they must expand their purpose and be seen as accommodating and serving the

concerns of the community-at-large as much as they serve the concerns of their drug-using clients."(63)

6. Broadhead, R.S., Van Hulst, Y., and Heckathorn, D., **"The impact of a needle exchange's closure,"** *Public Health Reports*, v. 114, (Sept/Oct, 1999), pp. 439-447.

   - See notes from their previous article.

7. Brooner, R., Kidorf, M., King, V., et al**., "A drug abuse treatment success among needle exchange participants,"** *Public Health Reports, v. 113, Supplement 1*, (1998), pp. 130-139.

   - This study demonstrated that patients referred to addiction services from the needle exchange program responded well to treatment despite the fact that they had a greater baseline severity of drug use than patients in the standard referral group. Two significant findings of this study were the ability of the needle exchange program to refer clients to treatment and the relatively high retention rates of needle exchange clients in treatment.

8. Bruneau, J., Lamothe, F., Soto, J., et al**., "Sex-specific determinants of HIV infection among injection drug users in Montreal,"** *Canadian Medical Association Journal*, v. 164, n. 6, (Mar. 20, 2001), 767-773.

   - This study tracked 2741 injection drug users from 1988-1998. There were 2209 men and 532 women with 304 people in total being HIV-positive (11%), 176 participants had been previously tested for HIV, and 84 knew they were HIV positive before the commencement of the study. The prevalence was 12% among men and 7.5% among women. Sharing syringes with a known seropositive partner was the only variable positively associated with HIV infection for both men and women. Use of cocaine was independently associated with HIV prevalence among men. For women, being out of addiction treatment and getting needles from shooting galleries was associated with HIV seropositivity. "Injection drug use represents an important source of HIV transmission. Although clean syringes are theoretically accessible, it appears that needle distribution programs have partly failed to alter high-risk situations. Even with the implementation of comprehensive needle exchange programs and outreach work, health care and drug treatment programs have failed to attract and retain injection drug users."

9. Bruneau, J., Lachance, N., et al., **"Changes in HIV seroconversion rates of IDUs attending needle exchange programs in Montreal: the Saint-Luc cohort,"** *Canadian Journal of Infectious Diseases, Supplement*, (May 1999).

    - From 1988 to 1995 the Montreal study found a positive correlation between needle exchange attendance and HIV seroconversion rates. In 1995 it modified its service delivery by opening new distribution sites and lifting the syringe quota. Since 1995 it has not found an association between needle exchange attendance and seroconversion rates; this is coincidental with the changes to the program.

10. Bruneau, J., Lamothe, F., Franco, E., et al., **"High rates of HIV infection among injection drug users participating in needle exchange programs in Montreal: results of a cohort study,"** *American Journal of Epidemiology,* v. 146, (1997), pp. 994-1002.

    - This study observed 1599 people who use drugs by injection from 1988-1995. "There was an independent association between HIV seroconversion and the following variables: street recruitment, previous imprisonment, cocaine as drug of choice, number of injections in the last month, having two or more sharing partners in the last month, sharing with an HIV-seropositive partner, having HIV-seropositive acquaintances, and finally, having attended a NEP at least once in the last 6 months." Those attending NEPs were three times more likely to seroconvert than were non NEP attenders.

11. Center for Disease Control, **"Update: Syringe Exchange Programs—United States, 1998,"** *Morbidity & Mortality Weekly Report,* v. 50, n. 19, (2001), pp. 384-387.

    - There are 131 Syringe Exchange Programs in the U.S. that distributed 19.4 million syringes in 1998. The combined budged for all of theses is $8,567,662.00

12. Center for Disease Control**, "Trends in injection drug use among persons entering addiction treatment—New Jersey, 1992-1999,"** *Morbidity & Mortality Weekly Report*, v. 50, n. 19, (2001), pp. 378-381.

    - This paper reports an increase in injection drug use, increase among young 18-25 heroin users throughout the state and an increase in

heroin use among 18-25 who reside in suburban and rural areas of New Jersey.

13. Centers for Disease Control, **"Hepatitis B vaccination for injection drug users—Pierce County, Washington, 2000,"** *Morbidity & Mortality Weekly Report,* v. 50, n.19, pp. 388-390.

    - Hep-B vaccinations were offered to high-risk IDUs through needle exchange sites, correctional institutions, soup kitchen, and a substance abuse treatment program for women. 1981 people received their first injection, 50% received their second and 28% completed the regimen. Since there is a protective effect from Hep-B for 30% of the adult population after 1 dose and 89% after two doses, there are a lot of people who have potential protection against Hep-B.

14. Centres for Disease Control, **"Soft tissue infections among injection drug users—San Francisco, California, 1996-2000,"** *Morbidity & Mortality Weekly Report*, v. 50, n. 19, pp. 381-384.

    - Soft tissue infections can arise in the injection drug using population because of poor injection site hygiene, syringe reuse, intramuscular or subcutaneous routes of infection, and contaminated drugs. This reinforces the one-needle one-injection public health policy.

15. Crofts, N., Campbell, K.A., and Kaldor, J.M., **"The force of numbers: why hepatitis C is spreading among Australian injection drug users while HIV is not,"** *MJA*, v. 170, (1999), pp. 220-221.

    - The point of this article is that the Hepatitis C virus is easier to spread and requires less titer than HIV. Furthermore, the prevalence of HCV among IDUs is much higher than HIV, which increases the probability of being exposed to the HCV virus. HCV is also spread via other avenues than sharing needles/syringes, for instance, swabs, spoons, water vials, tourniquets, fingers, and other body parts and surfaces in the immediate environment.

16. Deren, S., Meardsley, M., Coyle, S., and Singer, M**., "HIV serostatus and risk behaviors in a multisite sample of drug users,"** *Journal of Psychoactive Drugs*, v. 30, n.3., (July-September, 1998), 239-245.

- This study compared the effects of HIV prevention initiatives on the HIV-related risk behaviours of HIV-positive and HIV-negative injection drug users and crack smokers. It found that between the baseline and 6-month follow up there was significant risk reduction by both groups. However, it was indicated that HIV-positive participants were more likely to reduce their sex related risk behaviours than were their HIV-negative counterparts.

17. Ferrini, R., **"American College of Preventive Medicine public policy on needle-exchange programs to reduce drug-associated morbidity and mortality,"** *American Journal of Preventive Medicine,* v. 18, n. 2., (2000), pp. 173-175.

- This is a public policy statement by the American College of Preventive Medicine. The college maintains that needle exchange programs reduce the spread of infectious blood borne diseases among injection drug users, their sexual partners, and their children. This is done by reducing the lending and reuse of contaminated injection equipment, decreased frequency of injection drug use, and increased referrals to social service agencies for drug treatment and other health related concerns. Furthermore, there are no significant harms associated with needle exchange programs. They do not increase drug use, drug initiation, crime in surrounding areas, or increased needles on the street. (Note: this may assume a one-for-one exchange and not a needle distribution policy.)

18. Guenter, D.C., Fonseca, K., Nielsen, D.M., et al., **"HIV prevalence remains low among Calgary's needle exchange program participants,"** *Canadian Journal of Public Health*, v. 91, n. 2., (March-April 2000), pp. 129-132.

- Calgary's needle exchange program tested 272 clients for HIV. Nine tested HIV antibody positive revealing a prevalence of 3.3%. The demographics of the population studies were: mean age of 35.9 years old with 91% > 25 years old, 21% were female, 20% Aboriginal, and 44% of participants had been incarcerated in the previous six months.

The injection drug behaviour began at roughly age 22.4, 63% of participants used the NEP as their primary source for injection equipment and 23% used pharmacies. 75% of participants had reported not sharing injection equipment within the last six months, 60% injected cocaine, 26% morphine, and 7% heroin. 52% of subjects wanted to access some form of addiction treatment. 27% always use a condom, 37% never used condoms, 7% MSM, 12% of women had sex with women, and 20% reported sex trade.

19. Hagan, H., McGough, J.P., Thiede, H., et al., **"Reduced injection frequency and increased entry and retention in drug treatment associated with needle-exchange participation in Seattle drug injectors,"** *Journal of Substance Abuse Treatment*, v. 19, (2000), pp. 247-252.

    - This study was conducted in Seattle from 1994-1997. It studied the effects of needle exchanges on injection frequency, and entry and retention to drug treatment for injection drug users. It was found that injection drug users who were defined as ex-exchange users were more likely than never-exchange users to reduce their frequency of injection, to stop injection altogether, and to remain in drug treatment. New users of the exchange were five times more likely to enter drug treatment than never-exchangers. Furthermore, retention in methadone treatment at 12-month follow up was 68% for former users, 60% for current users, and 45% for new users of the needle exchange program.

20. Hagan, H., McGough, J.P., Thiede, H., et al., **"Syringe exchange and risk of infection with Hepatitis B and C viruses,"** *American Journal of Epidemiology*, v. 149, n. 3., (February 1, 1999), pp. 203-213.

    - This study followed a cohort of injection drug users attending a needle exchange in Seattle 1994-1996. Of the 187 IDUs who were HCV negative at baseline there were 39 new infections. Of the 460 IDUs who were seronegative for core antibody to HBV there were 46 new infections. All of these clients reported the needle exchange as their primary source of syringes. There was no protective effect of the needle exchange for HBV or HCV infection. In fact, the highest incidence of infection occurred among current users of the exchange. (Speculation implicates sharing drug paraphernalia such as cookers, spoons, filters, water, etc.)

21. Heimer, R., and Abdala, N., **"Viability of HIV-1 in syringes: implications for interventions among injection drug users,"** *The AIDS Reader*, v. 10, no. 7, (2000) pp. 410-417.

- This article makes six specific recommendations about U.S. needle exchange policy. It also explains that the duration of survival of HIV-1 in syringes typically used by injection drug users can exceed six weeks. The percentage of syringes with viable virus varied with the volume of blood remaining in the syringes and the temperature at which syringes were stored. The lower the temperature the longer the viability period of the virus.

22. Heimer, R., Khoshnood, K., Bigg, D., et al**., "Syringe use and reusue: syringe exchange programs in four cities,"** *Journal of Acquired Immunodeficiency Syndromes and Human Retrovirology,* v. 18, Supplemental 1, (1998), S37-S44.

- This study found that the average number of injections per syringe declined by more than 50% after needle exchange programs were established in New Haven, Baltimore, and Chicago. It also found that needle exchange programs were associated with increases in the once-only use of syringes.

23. Hogan, H., McGough, J-P, et al., **"Volunteer bias in non-randomized evaluations of the efficacy of needle exchange programs,"** *Journal of Urban Health,* (Accepted for Publication.)

- This study was of a cohort of injection drug users who attended a needle exchange site. They were issued a standardized questionnaire that measured characteristics present at enrollment. It was found that IDUs who were homeless, shared syringes, participated in backloading, etc were more likely to use the needle exchange. Whereas, those who stopped using the needle exchange were more likely to reduce the frequency of injection. The conclusion is that this needle exchange program attracted and retained injection drug users with the highest risk behaviours for acquiring a blood borne pathogen.

24. Jacobs, P., Calder, P., Taylor, M., et al., **"Cost effectiveness of streetworks needle exchange program in Edmonton,"** *Canadian Journal of Public Health*, v. 90, n3., (May-June 1999), pp.168-171.

- This is an economic study of Edmonton's Streetworks needle exchange program that serves 400 IDUs per month through 2 fixed sites and one outreach van. The study investigated current needle sharing practices as well as speculated about needle sharing practices if the Streetworks program was not available. With the program in existence the authors predicted 10.1 new infections. Without the program 30.4 were estimated; they concluded that the program would save 20.3 infections per year. It was also found that it costs $9,737.00 to delay one case of HIV infection for at least one year. Since the cost of treating HIV is approximately $150,000, the Streetworks program is cost effective. (Note: there is an important distinction drawn between avoiding HIV infection and delaying HIV infection.)

25. Jung, B., Vlahov, D., Riley, E., et al., **"Pharmacy access to sterile syringes for injection drug users: attitudes of participants in a syringe exchange program,"** *Journal of the American Pharmaceutical Association,* v. 39, n. 9, (Jan-Feb, 1999), pp. 17-22.

    - This study followed 206 injection drug users who accessed needle exchange (van) services in Baltimore, Maryland. The researchers asked study participants hypothetical questions about whether they would have objections or preferences about getting clean syringes and needles from community pharmacies. 92% of respondents said that they would obtain syringes from pharmacies and would be willing to pay for this service. Women were more likely than men to report the intention to switch from needle exchange vans to pharmacies. The conclusion was that if the legal ban of selling syringes without a prescription, and the identification requirement were lifted IDUs would use this service. (Special note about women and injection drug use.)

26. Kent, H., **"Harm-reduction strategies weapon of choice in BC's battle with drug addiction,"** *Journal of the Canadian Medical Association*, v. 155., n. 5., (Sept, 1996), pp. 571-573.

    - The focus of this article is on the importance of three harm reduction interventions: needle exchange, methadone maintenance, and heroin maintenance. An important quotation is as follows: "Conversely, for every $1 spent on prevention, $11 is saved in social-service costs."

27. Kottanski, L., Salaam, S., Collier, K., et al., **"Effectiveness of an HIV risk reduction counseling intervention for out-of-treatment drug users,"** *AIDS Education and Prevention,* v. 10., n. 1., (1998), pp. 19-33.

- This study looked at 684 out-of-treatment injection drug users in Philadelphia. It compared a control group who received standard HIV counseling with an experimental group who received the standard as well as enhanced counseling. At 6-month follow up both groups demonstrated positive behaviour change, i.e., injection practices and sexual behaviour; however, there was no remarkable difference between the two groups. The enhanced intervention did not influence behaviour change to a greater degree than the standard group.

28. Latkin, C.A., Mandell, W., Knowlton, A.R., **"Gender differences in injection-related behaviors among injection drug users in Baltimore, Maryland,"** *AIDS Education and Prevention,* v. 10, n. 3, (1998), pp. 257-263.

- This study compared HIV related injection risk behaviours between men and women. It found that men are more likely to inject alone, have larger sex networks, inject at their mother's residence, and inject in public places, than women are. Women, on the other hand, had a significantly greater overlap between their drug and sex networks. This implies that HIV prevention efforts directed primarily toward injection drug use, would not reach the sex risks experienced by many women.

29. Millar, J.S., **"HIV, hepatitis, and injection drug use in British Columbia: pay now or pay later?"** (1998)

- This document takes a critical look at the way injection drug use impacts the economy and health of people living in British Columbia. It emphasizes that addiction is a chronic disease that must be managed primarily through a harm reduction approach. The focus is on expanded addiction services, including methadone maintenance therapy; improve the determinants of health, especially affordable, safe and stable housing; improve mental health services; pilot test prescription heroin trials; and implement drug courts.

30. Paone, D., Cooper, H., Alperen, J., et al., **"HIV risk behaviours of current sex workers attending syringe exchange: the experiences of women in five US cities,"** *AIDS Care*, v. 11, n. 3, pp. 269-280.

- This study looked at injection drug using women who access needle exchange programs in five U.S. cities. The three groups of women compared HIV related risk factors among IDU women who trade sex, IDU women who are sexually active but do not trade sex, and IDU

women who are not sexually active. It found that IDU women who also trade sex are at increased risk for acquiring HIV: they inject more frequently, have unprotected sex with stable partners, protected sex with dates, share needles and other paraphernalia more readily.

31. Patrick, D.M., Rekart, M.L., Cook, D., et al**., "Non-nominal HIV surveillance: preserving privacy while tracking an epidemic,"** *Canadian Journal of Public Health*, v.90, n.3., (May-June, 1999), pp. 164-167.

    - This study reports on B.C.'s non-nominal HIV surveillance system. It found that a system of tracking using three initials and birth date helped detect a greater number of duplicate HIV tests—from 22%-47%.

32. Patrick, D.M., Rekart, M.L., Cook, D., et al., **"Non-nominal HIV surveillance: preserving privacy while tracking an epidemic,"** *Canadian Journal of Public Health*, v. 90, n3., (May-June 1999), pp.164-167.

    - This study looked at an "enhanced" HIV surveillance system. This system used unique identifiers (date of birth and initials) combined with verbal contact with each health care provider. The verbal contact can identify duplicate records through means that would not be apparent from examination of birth dates, gender, initials, etc. This process has enhanced duplicate reduction from 22% to 47%.

33. Purcell, D.W., DeGroff, A.S., and Wolitski, R.J., **"HIV prevention case management: current practice and future directions,"** *Health & Social Work*, v. 23, n.4, (1998), pp. 282-289.

    - Prevention case management is a service provided through ASO, CBO, medical clinics, mental health clinics, homeless shelters, drug treatment shelters, etc. The Center for Disease Control defines it as "intensive, individualized support and prevention counseling to assist persons to remain seronegative or to reduce the risk for HIV transmission to others by those who are seropositive." They further define it as "an ongoing, sustained relationship with the client in order to assure multiple-session HIV risk-reduction counseling and access to service referrals." This would apply to the people we label as "unwilling/unable." (This article has a lot of implications for the issue of recalcitrant HIV-positive individuals.)

34. Rich, J.D., Strong, L.L., Mehrotra, M., and Macalino, G., **"Strategies to optimize the impact of needle exchange program,"** *The AIDS Reader* v. 10, n. 7, (2000), pp. 421-429.

- This article is a literature review focussing on needle exchange policy in the United States. The conclusion is that needle exchange programs are successful in decreasing both syringe sharing and HIV incidence among injection drug users. There is also evidence suggesting that needle exchanges can provide injection drug users other relevant services, particularly addiction services. There were no obvious negative consequences associated with needle exchanges.

35. Roberts, K., McNulty, H., Guer, L., et al., **"The role of Glasgow pharmacists in the management of drug misuse,"** *International Journal of Drug Policy*, v.9., (1997), pp. 187-194.

- Pharmacies in Glasgow have adopted a supervised methadone administration scheme. This has had overwhelming positive effects like decreased crime, decreased leakage of methadone to illegal markets, increased stability for clients, and decreased injection frequency. The article provides details of payment schedules and training requirements for pharmacists.

36. Robles, R., Colon, H., Finlinson, H., et al., **"Syringe and needle exchange as HIV/AIDS prevention for injection drug users in Puerto Rico,"** *Health Policy*, v. 45, (1998), 209-220.

- In this study, 430 syringes returned to the needle exchange were tested and revealed a 27% (116) seropositivity rate for HIV. There was also a significant increase in the number of returned syringes over the evaluation period—12.4% to 32.5%.

37. Saunders, W., and Marsh, A., **"Harm reduction and the use of current illegal drugs: some assumptions and dilemmas,"** *Journal of Substance Use*, v. 4., (1999), pp. 3-9.

- This article challenges the fundamental assumptions of opponents to harm reduction. In particular it looks at the theoretical underpinnings of harm reduction, relevant dilemmas as they pertain to harm reduction, problems about Hep-C and needle exchange, and some often overlooked proven harm reduction interventions that are rarely implemented.

38. Speed, S., **"The sharing of injecting paraphernalia among 96 regular attenders at needle-exchange schemes in the North West of England: implications for local public health policy,"** *International Journal of Drug Policy*, v. 9., (1998), pp. 351-358.

- The focus of this article is on the sharing of drug injecting paraphernalia as opposed to focussing exclusively on the sharing of needles and syringes. <80% shared spoons, <80% shared water, <80% shared filters, and >10% shared needles after cleaning them. The implications of this practice for Hep-C are remarkable.

39. Springer, K.W., Sterk, C.E., Jones, T.S., et al**., "Syringe disposal options for injection drug users: a community-based perspective,"** *Substance Use and Misuse,* v.34, n.13., (1999), pp. 1917-1934.

- This was a qualitative study that conducted in-depth interviews with a few injection drug users in Atlanta about their preferred method of syringe disposal. It looked at three different options of 1) Syringe Collection Program, 2) One Way Drop Box, and 3) Syringe Exchange Program. The advantages and disadvantages of each method were discussed. Ultimately, most preferred the option of syringe exchange programs but the other two were acceptable if anti-paraphernalia laws were eliminated.

40. Strathdee, S.A., Galai, N., Mahboobeh, S., et al**., "Sex differences in risk factors for HIV seroconversion among injection drug users," Archives of Internal Medicine**, v. 161, (2001), pp. 1281-1288.

- This study looked at 1447 male and 427 female HIV-negative IDUs. HIV incidence was 3.14 per 100 person years. Predominant risk factors among men were needle sharing and homosexual activity. For women, factors were consistent with high-risk heterosexual activity. In fact, for women high-risk heterosexual activity was more significant that drug-related risks.

41. Strathdee, S., Patrick, D., Currie, S., et al., **"Needle exchange is not enough: lessons from the Vancouver injecting drug use study,"** *AIDS*, v 11, (1997), pp. F59-F65.

- This was a study of 1006 people who use drugs by injection and live in Vancouver. The study found that independent predictors of HIV-positive serostatus were: low education, unstable housing, commercial sex, borrowing needles, being an established injection drug user,

injecting with others, and frequent attendance at a needle exchange program. Out of 24 people who seroconverted between baseline and follow-up 23 reported the needle exchange program as their most frequent source of sterile syringes.

42. Strathdee, S., Celentano, D., et al., **"Needle exchange attendance and health care utilization promote entry into detoxification,"** *Journal of Urban Health IN PRESS*

- 1490 injection drug users were followed in Baltimore. This study found an association between needle exchange attendance and entry into addiction treatment programs. Needle exchange program attendance was independently associated with entry into treatment programs for both HIV-positive and -negative clients.

43. Vlahov, D., and Jung, B., **"The role of needle exchange programs in HIV prevention,"** *Public Health Reports*, v. 113, Supp. 1, (June 1998), pp. 75-80.

- This article attempts to respond to a number of common questions about NEPs and injection drug use. Do NEPs increase drug use? Do NEPs attract youth? Does the presence of an NEP give the wrong message to youth? Do NEPs contribute to more contaminated syringes being discarded on the street? Are behavioural changes associated with NEP? Do NEPs actually reduce the incidence of HIV? The evidence suggests no negative consequences associated with NEPs.