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Behavioral and Community Impacts of the Portland Needle Exchange Program

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BEHAVIORAL AND COMMUNITY IMPACTS OF THE PORTLAND NEEDLE EXCHANGE PROGRAM

by

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DISSERTATION APPROVAL

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ABSTRACT

An abstract of the dissertation of Kathleen Joan Oliver for the Doctor of Philosophy in Urban Studies presented May 12, 1995.

Title: Behavioral and Community Impacts of the Portland Needle Exchange Program.

Research questions were:

1: Will Drug Injectors Use An Exchange In A State Where Syringes Are Legal?

2: Will Drug Injectors Using An Exchange Decrease Risky Behavior?

3: Will Frequent Clients Change Risk Behaviors More Than Infrequent Clients?

4: Will Drug Injectors Using An Exchange Change Risk Behaviors More Than A Comparison Group Not Using An Exchange?

5: Does An Exchange Have An Impact On The Number Of Discarded Syringes On The Streets?

6: Is There A Differences In The Rate Of Spread Of HIV Infection Among Users And Non-Users Of The Exchange.

Drug injectors will use needle exchange programs, even in a state where syringes are legal. During the first four years, nearly 2,000 drug injectors made approximately 16,000 visits to the Exchange.

Clients of the Exchange reduced risky behavior from intake to six months. Change lasted over time: at twelve months, change in behaviors continued to be significant.

Frequent users of the Exchange were better on two variables than infrequent users: they borrowed syringes less, and were less likely to use a syringe and throw it away.

Drug injectors using the Exchange were compared to those not using the Exchange, but using a bleach/outreach project. Clients of both projects reduced risky behaviors, with Exchange clients better on two variables: re-using syringes without cleaning, and throwing away used syringes. The two projects attracted different drug injectors, and should be viewed as complementary rather than competing AIDS prevention strategies.

The impact of the Exchange on the community was evaluated by the change in the number of discarded syringes found on the streets. The number of syringes found per month decreased from 5.14 before the Exchange opened to 1.9 after it began -- a significant side benefit.

The data presented here support the growing evidence that needle exchange programs produce behavioral risk reductions, and that the number of potentially infected syringes in public places can be reduced.

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ACKNOWLEDGEMENTS

Hugo Maynard, Ph.D. Co-Principal Investigator. Dr. Maynard is an Associate Professor of Psychology at Portland State University. Dr. Maynard provided local project oversight. He also recruited students from his Community Psychology class to conduct the hour-long interviews of Needle Exchange Program clients at Outside In, training these students and monitoring their work.

Don Des Jarlais, Ph.D. Co-Principal Investigator. Dr. Des Jarlais was Director of Research at the Chemical Dependency Institute at Beth Israel Medical Center and Deputy Director for AIDS Research at Narcotic and Drug Research, Inc. in New York. He is recognized internationally as an expert in the area of HIV and injection drug use. He provided project oversight, and (along with Dr. Sam Friedman) obtained funding from the American Foundation for AIDS Research for the program and study.

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LIST OF TABLES

INTRODUCTION

The first needle exchange program in the world was established in Amsterdam in the Netherlands in 1984. It was established in response to concerns about transmission of Hepatitis B, not HIV (Human Immunodefiency Virus). With the spread of HIV in the 1980's, needle exchange programs were expanded in Amsterdam and were begun in Great Britain, Sweden, and Australia.

Data from these countries were favorable concerning use of the programs by drug injectors, declines in risky needle use behaviors, and lack of negative effects (Guydish, 1993). However, it has been argued that the European experience may not be transferable to the United States. (Guydish, 1993). There are cultural and ethnic differences between drug injectors in America and those in Europe, differences in legal access to drugs and injection equipment, as well as differences in political climate.

The first needle exchange program in the United States was started in 1988 in Tacoma, Washington. A small number of needle exchange programs were soon established across the United States as a means of preventing HIV infection among drug injectors. The needle exchange program begun in Portland, Oregon opened in 1989. It was one of a handful of such programs nation-wide. Five years later, there are still few programs in the United States -- only 37 by July 1994.

Fifteen years ago, HIV infection and AIDS (Acquired Immune Deficiency Syndrome) were virtually unheard of. Today, over 250,000 cases of AIDS have been reported to the Centers for Disease Control (CDC). The first 100,000 cases occurred over an eight-year period. The second 150,000 cases occurred over a three to four year period (Lurie,, 1994).

Risk factors associated with intravenous (IV) drug use are found in one-third of people diagnosed with AIDS in the United States (Lurie, 1994). Not only are growing numbers of drug injectors becoming infected, but they in turn infect their current partners, their future partners, and infants when they or their partners become pregnant.

The response of the federal government to the presence of HIV among drug injectors was first to ignore it and then to fund a small number of outreach/survey projects. AIDS was discovered in 1981, and HIV was discovered two years later in 1983. By 1984 it was known that HIV was spread by contaminated syringes. There were no federally-funded prevention programs for drug injectors until 1987. At that time the National Institute for Drug Abuse (NIDA) funded National AIDS Demonstration Research (NADR) in 37 cities across the United States. These projects administered surveys and distributed bleach (Friedman, 1992).

The federal government has placed five bans on use of federal funds for needle exchange programs starting in 1988. The bans still remain in effect despite demonstrated effectiveness of such programs, and despite urgings to lift the ban from Centers for Disease

Control and the National Research Council (organized by the National Academy of Sciences).

The AIDS virus is most effectively transmitted through the sharing of contaminated needles (i.e. direct blood-to-blood contact). Prevention tactics directed towards drug injectors include outreach and education, drug treatment, and use of bleach to disinfect syringes before re-use. However, given that treatment is not an option used or successfully used by all drug injectors, the most direct intervention is furnishing drug injectors with access to sterile needles so that sharing and re-use of equipment is not necessary.

Because of the controversial nature of needle exchange programs, it is important to evaluate the benefits and liabilities of such programs. This study is an evaluation of the Needle Exchange Program in Portland, Oregon.

The Needle Exchange Program in Oregon was sited at Outside In, a non-profit, social service agency in downtown Portland. The agency has been providing services to low-income adults and homeless youth since 1968. Current programs include primary care and prenatal care clinics, and a homeless youth program which provides a drop-in center, a 17-bed transitional housing program, and support services.

Following is a brief discussion of the spread of HIV among drug injectors both nationally and locally, and of how the disease is transmitted among this group. The literature review presents four models of behavior change theories that are applicable to change in HIV risk behaviors, along with a discussion of the extent to which

drug injectors might be expected to change risk behaviors in response to the epidemic.

The response of communities and the federal government is outlined. The benefits and limitations of methods other than syringe exchange that have been implemented across the United States to reduce sharing of syringes is presented. These include use of bleach to clean syringes, enrollment in drug treatment programs with the goal of future abstinence, outreach and HIV prevention education, and legal sale of syringes. The response of the federal government and its bans on use of federal funds for needle exchange programs is also discussed. The literature review concludes with a rationale for a harm reduction model in response to AIDS, and a rationale for syringe exchange programs.

The methods section outlines how the Exchange worked, including program protocols. It also describes the research component, including recruitment of subjects, instruments and interviews, the comparison group, blood tests, and methods of tracking data.

The study asked the following questions:

Research Question 1: Will Drug Injectors Use A Needle Exchange Program In A State Where Syringes Are Legally Available Over-The-Counter?

Research Question 2: Will Drug Injectors Using A Needle Exchange Program Decrease Risky Needle Use Behavior Over Time?

Research Question 3: Will Frequent Users Of A Needle Exchange Program Change Risk Behaviors More Or Less Than Infrequent Users Of An Exchange?

Research Question 4: Will Drug Injectors Using A Needle Exchange Program Change Risk Behaviors More Or Less Than A Comparison Group Of Drug Injectors Not Using A Needle Exchange Program?

Research Question 5: Does A Needle Exchange Program Have An Impact On The Community In Terms Of A Change In The Number Of Discarded Syringes On The Street?

Research Question 6: Will an Exchange result in Differences In The Rate Of Spread Of HIV Infection Among Users And Non-Users Of The Needle Exchange Program?

Results are presented for each of the above questions. This paper concludes with recommendations for improving exchange programs and revising relevant laws, and recommendations for further research.

Appendix A summarizes interviews of 18 clients of the Portland Exchange who participated in the study. Appendix B provides a historical account of starting the program. Appendix C presents updated research results from syringe exchange programs

in three other countries (The Netherlands, Australia, and Canada), and Appendix D reviews results from four exchanges in this country (New Haven, New York, San Francisco, and Tacoma).

DESCRIPTION OF THE PROBLEM

SPREAD OF AIDS AMONG DRUG INJECTORS

Over 250,000 cases of AIDS had been reported to Centers for Disease Control nationwide by 1993. Of these, one-third were linked to IV drug use. Twenty-nine percent reported IV drug use, three percent reported that their sexual partner (male or female) was a drug injector, and one percent were infants born to drug injectors or their sex partners. (Lurie, 1994).

In Oregon, HIV infections increased among drug injectors from 1.4% in 1989 to 2.3% in 1992 (Skeels, Oregon Health Division, 1993a), and are now estimated to be about 4%. In Oregon, 2,261 cases of AIDS were reported by September 1993. Of these, 7% were drug injectors, and an additional 9% were both gay/bisexual and drug injectors (Skeels, Oregon Health Division, 1993b).

Once established in a population, HIV can spread rapidly. In New York the first three cases of AIDS in infants were (retrospectively) diagnosed in 1977. The first case of AIDS in an adult drug injector (who was also gay) was found in 1979. Five cases of AIDS were found in adult heterosexual drug injectors in 1980 (along with three additional cases in gay drug injectors). In 1980 there were 8 cases of AIDS among drug injectors, in 1981 there were 31, in 1982 there were 160 and in 1983 there were 340. HIV testing became available in the summer of 1984. Test results indicated that

by then half of New York's IV drug users were testing HIV positive (Des Jarlais, 1992a).

In Bangkok, Thailand the HIV infection rate among drug injectors also rose rapidly, from zero to 50% in less than two years. (Friedman, 1991a). However, it is not always the case that HIV infection rates will increase rapidly once infection is established in a population group. For example, in San Francisco the infection rates have stayed between 10% and 20% for several years. (Friedman, 1991a). Other cities around the world have also maintained a seroprevelence rate of less than 15%, including Hamburg, Sardinia, Vienna and Tours. (Friedman, 1993). Reasons for differences in the spread of HIV between communities is not fully understood, and in fact the World Health Organization is funding studies in Asia, Australia, Europe, North America and South America specifically to investigate these differences. (Friedman, 1993).

Transmission of HIV Among Drug Injectors

HIV is transmitted among drug injectors through sharing of injection equipment, sexual contact, and perinatally during pregnancy. However, the most common and efficient mode of transmission is through sharing of equipment. Shared equipment refers primarily to syringes, but can also include cookers, cotton and rinse water.

Syringes are contaminated when infected blood remains in the syringe or on the needle. Cookers are equipment used to "cook" the drug prior to injecting. They are often spoons or bottle caps (bottoms

of aluminum beverage cans are common). Cookers become contaminated when already-used syringes are used to draw up the drug, and blood is injected into it. Cotton is used to strain the cooked drug to remove residue as the drug is drawn into the syringe. It may become contaminated if the cooker was contaminated, or if it is used more than once and a syringe was infected. Rinse water is utilized to rinse syringes between uses to clean away residue and prevent equipment from clogging. It becomes contaminated if a syringe is contaminated. Provision of sterile syringes and other materials needed for safe, sterile injections eliminates most of these opportunities for contamination and is the most effective barrier against transmission of HIV among this population.

The primary reason for sharing of syringes is probably scarcity of equipment, and fear of legal consequences if syringes are in one's possession. Laws in most states prohibit or severely restrict sale of syringes to drug injectors, making syringes a scarce commodity among this group. Laws also make possession of syringes a crime, and those found carrying them face legal consequences.

However, there are also reasons for sharing syringes that are social, and involve issues of trust and group norms. Sharing, particularly with a sex partner or "running" partner, can indicate trust in the partner. Sharing can also indicate trust among friends, or simply be an expectation or norm of the group. Effective intervention programs will not only make syringes readily accessible, but will attempt to change individual and group norms.

The primary public policy responses to drug use and drug injectors in the United States have been treatment programs and laws to prohibit drug use and punish drug injectors. Harm reduction programs such as provision of bleach or needle exchange are viewed as counter-productive to these efforts.

However, AIDS has changed our world, and existing public policies have been unable to take into account the new epidemic. Increasingly, old drug policies are viewed as ineffective and counter-productive in stopping the spread of HIV. Drug use and AIDS exist in conjunction with one another, and public policies can no longer consider them in isolation from each other.

REVIEW OF THE LITERATURE

BEHAVIOR CHANGE THEORY

Behavior change theories provide frameworks for assessing which techniques for altering behavior will likely be effective. Behavioral theories which are relevant to changing HIV risk behaviors among drug injectors include the Health Belief Model and the Theory of Reasoned Action or Theory of Planned Action. In addition, the Information-Motivation-Behavioral Skills Model and the AIDS Risk Reduction Model are theories which have been developed directly in response to AIDS, and focus solely on influencing HIV risk behaviors.

Health Belief Model

The Health Belief Model looks at behavior change in a population that is susceptible to a health problem. This model grew out of work by Irving Rosenstock and others at the United States Public Health Service in the 1950's and 1960's. The focus of the Public Health Service was on prevention rather than on treatment of diseases. However, screening tests, annual physicals and other simple preventative measures offered people often were simply not used. People did not believe that they were susceptible to a particular disease, that the effects of the disease would be severe, or that they could take action to prevent the disease.

The Health Belief Model, as reviewed by Rosenstock (1988), hypothesizes that change occurs in health-related behaviors only upon satisfaction of three conditions:

- Motivation to make a health issue relevant and of concern.
- "Perceived threat." That is, a belief that the person is vulnerable to a disease or health problem that has significant negative consequences.
- Belief that taking action will reduce the perceived threat, and that the benefits of doing so will outweigh the costs.

In other words, people must feel threatened or susceptible, wish to attain or sustain health, and believe that change will result in benefits for themselves at an acceptable cost. However, they must also believe that change is possible.

This belief that change is possible was incorporated into the Health Belief Model by Janz and Becker (1984). They reviewed forty-six Health Belief Model studies and found that "perceived barriers" was the most significant factor in behavior change. Because the model looks at the subjective world of the individual, an important element is the individual's estimation of the feasibility of change.

The Health Belief Model appeared to have potential to be a particularly useful model in understanding and changing HIV-related risk behaviors. Rarely has there been a more significant health threat than AIDS -- especially to groups such as gay men. Seldom has a group changed behavior to the extent that gay men have in response to this threat. However, an evaluation by Kirscht and

Joseph (1989) found that using this model to predict HIV-related behavior change among gay men provided mixed results. They concluded that behavior change is a very dynamic and complex process, and perhaps one model alone is insufficient to fully understand this process.

Theory of Reasoned Action

The Theory of Reasoned Action was first introduced by Ajzen and Fishbein in 1967. It was developed as a model which could explain any behavior under consideration. It is based on the assumption that people are rational beings, and behavior is not a function of automatic or unconscious motivations. Thus the model is called the Theory of "Reasoned Action."

Ajzen and Fishbein (1980) based their theory on the assumption that intentions determine behaviors, that is, people generally do what they intend to do. Intentions are determined by a person's attitude toward the behavior, subjective norms, and the relative importance or weight of each. Attitudes towards the behavior are the personal factor, and can be defined as the positive or negative evaluation of the behavior. Subjective norms (or social pressures) are the result of perceived favorable or unfavorable attitudes of others towards the behavior, and the person's motivation to conform. The relative importance of attitudes and subjective norms must also be considered.

Attitudes and subjective norms are determined by beliefs. Attitudes are determined by a belief that the behavior in question

will have a desirable outcome, and an evaluation of that outcome. Subjective norms are determined by beliefs regarding whether others will approve or disapprove of the behavior, and the person's motivation to comply with social pressure.

Laflin (1994) pointed out that it is important to note that, first, behavioral intentions do not exactly correspond to resulting behaviors. Second, a critical element is the extent to which one has control over the behavior. This concept is called volitional control.

Volitional control can be actual control possessed by the individual, or perceived control. This concept was judged to be of such importance that Ajzen refined and renamed the theory (Ajzen, 1980). The new theory is the Theory of Planned Action. This new theory posits "perceived behavioral control," which is control a person perceives her/himself as possessing, as opposed to control he/she may actually possess. Perceived behavioral control is added to subjective norms and attitudes which then lead to behavioral intentions which in turn lead to behaviors (Laflin, 1994).

Fishbein and Middlestadt (1989) advocate use of this theory specifically to attempt to understand and change AIDS-related behaviors. They stress the importance of selecting and specifying a single behavior, and selecting one that is under volitional control. Then research should be done to identify beliefs held by the target group. Only then should interventions be designed. Too often interventions are developed which are based on untested intuition rather than on theory.

Information-Motivation-Behavioral Skills Model

Fisher and Fisher (1992) reviewed AIDS education programs, and found that those that were most successful were based on a formal theory, were group-specific, and performed "elicitation research." Elicitation research is an assessment before the intervention is implemented of the target group's knowledge, factors that influence their motivations, and the extent or level of behavior skills.

The Information-Motivation-Behavioral Skills (IMB) model was proposed by Fisher and Fisher (1992) as a formal theory specifically to aid in designing education and intervention programs to reduce HIV risk behaviors. The three components of the IMB model are information about AIDS, motivation to change and the behavioral skills necessary to allow and facilitate change. Elicitation research and evaluation are also important components of the model.

The first component of the model, AIDS information, is seldom sufficient by itself in eliciting and sustaining change. It is able to produce change only when the behavior in question is fairly uncomplicated. It is, however, a necessary element of the model. Elicitation research must be done to determine AIDS prevention knowledge, and it must be population-specific. Results are then used to determine which type of AIDS information will be most useful.

Motivation, the second component of the model, is necessary because full, accurate information and high levels of behavior skills are insufficient in producing change if the person is not motivated to

change. Factors affecting motivation are social norms and the individual's attitude towards HIV prevention.

The IMB model draws from the Health Belief Model and Fishbein and Ajzen's Theory of Reasoned Action to help identify factors that may determine motivation. Factors from the Health Belief Model include perceived risk to HIV, and perceived costs and benefits of changing behavior. Concepts taken from the Theory of Reasoned Action are that actions result from behavioral intentions which in turn result from social norms and the individual's attitudes. To influence motivations, work must be done on both attitudes and perceptions of norms.

Both information and motivation work through behavioral skills to influence HIV risk behaviors. There are both universal behavioral skills (publicly buying condoms, obtaining an HIV test or not engaging in sex if negotiations for safer sex practices with a partner fail), and population-specific behavioral skills relevant, for example, to African-American women, minors who are drug injectors, etc. The IMB model also states that one must not only have behavioral skills, but must believe one is personally able to use them.

Once information has been given, motivations for change strengthened, and behavioral skills taught, evaluation should test whether change occurred. The evaluation should assess change in attitudes, motivations, behavioral skills, and the extent to which change is maintained over time.

AIDS Risk Reduction Model

Catania, Kegeles and Coates (1990) developed a behavior change theory also specifically focused on HIV risk behaviors, the AIDS Risk Reduction Model (ARRM). This model recognizes that behavior change is a process, and separates out components of the process. The three stages of ARRM are (1) recognition and labeling one's behavior as problematic, (2) making a committed decision to change the behavior, and (3) seeking and carrying out solutions to achieve the desired change.

The first step is to recognize that one's behavior is placing one at risk for AIDS. Variables that influence this stage include HIV transmission knowledge, believing one is personally vulnerable to the disease, and believing that contracting AIDS would be an undesirable outcome. Social factors (networks, norms, friends, partners) can also be influential at this stage.

The second stage is the decision-making stage, and comes between labeling one's behavior as problematic and carrying out change. Variables that influence this stage include perceived costs and benefits of changing the behavior, self-efficacy (perceived ability to make the change), and social factors (i.e. observing that others have successfully changed behavior).

The third stage is to take action. This stage in turn has three steps: (1) obtaining information, (2) finding solutions, and (3) making changes that result in the solutions. Information may be obtained passively through the media, or through actively seeking help. It could be influenced by past experiences with seeking

information, self-esteem, and how important the problem is perceived in relation to other problems. Finding solutions can range from seeking professional help to personal decisions to change. Enacting the solution is influenced by emotional state (degree of distress or anxiety about one's risk), social factors and other external factors (such as alcohol/drug use).

By emphasizing change as a process and breaking down the process into stages, the ARRM model hopes to identify where people are in the process. AIDS educators can then accurately target appropriate interventions.

Behavior Change Among Drug Injectors

There has been some question as to the extent to which drug injectors would be able to change their behavior in order to protect themselves from AIDS. Most are addicted, and drug use is a primary motivation and focus of their lives. This, and the fact that they are often high, can interfere with other motivations such as protecting their health and safety and protecting themselves from AIDS. However, to depict drug injectors as unconcerned with their health and safety is to do them a disservice.

There have now been many studies showing that drug injectors place a high value on avoiding AIDS and have made at least some changes in their behavior to avoid the disease. Studies include those by Friedman (1991b), Des Jarlais (1991), Saxon (1994), Anderson (1993), Stephens (1991), McCusker (1992), and Des Jarlais (1987). Surveys of drug injectors in New York as early as 1983-1985 showed

an increased demand for new syringes (Des Jarlais, 1985). However, sharing syringes can be a complex social event, with motivations that have little to do with simple scarcity of injection equipment.

A study was conducted by Howard and Borges (1970) in San Francisco well before the onset of the AIDS epidemic. Reasons for sharing syringes were (1) scarcity of equipment, (2) sharing as a sign of friendship and trust, (3) sharing as a norm of the subculture, (4) sharing as a means of socialization to the subculture, (5) sharing as protection against a "bad trip" or overdosing when alone, (6) sharing as a means of achieving social status, (7) sharing as a substitute for means of achieving social status, (8) sharing as a substitute for sex, and (9) sharing as a conscious or unconscious attempt at self-destruction.

In comparison, a study was done by Magura (1987) well after AIDS had become a visible disease. Contrary to what might be expected, neither knowledge of AIDS nor knowing someone with AIDS was associated with reduced sharing of needles. Also not associated were sex, age, ethnic background or marital status. Factors which did influence needle sharing were (1) "attitudes conducive to sharing," either a fear that friends would be "insulted," or an unwillingness to go through withdrawal rather than not share equipment, (2) lack of equipment and perceived economic barriers to obtaining equipment, (3) IV drug use by peers (sexual partners and friends), and (4) "perceived utility of risk avoidance," (i.e. to stop sharing is likely useless as they have probably already contracted the disease).

Different studies using different instruments and methods and conducted with different populations have yielded somewhat different results. Recent studies also now show that drug injectors have reduced sharing of syringes and other risky needle use behaviors in response to the dangers of contracting HIV: Friedman (1987), Des Jarlais (1985), Friedman (1991b), Watters (1990), Stephens (1991), Calsyn (1992), Booth & Watters (1994), and Saxon (1994). It does appear, then, that reasons for sharing or not sharing syringes have changed over the course of the AIDS epidemic.

What has not changed is that sharing of syringes is not simply the result of scarcity of injection equipment, but that it continues to be a complex social behavior. However, AIDS has changed risks associated with sharing of syringes, and consequently can be expected to have an effect on attitudes and behaviors. Behavior change theories which are oriented to disease prevention are likely to be applicable.

TECHNIQUES FOR CONTROLLING THE EPIDEMIC

Use of Bleach

Transmission of HIV among drug injectors is primarily through sharing of contaminated drug injection equipment, and secondarily through sexual contact. Use of bleach to disinfect contaminated injection equipment has been a primary approach to HIV prevention, particularly in states where over-the-counter sales of syringes are prohibited by law.

As described by Friedman (1993), San Francisco developed the first program to distribute bleach packaged in small, convenient bottles. Distribution of bleach was considered because sale of syringes to drug injectors is illegal in California. Giving out bleach also helped outreach workers gain the trust of drug injectors, and was a means of entry into the subculture. Bleach outreach programs quickly spread to other cities across the United States.

However, use of bleach to prevent AIDS is now called a "second-rank intervention" There has been insufficient research to be able to say definitively how bleach should be used to adequately disinfect syringes; syringes were not designed to be cleaned and reused; and drug injectors do not always follow all the procedures recommended to adequately disinfect injection equipment.

For bleach to be effective in eliminating risk of transmission of HIV, it must fulfill two conditions. First, it must be able to sterilize contaminated syringes, and second, it must always be used properly.

A study conducted by Martin (1994) for the Centers for Disease Control and Prevention (CDC) called into question the absolute scientific validity of saying that use of bleach to clean syringes always kills HIV. Using bleach to kill HIV in a laboratory is likely different than using bleach on HIV that is mixed with blood and other materials in a syringe.

> Chlorine's disinfection ability is determined by the concentration of free and available chlorine in the solution. This is affected by the temperature, the presence of organic material, the pH, and the hardness of the water. Chlorine compounds usability may be limited

> by the corrosiveness and instability. Serum proteins or other organic material in blood will react when mixed with chlorine compounds and reduce the chlorine available for microbial inactivation.

The report further stated that:

> It is not surprising that the use of bleach for disinfection for syringes and needles contaminated with blood may not result in complete inactivation of cell-free HIV. The presence of organic material such as blood, liquid or dried, the absence of precleaning or rinsing with water, and the difficulty of cleaning a device not designed for reuse are all complicating factors.

A recent study by McCoy (1994), tested blood from known HIV positive drug users. Blood was placed in syringes and left for varying times up to 24 hours (to simulate needles found in shooting galleries). Techniques for cleaning with bleach taught to drug injectors by outreach workers were used in the laboratory.

The study found that syringes cleaned for 30 seconds had no evidence of HIV, that those cleaned for 15 seconds may or may not retain HIV, and those left uncleaned retained HIV for 24 hours.

Drug injectors were then taught bleach-cleaning techniques. Drug injectors were followed up six months later to demonstrate cleaning methods they had been taught. They recalled basic techniques well, but had less recall of more detailed techniques.

A study by Titus (1994) of drug injectors in New York called into question the extent to which bleach actually protected against HIV infection. Drug injectors who had sero-converted were compared to a control group who remained sero-negative. All

subjects were asked about sharing of syringes and use of bleach every three to six months. Risk factors associated with sero-conversion were sexual contact with a HIV-infected person, and frequency of use of speedballs (cocaine mixed with heroin). Use of bleach did not protect subjects from HIV.

Finally, a study by Gleghorn (1994) in Baltimore, Maryland videotaped drug injectors cleaning syringes. Drug injectors were taught cleaning techniques using the recent guidelines issued for use of bleach that recommended thirty seconds of contact time with the bleach. Of 85 drug injectors videotaped, 68 (80%) had a contact time of less than thirty seconds. There is some question, therefore whether drug injectors use practices that adequately disinfect injection equipment.

What we now know about cleaning syringes with bleach is that:

- Multiple cleanings with bleach are likely better than a single cleaning.
- The less amount of blood and other material in the syringe the easier it will be to disinfect it.
- Agitating the syringes is preferable.
- The longer bleach is left in the syringe the better.
- The more steps a drug injector has to go through, and the longer it takes to clean a syringe, the less likely they are to clean syringes thoroughly and consistently.

For all the reasons stated above, bleach is now considered a "second-rank intervention." Using a new, sterile syringe for every

injection is the ideal intervention, and bleach is recommended for use only when sterile syringes are not available.

The above accounts of possible problems and ineffectiveness of bleach does not mean that advocating among drug injectors for use of bleach to clean syringes should be abandoned. There are times when new, sterile syringes are not available, and there is some indication that some groups of drug injectors find bleach an acceptable prevention strategy, even when syringes are legally available. Saxon (1994) studied drug injectors in Seattle who were provided with HIV prevention education. A survey administered at intake and 18 months later showed that use of bleach increased from 10% to 25% -- in a state where syringes could be legally purchased in pharmacies. Use of bleach to clean syringes is clearly viewed by some drug injectors as a risk reduction technique that is appropriate for them.

Multiple intervention strategies are preferable. Different prevention tactics are appropriate with different groups of drug injectors. From a harm reduction perspective, people ought to be instructed in the most up-to-date methods of cleaning with bleach, told that using a sterile syringe for every injection is likely safer, and have both bleach and sterile syringes available to them.

Drug Treatment Programs

A second tactic to control the spread of the AIDS epidemic among drug injectors (other than use of bleach) is drug treatment programs. The ultimate answer is for drug injectors to stop injecting drugs. This would eliminate all risk of transmitting the AIDS virus

through transmission of contaminated blood. This is the abstinence approach. Drug injectors must stop injecting, and if they don't, resulting health problems are their own fault. Until they enter treatment, they are not worth the expense of time and effort.

Treatment and abstinence are long-term solutions for control of the spread of HIV among drug injectors, but do not address the immediate problem of IV drug use. Realistically, the majority of drug injectors are unlikely to enter treatment immediately, successfully complete it, and remain clean thereafter. Many drug injectors are uninterested in treatment programs, and many who go through treatment programs relapse.

Residential or hospital-based treatment programs are generally successful in ensuring clients are drug free. However, when clients are released, it is difficult for them to maintain behavior change, particularly if they return to the environment where they used to use drugs. Only 15% to 25% of people receiving drug treatment one time only are able to maintain abstinence permanently (Des Jarlais, 1991).

Further, on both a national and local level, only a small proportion of drug injectors are able to be in treatment programs. The National Institute on Drug Abuse (NIDA) estimates 1.1 to 1.3 million drug injectors in the United States. At any given time, not more than 15% are in drug treatment programs (Lurie, 1994). Locally, there are an estimated 7,000 drug injectors in Multnomah County, Oregon, the county which includes the City of Portland. At any given time, not more than 19% are in treatment (personal

communication, Jeanne Gould, Director of HIV and STD Programs, Multnomah County Health Division, 1990).

It is ironic that although everyone, including both supporters and opponents of needle exchange programs, agree that increased treatment capacity is a necessary step in fighting AIDS among drug injectors, and ultimately the most effective prevention measure, little has been done to expand treatment program capacity in the United States. The AIDS epidemic started in 1981. Over the next five years, from 1982 to 1987, treatment program capacity increased by 30,000 slots in methadone, residential and hospital-based treatment programs (from 89,000 slots to 119,000 slots. National Institute on Drug Abuse (NIDA) estimates that there are approximately 1,000,000 drug injectors in the United States. The increase of 30,000 treatment slots provides for only 3% of drug injectors. (Friedman, 1992).

For this method to be effective, treatment should be available for anyone who wishes it. There are currently waiting lists for drug injectors who wish to enter treatment programs. If treatment programs were more available, there is evidence that many drug injectors would avail themselves of these programs (Friedman, 1992).

As reported by Jackson (1990), New Jersey began one of the earliest, largest and most organized efforts to get drug injectors into treatment. New Jersey was hard-hit by the AIDS epidemic, and transmission of the virus in that state was primarily among drug injectors, either by sharing of contaminated injection equipment or

through unprotected sex. By 1990, it was estimated that approximately 50% of drug injectors in this state were HIV positive

As the AIDS epidemic was beginning in the early 1980's, the federal government cut funds for drug treatment programs. As a result, New Jersey cut treatment programs and required drug injectors to pay for treatment services. Between 1980 and 1985 there was a 79% decrease in the number of heroin users entering detoxification programs.

In 1985, New Jersey began to use outreach workers (funded by the Centers for Disease Control and Prevention) to educate drug injectors. These outreach workers reported that more than half of these drug injectors would enter treatment if they could afford it. New Jersey health officials decided that treatment must be free, and waiting lists must be eliminated.

A coupon system for treatment was implemented in 1986. That year, 1,000 coupons for free, immediate drug treatment were made available to heroin users. Of these, 970 were actually distributed, and 86% were redeemed for treatment. The following year, about 2,000 heroin addicts redeemed coupons for treatment.

The New Jersey experience demonstrated that many drug injectors wish to enter treatment programs, and do not do so only because of barriers that prevent them from using the programs. If treatment programs are free and available on demand, a significant number of drug injectors will use them.

There is now evidence that treatment protects against transmission of HIV, and that methadone maintenance is more

effective than residential care or outpatient treatment. One of the primary methods of treatment for long-term heroin users is methadone maintenance. Methadone maintenance was developed by Drs. Vincent Dole and Marie Nyswander in the early 1960's. They found that addicts given methadone were able to improve their ability to function. Further evaluations of methadone maintenance substantiated their findings. Clients of methadone programs tend to remain in treatment longer, and length of time in treatment is a strong predictor of success in remaining drug-free. Cooper (1989) found that within the first few months of treatment 15% of methadone clients leave the program compared to 40-50% of clients of residential and outpatient programs. Addicts maintained on high doses (120 mg per day) of methadone are twice as likely to remain in treatment and three times less likely to die (Caplehorn, 1994).

Recent evaluations have made a connection between treatment and reduced risk for HIV. A study by Saxon (1994) showed that the amount of time spent in treatment during an eighteen-month period was inversely correlated with sharing of syringes. Liebman (1993) also found that the longer drug injectors remained in treatment programs, the greater was their reduction of risky needle use behaviors.

Ball (1988) conducted a three-year study of six methadone programs in New York, Baltimore and Philadelphia. This study found that 71% of 388 program clients had stopped IV drug use, and most had done so for over a year. A major finding of this study was that differences among the programs accounted for significant differences

in effectiveness in reducing IV drug use among clients. IV drug use varied among program clients from 10% to 57%.

A study by Barthwell (1989) conducted blinded HIV tests on clients of methadone programs in Illinois. Only 12% of clients were HIV positive, compared with approximately 20% of street populations of drug injectors. This provides strong indication of the protective effects of methadone treatment programs.

The evidence suggests that methadone treatment programs ought to be expanded. Those who advocate for a drug-free outcome as the result of treatment have difficulty with methadone programs. Nonetheless, methadone treatment is a harm-reduction tactic that reduces the incidence of injection of illegal drugs and transmission of HIV. It may be the best option for some drug injectors who are moving along the continuum between heavy involvement in illegal drug use (and risky behaviors) and abstinence.

Because drug injectors are vulnerable not only to drug addiction, but now also to AIDS, it is critical to have a fluid, less rigid model that does not insist on treatment and abstinence before working with clients. Rather, a harm reduction model works with people as they are and helps them reduce their drug use and exposure to HIV to the extent they are able to do so. This model recognizes that behavior change is gradual, and that while elimination of risky behaviors is the goal, incremental reduction of risky behaviors over time is more realistic.

Treatment programs are a critical component in fighting HIV, but cannot be relied on as the answer to the epidemic. As stated

earlier, not all drug injectors are interested in treatment, and only 15-25% of those using treatment programs one-time-only remain free from relapse. For drug injectors who are not yet ready for treatment programs and for those who relapse, HIV education and availability of bleach and sterile syringes are important AIDS prevention measures.

Outreach and Education

Educating drug injectors about the AIDS virus and how they can protect themselves from it is the necessary first step in AIDS prevention. They must have sufficient information about how the virus is transmitted, and commonly-held myths must be dispelled (i.e. only gay men get AIDS, or rinsing a syringe with water is good enough).

Numerous studies have been done to assess the level of knowledge of AIDS in various sub-populations, including drug injectors. As with most other sub-groups, drug injectors are generally aware of the AIDS virus, and also know that it can be transmitted through sharing of syringes. There are gaps in their knowledge: Feucht (1991) reports that many are unaware AIDS can be transmitted perinataly and many believe that an HIV positive person looks sick.

Studies have also assessed the efficacy of different education methods. Methods include group discussions, peer education, lectures, videos, mass media, printed material, and one-to-one outreach workers. Studies attempt to answer whether education

works, which methods work best, and how long effects of education last. For example, a study by Baker (1993) in Australia showed that repeated interventions (6 sessions) were more effective in reducing risky needle use behaviors than a single session.

Fisher and Fisher (1992) reviewed 48 AIDS education and prevention studies done between 1980 and 1990. They assessed whether the intervention was based on a formal theory, and whether pre-tests were used to discover unique needs of specific target groups before the intervention was done. They then reviewed the intervention and the impact it had. They found that the most successful interventions were based on a formal theory and used pre-tests, the results of which were then used to design the intervention specifically for the client population.

A study in Cleveland by Stephens (1991) assessed change in behavior of drug injectors who were given a pretest, HIV education and a posttest three months later. The most significant changes were in risky needle use behaviors (sharing of syringes decreased from 67% to 24%, and cleaning with bleach increased from 34% to 62%). No differences were found between those in treatment and those not in treatment, or between gender or ethnic minority groups. Effects of the intervention worked equally well for all demographic groups.

In contrast, a study by Hong and Berger (1994) showed that different models of HIV counseling and testing programs (confidential, anonymous, by-appointment and walk-in) attracted different populations. It illustrated the importance of a variety of strategies aimed at different target groups.

Battjes (1994) looked at differences in risk factors among drug users in five cities, New York, Asbury Park and Trenton in New Jersey, Baltimore and Chicago. Use of "speedballs" and use of shooting galleries were risk factors. There were differences between cities: in four of the five cities, being African-American was a risk factor, while in two cities being Puerto Rican was a risk factor. This study also advocated use of multiple risk reduction models which took into account the racial/ethnic makeup of the area, as well as variations in social and environmental factors.

A study by Feucht (1991) looked at the effects of education programs on increasing HIV knowledge among drug injectors, and how long-lasting the effects were. Drug injectors were given a pre-test interview, and were then presented with an education program that included lectures, a film and demonstrations on how to clean syringes and use a condom. Subjects were contacted three to five months later for a post-test.

Drug injectors showed a significant increase in knowledge of AIDS. The highest increases were in areas directly impacting their lives -- cleaning injection equipment. There was not a significant decrease in knowledge between subjects receiving a three-month post-test, and those receiving a four or five-month post test, and it appeared that the effects of education were sustained over time.

A three-city study by Andersen (1993) also showed that education interventions were effective in reducing risky behavior, and change was sustained over time. Drug injectors in Baltimore, Detroit and New York emergency rooms were given HIV prevention

education and were also helped by nurse-counselors to increase their sense of well-being. Clients were helped to identify a primary concern, make a plan and take action to resolve their concern. Three months later, drug injectors reported a greater sense of well-being, reductions in IV drug use, and reductions in sharing of cookers. At six months after intake, these changes in behavior were sustained.

There are also studies which call into question the effectiveness of education. A study by Calsyn (1992) hypothesized that a 90-minute AIDS education session with optional HIV testing and counseling would be more effective than either a 90 minute education session only or no education session. Drug injectors entering a methadone clinic in Seattle were given an initial interview and then randomly assigned to a 90-minute session, a 90-minute session plus HIV testing, or a waiting list. Follow-up interviews were done four months later (n=218) to assess involvement in high risk needle use behaviors. The sample of drug injectors, as a group, significantly decreased risky behaviors. However, there were no significant differences between groups.

This finding is supported by a study by McCusker (1992). Drug injectors entering short-term (21 days) treatment programs were given a short or lengthy AIDS education program. The short program consisted of two one-hour sessions, while the long program consisted of six one-hour sessions along with a 30-minute individual session, and assistance with putting knowledge into practice. At follow up (10 to 18 weeks later), all subjects reduced risky behaviors and had increased their knowledge of HIV. The group receiving the lengthy

program did reduce frequency of injection significantly more than those in the short-term program. However, there were no differences in risky needle-use behaviors.

Possible explanations for findings of these studies include effectiveness of media campaigns in reaching the drug injecting population, or word-of-mouth peer education among drug injectors. These studies do raise questions about the advisability of directing large amounts of funding towards structured, lengthy AIDS education sessions. It appears that simple, brief sessions may be as effective as longer and more costly tactics.

Education programs designed to prevent HIV among drug injectors are now in place in every major city in the United States. These programs typically utilize on-street outreach workers to find drug injectors rather than relying on drug injectors to come to a fixed site. Most programs distribute both bleach and condoms as well as give information about how the HIV virus is transmitted and how drug injectors can protect themselves.

The largest outreach and education program targeted at drug injectors was developed by the National Institute On Drug Abuse (NIDA) in 1987. The program not only conductd outreach and HIV prevention, but collected information about risky behaviors at six-month intervals using a standardized instrument. The program is the National AIDS Demonstration Research (NADR) project. It started with six sites, and by 1988 had expanded to 41 sites across the United States (including Portland). Interviews were done with 26,356 drug injectors and 5,435 of their sexual partners. The

importance of the project is that it was the first large-scale assessment of the characteristics and behaviors of out-of-treatment drug injectors.

Reports from Stephens (1993) of results from the NADR projects were positive, showing that drug injectors reduced risky needle-use behaviors over time. Reports were compiled from 13,475 drug injectors at 28 sites. Sharing with two or more people decreased from 54% to 23%. Drug injectors also reduced daily drug use between intake and follow-up by 50% Sharing of cookers, cotton and rinse water decreased by 40%. Changes in sex behaviors, on the other hand, were small, with only slight increases in every-time condom use.

Education is a necessary component of AIDS prevention programs for drug injectors, but is not the answer to controlling the epidemic. The evidence from research and behavior change theories is that education in and of itself is insufficient to affect significant and long-lasting changes in behavior. Motivations and beliefs must be considered, and interventions must be targeted and made culturally relevant. Education must also be complemented by easy access to drug treatment programs, and access to sterile syringes so that drug injectors not only know how to protect themselves, but have the means to do so.

Legalizing the Sale of Syringes

An approach to help limit the spread of HIV among drug injectors is to remove barriers to access by allowing legal sale of

syringes. Currently, sale of syringes is prohibited in ten states in the United States. They are New York, California, New Jersey, Rhode Island, Delaware, Illinois, Maine, Massachusetts, New Hampshire and Pennsylvania (Gostin, 1994). Under these needle prescription laws, syringes can only be issued upon prescription by a doctor, and must be for an authorized use.

In addition to needle prescription laws, there are drug paraphernalia laws in 45 states. These laws generally prohibit anything that is used to manufacture or sell illegal drugs, and makes it illegal to possess or use equipment to inject illegal drugs.

In Oregon, there is a statue forbidding sale or distribution of syringes to minors. In 1989, a drug paraphernalia bill was introduced into the Oregon State legislature which would make the sale, distribution and possession of injection and other drug use equipment illegal for people of any age. Outside In, a social service agency in Portland, Oregon, lobbied hard against this bill as this agency was about to open the Needle Exchange Program. The legislature passed the bill, but made an exemption for syringes, making this a unique drug paraphernalia law.

The rationale behind drug paraphernalia and needle prescription laws is much the same as the rationale behind laws making drugs illegal. Making ejection equipment illegal will make it more difficult to obtain, and will result in fewer people using it. People may also refrain from obtaining it from fear of getting caught and legal consequences. Such laws also give a strong moral message to drug injectors that such behavior is not socially acceptable.

However, these drug control policies are in direct conflict with public health policies, and it has been demonstrated by Connecticut that relaxing restrictive needle laws has a public health benefit. Connecticut passed a law in 1992 (in response to the AIDS epidemic) that allowed pharmacists to sell up to ten syringes to customers. The law also allowed individuals to possess up to ten syringes. An evaluation by Groseclose (1994) was conducted for one year following the change in the law. The study found that knowledge of the law among drug injectors increased steadily, and at nine months over two-thirds were aware of the new law. Sale of syringes by pharmacies also increased steadily over the year. Drug injectors reported purchasing the majority of their equipment from pharmacies rather than from street sources, and reported a reduction in sharing of syringes.

Needle prescription and drug paraphernalia laws do result in a scarcity of sterile syringes available to drug injectors, and therefore lead to sharing of injection equipment (Gostin, 1994). Given the public health goal of reducing the spread of HIV among this target group, a harm reduction model is more appropriate than laws limiting the supply of syringes.

RESPONSE OF THE FEDERAL GOVERNMENT TO NEEDLE EXCHANGE

Starting in 1988, the federal government of the United States passed five laws prohibiting use of federal funds for needle exchange programs. These laws were passed during President George Bush's administration. They have not been repealed (as expected) under

President Clinton's administration, despite recommendations to do so from various commissions and agencies assigned to study the issue. The United States General Accounting Office (1993) reviewed federal bans:

The first ban on use of federal funds for needle exchange was attached to the Comprehensive Alcohol Abuse, Drug Abuse, and Mental Health Amendments Act of 1988 (later repealed in 1992). States could not receive block grants under this act unless they agreed not to use funds "to carry out any programs of distributing sterile needles for the hypodermic injection of any illegal drug or distributing bleach for the purpose of cleansing needles for such hypodermic injection...."

The Health Omnibus Programs Extension of 1988 funds both AIDS services and HIV education and prevention programs in this country. This act states that:

> None of the funds provided under this Act or an amendment made by this Act shall be used to provide individuals with hypodermic needles or syringes so that such individuals may use illegal drugs, unless the Surgeon General of the Public Health Service determines that a demonstration needle exchange program would be effective in reducing drug abuse and the risk that the public will become infected with the etiologic agent for acquired immune deficiency syndrome.

The Ryan White Comprehensive AIDS Resources Emergency Act of 1990 also funds both services for people with AIDS and HIV education and prevention programs. This act states that funds

cannot be used: "to provide individuals with hypodermic needles or syringes so that such individuals may use illegal drugs."

The Departments of Labor, Health and Human Services and Education, and Related Agencies Appropriations Acts of 1990 and 1991 state that:

> None of the funds appropriated under this Act shall be used to carry out any program of distributing sterile needles for the hypodermic injection of any illegal drug unless the President of the United States certifies that such programs are effective in stopping the spread of HIV and do not encourage the use of illegal drugs.

Finally, the Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriation Act of 1993 states that:

> Notwithstanding any other provision of this Act, no funds appropriated under this Act shall be used to carry out any program of distributing sterile needles for the hypodermic injection of any illegal drug unless the Surgeon General of the United States determines that such programs are effective in preventing the spread of HIV and do not encourage the use of illegal drugs, except that such funds may be used for such purposes in furtherance of demonstrations or studies authorized in the ADAMHA Reorganization Act.

There have been a number of reports and commissions that have urged the federal government to lift the bans on federal funding for needle exchange programs. The National Commission on AIDS was created to advise the President of the United States and Congress on AIDS policy. In 1991, this Commission recognized needle

exchange programs as an important AIDS prevention tactic, and called for lifting federal bans on funding for such programs.

The General Accounting Office of the United States (1993) was asked to review the data on needle exchange programs and assess whether federal funds could be used for them. This request came from the House of Representatives Select Committee on Narcotics Abuse and Control. They concluded that "needle exchange programs may hold some promise as an AIDS prevention strategy," but that current federal laws prohibited federal funds from being used to support them.

In the fall of 1993, a panel on needle exchange and bleach distribution met in Baltimore, Maryland. This panel was convened by the National Research Council. Members of the National Research Council are drawn from the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine, all advisory groups to the federal government. Outside In's Needle Exchange Program was invited to participate on the panel. The recommendation of the panel facilitator was that there ought to be state and federal funding of needle exchange programs, both because this country does not have a comprehensive plan for HIV prevention among drug injectors, and because such programs could also reduce the prevalence of other diseases such as tuberculosis (Moss, 1994).

Also in 1993, Centers for Disease Control commissioned Dr. Peter Lurie at University of California, San Francisco to review needle exchange programs in the United States, assess both positive and negative effects, and make recommendations. Again, Outside In's

program was included in the review. Dr. Lurie (1994) also recommended that the ban on use of federal funds for needle exchange programs be lifted: "The federal government should repeal the ban on the use of federal funds for needle exchange services and substantial federal funds should be committed both to providing needle exchange services and to expanding research into these programs."

While the report reviewing needle exchange programs was released, the review of methods, findings and recommendations was not allowed to be released by the Public Health Services Assistant Secretary for Health. In December 1994, the San Francisco Chronicle published an article titled "Public Health Malpractice. Needle-Swap Report Being Kept Secret," accusing the Clinton administration of covering up the report which recommends funding needle exchange programs to help prevent the spread of AIDS.

Locally, on November 20, 1994, the Oregonian newspaper published an editorial urging Congress to support needle exchange programs and lift the ban on federal funding. The editorial stated that needle exchange programs "have proved their worth," both in reducing the spread of the virus and in facilitating drug injectors entering treatment programs.

Despite the recommendations of these various reviews and reports, laws prohibiting use of federal funds for needle exchange remain in place. There is currently little optimism that these laws will be revised in the immediate future.

RATIONALE FOR A HARM REDUCTION MODEL AND SYRINGE EXCHANGE

Rationale for a Harm Reduction Model

The harm reduction model as it relates to drug use originated in the Netherlands in the early 1980's. At that time the Dutch implemented needle exchange programs to help drug injectors protect themselves against hepatitis B infections. The goal of a harm reduction model is to minimize the destructive effects of drug use for both the individual and for society. The objective, then, is not necessarily to eliminate risky and destructive behaviors, but to minimize or reduce them to the extent possible.

The approach of government in the United States has been to declare a "war on drugs," start a "just say no" campaign, and advocate a treatment and abstinence only approach to drug use. It has not been highly effective.

Rather than a rigid approach that will not work with or offer services to drug injectors until and unless they express a willingness to stop using drugs, a harm reduction approach offers perhaps a more humane and realistic approach. It recognizes that use of drugs and risky behaviors lie on a continuum, with the most destructive behaviors at one end and abstinence at the other. It works with people no matter where they are on the continuum, and helps them move down towards less destructive behavior one step at a time.

Such a model supports and reinforces positive change. It does not judge people as expendable or not worth serving because of illegal drug use. It works to maximize the well-being of the

individual, helping them to manage their drug use and health to the extent possible. It is a concept that is not widely accepted in this country, that is, that people currently injecting drugs can and should be helped to make life-enhancing choices.

Needle exchange programs do not insist clients be involved in treatment. Rather, the approach is that if people are committed to using drugs, then it is better for them to use injection techniques that do not expose them to HIV, Hepatitis B and other diseases. Entry into treatment is a desirable outcome, but not the only one.

Rationale for Syringe Exchange

Throughout the 1990's, drug injectors will continue to be at high risk for HIV in the United States. Syringe exchange programs increase the supply of sterile syringes among this population, attempting to reduce sharing of syringes and therefore the transmission of HIV. In addition, by providing safe disposal of used syringes, exchanges prevent possibly contaminated needles from being left in public places where others might be accidentally stuck. Exchanges can also provide access to a traditionally difficult-to-reach group, establishing contact between public health staff and drug injectors, contributing to drug and sex risk reduction and acting as a bridge to drug treatment.

While education efforts, bleach distribution and drug treatment slots should be expanded, and should be integral parts of any AIDS prevention program directed towards drug injectors, they are unlikely to provide an adequate solution by themselves. And given

that the goal of eliminating injecting drug use is not likely to occur soon, other prevention measures must be considered.

Needle exchange programs fit well into the harm reduction model. They do not insist on abstinence, but make sterile needles available to reduce sharing of syringes and transmission of AIDS. If clients continue to share, they are counseled to clean equipment with bleach before doing so. They are helped to use not only sterile syringes, but sterile injection procedures. In addition, most needle exchange programs view themselves as reaching a difficult-to-reach population, building trust, educating clients about treatment options, and facilitating entry into treatment programs.

Giving sterile injection equipment to drug injectors is controversial in this country. Proponents hope needle exchange programs will prevent drug injectors from contracting HIV without increasing drug use or the number of drug users. Opponents of needle exchange programs assert that such programs are enabling, "give the wrong message," and promote and condone drug use. This study was conducted to assess the extent to which a needle exchange program accomplished what its proponents hoped it would, and the extent to which it fulfilled the fears of its opponents.

BACKGROUND OF THE EXCHANGE

STARTING THE EXCHANGE

In 1987, Outside In planned to open a needle exchange program. The rationale for the program was to help protect clients of the agency from HIV. Clients included those using the medical and prenatal care clinics at the agency (people of all ages), and homeless youth clients.

Clients of the clinics sometimes had a history of injection drug use, or had been partners of drug injectors. Also of concern were homeless youth clients. Outside In sees approximately 1,000 such youth annually in its Homeless Youth Program. These youth are at high risk for HIV infection. Approximately 30% identify as gay, lesbian, bisexual or undecided. Many are involved in prostitution as a means of survival or experimentation, and few use safer sex practices consistently. Whether or not they are involved in prostitution, they generally have multiple sex partners. As adolescents, they often feel invulnerable, and are experimenting with risky behaviors. As homeless adolescents, they are usually focused on the immediacy of their survival needs -- where they are going to sleep that night and on what is going to happen to them over the next few weeks or months. A virus that might not affect them for many years is not often a priority in their lives. Finally, at least 90%

of these homeless youth use alcohol and/or drugs, and many inject drugs.

Each year 30-40% of the fifty youth in Outside In's Transitional Housing Program report a history of drug injection. The youth in this program are the highest functioning and most motivated of the 1,000 youth using the agency. It is likely that a higher percent of youth among the general population of street youth have a history of injection drug use.

Injection drug use habits among homeless youth are somewhat different than those of adult drug injectors. Youth are of course less likely to have long histories of serious drug use. In fact, at that stage in their development, they are experimenting around with many behaviors, and for many, injecting drugs is simply one such experiment. Youth, then, tend to inject more sporadically than adults, and often in party situations. This also means, however, that they are less likely to plan ahead and carry new syringes or bleach to clean syringes, and are likely to share injection equipment.

Because of the vulnerability of Outside In's clients to HIV, the agency felt some responsibility to try to protect clients from this disease. The agency first decided to simply give syringes to clients who wanted them.

Outside In decided to open a needle exchange program. When this was proposed, it was to be the first such program in the United States. Outside In decided, therefore, that it was important not only to provide the service, but if at all possible to connect it to a strong research component to evaluate the effects of this new public policy

and program to prevent HIV among drug injectors. The American Foundation for AIDS Research granted funding for the program and the evaluation for two years.

The start of the program was delayed for two years because of problems obtaining liability insurance for the program. Finally, the Multnomah County Board of Commissioners and Health Department granted Outside In additional funds to obtain needed insurance and to supplement the research. The program then opened November 1, 1989.

LEGALITIES

At the time the Needle Exchange Program began in 1989, there were no drug paraphernalia laws in the State of Oregon. There was, however, an Oregon statute (passed in 1993) prohibiting minors (under age 18) from being given a syringe unless the minor demonstrated a lawful need and it was authorized by a physician, parent, legal guardian or other acceptable alternative.

This was a disappointment to Outside In as almost half of the homeless youth seen in its Youth Program were under age 18. Part of the rationale for starting a needle exchange program at Outside In was the high vulnerability of homeless youth to HIV infection. , Outside In wished to make syringe exchange available to all homeless youth, not just those over age 18. The AIDS virus did not discriminate between a sixteen year-old and an eighteen year-old, and we did not want to either. However, the agency's programs must

operate within the law, and our policy, therefore, was to accept only those clients into the Exchange who were age eighteen or older.

In 1989 a drug paraphernalia bill, Senate Bill 464, was introduced into the Oregon State Legislature. Outside In lobbied hard to keep syringes legal in the state. Outside In also argued that passage of the bill would prevent the proposed needle exchange and research project from opening. In the end the bill was passed, but with an exemption for syringes. It is illegal to possess drug paraphernalia in Oregon other than syringes -- making this one of the oddest drug paraphernalia laws in the United States.

POLITICAL CLIMATE

Nationally, the position of the federal government under Presidents Reagan and Bush was one of opposition to needle exchange programs. Locally, reactions to Outside In's proposed Needle Exchange Program were primarily, although not entirely, positive or neutral.

When planning for the program, Outside In approached its funding sources, including the county and United Way, to inform them of its plans. We also approached Outside In's landlord, the First Unitarian Church to obtain their approval. They were all supportive.

Outside In asked the Oregonian to write a story on the proposed needle exchange program. A story appeared in the Oregonian February 14, 1988. Neither Outside In nor the Oregonian received a single letter or phone call about the article.

Outside In formally announced in May 1988 that it had obtained funding and was opening the first needle exchange program in the United States. Outside In requested county health department officials to participate in the press conference. They agreed, but at the last moment canceled. The Chair of the Board of County Commissioners did not want the county to be that closely affiliated with the potentially controversial program. Both the state and county health departments stated to the press that the efficacy of needle exchange programs was unproven. However, because there is no vaccine or cure for AIDS, they supported research on all potential interventions and therefore welcomed the planned research project. The county stated they were granting money for insurance and to supplement the research. Both state and county health departments publicly offered technical assistance to Outside In.

The chief of police at the time the Exchange opened was personally opposed to needle exchange programs. However, the public position of the police department was that they saw no reason to take a stand either way on the issue as it was not a legal matter in Portland. The police department spokesperson added that he welcomed AIDS prevention programs. The last two chiefs of police in Portland have been supportive of Outside In's Needle Exchange Program.

The then mayor of Portland, Mayor Bud Clark initially was quoted in the paper as saying he was worried about the image of Portland, given the national attention Outside In's proposed program was receiving. I called the mayor's office and expressed my concern

that the police department was more supportive than the mayor's office, and was told he was misquoted. The governor of Oregon, Neil Goldschmidt was asked on television what he thought of the Needle Exchange Program, and he was fairly supportive, stating that he regretted the necessity for such programs, but they did seem necessary.

Both local newspapers, the daily Oregonian and the weekly Willamette Week, published editorials in support of Outside In's Needle Exchange Program. After almost a year of delays, the Oregonian published a second editorial (March 31, 1989) again endorsing the Exchange and stating that if Outside In could not begin the program, "the County should do so -- and quickly."

Opposition came from three major sources: the Lyndon LaRouche group, the Oregon Citizen's Alliance, and Mr. Jeffery Kushner, Assistant Director of the State Alcohol and Drug Division. The Lyndon LaRouche group picketed Outside In for two hours and called a press conference in front of Outside In. Probably because of their style of operating, their picket was not taken seriously by the press or general public. Our main concern was keeping some of our homeless youth clients from defending us and getting into confrontations with them.

The Oregon Citizen's Alliance (OCA) publicly stated on television that they were opposed to the Exchange. They are a right-wing organization who have been centrally involved in efforts to pass discriminatory legislation against gay men and lesbians in Oregon. Outside In opposes them as much as they oppose us.

Mr. Kushner also stated on television and in public meetings his opposition to needle exchange programs. He said that his position was the position of the state. According to potential funding sources of the Exchange, he contacted them and requested that they not fund Outside In. Finally, he sent a letter to the federal government regarding a grant we had submitted for housing for homeless youth and stated that it
interfered with the objectives of his office. I called the governor's office to get a written retraction sent, and to get Mr. Kushner to stop contacting potential funding sources of the Exchange. (We then received the federal housing grant).

METHODS

LOCATION OF THE EXCHANGE

The Needle Exchange Program was begun at a fixed site at Outside In. Outside In is a social service agency in downtown Portland, serving low-income adults and homeless youth since 1968. Current programs operated by the agency include primary and prenatal care clinics serving low-income people of all ages who lack health insurance, and a youth program serving homeless youth under the age of twenty-one. The youth program includes a seventeen-bed transitional housing program, a drop-in center, case management, mental health treatment, access to emergency food and shelter, an employment training and work experience program, an education program that helps youth obtain GED's and then attend college free (a local community college waives tuition), a HIV peer education group and services for gay, lesbian and bisexual homeless youth.

Locating the Needle Exchange Program at Outside In was not ideal. First, the agency is not located in an area which is heavily frequented by drug injectors. It was not known if many drug injectors would go out of their way to go to Outside In to get sterile syringes, especially since they are legally available over-the-counter in Oregon.

Second, Outside In is located across a highway, one block from a public high school. It was thought there may be concerns about students having easier access to syringes.

Finally, Outside In is primarily a youth agency, serving approximately one thousand homeless youth annually. Again, we were worried about concerns that the Needle Exchange Program ought not to be operated at an agency serving primarily youth.

However, locating the Exchange at a location other than Outside In was also problematic. First, no one wanted such a program in their neighborhood, and in fact we were sure to encounter strong opposition if we tried to re-locate it.

Second, the program was minimally funded. If we rented space elsewhere, we would need funds for the additional rent, utilities, telephone, reception and security. We were unlikely to be able to raise these funds.

It was decided to site the program at Outside In. In many ways, the location was good. Outside In is located in downtown Portland, on a bus line. It is on the corner of Thirteenth Avenue and Salmon Street. Our neighbor across Thirteenth Avenue is a freeway. Our neighbor across Salmon Street is a parking lot. Our immediate neighbors sharing our block are a small delicatessen and the First Unitarian Church of Portland. The church is Outside In's landlord, and in fact owns the entire block on which the agency is situated. We had the full support of the church. The person renting the small delicatessan rented it with the knowledge that Outside In was his neighbor, and made no objection to the proposed program.

CLIENT PROCEDURES

At the first visit, Exchange staff explained the research project to clients, and asked if they wished to participate. They were told they would be paid for their time. If clients volunteered for the research component, they were given an informed consent form to read and sign, and an interviewer was called to administer the questionnaire. The interviewer went over the informed consent form with the client, making sure it was understood and then signed. The interviewer then administered a survey which took approximately one hour. At the end of each interview, each client was asked a series of questions to test their knowledge of HIV/AIDS, giving staff an opportunity to provide HIV education. Following the interview, the client was taken back to the staff person conducting the needle exchange. HIV pre-test counseling was provided and blood drawn for HIV and Hepatitis B tests. The client was paid for his or her time, and requested to return within three months for a follow-up interview.

To respond to concerns about youth, special attempts were made to prevent youth younger than age eighteen from using the program. Identification was checked if the age was in question, and if the person lacked identification, they were sent to the Social Security Office (three blocks away) for a printout of their social security number which they could get that same day.

The fears that drug injectors would not go out of their way to come to Outside In to use the Exchange proved to be unfounded. In

fact, some clients told us that they preferred to come to Outside In rather than have us rent a storefront elsewhere for the Exchange. They weren't necessarily identified as a drug injector by using the Exchange at Outside In: someone watching them go in wouldn't know if they were using the Exchange or the medical clinic.

STAFFING THE EXCHANGE

I recruited a man to staff the Needle Exchange Program who is a registered nurse and very knowledgeable about HIV. In fact, he was a trainer for Cascade AIDS Project, the county's largest local AIDS organization. He had been a volunteer nurse in Outside In's clinic for years, and served briefly on the agency's Board of Directors. He is a compassionate and thoughtful man.

Because the Exchange was minimally funded and the salary rate quite low -- especially for a nurse, he preferred to work part-timeat the Exchange, and keep his job at the hospital part-time. I placed an employment ad, and hired two additional staff -- a woman for twenty-five hours per week, and a man for fifteen hours per week. The woman had worked with low-income people in outpatient community clinics and had experience drawing blood, and the man was a Family Nurse Practitioner who had recently graduated from Yale and who had a strong interest in working at the Exchange. The final staff member was an African-American woman already on staff full-time at Outside In. She expressed interest in working in the

Exchange, and was released from her regular duties six hours per week to do so.

There were co-principal investigators for the study. One was Director of Research at the Chemical Dependency Institute at Beth Israel Medical Center and Deputy Director for AIDS Research at Narcotic and Drug Research, Inc. in New York. The other was an Associate Professor at Portland State University.

PROGRAM PROTOCOLS

The hours of the Exchange were 3pm to 7pm Monday through Friday. A small room opening off the lobby was set aside for the program. Drug injectors were taken one at a time into this room to conduct the exchange. This allowed for privacy and gave staff an opportunity to provide one-on-one education and counseling.

In order to be eligible to exchange syringes, potential clients had to prove they were drug injectors and were over the age of seventeen. The first requirement was to allay fears of those who didn't want us giving syringes to people who wanted to start injecting, particularly students from the near-by high school. The second requirement was in response to an Oregon statute prohibiting anyone from distributing syringes to minors. To satisfy the first requirement, we asked potential clients to show us identifiable needle marks (at the first visit only). To satisfy the second requirement, clients whose age we questioned were asked to show identification.

At the first visit, clients were given three syringes, whether or not they brought any in. The program was explained to them, and they were told thereafter they could exchange up to ten syringes per visit. Over the next several years, Outside In experimented with the number of syringes issued from this low of ten per visit to no limit at all. The original limit of ten was established in response to people in the community who wanted us to have a low limit. However, it discouraged people who had to travel a distance to the Exchange: if they were heavy users, they had to come two or three times per week. When Outside In issued an unlimited number of syringes, it soon became apparent that we were supporting a number of small businesses -- dealers who got them free from us and then sold them or the use of them. In addition, Outside In's Board of Directors and I felt that a major value of the Exchange was the continuing contact between Exchange staff and drug injecting clients, and the opportunities this afforded staff to provide counseling and education. Currently, drug injectors are allowed to exchange up to forty syringes per week. Exchange staff are allowed some discretion in enforcing this policy.

At the first visit, an identification number was generated by and for the client. This both allowed clients to remain anonymous and allowed Outside In to track clients for purposes of collecting data -- both of critical importance. The client generated their own client number each time they came in by giving the same information to staff.

At the first visit, the research project was explained to the client, and they were asked whether they wanted to participate. They were offered an HIV test whether or not they participated in the research project. They were told about the medical services available to them at the on-site clinic. They were given referrals to other services, including drug treatment, as they requested or were open to hearing about them. Finally, they were requested not to shoot up within four blocks of Outside In, in the interest of maintaining good neighborhood relations.

Drug injectors were given not only sterile syringes, but everything they needed for sterile injections. This included small bottles of bleach with instructions for use printed on them, small bottles of distilled water, a choice of cotton balls or cue tips, and alcohol swabs. We gave out bottle caps to be used as cookers until we had to discontinue this as we were in violation of the new drug paraphernalia law. We also gave out condoms and a handout which explained the proper way of using them and of cleaning syringes. Finally, we distributed matchbooks with the hours of operation of the Exchange and a prevention message ("You wouldn't share your condom, so why share your syringe?").

At first, we prepackaged all of this and put the items either in brown paper bags or in large soft drink cups (with lids). However, because some drug injectors wanted more distilled water, and others didn't want condoms etc., and we felt a lot of material was simply being discarded, we set up what we called "the salad bar of

prevention." We set everything out in bins and simply allowed the clients to select what they wanted.

Exchange staff were instructed not to handle syringes returned to the program by clients. Outside In has large sharps containers in the Exchange room. Clients are asked to put their syringes in the containers one by one, and staff count the syringes as they do so. The number brought in is the number of sterile syringes they are given (other than the first visit) up to the set limit. When the sharps containers are full, Outside In pays a medical waste disposal company to pick them up and dispose of them in accordance with Oregon's infectious waste disposal regulations.

RECRUITMENT OF SUBJECTS

The two groups of subjects participating in the study were drug injectors using the Needle Exchange Program, and drug injectors not using the Exchange. Drug injectors using the Exchange were recruited primarily by word-of-mouth. Outside In did little advertising to attract clients. However, the opening of the Exchange was reported on the network television stations, many radio stations and in the Oregonian. The Exchange was the subject of various talk shows on both television and radio stations. Follow-up stories were also reported periodically in the media.

Outside In did hand out both matchbooks and business cards. Both had the address and hours of the Exchange. These were distributed to clients both as reminders to themselves and to give to friends.

Once clients came to the Exchange, were determined to be eligible, and their syringes exchanged, they were informed of the study. They were told why we were doing the study, what would be expected of them if they chose to participate, and that they would be paid for their time. They were then asked if they wished to volunteer. If subjects were obviously under the influence, they were not allowed to participate at that time, but were requested to return the following day for their interview.

COMPARISON GROUP

Drug injectors not using a needle exchange program were recruited by the Multnomah County Health Division. The health division was participating in a national survey of drug injectors funded by the National Institute on Drug Abuse (NIDA). The county hired outreach workers to do on-street outreach in various neighborhoods in Portland to find drug injectors and conduct the surveys. The county also placed posters in social service agencies to recruit subjects.

The state and county health divisions agreed to share data with Outside In. The same instruments were used for both projects, and the same trainer (on staff at Multnomah County) trained initial interviewers for both.

Clients in the county outreach project were those who had injected drugs during the past six months, and who had not been in drug treatment programs during the past 30 days. Clients were either given bleach and minimal HIV prevention education, or given

bleach and then assigned to a group for more extensive education and counseling. Because there were no significant differences in changes in behavior between the two groups over time, drug injectors from both groups were included in the data set given to Outside In.

An important difference between drug injectors using the Exchange and those using the outreach project is that locator information was collected from clients in the outreach project, while clients using the Exchange were allowed to remain anonymous. The Exchange was unable to contact clients for follow-up, and depended on clients remembering to come in. It also may have had an effect on clients self-selecting for the two projects, depending on how comfortable they were with giving detailed locator information on themselves.

Drug injectors selected by the county for comparison with the Exchange subjects were those who had been interviewed after 11/1/89 (the date the Needle Exchange Program began). They also were clients who were still injecting at the six-month data collection point, to make them more comparable to Exchange subjects. As with Exchange clients, they were not included if the interviewer judged their interview to be unreliable. Finally, both programs excluded clients who had already been interviewed by the other program.

SUBJECT FEES

Subject fees for clients of the Needle Exchange Program were initially set at $11 per interview. Checks were given, not cash, as we

did not want to keep supplies of cash at the agency. The fee was actually $10, with an extra dollar to pay the fee at check-cashing services.

Within two months the Needle Exchange Program had large numbers of people coming simply for the money. So many came in fact, that Outside In had to set up an overflow lobby in the back of the building. It was becoming disruptive to the other agency programs. In addition, people began to scam us, coming back repeatedly and giving a different identification number each time. We decided this was a misuse of the program, and in February decreased subject fees from $11 to $5 for the initial interview. We retained the fee of $10 for follow-up interviews to encourage return visits. A near-by Fred Meyer grocery store agreed to cash Outside In checks for clients without charging a fee. The reduced fees solved the problems, and the number of clients scamming or coming simply for the money decreased dramatically.

Subject fees for drug injectors participating in the county outreach project were $20 per interview for both initial and follow-up interviews.

CLIENT INTERVIEWS

Needle Exchange clients participating in the research component were surveyed at three month intervals. Clients were not given surveys to fill out themselves, but rather the survey was administered by a trained interviewer. All questionnaires took an average of one hour to administer.

An initial interview was conducted at the first visit, and clients were requested to return every three months for follow-up interviews. Because locator or tracer information was not collected on clients (and in fact they were allowed to remain anonymous), it was necessary to depend on clients remembering to return at the right time. If a client was a regular user of the Exchange, staff could remind them to interview every three months. For other clients, this was not possible. In order to collect as much data as possible, clients were allowed to participate in the surveys if they came as early as two weeks before their interview due date, or two weeks after.

The majority of the questionnaires were administered to clients by volunteer students from a class in Community Psychology at Portland State University. This class was a year-long senior and graduate-level class. Surveys were also administered by the class instructor, by Needle Exchange staff, by a few other Outside In staff and by myself.

INSTRUMENTS

Outside In used the questionnaires designed by the National Institute on Drug Abuse (NIDA) for use in its National AIDS Demonstration Research (NADR) project, a national survey of drug injectors. They were used because they were the instruments used by the county's survey of drug injectors from which the comparison group for our study would be drawn. Because the NADR survey was conducted in a number of cities across the United States, it would also be possible to compare clients of the Exchange with drug

injectors in other cities if desired. Agreements were made between Outside In and the Oregon State Health Division to share data.

The AIA and AFA were constructed without being based on theory. Behavior change models, therefore, were not part of the design. It was necessary for Outside In to use these questionnaires in order to compare data with the county health division.

An agreement was also made between Outside In and the local NADR outreach project to add a screening question to all surveys. Because we wanted to compare drug injectors using the Exchange with drug injectors not using the Exchange, we wanted to screen out people who participated in the NADR outreach project and had used the Exchange. County outreach workers therefore asked survey participants if they had ever used the Exchange, and Exchange staff asked clients if they had ever taken the survey previously. All clients were assured their answer would have no effect on whether they could participate at present.

The questionnaire administered at intake was called the AIDS Initial Assessment Questionnaire (AIA). It collected basic demographics, history of alcohol and drug use, injection habits, use of treatment programs, arrest records and prison history, health status and history of previous HIV tests. Extensive and detailed questions were asked about needle use behaviors and sexual practices over the prior six months. Finally, an AIDS quiz was given to assess the extent of the clients knowledge about HIV.

The follow-up questionnaires administered every six months after the intake interview were Follow-Up Assessment

Questionnaires (AFA), and were also designed by NIDA. They asked detailed questions about drug use, needle use behavior, and sexual practices over the prior six-month period.

The questionnaires administered at three month intervals between the AIA and AFA were designed for the Portland Exchange by Dr. Maynard and myself. This questionnaire was a sub-set of questions from the AFA. Outside In added questions to all the surveys regarding use of tobacco and caffeine, and about veteran status.

Initial training in administering the questionnaire was provided free to Outside In by the Multnomah County Health Division. The same person who trained county outreach workers to give the survey trained Outside In staff. This helped ensure that staff of both projects had the same understanding of the AIA and AFA, and administered them in similar ways. Once Dr. Maynard had been trained, he in turn trained volunteers from his Community Psychology class.

In order to collect data on all clients, (including the 33% not participating in the research component), all clients were asked to fill out a simple one-page form at every visit. This questionnaire asked how clients had found out about the program, how far they traveled to get to the Exchange, and brief questions about drug use, needle use behaviors and sexual practices.

In addition to the questionnaires, a daily log was kept by Exchange staff. They recorded the number of new clients, the number of return visits, the number who joined the research

component, the number of syringes issued to each client, and the number of syringes returned by each client.

BLOOD TESTS

Blood was drawn from study participants at three-month intervals, at the time the surveys were administered. Blood was tested at the Oregon State Health Division Laboratory for HIV antibodies and Hepatitis B antibodies. The initial HIV test was the ELISA test. If reactive on three ELISA tests, samples were further tested by the IFA test.

The Hepatitis B test told us whether clients had been infected in the past two years, not whether they were currently contagious. Although Hepatitis B can lead to death, most people recover and then seroconvert back to a non-contagious state. Some people will remain contagious for the rest of their lives and are considered carriers for the virus. Regardless of contagion, all people infected will continue to test positive on a Hepatitis B antibody test for one to two years.

Hepatitis B tests were done because we knew that we were unlikely to be able to detect a change in the rate of HIV transmission among subjects, given the low seroprevelence rate among drug injectors in Portland (4%). A measure of Hepatitis B antibodies is a good indicator of whether subjects are practicing the same risky behaviors that would lead to HIV infection, given that both diseases are transmitted through unsafe sex practices or sharing of contaminated injection equipment. Hepatitis B is slightly easier to transmit than is HIV.

The county outreach project originally intended to also test for HIV. However, it was not feasible for outreach workers to draw blood on the streets or at the various places they did outreach. They referred drug injectors to the County Health Division for testing. However, less than 10% followed through and obtained the test.

TRACKING DATA WHILE PROTECTING CLIENT ANONYMITY

There is usually some tension between the needs of programs and the needs of research. In the Needle Exchange Program, the major tension was over the need of the research component to track data on clients over time, and the need of the program to not only protect client confidentiality, but to ensure clients could be truly anonymous.

This problem was solved by means of the client-generated identification number described above. Each time clients came to the Exchange, they gave staff information which allowed staff to generate their number. This allowed Outside In to keep charts on clients and connect questionnaires uniquely to each individual, and at the same time allowed clients to remain anonymous. Clients were asked to sign an Informed Consent Form. However a system of witnessing the signing of this form by staff allowed clients who refused to give their names to simply make a mark. These forms were not placed in clients charts, but were stored at an off-site location.

While anonymity encouraged use of the Exchange, it limited active follow-up of clients. Outside In was dependent on clients

remembering on their own to return every three months for follow-up interviews. Regular users of the Exchange could be reminded by staff when it was time for a follow-up interview, but non-regular users were unable to be contacted.

Follow-up of clients was a difference between the Exchange and the county NIDA outreach project. The outreach project did collect names and locator information on clients (addresses, phone numbers, and a friend likely to be able to contact them). This allowed the county to find and remind clients when it was time for follow-up interviews, but also created a possible difference between the comparison groups.

SUB-STUDY ON DISCARDED SYRINGES

On July 15, 1989, three and one-half months prior to the opening of the Exchange, the Project Director began daily to count (and collect) syringes in the vicinity of the Needle Exchange Program to provide baseline data. The search was conducted along a fixed route within a two block radius of Outside In, three to five times per week. Syringes found were carefully picked up and placed in sharps containers and disposed of in accordance with Oregon's infectious waste disposal regulations. (Parts of syringes such as a syringe cap or part of a plunger only, which would not be exchangeable for whole syringes, were not included in this study). Syringes were occasionally found by other Outside In staff. If they were found within the two block radius used for the daily search, they were included in the study.

The search for syringes was continued after the Exchange opened, and ended two years after it was begun, on June 30, 1991. The average number of syringes found per day before the opening of the Exchange was compared to the average number of syringes found per day after the Exchange opened.

RESULTS

RESEARCH QUESTIONS

As mentioned in the introduction, several research questions guided this study. These questions were as follows:

1. Will drug injectors use a needle exchange program in a state where syringes are legally available over-the-counter?

2. Will drug injectors using a needle exchange program decrease risky needle use behaviors?

3. Will frequent users of a needle exchange program change risk behaviors more or less than infrequent users of an exchange?

4. Will drug injectors using a needle exchange program change risk behaviors more or less than a comparison group of drug injectors not using a needle exchange program?

5. Does a needle exchange program have an impact on the community in terms of a change in the number of discarded syringes on the streets?

Two additional research questions were posed at the beginning of the study, but were unable to be adequately evaluated. They were:

6. To evaluate differences in the rate of spread of HIV infection among users and non-users of the Needle Exchange Program.

This question was raised because the ultimate objective of exchanges is to reduce the transmission of HIV among drug injecting clients. However, the HIV infection rate among drug injectors in Multnomah County was estimated by the Oregon State Health Division to be approximately 4%. This low infection rate, in combination with a relatively low number of research subjects, made it impossible to detect a change in the rate of infection.

Outside In did track changes in the rate of Hepatitis B among subjects as a possible indicator of sharing of syringes. Hepatitis B is spread in a similar manner as HIV, and exposure to Hepatitis B indicates that the client is also at risk for HIV. Results are reported later in this paper.

7. Do needle exchange programs increase the likelihood of drug injection among non-injecting drug users?

The major criticism of needle exchange programs is that they promote and condone drug use. The concern is that either people not using drugs will begin using, or that people using drugs but not

injecting will begin to inject because of the easy availability of free syringes at an exchange.

Outside In decided to test this hypothesis by comparing two groups of high-risk youth, one with easy access to an exchange and one without access.

The first group was older homeless youth (ages 18-20) using Outside In's Drop In Center, which is in a building right next door to the Needle Exchange Program. The second group was youth using Whitebird Clinic in Eugene, Oregon, a city located one hundred miles from Portland, and one which does not have a needle exchange program. Whitebird Clinic is a social service agency similar to Outside In. The intent was to interview youth at both agencies at three month intervals and assess whether youth in Portland began injecting at higher rates than youth in Eugene. All youth were paid $5 per interview.

The study was discontinued for two reasons: first, because Whitebird Clinic did not fulfill the conditions of the contract and conduct follow-up interviews, and second, because subject groups were not comparable. Whitebird Clinic conducted 96 interviews from 6/30/90 to 8/31/90. Interviews were discontinued for two months due to staffing problems. They were resumed for one month beginning November 1, 1990, and then discontinued permanently.

In September 1990, Eugene subjects were compared to Portland subjects (using chi square), and serious comparability problems discovered (Table I). Portland subjects were younger than Eugene subjects: over half (62%) of Portland subjects were aged 18 to

20, while less than one-fourth (22%) of Eugene subjects were this age.

Subjects also differed in education, employment, student status and homelessness. Seventy two percent of Portland subjects lacked a high school diploma, while only 26% of Eugene subjects did. Over half (54%) of Eugene subjects had some college or were college graduates, while only 13% of Portland subjects did. In Eugene, 12% of subjects were students, while only 2% of Portland subjects were students. In Portland 67% of subjects were unemployed, and 60% lived in shelters or on the streets, In Eugene, 34% of subjects were unemployed, and only 17% lived in shelters or on the streets.

TABLE I

COMPARISON OF NON-INJECTING DRUG USERS IN PORTLAND (N=165) WITH NON-INJECTING DRUG USERS IN EUGENE (N=86)

	Portland	Eugene	p<
Age			.000
<18	1%	5%	
18-20	62%	22%	
21-25	24%	39%	
26-30	4%	12%	
31-40	4%	19%	
>40	5%	3%	
Sex			.834
Male	73%	27%	
Female	72%	28%	

TABLE I

COMPARISON OF NON-INJECTING DRUG USERS IN PORTLAND (N=165) WITH NON-INJECTING DRUG USERS IN EUGENE (N=86) (continued)

	Portland	Eugene	p<
Education			.000
< 9th Grade	9%	1%	
9-11 Grade	63%	25%	
High School Graduate	15%	20%	
Some College	12%	39%	
College Graduate	1%	15%	
Employment			.000
Full-Time	8%	11%	
Part-Time	10%	15%	
Occasional	12%	19%	
Unemployed	67%	34%	
Disabled	1%	7%	
Homemaker	0	2%	
Student	2%	12%	
Residence			.000
Own Place	13%	34%	
With Someone Else	21%	33%	
Boarding House	3%	2%	
Shelter	42%	0	
Street	18%	17%	
Other	3%	14%	

Differences between groups in all these categories were statistically significant. Because subject groups were so different, and because Whitebird Clinic was unable to continue participating in the study, this component of the study was discontinued.

DESCRIPTION OF CLIENTS PARTICIPATING IN THE STUDY

During the two-year study period, 1,145 drug injectors used the Exchange. Demographic information on 710 clients enrolled in the research component is reported in Table II.

Clients were predominately male (86%) versus female (14%). The average age was 34, ranging from age 18 (the youngest legally allowed to use the Exchange) to age 72. Only 6% of clients were ages 18 through 20, indicating that the Exchange did not attract many young users -- despite the fact that Outside In is primarily a youth-serving agency, and is located one block from a public high school.

Clients were primarily white (79%). Of the remaining 21%, 9% were Native American, 8% African-American, 3% Hispanic, and 1% Asian/Pacific Islander.

Forty-nine percent of drug injectors in the study had not finished high school, and 19% obtained a high school diploma only. While only 3% were college graduates, an additional 29% had attended college.

Nearly half (45%) of clients were unemployed, with an additional 13% disabled. Of the 40% who reported working, only 9% were employed full-time. Ten percent were employed part-time, and 21% reported occasional employment only.

Forty percent of respondents reported their job as their major source of income, 22% reported illegal or possible illegal activities as their major source of income, and 22% reported welfare or disability.

The remainder (16%), received most of their income from their partner, family, friends, unemployment benefits, or other sources.

Although 77% of clients considered themselves to have a religious affiliation, 41% stated that their religious beliefs did not influence how they lived. Forty-six percent said their beliefs influenced how they lived somewhat strongly, and 13% said beliefs influenced their life very strongly.

Many clients were homeless or "street people" -- 43% living either in shelters or on the streets. Of the others, 22% had their own place, 16% lived in someone else's place, and 9% lived in a boarding house. Most (86%) had been in jail or prison.

TABLE II

DESCRIPTION OF 710 DRUG INJECTORS USING THE NEEDLE EXCHANGE PROGRAM

Age (mean 34; range 18-72):	
18-20	6%
21-25	11%
26-30	18%
31-35	20%
36-40	22%
41-45	14%
46-50	6%
51+	3%
Sex	
Male	86%
Female	14%

TABLE II

DESCRIPTION OF 710 DRUG INJECTORS USING THE NEEDLE EXCHANGE PROGRAM
(continued)

Ethnicity	
White	79%
Native American	9%
African American	8%
Hispanic American	3%
Asian/Pacific Islander	1%
Highest Grade Completed	
1-8	6%
9-11	43%
High School Graduate	19%
Some College	29%
College Graduate	3%
Current Work Status	
Full-Time Work	9%
Part-Time Work	10%
Occasional Work	21%
Unemployed	45%
Disabled	13%
Other	2%
Major Source of Income	
Job	40%
Unemployment Benefits	2%
Disability Benefits	9%
Welfare	13%
Spouse/Partner	3%
Other Family Members	2%
Friends	2%
Illegal/Possible Illegal Means	22%
Other	7%

TABLE II

DESCRIPTION OF 710 DRUG INJECTORS USING THE NEEDLE EXCHANGE PROGRAM
(continued)

Religious Affiliation	
None	23%
Protestant	40%
Catholic	24%
Muslim	1%
Easter	3%
Jewish	1%
Other	8%
How Strongly Religious Beliefs Influence How They Live	
Not at All	41%
Somewhat Strongly	46%
Very Strongly	13%
Where Respondent Lives	
Own Place	22%
Someone Else's Place	16%
Boarding House	9%
Shelter	20%
On the Streets	23%
Other	10%
Has Client Ever Been in Jail or Prison	
No	86%
Yes	14%

TABLE II

DESCRIPTION OF 710 DRUG INJECTORS USING THE NEEDLE EXCHANGE PROGRAM
(continued)

How Client Heard about the Exchange	
Partner or Friend	60%
Acquaintance	22%
Referral from Another Agency	8%
Media/Publicity	10%
Reason Client Came to the Exchange	
Money	29%
HIV Test	19%
Syringes	18%
Worried About AIDS	8%
Curious	7%
Other	19%
Source of Syringes	
Drugstore	52%
Another IDU	18%
Buys on the Street	13%
Grocery Store	6%
Relative	4%
Other	7%

As reported in Table III, most clients began drinking alcohol at an early age. Some clients were born with alcohol in their system due to their mother's alcohol use during pregnancy. Twenty percent of clients first became intoxicated before age nine, 50% at ages ten through fourteen, 26% at ages 15 through 19, and 4% over age twenty. Twenty-two percent of clients were drinking daily or almost

daily before age 15, with an additional 47% beginning to drink daily between ages fifteen and twenty. Only three clients (less than 1%) reported never using alcohol.

Most respondents (62%) began using illegal drugs before age 20: 18% began using before age 16, and 44% began using between ages 16 and 20.

Other than alcohol, marijuana was the drug most frequently tried at some time by clients, with 98% reporting using it. Ninety-one percent of clients currently used alcohol and 84% used marijuana. Clients frequently used drugs other than the drugs they were injecting: 55% used cocaine, 43% used amphetamines, and 38% used heroin, all without injecting.

Of those injecting drugs, 96% of clients had injected heroin at some time in their life, 95% had injected cocaine, and 84% had injected amphetamines. These three were the most frequently injected drugs, although by no means the only ones. One client even reported injecting alcohol -- not because he thought he got intoxicated more quickly, but simply because he enjoyed shooting up.

Clients were usually not in drug treatment programs (86%). Approximately one-third of clients had tried Alcoholics Anonymous, and one-third Narcotics Anonymous.

Over one-fourth (28%) of respondents reported they had not had sex in the past six months. Of the 72% who did, 39% had a single partner, and 61% had multiple partners. Of clients with only one partner, 82% never used condoms. Of clients with multiple partners, 50% never used condoms. Sixty percent of clients reported having a

sex partner who also injected drugs. Twenty-three percent of clients traded sex for money in the past six months, and 22% traded sex for drugs.

When asked how likely they thought they were to develop AIDS, 13% of clients stated they had no chance of doing so. Sixty-eight percent thought they had some chance of infection, 15% a high chance, and 4% a sure chance.

A concern raised about needle exchange programs is that they might attract people to inject drugs who otherwise would not have done so. From the surveys administered clients, it is clear that by far the majority of clients had long histories of IV drug use. Of those surveyed, 98% had been injecting drugs for at least one year, and over 75% had been injecting five or more years.

TABLE III

ALCOHOL/DRUG USE, SEXUAL PRACTICES AND PERCEIVED HIV RISK OF 710 CLIENTS OF THE EXCHANGE

Age First Intoxicated	
Less Than Age 5	2%
Age 5-9	18%
Age 10-14	50%
Age 15-19	26%
Age 20-24	3%
Age 25+	1%

TABLE III

ALCOHOL/DRUG USE, SEXUAL PRACTICES AND PERCEIVED HIV RISK OF 710 CLIENTS OF THE EXCHANGE
(continued)

Age First Drinking Daily or Almost Daily	
Less Than Age 5	0
Age 5-9	3%
Age 10-14	19%
Age 15-19	47%
Age 20-24	17%
Age 25+	14%
Age First Used Illegal Drugs	
Age 5-10	1%
Age 11-15	17%
Age 16-20	44%
Age 21-25	17%
Age 26-30	11%
Age 31+	10%

History of Drug Use	No	Yes
Alcohol	.4%	99.6%
Paint Thinner	70%	30%
Marijuana	2%	98%
Crack	41%	59%
Cocaine	6%	94%
Amphetamines	12%	88%
Heroin	18%	82%
Heroin & Cocaine Mixed	36%	64%
Other Opiates	44%	56%
Barbiturates	47%	53%
Tranquilizers	47%	53%
PCP	61%	39%
MDA	18%	82%
Nitrates/Poppers	64%	36%
Other Drugs	88%	12%

TABLE III

ALCOHOL/DRUG USE, SEXUAL PRACTICES AND PERCEIVED HIV RISK OF 710 CLIENTS OF THE EXCHANGE
(continued)

Frequency of Non-Injecting Drug Use (Past Six Months)

	Alcohol	Marijuana	Cocaine	Amphet-amines
Never	9%	16%	45%	57%
< 4 times.month	19%	33%	37%	29%
Once/week	15%	13%	7%	5%
2-6 times/week	24%	16%	7%	5%
Once/day	9%	7%	1%	2%
2-3 times/day	10%	8%	2%	1%
> 4 times/day	14%	7%	1%	1%

	Heroin	Heroin & Cocaine
Never	62%	52%
< 4 times.month	28%	40%
Once/week	1%	2%
2-6 times/week	3%	4%
Once/day	2%	2%
2-3 times/day	3%	0
> 4 times/day	1%	0

History of Injecting Drug Use	No	Yes
Cocaine	5%	95%
Amphetamines	16%	84%
Heroin	4%	96%
Heroin & Cocaine	3%	97%
Non-prescription Methadone	69%	31%
Other Opiates	44%	56%
Barbiturates	55%	45%
Tranquilizers	81%	19%
PCP	79%	21%
MDA	76%	24%
Nitrates/Poppers	98%	2%
Other	65%	35%

TABLE III

ALCOHOL/DRUG USE, SEXUAL PRACTICES AND PERCEIVED HIV RISK OF 710 CLIENTS OF THE EXCHANGE
(continued)

Frequency of Drug Injection (Past Six Months)	Cocaine	Ampheta-mines	Heroin	Heroin & Cocaine
Never	13%	32%	12%	20%
< 4 times.month	39%	32%	29%	44%
Once/week	14%	10%	12%	15%
2-6 times/week	20%	14%	14%	12%
Once/day	4%	3%	9%	2%
2-3 times/day	4%	5%	14%	3%
> 4 times/day	6%	4%	10%	4%

	Non-Pres Methadn	Other Opiates	Barbit-uates	Tranquil-izers
Never	65%	53%	81%	72%
< 4 times.month	23%	31%	15%	24%
Once/week	6%	5%	1%	1%
2-6 times/week	4%	5%	2%	0
Once/day	0	1%	0	3%
2-3 times/day	0	3%	1%	0
> 4 times/day	2%	2%	0	0

	PCP	MDA	Nitrates \Poppers	Other Drugs
Never	84%	81%	50%	57%
< 4 times.month	16%	11%	33%	21%
Once/week	0	6%	17%	0
2-6 times/week	0	0	0	15%
Once/day	0	2%	0	0
2-3 times/day	0	0	0	7%
> 4 times/day	0	0	0	0

Currently Enrolled in Drug Treatment	
No	86%
Yes	14%

TABLE III

ALCOHOL/DRUG USE, SEXUAL PRACTICES AND PERCEIVED HIV RISK OF 710 CLIENTS OF THE EXCHANGE
(continued)

Weeks of Drug Treatment (Past Six Months)		
None	63%	
1-4	20%	
5-10	7%	
11-26	10%	
History of Attendance in Self-Help Groups		
	No	Yes
Alcoholics Anonymous	67%	33%
Narcotics Anonymous	68%	32%
Cocaine Anonymous	94%	6%
Sexually Active (Past Six Months)		
No	28%	
Yes	72%	
Number of Sexual Partners If Sexually Active (Past Six Months)		
1	39%	
2	16%	
3	12%	
4	6%	
5	5%	
6-10	11%	
>10	11%	
Sexual Partner Injected Drugs (Past Six Months)		
No	40%	
Yes	60%	
Had Sex For Money (Past Six Months)		
No	77%	
Yes	23%	

TABLE III

ALCOHOL/DRUG USE, SEXUAL PRACTICES AND PERCEIVED HIV RISK OF 710 CLIENTS OF THE EXCHANGE
(continued)

Had Sex For Drugs (Past Six Months)	
No	78%
Yes	22%
Frequency of Condom Use -- Single Partner (Past Six Months)	
Never	82%
Less Than Half the Time	6%
Half the Time	2%
More Than Half the Time	3%
Always	7%
Frequency of Condom Use -- Multiple Partners (Past Six Months)	
Never	50%
Less Than Half the Time	20%
Half the Time	8%
More Than Half the Time	11%
Always	11%
History of Blood Donations (Since 1985)	
No	51%
Yes	49%
History of Blood Transfusion	
No	81%
Yes	19%
How Likely Client Thought They Were to Develop AIDS	
No Chance	13%
Some Chance	68%
High Chance	15%
Sure Chance	4%

RESEARCH RESULTS

Research Question 1: Will Drug Injectors Use A Needle Exchange Program In A State Where Syringes Are Legally Available Over-The-Counter?

Introduction. Syringes are legally available in Oregon, sold in pharmacies and sometimes in small markets (usually in areas frequented by drug injectors). The only exception to this is that syringes may not be sold to minors unless it is for an authorized use and by order of a physician. However, the fact that syringes are legally available to adults does not always mean they were readily available. Drug injectors told us they were sometimes hassled when they went to purchase syringes.

When Outside In proposed a Needle Exchange Program, there was some question whether drug injectors would use it. The Oregon State Health Division had conducted a survey of 161 drug injectors in Multnomah County from December 1988 to March 1989. Seventy-eight percent of those surveyed reported obtaining syringes primarily from pharmacies or stores. Based on this study, many people concluded that drug injectors would not use an exchange in the state of Oregon.

There were other factors that were anticipated to limit the number of drug injectors using the Exchange located at Outside In. First, Outside In is not located in an area which is heavily frequented by drug injectors, so that drug injectors would have to go out of their way to exchange their syringes. Second, Outside In did little advertising to attract clients. Third, Outside In issued a maximum of

ten syringes per visit, making it inconvenient for frequent injectors and those living at a distance to use the Exchange. Finally, Outside In could not give syringes to minors due to a law prohibiting this, thereby excluding a large number of potential clients who were street youth using other agency programs.

Whether drug injectors would use the program was an important question to answer. Syringes are legally available in thirty-eight states, and illegal in only ten. It may be that syringe exchange programs are needed in only ten states, not fifty.

Results. During the first two years of operation, 1,145 unduplicated drug injectors used the Needle Exchange Program. These clients made a total of 6,369 visits to the Exchange. The Exchange had an average of 265 visits per month, or about twelve visits per day.

During the first year of operation, 18,784 syringes were issued and 16,418 returned, for a syringe return rate of 87%. The syringe return rate improved each year (with a slight dip during the fourth year). During the second year, 29,969 syringes were issued, and 28,790 returned, for a return rate of 96%. By the fifth year of operation, the Needle Exchange Program was issuing over 100,000 syringes annually, with a syringe return rate of over 100%.

Over the five years the Exchange has been in operation, clients have made 21,468 visits to the Exchange. Despite the legal availability of syringes, the inconvenient location of the Exchange, and the other limitations listed above, drug injectors did use the program.

TABLE IV

VISITS TO THE NEEDLE EXCHANGE PROGRAM AND SYRINGES ISSUED AND RETURNED, FIRST FIVE YEARS OF OPERATION

	New Clients	Client Visits	Syringes Issued	Syringes Returned	Syringe Return Rate
1st Year	773	3,291	18,784	16,418	87%
2nd Year	372	3,087	29,969	28,790	96%
3rd Year		3,199	72,355	73,448	102%
4th Year		6,216	84,249	83,812	99%
5th Year		5,675	107,141	109,753	102%
Totals		21,468	312,498	312,221	100%

(Note: New clients were tracked for the two-year study period only).

Over the two-year study period, the Exchange saw an average of 48 new drug injectors per month. There were two time periods which were exceptions to this: In the third and fourth month after the Exchange opened (January and February 1990), 138 and 117 clients respectively used the Exchange. This was a result of paying subject fees in the amount of $11, which attracted clients who were more interested in the money than in actually using the Exchange. In mid-February, subject fees were reduced to $5, which had an immediate effect on the number of clients using the program.

In the last two months of the study (September and October 1991), the number of new clients declined to 17 per month. This can most likely be attributed indirectly to the Exchange's funding problems in early September. This was widely reported in the media along with statements that the Exchange would be closing. Although

the Exchange was never closed, drug injectors were understandably confused about its status.

Research Question 2: Will Drug Injectors Using A Needle Exchange Program Decrease Risky Needle Use Behavior Over Time?

Introduction. There was some question whether drug injectors would change risky needle use behavior to try to protect themselves from HIV, even if the means for affecting change was made readily available to them. Would they go out of their way to try to protect themselves from one disease -- HIV, while at the same time exposing themselves to other health problems through continued IV drug use? In addition, because of the fact that they are often high, it was thought that they would be less likely to consistently and rationally remember to use safe needle practices.

Results. Data collected at intake were compared with data collected at six months and then at twelve months to assess change in risky needle use behaviors. All data collection was done during the first two years the Exchange was in operation, as the research component was funded for these two years only.

Clients were those who joined the study and had completed both the intake and follow-up surveys. There were 109 clients who fit these criteria. Clients joining the study were a subset of clients using the Exchange. During the first two years of operation, 1,145 drug injectors used the program, although not all of these clients joined the study. Demographics, drug use, and sexual practices of 710 drug injectors who joined the study are reported in Tables II and III above. These study participants differed from non-

participants only in that they were more frequent users of the Exchange ($p<.001$). Of those clients who joined the study, 109 came in at both the intake and six-month data collection points.

A repeated measures MANOVA indicated that clients significantly decreased risky needle use behaviors over the six month study period. Change was significant ($p\leq.05$) on the following variables: drug injection frequency, borrowing used syringes, sharing rinse water, using sterile syringes, lending syringes to sex partners, using new syringes, and cleaning used syringes with bleach before reusing. Change on these variables was consistently towards less risky behavior, and on no variable regarding risky needle use was there statistically significant change towards more risky behavior (Table V).

TABLE V

COMPARISON OF CHANGE IN RISK BEHAVIORS OF 109 NEEDLE EXCHANGE CLIENTS AT INTAKE AND SIX MONTHS

Variable	n	Intake Mean	6-month Mean	Trial Effect p
Present IV Freq (x/month)	109	31.8	22.2	.024
Did not share works	108	.58	.64	.367
Reused clean works	77	.50	.61	.157
Rented works	107	.10	.06	.418
Borrowed works	108	.20	.10	.028
Shared cooker	108	.38	.28	.328
Shared rinse water	108	.34	.24	.035
Used sterile syringe	108	.57	.66	.033
Used sterile works/no reuse	108	.28	.33	.304

TABLE V

COMPARISON OF CHANGE IN RISK BEHAVIORS OF 109 NEEDLE EXCHANGE CLIENTS AT INTAKE AND SIX MONTHS
(continued)

Variable	n	Intake Mean	6-month Mean	Trial Effect p
Lent used works to:				
running partner	106	.21	.18	.525
sex partner	106	.19	.12	.022
friend or other	106	.18	.12	.069
Discarded used works	105	.53	.44	.568
Sold dirty works	106	.09	.07	.213
Reused own dirty works	106	.22	.13	.123
Reused own cleaned works	106	.57	.50	.055
Used new works	104	.60	.70	.007
When used clean syringe used:				
bleach	58	.39	.58	.002
alcohol	59	.12	.07	.057
boiling in water	59	.07	.02	.009
rinse in water only	59	.55	.36	.003

These analyses were extended through MANOVA analyses of behavior change among clients who came in at intake and the twelve-month data collection point (n = 74; TABLE VI). Similar analyses were conducted for clients who came in at all three timepoints of intake, six months and twelve months (n = 48; TABLE VII).

TABLE VI

COMPARISON OF 74 DRUG INJECTORS AT INTAKE AND 12 MONTHS

Variable	N	Intake Mean	12-mo Mean	Trial Effect p
Present IV Freq (x/month)	73	38.0	18.8	,000
Did not share works	74	.57	.60	,570
Reused clean works	60	.56	.65	,115
Rented works	74	.10	.06	,241
Borrowed works	74	.18	.11	,022
Shared cooker	74	.37	.28	,064
Shared rinse water	74	.38	.23	,004
Used sterile syringe	74	.54	.73	,000
Used sterile works/no reuse	74	.25	.4	,001
Lent used works to:				
running partner	74	.20	.15	,172
sex partner	74	.22	.15	,103
friend or other	74	.15	.10	,080
Discarded used works	74	.56	.43	,030
Sold dirty works	74	.01	.02	,397
Sold/gave cleaned works	74	.10	.10	1,000
Reused own dirty works	74	.18	.14	,344
Reused own cleaned works	74	.58	.53	,318
Used new works	73	.59	.65	,095
When used clean syringe used:				
bleach	45	.42	.65	,000
alcohol	45	.08	.05	,490
boiling in water	45	.05	.03	,554
rinse in water only	45	.52	.37	,018

(Note: IV frequency is measured in *times injected per month*; the variables are measured in *proportion of time the behavior occurs when injecting*)

The change towards safer needle use behaviors observed at the six-month point continued for clients who came in twelve months later. Most variables that showed significant change at six months continued to be significant at twelve months. In addition, "using a sterile syringe once and never reusing it" was not significant at six months but reached significance at twelve months. This was true for both clients who came in at intake and twelve months only, and for clients who came in every six months.

TABLE VII

COMPARISON OF 48 DRUG INJECTORS AT INTAKE, 6 MONTHS AND 12 MONTHS (T2 IS DIFFERENCE BETWEEN INTAKE AND 6 MONTHS, T3 IS DIFFERENCE BETWEEN INTAKE/6 MONTHS AND 12 MONTHS)

Variable	N	Intake Mean	6-mo Mean	12-mo Mean	T2 p	T3 p	Trial Effect p
Present IV Freq (x/month)	48	33.13	27.63	17.69	.413	.004	.032
Did not share works	48	0.61	0.66	.65	.498	.845	.779
Reused clean works	35	.51	.63	.59	.336	.051	.213
Rented works	48	.10	.07	.04	.336	.051	.115
Borrowed works	48	.19	.09	.09	.031	.083	.017
Shared cooker	48	.35	.33	.24	.734	.049	.163
Shared rinse water	48	.34	.32	.18	.808	.001	.014
Used sterile syringe	48	.55	.64	.77	.107	.002	.002
Used sterile works/no reuse	48	.24	.30	.43.	.306	.002	.003

TABLE VII

COMPARISON OF 48 DRUG INJECTORS AT INTAKE, 6 MONTHS AND 12 MONTHS (T2 IS DIFFERENCE BETWEEN INTAKE AND 6 MONTHS, T3 IS DIFFERENCE BETWEEN INTAKE AND 6 MONTHS AND 12 MONTHS)
(continued)

Variable	N	Intake Mean	6-mo Mean	12-mo Mean	T2 p	T3 p	Trial Effect p
Lent used works to:							
running partner	48	.22	.15	.12	.119	.140	.098
sex partner	48	.23	.16	.12	.125	.051	.047
friend or other	48	.18	.10	.09	.018	.032	.005
Discarded used works	48	.56	.37	.36	.008	.118	.010
Sold dirty works	48	.02	.02	.00	1.00	.290	.454
Sold/gave cleaned works	48	.10	.07	.09	.290	.793	.549
Reused own dirty works	48	.17	.14	.14	.554	.699	.740
Reused own cleaned works	48	.60	.57	.52	.605	.219	.361
Used new works	48	.62	.67	.67	.168	.598	.388
When used clean syringe used:							
bleach	27	.40	.59	.61	.006	.051	.003
alcohol	27	.06	.07	.02	.787	.054	.180
boiling in water	27	.05	.03	.03	.425	.425	.522
rinse in water only	27	.55	.36	.37	.022	.089	.011

Research Question 3: Will Frequent Users Of A Needle Exchange Program Change Risk Behaviors More Or Less Than Infrequent Users Of An Exchange?

Introduction. This part of the study compared frequent users of the Exchange with infrequent users. It was hoped that regular use

of the Exchange, and regular contact with program staff by clients would have a beneficial effect on risky needle use behaviors. There was also a question of some clients using the program somewhat inappropriately: they came in at three-month intervals to participate in the study and collect subject fees, but did not otherwise make use of the Exchange.

Clients were separated into those who used the Exchange less than four times in six months, and those who used it four or more times. Clients coming in less than four times were almost certainly coming for interviews only, as there were three interview points in that time period (intake, three-month and six-month interviews).

Results. Two significant differences were found between frequent and infrequent users of the Exchange. The frequent attendees reported significantly greater risk reduction on "borrowing syringes" and on "using syringes and then throwing them away." This latter result indicates that frequent users of the Exchange were using the program as intended, that is, returning syringes for safe disposal rather than simply discarding them.

The analyses also shows that while all clients reduced frequency of drug injection over time, frequent attendees reduced injection frequency less than infrequent attendees. While this did not reach significance ($p<.09$), it is worthy of note. Further analysis is needed to determine whether this is a methodological artifact analogous to regression to the mean (since those who increase their injection frequency will be more likely to need new syringes more often); a result of personal characteristics of these subjects (such as

the stage of their addiction); or is an unintended effect of the program (Table VIII).

Table VIII

RISK BEHAVIOR AMONG CLIENTS WHO USED THE EXCHANGE LESS THAN FOUR TIMES (N=34) AND CLIENTS WHO USED THE EXCHANGE FOUR OR MORE TIMES (N=83) AT SIX-MONTH FOLLOW-UP.

	No. of Visits	Intake Mean	Six Month Mean	Group	Trial	Group/ Trial
Shooting Up Now	<4	28.7	8.9	.022	.039	.099
	>4	33.0	30.7			
Did Not Share Syringes	<4	.58	.60	.660	.164	.380
	>4	.56	.66			
Cleaned Syringes	<4	.50	.52	.284	.177	.343
	>4	.53	.66			
Rented Used Syringes	<4	.14	.14	.004	.260	.260
	>4	.08	.03			
Borrowed Used Syringes	<4	.19	.19	.109	.021	.021
	>4	.20	.07			
Shared Cooker /Cotton	<4	.33	.29	.484	.050	.322
	>4	.40	.29			
Shared Rinse Water	<4	.30	.22	.272	.017	.778
	>4	.37	.26			
Got Syringe In Sterile Wrapper	<4	.56	.66	.756	.044	.724
	>4	.59	.66			

Table VIII

RISK BEHAVIOR AMONG CLIENTS WHO USED THE EXCHANGE LESS THAN FOUR TIMES (N=34) AND CLIENTS WHO USED THE EXCHANGE FOUR OR MORE TIMES (N=83) AT SIX-MONTH FOLLOW-UP.
(continued)

	No. of Visits	Intake Mean	Six Month Mean	Group	Trial	Group/ Trial
Got Syringe In Sterile Wrapper. Used Once & Threw Away	<4	.33	.35	.350	.315	.635
	>4	.26	.32			
Used - Gave to Running Partner	<4	.23	.22	.391	.397	.724
	>4	.21	.17			
Used - Gave to Sex Partner	<4	.23	.14	.590	.020	.694
	>4	.19	.12			
Used - Gave to Friends	<4	.20	.18	.146	.051	.360
	>4	.18	.11			
Used - Threw Away	<4	.50	.57	.214	.363	.026
	>4	.54	.38			
Used - Sold Without Cleaning	<4	.01	.02	.805	.665	.126
	>4	.02	.01			
Reused After Cleaning	<4	.09	.05	.454	.117	.692
	>4	.10	.08			
Reused Without Cleaning	<4	.19	.17	.978	.108	.228
	>4	.23	.12			

Table VIII

RISK BEHAVIOR AMONG CLIENTS WHO USED THE EXCHANGE LESS THAN FOUR TIMES (N=34) AND CLIENTS WHO USED THE EXCHANGE FOUR OR MORE TIMES (N=83) AT SIX-MONTH FOLLOW-UP.
(continued)

	No. of Visits	Intake Mean	Six Month Mean	Group	Trial	Group/ Trial
Cleaned With Bleach	<4	.24	.43	.005	.001	.939
	>4	.45	.64			
Cleaned With Alcohol	<4	.17	1.0	.103	.058	.631
	>4	.09	.05			
Cleaned by Boiling	<4	1.0	.03	.321	.009	.312
	>4	.05	.02			
Cleaned With Water	<4	.64	.46	.182	.003	.940
	>4	.53	.35			

Research Question 4: Will Drug Injectors Using A Needle Exchange Program Change Risk Behaviors More Or Less Than A Comparison Group Of Drug Injectors Not Using A Needle Exchange Program?

Introduction. Ideally, a research study should consist of a group of subjects who are given a treatment, and a similar but separate group of subjects who are not given the treatment. Subjects would be randomly assigned to groups, and the two groups would be compared to determine whether the treatment had an effect. A common criticism of studies of needle exchange programs is that they do not include comparison groups.

Many AIDS prevention measures appear to achieve some success with targeted clients. Needle exchange programs ideally should be evaluated not only in terms of whether change in client behavior improved, but whether it improved more than change affected by other AIDS prevention programs.

This study was designed to include a comparison group of drug injectors not using the Needle Exchange Program. The study evaluates whether needle exchange programs are better or worse than another approach to AIDS prevention. It compared drug injectors using the Exchange with drug injectors not using the Exchange, but receiving a range of interventions from an outreach project. The comparison group was drawn from the county's NIDA-funded outreach project to IV drug users. A limitation of the evaluation is that there was not random assignment of drug injectors to the two programs.

Results. Clients for the comparison group were drawn from the Portland NADR outreach project. This was not an ideal comparison group in that drug injectors in the NADR project did receive interventions. As a result, this is not a comparison of drug injectors using a needle exchange program with drug injectors receiving no intervention, but a comparison of two different HIV education and intervention programs. All NADR clients received bleach and were provided with HIV education. A subset either participated in groups or received one-on-one counseling. They were also encouraged to buy and use sterile syringes (legally available over-the-counter in Oregon).

Seventy-seven Exchange clients who attended the Exchange four or more times were compared to 355 NADR clients. Demographic information for both groups is shown in Table IX.

The comparison between these projects is complicated by potentially different subject populations. While there were no differences between the two samples on most demographic and drug use variables, there were some differences observed. For example, NADR subjects were considerably more likely to be female and African American, and less likely to be male, and White or Native American. NADR subjects were also more likely to live with someone else and less likely to live on the streets. Perhaps because we were studying frequent attenders of the Needle Exchange Program, Exchange users at six month follow-up injected more frequently than the NADR subjects. These differences between samples may limit the conclusions that can be drawn from the comparison.

TABLE IX

COMPARISON OF SYRINGE EXCHANGE AND P-NADR RESPONDENTS ON SELECTED VARIABLES AT INTAKE

Variable	Syringe Exchange	P-NADR	P(Chi-square)
Gender			.0001
Female	14%	24%	
Race			.0001
Black	8%	27%	
Hispanic	3%	3%	
White	79%	65%	
Native American	9%	4%	
Asian/Pacific Islander	0.7%	0.2%	

TABLE IX

COMPARISON OF SYRINGE EXCHANGE AND P-NADR RESPONDENTS ON SELECTED VARIABLES AT INTAKE
(continued)

Variable	Syringe Exchange	P-NADR	P(Chi-square)
Age			.25
18	1%	1%	
19-25	15%	12%	
26-30	18%	15%	
31-40	42%	48%	
41-50	19%	21%	
51-77	3%	3%	
Income from job in last 6 months			.65
Yes	59%	57%	
No	41%	43%	
Income from family member other than spouse			.006
Yes	18%	25%	
No	82%	75%	
Income from a friend			.07
Yes	25%	29%	
No	75%	71%	
Current work status			.04
Working	40%	35%	
Unemployed	45%	52%	
Retired/Disabled	13%	11%	
Homemaker/Student	2%	3%	
Current Living Situation			.0001
Own Place	22%	24%	
Live at Someone Else's	16%	30%	
Boarding House	9%	12%	
Shelter	19%	17%	
On Street	23%	11%	
Other	10%	7%	
Ever Used Crack Cocaine			.0008
Yes	59%	68%	
No	41%	32%	

TABLE IX

COMPARISON OF SYRINGE EXCHANGE AND P-NADR RESPONDENTS ON SELECTED VARIABLES AT INTAKE
(continued)

Variable	Syringe Exchange	P-NADR	P(Chi-square)
Ever Used Heroin and Cocaine Together			.006
Yes	64%	68%	
No	36%	32%	
Ever Used Opiates Other than Heroin			.006
Yes	56%	64%	
No	44%	36%	
Ever Used Tranquilizers			.002
Yes	53%	62%	
No	47%	38%	
Use of Non-IV Cocaine			.06
Yes	76%	81%	
No	24%	19%	
Use of Non-IV Amphetamines			.03
Yes	80%	85%	
No	20%	15%	
Use of Non-IV Heroin			.0002
Yes	31%	43%	
No	69%	57%	
Ever Injected Cocaine by Itself			.32
Yes	95%	96%	
No	5%	4%	
Ever Injected Heroin by Itself			.03
Yes	96%	99%	
No	4%	1%	
Ever Injected Cocaine and Heroin Together			.74
Yes	97%	97%	
No	3%	3%	
Ever Injected Amphetamines			.98
Yes	84%	84%	
No	16%	16%	

TABLE IX

COMPARISON OF SYRINGE EXCHANGE AND P-NADR RESPONDENTS ON SELECTED VARIABLES AT INTAKE
(continued)

Variable	Syringe Exchange	P-NADR	P(Chi-square)
IV Use of Opiates Other than Heroin			.02
Yes	55%	64%	
No	45%	36%	
"Current" Drug Injection Frequency at Intake			.0001
Zero	3%	11%	
< 1 per Month	20%	23%	
About Once per Week	16%	13%	
2-6 Times per Week	29%	21%	
About Once per Day	9%	9%	
2-3 Times per Day	15%	17%	
4+ Times per Day	8%	6%	
Presently Enrolled in Drug Treatment			.0001
Yes	14%	0%	
No	86%	100%	
Had Sex with Someone in Last Six Months			.0001
Yes	72%	85%	
No	28%	15%	
Female Subject who had Sex with Females in Last Six Months			.95
Yes	7%	7%	
No	93%	93%	
Male Subject who had Sex with Males in Last Six Months			.99
Yes	3%	3%	
No	97%	97%	

TABLE IX

COMPARISON OF SYRINGE EXCHANGE AND P-NADR RESPONDENTS ON SELECTED VARIABLES AT INTAKE
(continued)

SELECTED OTHER VARIABLES ON WHICH THE TWO SAMPLES WERE NOT SIGNIFICANTLY DIFFERENT

Highest School Grade Completed
Completed GED Certification

Source of Income Unemployment Benefits
Source of Income Disability Payments
Source of Income Welfare
Source of Income Alimony
Income from a Sex Partner
Illegal Source of Income

Illegal Drug First Used
Number of Years Since They Started to Inject Drugs
Ever Used Alcohol, Glue/Paint, Cannabis, Cocaine by Itself, Amphetamines, Heroin by Itself, Non prescription Methadone, Barbiturates, PCP, Nitrites/Poppers, or Combinations of Drugs not Mentioned
Non-IV Use of Heroin and Cocaine Mixed, Non-prescription Methadone, Opiates Other than Heroin, Barbiturates, Tranquilizers, PCP, Nitrites, or Combinations of Drugs not Mentioned

Currently on Probation
Currently on Parole
Currently Facing Criminal Charges

Sex Partner an IDU

Needle Exchange subjects (n=77) were compared with Portland NADR subjects (n=335) at intake and at six months. Subjects in both

projects report significantly lower levels of risk over a wide range of risk behaviors at follow-up than at intake. In fact, change was significant and in a positive direction on 15 of the 22 variables (Table X). One other variable, reuse of clean works, showed a trend towards positive change.

TABLE X

MANOVA OF 77 NEEDLE EXCHANGE CLIENTS AND 335 PORTLAND NADR CLIENTS AT INTAKE AND 6 MONTHS

Variable	Program	N	Intake Mean	6 Mo. Mean	Group Effect p	Trial Effect P	Group by Trial p
Current	NEP	77	33.6	27.5	.004	.000	.057
Drug	P-NADR	335	29.2	12.2			
Injection	Both	412	28.3	19.7			
Frequency							
Did Not	NEP	77	.56	.65	.324	.231	.080
Share	P-NADR	335	.59	.57			
Works	Both	412	.58	.58			
Used Clean	NEP	56	.51	.65	.000	.008	.261
Works	P-NADR	243	.69	.75			
	Both	299	.66	.73			
Rented	NEP	76	.09	.03	.569	.000	.280
Used	P-NADR	333	.07	.04			
Works	Both	409	.07	.04			
Borrowed	NEP	77	.20	.07	.038	.000	.122
Used	P-NADR	334	.21	.14			
Works	Both	411	.21	.12			
Shared	NEP	77	.40	.28	.110	.000	.834
Cooker	P-NADR	334	.44	.33			
/Cotton	Both	411	.43	.32			
Shared	NEP	77	.35	.26	.206	.000	.590
Rinse	P-NADR	334	.40	.28			
Water	Both	411	.39	.27			

TABLE X

MANOVA OF 77 NEEDLE EXCHANGE CLIENTS AND 335 PORTLAND NADR CLIENTS AT INTAKE AND 6 MONTHS
(continued)

Variable	Program	N	Intake Mean	6 Mo. Mean	Group Effect p	Trial Effect P	Group by Trial p
Got Works From Sterile Wrapper	NEP	77	.58	.66	.069	.002	.819
	P-NADR	335	.63.62	.72			
	Both	411		.71			
Got Works From Sterile Wrapper, Used Once	NEP	77	.26	.32	.098	.040	.832
	P-NADR	334	.30	.38			
	Both	411	.29	.36			
Used New Works	NEP	77	.60	.70	.112	.000	.633
	P-NADR	334	.58	.65			
	Both	411	.58	.66			
Lent Used Works to:							
Running Partner	NEP	77	.20	.17	.743	.097	.741
	P-NADR	334	.20	.16			
	Both	411	.20	.16			
Sex Partner	NEP	77	.18	.12	.294	.011	.976
	P-NADR	333	.20	.15			
	Both	410	.20	..14			
Friend or Other	NEP	77	.18	.10	.037	.000	.872
	P-NADR	335	.21	.15			
	Both	412	.20	.14			
Discarded Used Works	NEP	76	.54	.40	.810	.076	.002
	P-NADR	335	.44	.48			
	Both	411	.46	.46			
Sold or Gave Away Cleaned Works	NEP	77	.10	.08	.699	.045	.580
	P-NADR	335	.10	.07			
	Both	412	.10	.07			

TABLE X

MANOVA OF 77 NEEDLE EXCHANGE CLIENTS AND 335 PORTLAND NADR CLIENTS AT INTAKE AND 6 MONTHS
(continued)

Variable	Program	N	Intake Mean	6 Mo. Mean	Group Effect p	Trial Effect P	Group by Trial p
Reused Syringes without Cleaning	NEP	77	.23	.12	.002	.000	.038
	P-NADR	335	.13	.09			
	Both	412	.15	.09			
Reused One's Own Clean Works	NEP	77	.58	.52	.026	.055	.953
	P-NADR	335	.51	.46			
	Both	412	.52	.47			
When Cleaned Used Syringe, Proportion of Times Did With:							
Bleach	NEP	42	.44	.63	.017	.000	.830
	P-NADR	200	.34	.52			
	Both	242	.36	.54			
Alcohol	NEP	43	.10	.05	.012	.043	.736
	P-NADR	200	.18	.12			
	Both	243	.17	.10			
Boiled Syringe in Water	NEP	43	.06	.02	.333	.060	.295
	P-NADR	200	.03	.02			
	Both	243	.04	.02			
Rinsed Works in Water Only	NEP	43	.54	.34	.028	.000	.395
	P-NADR	200	.59	.47			
	Both	243	.58	.45			

On most of these measures, no statistically significant differences in the amount of risk reduction were found between the experimental and control groups. However, Syringe Exchange subjects were significantly better on two variables involving risky injection behavior: reduction in the extent to which subjects re-used

syringes without cleaning, and the extent to which they no longer threw away used syringes (but returned them to the Exchange). This latter finding is of importance in that while both projects increased the likelihood that clients would use a syringe one time only, the Exchange led clients to return syringes for safe disposal. This reduced the number of syringes discarded on the streets and in other public places, and the possibility of accidental needle sticks to the general public.

Clients of both projects reduced drug injection frequency at six months. However, as noted above, clients of the Needle Exchange Program reduced frequency of injection less than did clients of the NADR project. While this did not reach significance ($p<.057$), it does indicate a trend, and further research is needed in this area.

Differences are of particular significance in that syringes are legally available in Oregon, and the bleach outreach program encouraged drug injectors to buy and use sterile syringes. Differences between the Exchange and the NADR outreach program are likely smaller than they would be between an exchange and an outreach program in a state where purchase of syringes was illegal.

Of considerable importance is the fact that the Needle Exchange Program and the bleach outreach project seem to recruit different clienteles. There was little overlap between the samples, with the Portland NADR project finding that only 11% of its sample had ever used the Needle Exchange Program. Thus, it appears that syringe exchanges and outreach programs might best be seen as complementary strategies that recruit and produce risk reduction

among different sub-populations of drug injectors, rather than as competing options that should be chosen among to find which is the best approach to HIV prevention.

Research Question 5: Does A Needle Exchange Program Have An Impact On The Community In Terms Of A Change In The Number Of Discarded Syringes On The Streets?

Introduction. The primary goal of needle exchange programs is a reduction in the sharing of syringes and therefore in the transmission of HIV among drug-injectors. However, it is possible that exchanges could have a significant secondary benefit for the general public by removing possibly contaminated litter from the streets.

A syringe exchange could have an effect on discarded syringes similar to the effect Oregon's "bottle bill" has on discarded pop cans and bottles. Syringes would be less likely to be discarded because they are now worth something. Used syringes could now be exchanged for new, sterile syringes.

This sub-study was conducted to determine the effect of a needle exchange program on the number of discarded syringes in the vicinity of the Exchange. It was possible that the Exchange would decrease the number of syringes on the streets by leading injectors to return syringes to the Exchange rather than discarding them in public places. It was also possible that the Exchange would draw drug injectors into the neighborhood and increase the number of discarded syringes in the area.

Results. In the three and one-half months prior to the start of the Exchange, 18 syringes were found, or 5.14 per month. During the twenty months following the start of the program, 38 syringes were found, or 1.9 per month.

Table XI presents data comparing the number of days on which syringes were and were not found prior to and subsequent to the opening of the Exchange. Syringes were significantly more likely to be found prior to its opening (chi-square = 4.048; $p<.05$).

In spite of the fact that syringe exchanges aim to increase the availability of (sterile) syringes for drug injectors, this exchange has not led to an increase in the number of discarded syringes with which children or others might stick themselves. Instead, it reduced the number of discarded -- and possible contaminated -- syringes in the streets. This finding confirms reports (not based on quantitative before/after data) that the problem of discarded syringes was eased by exchanges in Tacoma (Holly Hagan, personal communication, 1992) and Amsterdam (Des Jarlais 1992b).

Outside In raised the issue of discarded syringes to obtain funding for the Needle Exchange Program from the City of Portland. Outside In is currently issuing over 100,000 syringes annually, and the syringe exchange rate for the past year (11/93 - 11/94) has been 102%. This means that drug injectors are actually returning more syringes to the Exchange than they are given. Outside In argued that preventing 100,000 syringes per year from being discarded, possibly in public places is a significant public health benefit. The City of Portland granted the Needle Exchange Program

$10,000 per year for 1993-94 and for 1994-95. Each year the grant was made on a one-time-only basis. Starting in fiscal year 1995-96, the city agreed to add the $10,000 to its budget on an on-going basis. A rationale for the award was that it did indeed fulfill a public safety function by keeping discarded syringes out of public places and out of waterways.

The City of Portland's Department of Environmental Services produced a "Syringe Control Study" report in April 1992 that included a recommendation to support and expand needle exchange programs simply on the basis that they help prevent syringes from ending up in waterways.

The city wanted to determine why syringes were found in Portland's waterways, primarily the Willamette River and Columbia Slough. The city did interviews, surveys and field inspections. For 25 days they monitored the number of syringes entering the Columbia Boulevard sewage treatment facility.

They concluded that less than 2% of syringes were entering waterways through the sanitary sewer system. Almost 25% of syringes were either discarded on the banks of rivers or other waterways, thrown directly into waterways, or discarded in the streets and carried to rivers by storm water runoff.

The city Bureau of Environmental Services recommended that first, drug injectors be educated to properly dispose of syringes, and second, that Outside In's Needle Exchange Program be supported and expanded to help reduce syringe litter.

TABLE XI

NUMBER OF DAYS ON WHICH SYRINGES WERE AND WERE NOT FOUND PRIOR TO AND SUBSEQUENT TO THE OPENING OF THE EXCHANGE

	Before 7/14/89	After 11/2/89	Totals
No syringe	52	62	114
Syringe	14	6	20
Total Search Days	66	68	134
% of search days on which a syringe was found	21.2%	8.8%	14.9%

$X^2 = 4.05$, $p<.05$

Research Question 6: Are There Differences In The Rate Of Spread Of HIV Infection Among Users And Non-Users Of The Needle Exchange Program?

Introduction. The goal of needle exchange programs is to prevent sharing of drug injection equipment in order to prevent accidental sharing of blood between drug injectors, and therefore the transmission of HIV. The ultimate measure, therefore, of whether needle exchange programs are successful, is the extent to which they affect the HIV seroprevelence rate among drug injecting clients.

Results. As discussed earlier, it was impossible to detect differences in the rate of spread of HIV infection among clients due to the small number of clients and the low rate of seroprevelence (4%) among the drug-injecting population.

The HIV infection rate among 169 clients at intake was 3.9%. There was only one HIV seroconversion at the four data collection points during the twelve months of data collection. This single

seroconversion was noted at the three month follow-up point, so it is quite possible that this person may have become infected prior to beginning to use the Exchange (TABLE XII).

TABLE XII

HIV SEROCONVERSIONS IN THE EXCHANGE RESPONDENTS AT EACH FOLLOW-UP POINT

Follow-up Point	3-mo	6-mo	9-mo	12-mo
Total N	169	139	63	77
HIV- to HIV+	<1%	0%	0%	0%
HIV+ to HIV-	0%	0%	0%	0%

The infection rate for hepatitis B core antibody at intake was much higher -- 52% of the 169 clients tested at intake. The risk for seroconversion to Hepatitis B increased with each three-month interval. A Wilcoxon, signed-ranks test was used to compare seroconversion rates. Three clients seroconverted at 3 months, 12 at six months, 21 at nine months, and 22 at twelve months. The rate of seroconversion was not significant at intake ($p=.18$), was showing a trend at three months ($p=.06$), and was significant at both six months ($p<.03$) and twelve months ($p<.04$) (Table XIII).

TABLE XIII

HEPATITIS B SEROCONVERSIONS IN THE EXCHANGE RESPONDENTS AT EACH FOLLOW-UP POINT

Follow-up Point	3-mo	6-mo	9-mo	12-mo
Total N	169	139	63	77
Hep- to Hep+	3	12	21	22
Hep+ to Hep-	0	1	0	3

This could indicate that drug injectors using a needle exchange program are not consistently practicing safe needle use behaviors. Hepatitis B is transmitted by sharing of injection equipment in the same way HIV is transmitted.

However, there are limitations to this interpretation. First, there is no comparison group and no way to know whether there would be a greater or fewer number of seroconversions among a group of drug injectors not using a needle exchange program.

A second limitation of the data is that different groups of drug injectors were present at each of the four data collection points. Only 22 clients were tested at all four of the three-month intervals. These 22 clients were likely the more regular users of the Exchange. Seroconversion data for these 22 clients is more encouraging. No clients seroconverted at three months, one at six months, two at nine months, and two at twelve months. None of these changes is significant (Table XIV). However, the small number of clients (22) is a limitation on drawing conclusions.

TABLE XIV

SEROCONVERSION FOR HEPATITIS B FOR CLIENTS PRESENT AT ALL FOLLOW-UP POINTS

Follow-up Point	3-mo	6-mo	9-mo	12-mo
Total N	22	22	22	22
Hep- to Hep+	0	1	2	2
Wilcoxin P	1.00	.32	.18	.18

There is evidence that drug injecting clients of the Exchange obtained syringes from safer sources over time (Table XV). Although most clients were initially obtaining syringes from safe sources and did not change over time, at three months 79% of 175 clients reported using a safe source, 38% using the Exchange, and 21% using a store or pharmacy. Ten percent obtained syringes on the street, 9% from another drug injector, and 2% found them or obtained them from other sources. At six months, 87% of 127 clients reported using a safe source, 60% using the Exchange, and 27% using a store or pharmacy. The remaining 13% obtained them from a spouse or partner, a dealer or other sources.

TABLE XV

CHANGE IN SAFETY OF SOURCE OF SYRINGES OF EXCHANGE CLIENTS AT 3 AND 6 MONTHS

Follow-up	N	N Less Safe	N Safer	N No Change	Z	p
3 month	175	11	26	129	2.15	.030
6 month	127	7	29	86	3.20	.001

DISCUSSION AND RECOMMENDATIONS

SUMMARY

Most cases of AIDS among the heterosexual population in this country are linked to IV drug use. The ideal method for curbing the epidemic among drug injectors is drug treatment and non-use of drugs. Because of unavailability of treatment slots, unreadiness of drug injectors for entry into treatment and the high probability of relapse, treatment cannot be relied on as the answer to the epidemic.

Education is an essential pre-requisite for changing risky behaviors, but again is not the answer in and of itself. Drug injectors must not only be aware of the danger of AIDS and knowledgeable about how to protect themselves, but they must have the means to protect themselves.

Use of bleach to disinfect syringes is considered a "second-rank" intervention. Bleach may not be as effective as once thought in sterilizing syringes, particularly if drug injectors do not follow all the recommended steps to clean them. Needle exchange programs make sterile syringes available to drug injectors as the most direct means of helping this group reduce sharing of syringes and therefore the transmission of HIV.

The evaluation of the Needle Exchange Program at Outside In in Portland, Oregon helped answer questions about these programs, and showed that such programs can be beneficial in a number of ways.

The project demonstrated that drug injectors will use needle exchange programs to try to protect themselves from AIDS, even in a state where syringes are legally available to them. During the first four years of the Exchange, nearly 2,000 drug injectors made approximately 16,000 visits, despite the fact that the Exchange is not located in an area frequented by drug injectors.

Clients of the Exchange reduced risky needle use behavior from intake to six months. There was no change to less safe practices on any risky needle use variable. Change lasted over time: at twelve months after intake, change in behaviors that were significant at six months continued to be significant.

The study compared frequent users of the Exchange (visiting the Exchange four or more times in six months) with infrequent users (less than four times in six months). Frequent users differed on two variables: they borrowed syringes less than infrequent users, and were less likely to use a syringe and throw it away (but rather returned it to the Exchange). There was a trend (although it did not reach significance) for frequent users to reduce injection frequency less than infrequent users, and this merits further study.

Drug injectors using the Exchange were compared to drug injectors not using the Exchange, but participating in a county-sponsored HIV outreach, education and bleach distribution project. Clients of both projects significantly reduced risky needle-use behaviors, with Exchange clients significantly better on two variables: re-using syringes without cleaning, and throwing away used syringes. Clients of the Exchange reduced frequency of injection

less than did non-clients, although this did not reach significance. The two projects attracted different groups of drug injectors, and should be viewed as complementary rather than competing AIDS prevention strategies.

The effect of the Needle Exchange Program on the community was evaluated in terms of the change in the number of discarded syringes found on the streets in the vicinity of the Exchange. A search for syringes was begun three and one-half months prior to the opening of the Exchange, and was continued for twenty months after the Exchange opened. The number of syringes found per month decreased from 5.14 before the Exchange opened to 1.9 after it began. Decreasing the possibility of accidental needle-sticks by the general public is a significant side benefit of a needle exchange program.

CONCLUSIONS

The data presented here support the growing body of evidence that Needle Exchange Programs produce behavioral risk reduction. They also provide evidence that the number of potentially infected syringes in public places can be reduced by opening syringe exchanges.

Comparisons between Exchange clients and NADR clients are preliminary, with further analyses needed. A limitation of the data is the possible difference between the two samples discussed earlier. The two projects also differed in that the Exchange did not collect locator information on clients, and the NADR project did. A smaller

percent of clients of the Exchange returned for follow-up interviews (and of course could not be contacted and reminded). A additional uncertainty is the usual limitation of self-reported data.

Syringe exchange and bleach outreach programs are best seen as strategies that complement each other. They recruit different populations of drug injectors, and both lead to risk reduction.

Differences between programs are probably smaller than in a city where syringes are illegal and the bleach outreach programs could not encourage people to buy sterile syringes.

One of the most significant aspects of this study is that there was a comparison group of drug injectors not using the Needle Exchange Program. Almost all evaluations of needle exchange programs have assessed change in behavior over time only of the group of clients using the program. This has been a major criticism of studies of these programs. Limitations of the comparison group were potential differences between groups, and lack of random assignment to groups.

During the first year of operation of the Exchange (1990/1991), the program cost $112,000. That same year, the county outreach project cost approximately $1,000,000. The Exchange employed 1.275 full-time equivalent (FTE) staff, while the county employed 6FTE outreach workers, 1.8FTE community health nurses, 0.2FTE physicians, 1FTE health educator and 1FTE program development specialist. Altogether, the county employed 23.4FTE. They provided services to 6,000 clients, including more than 200 drug injectors participating in their extensive education and counseling groups.

Outside In provided services to approximately 1,300 clients. This cost comparison is provided because given that funding for HIV prevention programs is limited, the cost-effectiveness of various programs should be a consideration when designing a community response to the disease.

However. the county estimates include costs of conducting interviews (by outreach workers), while most interviews conducted at the Needle Exchange Program were done by volunteers -- an impressive in-kind contribution. In addition, there are obvious efficiences gained by a program operating at a fixed site and attracting clients to come in (the Exchange), versus a program employing outreach workers to go and find drug injectors (the county NADR Project). Finally, it is usually the case that a small non-profit agency is able to operate projects at less cost than can a large government agency, and a needle exchange program operated by the county would likely cost much more than did the one operated by Outside In.

The data presented in this study are, of course, not definitive evidence that syringe exchanges reduce the spread of HIV or other pathogens. Indeed, it is not likely that a truly definitive study can ever be conducted of syringe exchanges, any more than this is feasible with evaluations of drug abuse treatment or laws against drug use. The cumulative weight of the research, however, and the fact that no studies have found any indication that the exchanges are doing any damage, clearly puts the burden of proof on opponents of syringe exchanges. In the interim, given the dangers from HIV,

syringes exchanges should become an important part of the public health response to AIDS.

RECOMMENDATIONS

Non-Research Related Recommendations

1. Drug treatment programs should be expanded and made accessible. Treatment should be free and available on demand.
2. Drug paraphernalia laws that prevent needle distribution should be repealed. Syringes should be available not only through needle exchange programs, but over-the-counter at pharmacies. Syringe vending machines should be available so that drug injectors have access to sterile syringes "after-hours," when programs and pharmacies are normally closed.
3. Needle exchange programs should be targeted to specific groups and located in areas frequented by different sub-groups of drug injectors
4. Needle exchange programs should explore ways of reaching sex partners of drug injecting clients.
5. The federal government should revise laws that currently prohibit use of federal funds for needle exchange programs. Governments should support, encourage and fund needle exchange programs, and should fund additional evaluations of these programs.

Research Related Recommendations

1. Studies should be conducted with different sub-groups of drug injectors to assess the extent to which current evaluation results can be generalized.
2. Needle exchange programs have less of an effect on changing risky sexual behaviors than they do on changing risky needle use behaviors. Research should focus on how these programs can help reduce risky sex behaviors.
3. Amsterdam reported that needle exchange programs sometimes led to a greater number of discarded syringes in public places, although overall, it is believed that large-scale expansion of needle exchange resulted in fewer discarded syringes. Australia also reported a problem at one of there exchange sites with increased numbers of discarded syringes (although the problem was corrected). This was not the experience of the Portland Needle Exchange Program, nor that of programs in Tacoma, New York, San Francisco or Santa Cruz (Lurie 1994). However, Portland is the only city to conduct a study both prior to and after the opening of an exchange. Communities considering opening such programs should consider a pre-post evaluation of discarded syringes on the streets.
4. Although it is clear that drug injectors are changing their behavior in response to the AIDS epidemic, it is less clear that they will be able to maintain changes in behavior

over long periods of time. Research should be done to give information about what will assist drug injectors in maintaining long-term behavior change.

5. Evaluations should be done to determine which aspects of program operations are most helpful or are barriers (i.e. enforcement of a strict one-to-one exchange of syringes, hours of operation, fixed sites versus mobile units, location of sites, limits on the number of syringes issued per visit, and services provided other than needle exchange).
6. Although random assignment to groups may never be possible, additional studies should be done with comparison groups of drug injectors not using a needle exchange program. To date, Portland's study is the only one that included a comparison group. (New York's evaluation included a comparison group, but used baseline data collected from drug injectors from a time period prior to the opening of the legal exchanges.)
7. Clients of Portland's Needle Exchange Program reduced frequency of injection less over time than a comparison group of drug injectors not using the Exchange -- although this difference did not reach significance. Frequent attenders of the Exchange also reduced frequency of injection less than infrequent attenders -- although again this did not reach significance.

Exchanges in Amsterdam, Wales and Tacoma report that clients of their programs reduced injection frequency (Lurie 1994). Programs in New York, San Francisco and London reported mixed or neutral results. Further study is needed in this area.

8. Although drug injectors have reduced risky needle use behavior in response to the AIDS epidemic, they have not eliminated risky behaviors. Additional research is needed to clarify risk factors, determine reasons change in behavior has and has not occurred, and examine differences between groups (e.g.. gender, race, age, patterns of drug use, and social context).
9. Further investigation should be conducted of the relation of theories of behavior change and needle exchange programs

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APPENDIX A

SELECTED CLIENT INTERVIEWS

Client interviews were conducted to give color to the variety of individual experiences, and to put a human face on the data summarized in the statistical tables. Following are brief summaries of the lives of eighteen drug-injecting clients in order of the date on which they were interviewed. They were interviewed by the Project Director.

November 7, 1989

A thirty-one year-old white man has been living on the streets for the past three months. He has graduated from high school, and has had some college courses. He has two children, ages three and five, but they are not with him, and he mainly lives alone. He obtains his money primarily through illegal activities.

He first drank at age thirteen, and was drinking daily by age sixteen. He started using pot at age sixteen, and first shot up at age twenty-five. His drug of choice is cocaine, although he also uses alcohol, pot, amphetamines, LSD and crack.

He cleans his syringes after using less than half the time. He shares syringes with his partner and with friends. He's aware of the danger of AIDS, and in fact when he was recently in New York, he tried (unsuccessfully) to find the New York Needle Exchange

Program, calling both the health department and the mayor's office. He had a HIV test five months ago, but never went back for the results.

He has been to detox once recently. He has spent three weeks in jail in the past six months, and is currently facing criminal charges.

He is bi-sexual. Of the twelve partners he's had in the last six months, half were female and half male. Almost all his partners were also drug injectors, and he sometimes trades sex for money. He never uses a condom because he doesn't like them and he feels safe enough.

November 20, 1989

A forty-six year-old white man lives alone in his own apartment. He never graduated from college, but did get his GED. He has one child, age 17, who does not live with him. He gets money both from working and from involvement in illegal activities.

He never drank or used drugs until age twenty-five. He now drinks and uses both heroin and cocaine. He always cleans his syringes, but in water only. He shares all injection equipment -- syringes, cookers, cotton and rinse water -- with both friends and strangers.

He's been in detox once and in jail once. In the past six months he's had two sex partners, both female and both also drug injectors. He never uses condoms because he doesn't like them.

November 27,1989

A fifty-eight year-old white man has been living alone in his own apartment for five months. He is disabled, and gets money from the Veteran's Administration and from Social Security. He's been in jail two and one-half years out of the past five years. He has no sexual partner (and has not had sex in the past six months), and has no children.

He started drinking at age nine, and was drinking daily by age twenty-one. He first shot up at age 17, and currently uses cocaine, heroin and alcohol.

He always cleans his syringes, but usually with water only. He's more interested in getting high than in always being safe. He obtains syringes at a store or buys them on the street. He shares all injection equipment (syringes, cookers, cotton and water) with others, including strangers.

He has been in detox four times, residential treatment two times, a prison treatment program once, methadone programs three times, and in out-patient treatment twice. His health is fair. Drugs are the most important thing is his life.

November 28, 1989

A forty year-old Native American woman lives alone in her own apartment. She is a high school graduate and has had some college. She has a seventeen year-old child who does not live with her. She is unable to work full-time, and gets money from her spouse, jobs and food stamps.

She first drank when she was thirteen years old, was drinking daily a year later, and first injected drugs at age thirty-eight. She primarily shoots cocaine. She shares syringes and injection equipment with her sex partner. She cleans her syringes either with peroxide, alcohol or water.

She has been in residential treatment programs six times, and used to attend Alcoholics Anonymous meetings. Recently, she spent a week in jail, and is currently facing criminal charges.

She has had three sex partners in the last six months, all male, three of whom were also drug injectors. She sometimes trades sex for drugs. She never uses condoms, partly because her partners don't like them, and partly because she doesn't think about them when she's stoned. She's never had an AIDS test because she's too embarrassed.

December 2, 1989

A forty-two year-old white woman lives in a cave on a hill that's under a street here in Portland. She has graduated from high school. She is unemployed, and obtains money from jobs and food stamps. She has one seventeen-year old child who is not living with her.

She first started drinking at age fourteen, and first shot drugs at age eighteen. She currently uses alcohol, and shoots cocaine, heroin and amphetamines.

She shares syringes and injection equipment with sex partners and with friends. She uses syringes she knows have been used. She

cleans them, but usually with water only. She doesn't use bleach to clean syringes because she's afraid of it.

She has been in detox three times, and in a residential program once. She hasn't been in jail recently, but is currently facing criminal charges.

She has had one sex partner in the past six months. He is also a drug injector. They never use condoms. She has had her tubes tied, and he doesn't like condoms. She has had both pneumonia and hepatitis in the past six months. She hasn't had an HIV test because her veins are so bad. They're so bad that she sometimes had to "skin it when fixing."

December 20, 1989

A thirty-five year-old white woman has not graduated from high school. She has a job, and lives with her spouse. She has three children, ages seven, nine and seventeen. They don't live with her -- she put them all up for adoption.

She first started drinking at age eighteen, and was drinking daily by age nineteen. She started injecting drugs a year later. She shoots heroin, opiates and narcotics. She uses used syringes about half the time, and shares with her sex partner and with her running partner. She never cleans syringes before using as it isn't practical -- she shoots up on the streets.

She's been with one partner for four years now, a man who is also a drug injector. They never use condoms because she's had her

tubes tied. She's never had an AIDS test. Her partner was tested, but he never returned for the results.

December 22, 1989

A forty year-old white man was an army kid and was born in Germany. He's disabled, and lives in a hotel by himself. He has one child, age twelve, who does not live with him. He never graduated from high school. He gets his money from welfare and from food stamps.

He first used alcohol at age thirteen, and was drinking daily by age seventeen. He first shot up at age nineteen, and shoots amphetamines, cocaine, heroin and barbiturates.

He gets syringes either on the streets or from a man he knows who's a diabetic. He shares syringes with others, including strangers. He cleans his syringes either with water or with after-shave lotion.

He's been in a residential treatment program once. He's been in jail before, and is currently facing criminal charges.

He hasn't had sex in the past six months. He says he's never had a HIV test because he's not a homosexual.

December 28, 1989

A forty-eight year-old white man has lived on the streets now for thirteen years. He lives alone. He has one child, age seventeen, who does not live with him. He has been to college. He is currently unemployed, and obtains money primarily through illegal activities, although he also receives food stamps.

He started drinking at age fifteen, and first shot drugs at age twenty-five. He shoots cocaine, heroin and amphetamines. He shares syringes and injection equipment with his sex partner, running partner and with friends. He borrows used syringes, and gives away his after he uses them. He never cleans his syringes: he's either too high, too sick, or it takes too much time.

He has been in detox about forty times, in residential treatment programs six times, and in outpatient treatment once. He walked out of the Harmony House treatment program just this morning. He has been in jail before, and is currently facing criminal charges.

He was a pimp from age twenty-one to age twenty-seven. He's had sex with four women in the past six months. He never uses condoms -- he doesn't think about them when he's high. He's never had an AIDS test because he doesn't think he's at risk for AIDS.

December 28, 1989

A forty-six year-old white man lives alone in a hotel room. He has no children and is unemployed. His parents recently died, and he gets $300 per month for the next fifteen years from an inheritance. He also gets food stamps and obtains money from illegal activities.

He first started drinking at age sixteen, and was drinking daily by age thirty. He shoots heroin, cocaine, opiates, narcotics, and amphetamines. He shares syringes and injection equipment with his running partner and with strangers. He both rents and borrows used

syringes. He always cleans his syringes, but usually in water only. Anything else takes too much time, and he just wants to get high.

He has been in detox once, in a residential treatment once, and in outpatient treatment once. He was in Rocky Butte jail once for thirty days seventeen years ago.

He hasn't had sex in the past six months. His health is poor. He hasn't had an AIDS test because he believes he has a high chance of having AIDS, and is afraid of getting a positive test result.

December 29, 1989

A thirty-six year-old white man has spent ten years on the streets, and currently lives in a shelter for the homeless. He never finished the eighth grade. He is a fisherman who has worked only one day in the past six months. He has a sex partner and no children. He obtains money from his family, sex partner and from friends.

He started using alcohol at age twelve, and was drinking daily by age thirteen. He shoots amphetamines, opiates and cocaine. He also uses alcohol, pot, crack, LSD and sniffs glue and paint thinner.

He rarely shares syringes. However, he has only purchased them once, and gets them either from drug dealers or finds them on the streets. He just came to Portland from San Francisco, where syringes cost $2 to $4 each, depending on whether they are new, and on how badly you need them. He does give his syringes to others when he's finished, and he does share cookers, cotton and rinse water. In the past, he cleaned his syringes with water or hydrogen

peroxide. Now, he always uses bleach (although last night he used water only).

He has been in one treatment program when in jail (years ago). He goes twice a day to Alcoholics Anonymous, and is also in Narcotics Anonymous.

He is bi-sexual, and has had an estimated one thousand sex partners in the last six months, approximately four hundred women and six hundred men. He has traded sex for drugs.

He is HIV positive, and had two positive tests, one nine months ago and one five months ago. He uses condoms most of the time, because he doesn't want to give his partners AIDS, but he doesn't always remember to do so if he's high. So far his health is good.

January 8, 1990

A thirty-four African-American man is disabled and lives on the streets. He lives alone and has no children. He is a high school graduate, and gets a little money from family and friends.

He started drinking alcohol at age five, and was drinking daily at age nineteen. He first shot up at age twenty-eight, and shoots cocaine and heroin. He also uses alcohol and crack. He shoots up either at parties or on the streets. He shares syringes and injection equipment with partners, friends and strangers. He uses a new syringe about half the time, and he gets his syringes by asking around. He doesn't clean his syringes very often -- it takes too much time, and he's more interested in just getting high.

He has been in detox ten times. He hasn't has sex in the past six months. He hasn't had a HIV test because he doesn't like needles.

January 9, 1990

A twenty-seven year-old white man has less than an eighth grade education and has been living on the streets for five months. He is unemployed, and mainly gets money through illegal means. He also receives food stamps. He came to the Exchange for two reasons: first, he's broke and wants the subject fee, and second, he's been shooting dope for twelve years and thought he should get checked out.

He first drank alcohol at age five, and shot up speed at age thirteen. He shoots cocaine, heroin and amphetamines. He also uses alcohol, pot, LSD and opiates. He shares syringes and injection equipment with whoever he is shooting with. He never cleans syringes because he's usually too high and it would take too much time.

He has been in detox three times, and in prison treatment programs three times. He occasionally attends Narcotics Anonymous meetings. He's been in jail six weeks out of the last six months.

He has had ten sex partners in the past six months. All were women, and all but one were also drug injectors. He has sex for money and sex for drugs. He never uses a condom, partly because he doesn't like them, and partly because he doesn't think about it when high.

He is HIV positive. His health is fair. He had hepatitis recently.

January 10, 1990

A forty year-old white man lives with a friend in an apartment. He attended college for awhile. He no longer has a full-time job, but does occasional work.

He first started drinking at age thirteen, first used drugs at age fifteen, and first shot up at age nineteen. He shoots heroin, which is his "drug of choice." He doesn't share syringes: "I may be a heroin addict, but I'm conservative in my traits. Sharing gives addicts a bad name." He does share cookers and cotton.

He has been in detox four times, in residential treatment four times, in methadone programs six times, and in out-patient treatment twice. He hasn't been in jail for at least five years.

He has had three sex partners in the past six months, all women, two of whom were also drug injectors. He has never used a condom in his life. He doesn't like them.

He is very knowledgeable about AIDS, and has read extensively on the subject: "if potentially affected by anything, I read up on it." He has not had an AIDS test because it's too inconvenient to get one.

January 18, 1990

A twenty-four year-old African-American man is a Muslim who lives alone in a hotel. He has two children, ages four and ten, who do not live with him. He is a high school graduate who had a job, and now does occasional work.

He first drank and shot up at age sixteen. He shoots cocaine only. He buys his syringes on the streets, and sometimes rents or

borrows used syringes. He shares syringes with his sex partner. He gives them when finished to his sex partner, running partner and friends. He always cleans his syringes, but with water only.

He has never been in a drug treatment program. He has been in jail two years out of the past five. He is currently on probation.

He has had twenty sex partners in the past six months, all women, half of whom were drug injectors. He has sex for money and sex for drugs. He has never used a condom: "It's like wearing a raincoat in the sun." He had three AIDS tests in the past six months, and all were negative.

January 25, 1990

A twenty-four year-old white man considers himself to be mentally disabled and is trying to get on Social Security disability. He is homeless, and just goes to friend to friend for a place to stay. He has not graduated from high school. He gets money from food stamps, illegal activities, and his mom sent him fifty dollars.

He first drank at age fifteen, was drinking daily by age twenty-one, and shot up at age twenty-four. He shoots cocaine only, although he also uses alcohol, pot, glue and paint thinner, LSD, poppers, nitrates, opiates and tranquilizers. He doesn't share syringes, but does share other injection equipment. He gives his syringes to his sex partner after he's used them, and always cleans them with bleach except when he's lazy.

He has had one sex partner in the last six months, a woman and a drug injector. He grew up as a Jehovah's Witness, and he's been in

jail for four and one-half years and just got out last week (he's on parole). Up until last week he was a virgin. Then he had sex with a woman four times in one night. He used a condom because she didn't want to get pregnant.

January 30, 1990

A forty-two Native American woman lives alone on the streets. She is a high school graduate and has a six year-old child (who does not live with her). Her major source of income is from illegal activities.

She first used alcohol at age thirteen, was drinking daily by age fifteen, and first shot up at age eighteen. She shoots cocaine and heroin and uses alcohol. She buys her syringes on the streets. She never uses a needle after someone, but does share cookers and cotton. She cleans syringes half the time with bleach and half the time with water.

She hasn't been in a drug treatment program for five years, and has only spent two weeks in jail. She hasn't had sex for three years: "when you do drugs, the urge is not there." She's never had an AIDS test because she's afraid she'll find out she's infected.

February 1, 1990

A twenty-nine year-old white man has lived on the streets for thirteen years. He has an eighth grade education, and gets money from panhandling.

He first used alcohol at age sixteen, and was drinking daily by age eighteen. He first shot up at age sixteen. He injects everything

-- heroin, cocaine, amphetamines, opiates, PCP, and LSD. He even injects wine and vodka, not because he thinks he'll get high faster, but because he identifies himself as a "needle freak."

He shoots up at least four times a day. He shares with any and everyone. Because he has tuberculosis, people make him use the needle last. He shares syringes with his running partner, friends and strangers.

He gets his needles from friends and on the streets. He used to get them out of trash cans behind doctor's offices. In the past six months, he used a new needle maybe twice. He doesn't clean them because he's "lazy." If he finds a syringe on the ground, he's flush it with water.

He's been in detox about two hundred and fifty times, in a residential program twice, and in a methadone program once. He was recently in jail for a year, is on parole, and is facing criminal charges.

He hasn't had sex in the past six months -- it doesn't appeal to him anymore because of the dope. He hasn't had an AIDS test, but is sure he's infected. He's had hepatitis, tuberculosis and gonorrhea in the past six months, lost thirty to forty pounds recently, can't sleep, and has night sweats.

February 6, 1990

A twenty-one year-old Native American man is a high school graduate and a Catholic. He has cancer (a tumor in his head). He's been told for months that he's going to die in one month, so he

doesn't go to the doctor anymore. He's staying with his girlfriend. He has a three year-old child who doesn't live with him. His main source of income is illegal activities, although he also gets money from the Bureau of Indian Affairs (from selling his land).

He first drank at age eight, and was drinking daily by age twelve. He first shot up at age eight -- his cousins introduced him to shooting heroin. He shoots heroin, cocaine and opiates, and uses pot, alcohol, crack, PCP and peyote.

He shares syringes and injection equipment with his running partner, friends and acquaintances. He rents and borrows used syringes. He cleans syringes with a variety of methods; bleach, alcohol, water, or boiling them in a pressure cooker.

He has been in two prison treatment programs. He has been in prison for the past five years -- since age sixteen. He has been out for one month.

He had sex with two men while in prison, and has sex with maybe forty-five women since he's been out (with sixteen women last week alone). He uses a condom about half the time. He doesn't use one if he knows the partner.

He's pretty sure he has AIDS. If he tests positive, he plans to go back to jail; he wants to be responsible and not infect anyone else.

APPENDIX B

HISTORICAL OVERVIEW OF THE NEEDLE EXCHANGE PROGRAM

Overview

As my summary will indicate, the process of establishing a needle exchange program began as a matter of direct problem-solving by our social service agency, operating from a harm reduction perspective. Over time this process grew to be another matter altogether involving not only social service concerns, but research concerns, inter-agency relationships, political considerations, community and neighborhood problems, and legal obstacles. I have summarized this engrossing process from my own perspective as one of its central players. I have served as the Executive Director of Outside In since1980.

Winter 1987. Two women tested seropositive for HIV in Outside In's Prenatal Clinic. It was devastating for them and for Outside In staff. One had an abortion. One moved out of state and we never heard from her again. One was a former drug injector. One had been a partner of a drug injector.

Giving away syringes seemed a logical response to the growing HIV epidemic. I spoke with a local AIDS physician and researcher, James Sampson M.D., who said that Amsterdam gave them away on

an exchange basis. This made syringe distribution more palatable for the Portland community.

As Executive Director of Outside In, I called around the United States to find a needle exchange program so that I could model Outside In's program after an existing one, but couldn't find one. People in San Francisco said there weren't any, and referred me to two researchers in New York, Don C. Des Jarlais Ph.D. and Samuel R. Friedman Ph.D., who were interested in needle exchange.

When contacted, Drs. Des Jarlais and Friedman said this would be the first needle exchange program in America, and would be closely watched by other cities considering such programs. It was therefore important to set it up as a research project, and they would help find the research money for it.

Spring 1987. The concept of a needle exchange program was presented to Outside In's Board of Directors. The Board approved the program unanimously.

I attended the second International Conference on AIDS held in Washington D.C., partly to meet with Drs. Des Jarlais and Friedman. We talked to staff from the Centers for Disease Control. They expressed interest in funding it as a research project. However, the federal government soon issued their first ban (in 1987), on the use of federal funds to support needle exchange programs.

Winter 1987. Don Des Jarlais and Sam Friedman wrote a proposal to the American Foundation for AIDS Research (AmFAR) for funding for needle exchange at Outside In. AmFAR agreed to fund

the program (as a research project), and the program was scheduled to open July 1, 1988.

June 1988. I flew to New York for a national press conference set up by AmFAR, and flew back to New York several days later to appear on the Today Show. News of the opening of the Needle Exchange Program was on the front page of the Oregonian, the Washington Post, the Boston Globe, and the Los Angeles Times. The phone calls and media attention were overwhelming.

June 1988. St. Paul Fire and Marine, Outside In's insurance company called to notify us that they were canceling our insurance. I had notified Outside In's local insurance broker earlier that year that we intended to start the exchange, and we asked if the agency needed additional insurance. She said no, as she thought it could be covered as part of our clinic operations. The home office in St. Paul had not been notified, however. The home office uses a clipping service, which notified them about the exchange because of the national media coverage, and the home office decided to cancel our insurance.

The insurance commissioner of Oregon, Mr. Ted Kulingowski, requested that St. Paul officials fly to Oregon and meet with him. They did, but he was unsuccessful in changing their minds. Outside In's attorneys held a telephone conference with St. Paul's attorneys, but again were unsuccessful in changing their minds. St. Paul was asked to simply continue coverage for the current Outside In programs and allow the agency to obtain separate coverage for the exchange elsewhere. They refused. If Outside In opened a needle

exchange program, they would cancel insurance coverage for all agency programs. Outside In's broker wrote St. Paul, suggesting that a separate entity be formed to run the exchange which would rent space in Outside In's building. This separate entity would not be covered by St. Paul, but would obtain insurance elsewhere, would carry a $1,000,000 policy, and would name Outside In and St. Paul as additional insured. St. Paul wrote back that they would "cancel the Outside In policies if a needle exchange program connected in any way with your operation is implemented." (letter of August 8, 1989). Outside In delayed opening the program.

July 1988. I began searching for other insurance companies. The agency was limited to those few companies who provided medical liability coverage for clinics.

A company was found that would insure Outside In, including the needle exchange program, provided we used a single use, non-reusable syringe. I became a world-wide expert on single use syringes, and tracked down at least ten prototypes of single use syringes. The problem was that none were being mass produced anywhere in the world, which made their cost prohibitive ($2 per syringe compared to 10 cents for a reusable one).

August 1988. The best single use syringe seemed to be one designed in England. The designers thought they had a manufacturer lined up in Germany, and would be in production in three months. The deal fell through.

September 1988. A single use syringe designed by Stephen Glazier was found in New York. I contacted Glazier, who said he had

the financing to produce and market the syringes, and he would give them free to the needle exchange program. He estimated that they would be available before Christmas.

I planned to open the exchange January 1, 1989. The deal for free syringes fell through. I was told they would cost forty to sixty cents each. I ordered 5,000. They were never produced.

December 1988. I called Peter Evans at the World Health Organization (WHO) in Geneva, Switzerland. WHO was funding several countries to develop single use syringes to administer vaccines in developing countries to prevent re-use of syringes by clinics and hospitals. He gave me several leads.

January 1989. Another single use syringe was found in New York, this one designed by Nick Sunday. He had a patent and was trying to find a manufacturer.

I tried another approach: I called Becton Dickinson, the largest manufacturer of syringes in the United States, and asked if they would manufacture the English prototype. They said no, as they didn't want to pay patent fees, and were developing a model of their own. They asked if they could fly out and show their model to a focus group of homeless youth drug injectors at Outside In.

They came to Outside In January 26th. The focus group gave it mostly favorable reviews (e.g. "it's new, and I'd like to be the first on my block to have one"). While they were meeting, other street youth at the agency broke into the car being used by Becton Dickinson representatives.and stole their luggage. Becton Dickinson never manufactured the syringe.

March 1989. Inject Syringe was the first single use syringe to be tested by WHO, at Baxa Europe in Denmark. They told me they could deliver up to 30,000 by April, and the cost would be $1 per syringe. The deal fell through.

May 1989. It became clear that mass production of a single use syringe was at least several years away. Further, because these syringes were not being designed for drug injectors, they were likely to be problematic for our use. I contacted another insurance broker, and searched again for an insurance company.

Outside In tried piecing together insurance packages. I found a carrier to insure everything but the clinic (including the Needle Exchange Program), and another to cover the staff physician and nurses. However, there were potential gaps in coverage, so I abandoned this possibility.

An insurance company was found who would insure Outside In, including the needle exchange program, for $50,000 to $60,000 annually. The cost was prohibitive for my small agency. We had been paying $15,000 per year. The grant from AmFAR to pay for the exchange and the research was only $50,000.

I gave up. I asked the County Health Department to operate the program. I wrote to the Board of County Commissioners, reminding them that they were in charge of public health, requested that they operate the program, and offered to give the health department the $50,000 AmFAR grant. I believed the program ought to be implemented regardless of whether Outside In could operate it.

The Board of County Commissioners wanted to see the program implemented. The County Health Department did not want to operate it themselves: (1) it would cost them far more than $50,000, and (2) running the program with tax payer money would invite more controversy than was desirable. They suggested that the Board of County Commissioners give Outside In $35,000 to pay for the additional insurance costs.

I said no to the deal. It actually made a lot of sense to me for the health department to operate the program, and I really had given up. The Board of County Commissioners offered Outside In an additional $15,000 to supplement the cost of the research. I said yes.

June 29, 1989. The Multnomah County Board of Commissioners approved $50,000 for Outside In's Needle Exchange Program. $35,000 was for insurance costs, and $15,000 for research costs.

June 1989. An attorney, Mr. John DiLorenzo, attended the Commissioners budget hearing on June 29, 1989. He owned the Gentry Apartments, located one and a half blocks from Outside In on southwest Salmon and Twelfth. He asked the county commissioners to delay approving the money for the Needle Exchange Program on the grounds that he had concerns that he wanted addressed first. His concerns included a fear that the Exchange would attract drug injectors to the neighborhood, and a concern that he did not know whether Outside In was in compliance with Oregon's new infectious waste disposal regulations. I assured the commissioners that Outside In was in compliance with state regulations, and that I would be

happy to meet with Mr. DiLorenzo about his concerns. The commissioners approved the funds.

July/August 1989. I met with Mr. DiLorenzo and attempted to address his concerns. He wrote me a letter August 18, 1989 saying he wanted Outside In to enter into a contract with him personally. We were unable to resolve our differences, however, into a mutually agreeable contract.

Example: I said Outside In would not do a massive advertising campaign or use billboards. Mr. DiLorenzo said we could do no advertising of any kind.

Example: I offered to walk over and dispose of any syringes Mr. DiLorenzo would find. He required that Outside In be on call for him twenty-four hours per day, seven days per week, and respond within fifteen minutes during business hours and within one hour after business hours.

Example: I offered to conduct a daily (Monday through Friday) syringe search in the immediate neighborhood. Mr. DiLorenzo wanted the search done of a four block area twice per day (taking an estimated three hours per day).

Mr. DiLorenzo repeatedly called the Health Department and the county commissioners with concerns that Outside In wouldn't contract with him, and that no one would be monitoring the Needle Exchange Program. He solicited Mr. Ron Spears, manager of a building on twelfth and Salmon (owned by the Schnitzers, a prominent local family) to call the county and say the Schnitzers were concerned. He or Mr. Spears called Lincoln High School (across

the freeway from Outside In) and asked them to complain to the county. The school refused.

Mr. DiLorenzo talked to Jacob Lewin at KINK radio and told him he wasn't opposed to the Needle Exchange Program, but just wanted Outside In to contract with him. KINK aired an editorial saying they shared the concerns of Mr. DiLorenzo and asked the county to go slowly and make more stipulations about the contract between Outside In and Multnomah County.

September 1989. The contract with Multnomah County was still delayed. The county said they would state in their contract with Outside In that Outside In would negotiate with the neighbors in good faith. I said that was fine. Mr. DiLorenzo said the statement must read that Outside In and the neighbors must resolve issues to their mutual satisfaction. I refused to agree to this.

October 5, 1989. Mr. DiLorenzo called the county's attorney. He wanted to make sure Multnomah County was a co-insured of the Needle Exchange Program, and implied clearly that he intended to sue.

This tactic backfired. The county bailed out and decided to have no involvement with, and do no monitoring of, the Needle Exchange Program. They gave Outside In a contract for $35,000 for insurance and $15,000 to supplement the research and asked for a final report. They told me they expected me to operate within the law and good luck. They told John DiLorenzo that if he had concerns about monitoring of the program, he needed to address them with AmFAR.

Summer 1989. An insurance broker found an insurance company, Clinic Mutual, which specialized in insuring clinics. They offered reasonably priced liability insurance. They were a small company in Tennessee. They said they would consider coverage for Outside In, but then decided not to.

I called Dr. Merv Silverman, the Chair of the Board of AmFAR. He called Clinic Mutual on our behalf. They said they're too small to take a risk on an unknown program such as a needle exchange program.

However, they sent a risk manager to Outside In September first for a site review. He then recommended Outside In for admittance. On September 19, Clinic Mutual accepted Outside In for coverage.

October 17, 1989. The Board of Directors of Outside In approved switching insurance companies. Outside In canceled its policy with St. Paul Fire and Marine. St. Paul wrote stating that "We are disappointed that, in spite of even President Bush and HEW Secretary Sullivan's statements questioning the validity of needle exchange programs, the clinic is going ahead with this project." (letter 8/3/89)

October 25, 1989. Outside In still did not have a contract with Multnomah County. I called Howard Klink, the county's Public Relations Director, and said I'd received numerous calls from the press regarding why we hadn't started the program. He said he'd find out what the holdup was and advise the county they had a potential media problem.

October 31, 1989. Outside In received a signed contract from Multnomah County..

November 1, 1989. Outside In opened the Needle Exchange Program. The media were not informed, as we feared no clients would come if television crews with cameras were waiting to film them. On November 1, two drug injectors used the Exchange. Both were youth (over age eighteen) from Outside In's Homeless Youth Program.

November 2, 1989 . Day two. Three clients came, all from Outside In's youth program. Staff turned away a seventeen year-old female because she was too young to meet our legal requirements. She cried and asked what she was supposed to do to protect herself.

November 1989. The state laboratory called. They refused to process our hepatitis B tests without full names on each test. We could not give them names, as we must protect the anonymity of our clients. We needed the hepatitis tests done for the research component. I called Robert O. McAllister, Ph.D. of the Oregon Health Division's HIV Program. He and David Fleming, MD arranged for the state lab to do core antibody tests without names, but not the surface antigen test. The core antibody test would tell us if the person had been exposed in the past two years. It wouldn't tell us if the person was currently infected. If clients wanted that information, we would refer them to a county clinic for an additional test.

November 3, 1989 . Day three. An Outside In homeless youth client came to the Exchange. He said he was not a drug injector, but

wanted to start shooting speed to lose weight. He was turned away, and an Outside In youth worker was asked to work with him.

November 6, 1989. Outside In called a press conference. A young woman who was a client of the Exchange agreed to be filmed -- with a false name and with her face blacked out.

The community reaction was favorable with only two negative phone calls. One was from an elderly woman who said she was "upset we would let people like that in our organization." The second was from a woman who said she was concerned, and that giving out syringes was "like providing rooms for rapists to rape in." We received an additional call from a woman who was a partner of a drug injector. She had no opinion about the Exchange. She wanted advice on how to handle the emotional stress of living with a drug injector.

November 6, 1989. The First Unitarian Church, our neighbor and landlord called. They provide a pre-school at the church. Their courtyard is adjacent to Outside In's courtyard. The children playing in their courtyard found two syringes. One child picked one up.

A Needle Exchange staff person and myself went to the church and thoroughly searched the courtyard. We went through the garbage, found the two syringes and put them in a sharps container. We made sure the child had not been stuck. I apologized and said I would build a barrier to the courtyard. It took a carpenter two days to do so. For those two days I personally went to the church each morning and searched the courtyard for syringes.

December 11, 1989. The Oregonian printed a letter to the editor by Mr. Bill Russell of the Union Gospel Mission. He said that the Exchange is "aiding and abetting" drug injectors, and the Exchange is operating illegally because we give out cookers which are classified as drug paraphernalia under the new paraphernalia law.

Ed Reeves, an attorney who had been advising us about the Needle Exchange Program was contacted In order to classify as drug paraphernalia, cookers must be "marketed for use or designed for use" for drug injectors.

Outside In gave out bottle caps (along with other items needed for sterile injections), which are not marketed or designed for use by drug injectors. However, they come with a cardboard liner which we pop out. Our attorney said stop giving them out, and we did. We could give out spoons since we wouldn't be altering them in any way, but the cost was prohibitive. We decided not to give out cookers.

December 18, 1989. A man named Mr. Arden called the clinic. He said he was mugged in front of the Gentry Apartments (where he lives) three or four days ago. The Gentry Apartments are located a block from Outside In and owned by Mr. DiLorenzo. He thought the mugger injected him. He wanted to see a doctor at Outside In. The Clinic Coordinator refused, and encouraged him to go to a hospital emergency room.

December 27, 1989. The Union Gospel Mission wrote to Gladys McCoy, Chair of the Board of County Commissioners and asked her to withdraw county support for the Needle Exchange Program.

January 21, 1990. Portland Medical Pharmacy called. The pharmacist wanted to know if he could send drug injectors to the Exchange. He's supportive of the program. He sells syringes in packs of one hundred only, which some drug injectors can't afford. We told him yes.

January 29, 1990. The Needle Exchange Program received three positive HIV test results today. There have been a total of nine positive results in the past three months. It is difficult on staff. I did the first three-month follow-up interview today. I asked how the client currently obtained his syringes. He said "here, at the Needle Exchange." The struggles seemed worthwhile.

February 21, 1990. We decreased the amount of subject fees from ten dollars to five dollars because the lobby had become a zoo. Many people are more interested in earning the money than in using the Exchange. Last night twenty-four people came in and we did fifteen interviews. We had to set up an over-flow lobby in a back room.

March 5, 1990. Outside In received five positive HIV test results today. The cumulative total is now sixteen.

March 14, 1990. A drug injector came in who was very drunk and high. He wanted to be interviewed and earn the five dollar fee. The staff person told him he was too high, but he could come and be interviewed tomorrow if he was sober. He grabbed the staff person by the shirt, then left.

A buzzer was installed in the Exchange room that buzzed at the reception desk. We added a note to the intake form stating "if you're

under the influence, you may not be allowed to participate in the study." I set up a training for staff on how to de-escalate violent situations and how to handle angry clients.

March 27, 1990. There are now a total of twenty-one positive HIV test results. Three were for people not participating in the study. Two additional tests were equivocal.

March 27, 1990. Outside In started a support group for drug injecting clients. The group was for drug injectors who are not ready for treatment. The focus of the group was safer injection practices rather than treatment.

The group never worked well. People were too dissimilar: the non-street people didn't feel they had much in common with street people. The long-time older heroin users didn't have much in common with young cocaine users.

June 1991. Multnomah County again put fifty thousand dollars in the upcoming 1991-1992 budget of the county health department for the Needle Exchange Program.

August 1991. Multnomah County had an unexpected shortfall. Two months into the fiscal year, the county health department eliminated all funding for the Needle Exchange Program, effective immediately.

Fall 1991. Outside In sent out a mailing to appeal to the community for funding for the Exchange, and raised $5,000.

An emergency grant for $25,000 was requested from AmFAR. While pending, I appealed directly to the Board of County

Commissioners for $12,500 in emergency money. The commissioners granted Outside In the $12,500.

January 1992. AmFAR granted Outside In the emergency request of $25,000. On January16 I requested five minutes on the agenda of a county commission meeting. I gave them back their $12,500. They were very surprised -- it was the first time anyone had ever given money back to them.

Spring 1992. The Needle Exchange Program again had no funding source for fiscal year 1992-1993. I talked with people at the county, and called around the country. In the end, Photographers and Friends United Against AIDS in New York granted Outside In $20,000, and Multnomah County granted the program $5,000.

Spring 1993. The Needle Exchange Program again had no funding source for fiscal year 1993-1994. I wrote another grant proposal to AmFAR. Despite high ratings from grant reviewers, AmFAR declined to continue funding for the Exchange. The position of the Board of AmFAR was that as a foundation, their purpose was to provide seed money to start needle exchange programs in communities which should then be picked up by local governments. Outside In again appealed to the Multnomah County Board of Commissioners.

June 29, 1993. The Board of County Commissioners set aside $35,000 in contingency funds for Outside In's Exchange, but did not grant the funds outright to this agency. They asked me to request funding from the City of Portland based on a report from the city's

Bureau of Environmental Services which recommended support of Outside In's Exchange in order to reduce the number of discarded syringes in streets and rivers.

July 1993. City Commissioner Mike Lindberg oversaw the Bureau of Environmental Services. He said he would support granting Outside In $10,000 provided that it not be taken from his Bureau of Environmental Services budget, and contingent on the county putting up the other $25,000. Commissioner Gretchen Kafoury agreed to support his proposal. I needed one more vote, preferably the mayor's.

I met with Mayor Vera Katz. She said she would support it, and would take the money out of city contingency funds. I was to consider these funds to be one-time-only funds.

December 1993. The County Health Department agreed to put $40,000 in their base departmental budget for Outside In's Needle Exchange Program for fiscal year 1994-1995. For the first time, I did not have to go directly to the Board of County Commissioners and request funding.

March 1994. Funding for the Needle Exchange Program is not in the city's proposed 1994-1995 budget. A staff person from the Conference of Mayors called me. She said their annual meeting is to be held in Portland in June 1994, and that fifteen mayors would like to visit the Portland Exchange.

I called the mayor's office and told them. The $10,000 was put back in the city budget for the Exchange.

March 1990. Outside In wanted to open a second Exchange site in Old Town, the area of Portland which is a hang-out for many drug injectors. Burnside Projects (now Transition Projects) was approached, and negotiations begun for space in their shelter in Old Town. The Executive Director, Jean DeMaster agreed to rent space to Outside In, but when she presented the proposal to her management team, the alcohol/drug treatment people on her staff opposed it. In the end they declined to rent to us, although they were apologetic as they have experienced NIMBYism themselves.

Outside In approached Sisters of the Road Cafe in Old Town and requested that we rent space and operate the Exchange during hours the cafe was closed. Their Board of Directors said no. They had been experiencing serious problems with their neighbors relating to drug injecting clients, and had just resolved them. They were very supportive and regretful, and asked if there was any other way they could help Outside In.

We approached realtors to lease a space. None were interested in our business. We drove around Old Town, copied down phone numbers of places to rent and made phone calls. We found no one who was willing to lease to us.

Ben and Tres, the managers of the X-Ray Cafe on Second and Burnside contacted us. They had heard we were looking for space and offered their cafe. They talked with the owner of their building and obtained his approval. The cafe had a hall and room with a separate entrance adjacent to the cafe that they offered to Outside In for $40 per month.

The second site at the X-Ray Cafe opened February 18, 1992. It closed August 31, 1992 because Ben and Tres wanted to use the space for something else. They contacted us several months later, and re-offered the space to Outside In. We re-opened the second site on December 4, 1992. The X-Ray Cafe (and the second site of the Exchange) went out of business in August 1994.

Outside In opened a third site in December 1992 in North Portland. A county HIV outreach worker offered joint use of his van for outreach and needle exchange. It was parked at a fixed site in the African-American community two days per week.

In the spring of 1994, Outside In sent a proposal to the Black United Fund requesting $5,000 to open a fixed indoor site in northeast Portland. They granted Outside In $3,000 for this purpose. Outside In found a space in a building on Killingsworth near Martin Luther King Boulevard. The man leasing us the space also obtained the consent of the other tenants in the building for the Exchange. The rent was a little more than our budget allowed. We contacted Multnomah County, and the county agreed to pay Outside In $1,500 per year so that their HIV outreach workers could also use the site. The site was scheduled to open mid-July.

However, some of the neighbors organized to keep the Exchange from opening. They contacted the building owner and were successful in getting her to deny us space in the building. The man who leased us the space was not the building's owner (as we thought) but was sub-leasing space to us. The neighbors also contacted the county commissioners. The commissioners were

supportive of Outside In, and Commissioner Hansen in fact contacted the Health Department to arrange space for the Exchange in a county clinic building on Martin Luther King Boulevard. This Northeast Needle Exchange site opened November 1994.

APPENDIX C

UPDATED RESEARCH ON INTERNATIONAL NEEDLE EXCHANGE PROGRAMS

Needle exchange programs first began in the Netherlands in 1984. Programs have now been established in nearly every country in Europe, Canada, Australia, New Zealand and South America. Presented here are data from the Netherlands, Australia and Canada.

The Netherlands

The Netherlands originated the "harm reduction" approach to drug injection. That is implementation of policies and programs that are beneficial to both drug injectors and to communities, rather than an insistence on abstinence and the "war on drugs" that is the approach of policy-makers in the United States.

The Amsterdam Needle Exchange Program began in 1984 in response to an outbreak of hepatitis B. It was started at the insistence of Amsterdam's "Junkiebond," a union of drug injectors. There are currently fourteen exchange sites in Amsterdam, which exchange approximately one million syringes annually.

The Amsterdam studies are interesting in that while first reports indicated that drug injectors using needle exchange programs significantly reduced risky needle use behaviors (Buning 1988), reports soon after were cautionary about attributing change in risky behaviors solely to needle exchange programs (van den Hoek 1989).

A recent report by van den Hoek and Coutinho (1994) concluded that although drug injectors in Amsterdam have changed their behaviors, this change cannot be attributed to any one program or intervention.

van den Hoek and Coutinho's study covered the period from 1986 to 1992, and showed that drug injectors using needle exchange programs did reduce borrowing syringes (from 51% to 20%), lending syringes (from 46% to 10%), and re-using syringes (from 63% to 39%). However, drug injectors not using needle exchange programs made reductions in their needle-use behaviors at the same rates. The authors concluded that Amsterdam's prevention programs as a whole were responsible for change in behavior. These programs included not only needle exchange programs, but media campaigns, legal sale of syringes, outreach and counseling, and methadone programs. That these programs are effective may be demonstrated by the fact that the HIV seroprevelence rate has remained constant for seven years (since 1986) at about 30%. As demonstrated by New York, Edinburgh, Scotland and Bangkok, Thailand, once the infection is established in a population, it can quickly rise to 40-50% (Des Jarlais 1987, Des Jarlais 1992b).

Australia

The Australian experience is of interest because of the unusually low HIV infection rate among drug injectors. Wodak (1994) reports that seroprevelence studies conducted between 1985 and 1991 reported rates at 5% or lower. This is unusual because HIV entered the drug injecting population in the early 1980's, the

infection rate is high among the gay population, and there are close links between the gay community and the drug injecting community. Nevertheless, HIV infection rates among drug injectors remain at 5% or less.

In 1985, politicians declared a public policy of harm reduction. Needle exchange programs were begun in 1986, and had expanded to all major cities by 1988. Exchanges in Australia are funded and supported by the government. Syringes are legally available in pharmacies. Education campaigns began in 1987. Capacity in Methadone treatment programs was expanded by more than six times from 1985 to 1993, and capacity is currently 13,000.

Three to four million syringes are exchanged annually in Australia. The only negative effect of Exchanges reported by Wodak (1994) was that for a brief time a high number of syringes were discarded on the streets surrounding an exchange site. This was dealt with by setting up special disposal boxes in public places, and by giving special individual disposal containers to drug injectors.

Although clients of needle exchange programs reduced risky needle use behavior over time, again this cannot be attributed solely to the exchange programs. Multiple HIV prevention programs were implemented at about the same time. The perception is that together they account for the continued 5% or less infection rate among drug injectors.

The perspective of Australia politicians is that there will likely never be "proof" that programs such as needle exchanges work, and such proof is not regarded as necessary before implementing HIV

prevention programs, given the consequences of an epidemic. The debate in Australia is not whether syringes ought to be legal, but whether drugs ought to be. Prohibition is increasingly seen as "expensive, ineffective, counter-productive and impairs the effectiveness of efforts to control the spread of HIV." (Wodak. 1994). Their goal, unlike that of the United States, is to reduce the harmful effects of drugs, not to simply reduce drug use.

Canada

Needle exchange programs started in Canada in Vancouver, British Columbia in January 1989. By 1991, there were eight such programs across Canada. These programs (except for Vancouver) are supported and funded by the federal government.

The Canadian experience was similar to that of the Netherlands and Australia in that although evaluation of programs by Millson (1994) showed that clients of exchanges reduced risky needle use behaviors, change could not be attributed solely to exchanges but rather to comprehensive HIV prevention programs, including needle exchange programs.

Toronto's Exchange, called "The Works," was evaluated from 1989 to 1992. Millson reports that there were significant reductions over time in sharing syringes, both giving them away after use, and borrowing them. By 1992, 65% of drug injectors did not share syringes, compared with 55% in 1989. Use of bleach to clean syringes also increased significantly, from 51% in 1989 to 74% by 1991. Over a three-year period starting in 1989, there was no

statistically significant change in the HIV infection rates among drug injectors.

Needle Exchange CACTUS-Montreal opened in Montreal in 1989 (there are now eight exchange sites in Quebec). The evaluation of the CACTUS-Montreal Exchange by Hankins (1994) showed that the program attracts a particularly high risk male population. Attenders of the Exchange were compared to a group of non-attenders. The HIV infection rate among attenders was 20.5%, as compared to 4.8% among non-attenders. The evaluation also showed a decline in loaning syringes from 31% to 20%, and an increase in bleaching borrowed syringes from 20% to 31%.

As in other countries outside the United States, needle exchange is seen as simply one component of a comprehensive HIV prevention strategy. The view is that all these programs together influence behaviors of drug injectors -- whether or not they are clients of any one particular program.

APPENDIX 4

UPDATED RESEARCH ON UNITED STATES NEEDLE EXCHANGE PROGRAMS

Since the two-year evaluation of the Needle Exchange Program at Outside In in 1991-1992, evaluations of such programs elsewhere in the United States have been conducted. Many of their findings substantiate findings of the Outside In study. There are currently 33 needle exchange programs in the United States, but not all of them have evaluation components. Presented here are data from four cities with the most extensive or unique studies.

New Haven

Kaplan (1994a) evaluated the New Haven Needle Exchange by developing a unique syringe tracking and testing system. Each client was assigned a code number, as was each syringe. Evaluators could then track whether a returned syringe was brought back by the client to whom it was given.

Syringes were tested for presence of HIV. Syringes from the Exchange were compared with syringes collected from shooting galleries and other "street" sources. HIV was found in 50% of Exchange syringes, in 68% of "street" syringes, and in 92% of syringes collected from shooting galleries.

Kaplan formulated a circulation theory. The more frequently drug injectors used the Exchange, the less syringes were in

circulation, and the less likely they were to be shared. Frequent users of the Exchange therefore have a decreased probability of HIV infection.

Syringes returned to the Exchange by the client it was given to were compared with syringes returned by a client to whom it had not been given. The latter were assumed to be shared syringes. HIV was found more often in shared syringes (53%) than in those not shared (43%). The evaluator then compared decreases in HIV prevalence in both groups of syringes over time. Using mathematical modeling, Kaplan estimated that the number of new HIV infections among drug injectors using the Exchange to be reduced by 33%.

The importance of this study is that it does not rely on self-report data. It attempts to verify by empirical means a decrease in sharing of syringes among clients of a needle exchange program. The use of mathematical modeling to estimate the reduction in new HIV infections has been criticized because of possibly questionable underlying assumptions such as a shift in client demographics or behavior. However, subsequent examination of this by Kaplan (1994b) supported the original findings that estimated reductions in HIV were a result of decreased circulation time of syringes.

Other studies of residual blood in syringes show that the amount of blood and even the type of syringe affect the extent to which they are contaminated with HIV. Chitwood (1990) studied syringes in shooting galleries in Florida. Syringes with visible amounts of blood were four to five times more likely to be contaminated with HIV than syringes without visible blood.

Gaughwin (1991) found that 2ml syringes were seven to ten times more likely to have HIV than 1ml syringes. This latter finding could have implications for needle exchange programs. While most exchanges in the United States give out primarily 1ml syringes, many offer a variety of syringe and needle sizes. It may be that restricting syringes to 1ml only is good public health policy.

New York

The epidemic of HIV among drug injectors affected New York more than any other city in the United States. As reported by Peone (1994), it is estimated that half of the estimated 200,000 drug injectors in this city are HIV positive.

New York state is one of the states with prohibitions against the sale, distribution and possession of syringes. However, the law does allow the State Health Commissioner to declare a state of emergency and grant a waiver to the law. The Commissioner did grant such a waiver to operate a pilot program in 1989, and a larger program starting in 1992.

The one-year pilot study and needle exchange program began in November 1988 as a small-scale evaluation project. The program had many barriers that prevented most drug injectors from using it. For example, clients had to be on waiting lists for drug treatment programs, and the Exchange was located in a government building next door to a police station.

The program met with strong opposition, both from politicians and from a segment of the African-American community who

characterized the program as promoting genocide in that community. The program was shut down in February 1990 with the election of a new mayor.

In response to closure of the program, several illegal needle exchange programs were started in 1990 by ACT UP (AIDS Coalition to Unleash Power). In 1992, the State Department of Health declared that the HIV epidemic among drug injectors was creating a public health emergency, and granted a waiver for syringe exchange programs conditional on their participation in an evaluation. Five exchanges were then funded by the American Foundation for AIDS Research in 1992, along with an evaluation component.

The evaluation was the most extensive one done to date in the United States, with over 2,500 drug injectors interviewed over the two-year study period. This study by Peone (1994) showed that needle exchange programs were able to attract large numbers of drug injectors. Approximately 1,000 drug injectors had used the illegal exchanges. After legalization in 1992, over 26,000 drug injectors used the Exchanges between then and September 1994.

Data from interviews with drug injectors using the Exchanges was compared to data collected between 1990-1993 from drug injectors using the Beth Israel drug detoxification program and a storefront used for street-based research. There were significant reductions in risky needle use behaviors: renting or purchasing used syringes declined by 75%, using used syringes declined by 62%, giving or lending used syringes to others declined by 50%, and cleaning with bleach increased by 21%.

Saliva samples were collected with each interview, and tested for HIV. These samples showed a new infection rate of 2% per year, in contrast to other studies of HIV infections in drug injectors in New York which showed new infection rates of 4% to 8% per year. These results indicate that syringe exchange programs in New York reduced the incidence of HIV among clients by at least 50%. (Des Jarlais 1994).

San Francisco

California is also one of the states which prohibits the sale, distribution and possession of syringes. A group called Prevention Point started an illegal needle exchange program in November 1988. The program was (and is) a fairly large-scale operation. In 1989, approximately 1,000 syringes were exchanged weekly. A year later, over 4,000 syringes were exchanged weekly (Guydish 1993). By October 1992, 13,000 syringes were exchanged each week (Watters 1994).

Watters (1994) conducted a 5.5 year evaluation of the Exchange, from December 1986 until June 1992. The study looked at many of the same questions as did the Portland Exchange. It evaluated whether drug injectors would use the Exchange, whether use of the Exchange would reduce sharing of syringes, whether frequent attenders would reduce risky behaviors more than infrequent attenders, and assessed the value of removing possibly contaminated syringes from the streets.

Drug injectors did use the Exchange -- despite the fact that it was illegal. The number of drug injectors using the program increased steadily over the 5.5 years to 16,000 during a six-month period in 1992. During the study period, 11 semi-annual surveys were administered to drug injectors either on the street or in treatment programs. Between 1989 and 1992, reported use of the Exchange increased from 50% to 61%.

The number of drug injectors who reported the Exchange as their primary source of syringes also rose steadily. By 1990, the Exchange was reported by study respondents to be the major source of syringes (45%, compared to 32% who bought them on the streets, and 23% who obtained them from other sources).

Over the study period, the average age of drug injecting clients of the Exchange increased from 35.8 to 41.6. Sharing of syringes by respondents decreased from 66% in 1987 to 35.5% in 1992. Using the Exchange 25 times or more in a year was a predictor of infrequent sharing: these regular users of the Exchange reported less sharing of syringes in the past 30 days than did infrequent users. (Other predictors of less frequent sharing of syringes were increased age, using condoms all the time, being African-American and receiving HIV testing and counseling.)

By 1992, San Francisco's Needle Exchange Program was collecting and safely disposing of 13,000 syringes weekly. As reported by Watters, Guydish conducted a study which tested residue in syringes collected from the San Francisco Exchange for HIV. HIV was found to be present in 7% of a random sample of 83

syringes. This means that in 1992, approximately 3,600 contaminated syringes were removed from the streets weekly by the Exchange.

Guydish (1993) evaluated the San Francisco Exchange to assess possible negative effects, specifically, whether it resulted in increased IV drug use, frequency of IV drug use, increased sharing of syringes, and an increased number of new drug injectors. Data on the number of admissions to drug treatment programs in 1987-88 was compared to admissions in 1989-90 (prior to and after the exchange began).

The percent of admissions of drug injectors decreased from 70.1% in 1987 to 66.7% in 1990. Frequency of injection did increase, although this reflects a trend that began several years before the exchange began. Sharing of syringes decreased from 36.5% in 1987 to 24.8% in 1990 (although this also could be attributed to a trend that began before implementation of the exchange). There was no significant change in the number of clients repeating treatment who switched from non-IV drug use to IV drug use. Finally, the areas of the city with the lowest increase in the number of admissions to treatment programs and the lowest increase in frequency of injection were those areas with needle exchange programs. The study concluded that needle exchange programs operating in San Francisco did not have negative effects.

Tacoma

Tacoma's Needle Exchange Program started in August 1988, and was the first exchange in the United States. It currently operates at four sites: a pharmacy, a mobile van, and two fixed sites on the street. Approximately 50,000 syringes are exchanged monthly.

A study by Hagan (1994) conducted interviews with 426 drug injectors using the Exchange and compared them with interviews of 159 drug injectors not using the Exchange. This study showed that drug injectors significantly reduced risky needle use behaviors after using the Exchange. Prior to the Exchange, 58% injected with used syringes, compared with 33% continuing to inject with used syringes after becoming clients of the Exchange. Prior to the Exchange, 72% passed on used syringes, compared to 46% after the Exchange.

Tacoma is located in Pierce County, one of four counties in the United States used for hepatitis surveillance by Centers for Disease Control. An epidemic of hepatitis B began among drug injectors in Pierce County in 1985. It continued until after the opening of the Needle Exchange Program, at which time it declined significantly, and rates have continued to be low.

From January 1991 to December 1992, drug injectors who were reported to have HBV were asked whether they had been clients of the Needle Exchange Program, and how long they had been injecting. Drug injectors with HBV were compared to a control group of drug injectors without HBV. Those with HBV were eight times more likely

to have injected for less than five years, and five times less likely to have used the Needle Exchange Program.

The reduction of risky needle use behaviors supports the findings of the Portland study. The hepatitis B study is of significance in that it helps corroborate self-report data.