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West Virginia needle exchange program

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WEST VIRGINIA NEEDLE EXCHANGE PROGRAM

ABSTRACT

Introduction: Needle Exchange Programs (NEPs) have been controversial aspects of public healthcare due to conflicting beliefs and opinions for public policies. NEPs allow Injection Drug Users (IDUs) the ability to exchange their used equipment for clean, unused supplies.

Purpose: The purpose of this literature review was to determine the effectiveness of needle exchange programs and the impact it has had on the reduction of HIV and viral hepatitis infections in people who inject drugs. It further explores if these strategies have had a positive impact on the reduction of HIV and viral hepatitis C in West Virginia.

Methodology: The hypothesis for this study was: the incorporation of the West Virginia Needle Exchange Program will create a substantial decrease in the number of diseases spread through needle sharing among injection drug users. The research was conducted through a literature review of needle exchange programs within the U.S. and West Virginia in Academic Search Premier, Business Source Premier, Point of View Reference Center, Alt-Health Watch, PubMed, and Google Scholar.

Results: The literature reviewed consisted of studies regarding the demographics of injection drug users and effectiveness of needle exchange programs across the U.S. The need for needle exchange is great in West Virginia. IDUs have accounted for 10% of HIV transmission cases in West Virginia, and the state has been ranked #1 for cases of Hepatitis C.

Discussion/Conclusion: NEPs have had success at decreasing the number of individuals sharing syringes and spreading diseases. It has been shown that the shorter amount of time injection drug equipment is in rotation, the less likely individuals are to share their syringes. Because NEPs are

new, further research is needed to determine the full effect these programs have on lowering the rate of diseases spread.

Key Words: advantages, disadvantages, effectiveness, HCV, HIV, needle exchange program, syringe service programs, United States, viral hepatitis, West Virginia.

INTRODUCTION

Needle exchange programs, also referred to as syringe services programs, have been controversial parts of public health policy due to contradicting beliefs on whether or not the federal government should provide funding for these programs (Lee & Griswold, 2017). Needle exchange programs have operated by exchanging used hypodermic needles, syringes, and other drug preparation tools for clean, sterile equipment and safely disposing used materials at no cost to the patients (Lee & Griswold, 2017). The United States has experienced continued increases in opioid abuse and overdose deaths, which has made many communities susceptible to an increase of human immunodeficiency virus (HIV) and hepatitis C virus among people who use intravenous drugs (Wolitski, 2016). The purpose of these programs has been to provide comprehensive harm reduction services, which has included: HIV/ hepatitis testing, referral to substance use disorder treatment and medication-assisted treatment, referral to medical, mental health, and social services, education about overdose prevention and safer injection practices. Additional services offered are preventative tools such as counseling, condoms, and vaccinations to protect against HIV, sexually transmitted diseases, and viral hepatitis (CDC, 2017a). Harm reduction services have been founded on the belief that certain human actions, including substance abuse, are likely to occur despite attempts to decrease or stop them. Taking steps to reduce the negative impact of these actions has been deemed important by health officials (“Harm Reduction,” 2008).

The needle exchange program has been considered controversial due to federal funding (Krisberg, 2010). Those in favor of the needle exchange program have cited national and international studies showing that similar programs have reduced the incidence of disease transmission along with cost savings. A study of the first U.S. based needle exchange program found that needle exchange programs were associated with greater than 60% reduction in the risk of contracting hepatitis B or C (Frakt, 2016). A study that was conducted to show the cost effectiveness of needle exchange programs by Nguyen, Weir, Jarlais, Pinkerton, and Holtgrave (2014) has shown that for every dollar invested on needle exchange programs can save at least \$6.00 in averted costs associated with HIV are saved. Those who oppose the program have focused on moral concerns that needle exchange programs encourage drug use and send a negative message to the public about government support of drug use by funding programs instead of condemning individuals who use drugs (MacNeil & Pauley, 2011). The federal government has banned the use of federal funds to support the operation of needle exchange programs since 1998 through an amendment to the Department of Health and Human Services Budget (Chavers, 2008, Des Jarlais, 2006). In 2009, there was brief support for the use of federal funds through the Consolidated Appropriation Act before the ban was reinstated after the passing of the same amendment to federal spending bill in December 2011 (Greene, Matin, Bowman, Mann, and Beletsky, 2012; Bush, 2008). During the federal funding ban, needle exchange programs were still in existence (McLean, 2001). In November 2007, the Centers for Disease Control and Prevention (CDC) reported 185 needle exchange programs operating across 36 states including the District of Columbia and Puerto Rico. Over 50% of programs were administered through non-governmental organizations, but operated with guidance from local

and state health departments. These programs also had assumed legality under various structures that differed from state to state (CDC, 2007).

When the needle exchange program ban was lifted from 2009 to 2011, there had been an increase in the number of needle exchange programs, with 221 programs that received state or local funding. There was also a decrease in HIV cases with a 48% decline from 2008-2014 of black and Hispanic/Latino population who injected drugs in urban and non-urban areas and 28% decline in HIV cases among white people who inject drugs in urban areas with no decline in nonurban areas between (CDC, 2016). There also have been studies that have proven that needle exchange programs have been cost effective compared to the cost to treat a patient with HIV. It has been shown that the cost of preventing HIV infection through needle exchange programs have ranged from \$4,000 - \$12,000 compared to treatment for a patient with HIV that can cost up to \$190,000 (Lee & Griswold, 2017).

Regardless of these positive outcomes that have been seen, there has been a continued increase in people who are injecting drugs in rural areas. In 2015, rural Indiana experienced a HIV outbreak. By January 23, 2015, there were 11 HIV cases, with 135 people diagnosed with HIV by April 21, 2015. Historically, this area had seen no more than 5 confirmed cases of HIV annually (Concord et. al., 2015). Also, there have been emerging cases in viral hepatitis infections within suburban and rural areas, in West Virginia specifically between the years 2011-2015 hepatitis C virus increased by 36%, which has called attention to the lack of preventative services in these areas. The CDC reported that in 2015 black non-Hispanics made up 19% and white non-Hispanics made up 54% of new people who injected drugs, with intravenous heroin use increasing more than 60% (CDC, 2016).

The increase that was seen between 2011-2015 of HIV, hepatitis C virus, and people injecting drugs in rural areas caught the attention of the federal government and in December 2015, Congress released the FY16 Omnibus Bill that partially lifted the ban on using federal funds for needle exchange programs (Wolitski, 2016) This bill required that funds could not be used to buy needles and syringes, but could be used for other services related to diseases such as HIV and viral hepatitis infections that result from intravenous use (Wolitski, 2016). The US Department of Health and Human Services released new guidelines in 2016 to help implementation of this change in law for facilities seeking to use federal funding to support needle exchange programs (CDC, 2017b). These guidelines stated that for the state, local, tribal, and territorial health departments to qualify for funding, these departments must consult with the CDC providing evidence that their jurisdiction has been either experiencing or at risk for significant increases in hepatitis C virus infections or an HIV outbreak due to intravenous drug use (CDC, 2017b).

The purpose of this literature review was to determine the effectiveness of needle exchange programs and the impact it has had on the reduction of HIV and viral hepatitis infections in people who inject drugs in the U.S. This literature review further explored if these programs have had a positive impact on the reduction of HIV and viral hepatitis in West Virginia.

METHODOLOGY

The conceptual framework for this reviewed was adapted from the steps and research used by Yao, Chu, and Li (2010). The framework shows the course of needle exchange program adoption

to address the problem of the spread of HIV and hepatitis C. To determine where using needle exchange programs improves the reduction of HIV and hepatitis C, an evaluation of their effectiveness was conducted. It follows a cyclic path that begins when issues arise within a community that call for review of its needs that are supported by formulation and implementation of a given solution. An evaluation of the benefits and barriers to needle exchange programs is necessary before implementing the solutions. After implementation, the needs of the community are reassessed, and the cycle begins again (Figure 1). As the purpose of this review is in the application of needle exchange programs in communities the framework is appropriate for this study.

The hypothesis for this study was: the incorporation of the West Virginia Needle Exchange Program will create a substantial decrease in the number of HIV and hepatitis C virus spread through needle sharing among injection drug users.

Step 1: Literature Identification and Collection

During the research, the following keywords were used: 'syringe service programs,' or 'needle exchange program,' and 'United States' or 'West Virginia,' and 'advantages,' or 'disadvantages' or 'effectiveness' and 'HIV,' or 'viral hepatitis,' or 'HCV'. By combining the keywords and including 'and' or 'or,' available topics were narrowed to meet criteria needs. Because the literature review was intended to study needle exchange programs across the U.S., it was important to not exclude various geographical areas. The research was conducted through a literature review of needle exchange programs within the United States and West Virginia in Academic Search Premier, Business Source Premier, Point of View Reference Center, Alt-Health Watch, PubMed, and Google Scholar. These databases were chosen based on their article

availability and volume of relevant sources. Reputable websites of the Center for Disease Control and Prevention were also studied.

Participants for semi-structured interviews were contacted via phone to set up an interview with the Kanawha- Charleston Health Department and the Cabell-Huntington Health Department Harm Reduction programs. Upon arrival, participants were given informed consent, and the nature of the research and interview was explained. The interviews were recorded by phone and were transcribed by the interviewers.

Step 2: Establishment of Inclusion Criteria and Literature Analysis

The literature included 30 references, 14 contained in results section whose information was relevant to the purpose of the study; review of these references met inclusion criteria. Only articles that were written between 2006 and 2017 were accepted during the review. Because the West Virginia needle exchange program is new, it was imperative to review the most recently published articles for the latest information concerning current needle exchange programs in the U.S. Articles written only in English were assessed. The literature search was conducted by BW, SJ, and validated by AC, who acted as a second reader and confirmed that the references met the research study inclusion criteria.

Step 3: Literature Categorization

The relevant articles were then categorized following the adopted framework. The main categories from this research framework that was used from literature were: Mutliperson Use Needle Exchange (identifying the number of persons who inject drugs share needles), Needle Exchange Program Locations and Demographics (evidence for need), Individuals with

Seroprevalence of HCV and HIV (rates of infection), and West Virginia's Need for Disease Control for PWID (specific to West Virginia). These categories were detailed in results subsections.

RESULTS

Multiperson Use Needles Exchange

Most needle exchange programs have used self-reporting to determine if Injection Drug Users (IDUs) have shared syringes. One study on the Baltimore needle exchange program used 3 Short Tandem Repeat (STR) genetic biomarkers to determine if IDUs were sharing syringes. A total of 315 IDUs participated having 2512 syringes exchanged and tested. After testing the syringes for Deoxyribonucleic Acid (DNA), the syringes were categorized as MultiPerson Use (MPU), Single Person Use (SPU), or No Detectable Genomic DNA (NDGD) if no genetic material was found (Shretha et al., 2006). If three or more alleles were found, the syringe was categorized as MPU. If two alleles were found, the syringe was categorized as SPU (Shretha et al., 2006).

After the return of syringes to be exchanged, it was found that 56% of syringes showed indication of MPU, 14% showed indication of SPU, and 30% were NDGD (Shretha et al., 2006). The shorter the amount of time the syringes were in circulation, the less likely the syringes were shared. Syringes kept for only 1 to 3 days were 48% likely to have been shared, whereas syringes kept for longer periods of time were 71% likely to have been shared. Individuals who returned only their used syringes were less likely to return syringes with MPU than those who returned their syringes for themselves and others who had obtained syringes (58% compared to 64%) (Shretha et al., 2006).

Needle Exchange Program Locations and Demographics

In March 2014, approximately 204 Syringe Service Programs (SSPs) were operating throughout the U.S. In a study conducted by the North American Syringe Exchange Network and Mount Sinai Beth Israel, 153 of the SSPs participated in a mail/telephone survey to determine the locations and demographics of the programs (Des Jarlais et al., 2015). The programs were broken into sections of Midwest, Northeast, Puerto Rico, South, and West. They were further differentiated into development environments of rural, suburban, and urban. The West had the highest number of rural SSPs with 30%, while the South had the least at 7%. The West had the most suburban SSPs with 15%, while the South and Puerto Rico tied for least amount at 0%. For urban SSP locations, the South had the highest percentage at 86%, while the West had the lowest percentage at 51% (Des Jarlais et al., 2015).

Within the rural, suburban, and urban categories, participants were separated into gender categories with rural consisting of 61% male, 39% female, 0% transgender. Suburban had 67% male, 32% female, and 1% transgender. Urban had 65% male, 31% female, and 3% transgender. White individuals made up most of all development environments with rural (80%), suburban (72%), and urban (56%). The least represented group was Asian/Pacific Islander with 1% in all environments. The most commonly used drug was heroin with rural (48%), suburban (69%), and urban (63%) (Des Jarlais et al., 2015).

Individuals with Seroprevalence of HCV and HIV

To measure the number of People Who Inject Drugs (PWID) who are Hepatitis C Virus (HCV) or Human Immunodeficiency Virus (HIV) positive and participating in a needle exchange program, a study was conducted through the Community Health Outreach Work to

Prevent Aids (CHOW) Project. CHOW, which has originated in Hawaii, has been one of the oldest statewide needle and syringe exchange programs in the U.S. (Salek et al., 2017). The study used 130 program participants and conducted on-site 30-minute interviews along with HIV and HCV seroprevalence tests. Among the participants, the most commonly injected drugs were heroin (62.3%), narcotics and opiates (44.6%), and amphetamines/methamphetamine (42.3%). Most participants were Caucasian (54.6%) followed by Mixed with 2 or more races (19.1%) (Salek et al., 2017).

The study used self-reporting from participants to determine how often they shared syringes with other PWID. Individuals could report receptive (using a syringe or equipment after another person) or distributive (using a syringe and then allowing someone else to use it) sharing (Salek et al., 2017). Regarding individuals who participated in receptive sharing, 93% of the sample stated they did not participate while 7% stated they conducted receptive sharing. For those participating in distributive sharing, 83.9% of participants stated they did not conduct distributive sharing while 16.2% reported distributive sharing. The most common motives for sharing syringes were sharing of drugs and not having clean equipment. Out of the 130 participants, 88 individuals had anti-HCV seroprevalence and 3 had HIV seroprevalence (Salek et al., 2017). It has been estimated that approximately 2.6% of individuals aged 13 and older in the U.S. have injected drugs (Lansky et al., 2014). PWID have been estimated to account for 22% of the individuals living with HIV in the U.S. Additionally, PWID aged 40 to 65 have had an HCV prevalence of 43,126 per 100,000 people (Lansky et al., 2014).

West Virginia's Need for Disease Control for Persons Who Inject Drugs

HIV and Hepatitis C have been growing concerns for West Virginia with the increase of PWIDs in the state. In 2015, approximately 74 individuals were diagnosed with HIV in West Virginia. Additionally, between 2011 and 2015, rates of HCV had increased in West Virginia by 36% (CDC, 2016). Between 2008 and 2010, IDU made up 10% of HIV transmission cases in West Virginia (The Statewide HIV Prevention Planning Group, 2012). Harm reduction programs have been implemented throughout the state as West Virginia has ranked #1 for drug overdoses. Also, West Virginia ranked #1 for cases of Hepatitis C. Furthermore, 28 counties in West Virginia have been deemed high risk for spread of HIV and hepatitis C among PWIDs (WVDHHR, 2017). With these high rates implementation of a needle exchange program has been proven to be paramount. In September 2015, West Virginia's first needle exchange program opened in Huntington. The program had seen immediate results with a reduction of overdose deaths by 40% by the first quarter of 2016 compared to the same time in the previous year (Vestal, 2016). The program has seen many patients come through its program with an average of 150 visitors a week there has been growing concern if there is enough time to stand up enough programs to counter the rising number of hepatitis C virus (Vestal, 2017, Vestal, 2016).

DISCUSSION

The Purpose and Findings

The support of increased federal spending and access to needle exchange programs has remained a goal of the National HIV/AIDS Strategy (National HIV/AIDS Strategy for the US, 2015). Since reimplementing of federal funding to needle exchange programs in December 2015, it has been proven to decrease the spread of HIV and hepatitis C virus. The cost benefits associated with treating persons who inject drugs to limit or stop the spread of HIV and hepatitis

C virus have been much lower than treating those who have been already infected with these diseases.

Positive and Negative Components of Needle Exchange Programs

PWIDs have been of global concern for public health as they have accounted for approximately 3 million HIV infections and 10 million Hepatitis C infections (Harm Reduction International, 2012). Despite the high need for syringes for PWIDs, there were only an average of 23 syringes given to each PWID in 2010 in North American needle exchange programs (WHO, UNODC, UNAIDS, 2009) Additionally, smaller harm reduction programs across the U.S. have had to close due to lack of money as these programs have been state funded rather than federally funded. In 2011, the U.S. Congress issued a ban against federal funding of NSPs. This issuance caused a setback in the international commitment to decrease HIV transmission in half by 2015 (UNAIDS, 2011).

Even with these setbacks, needle exchanges programs have had successes at decreasing the likelihood of individuals sharing syringes and therefore limiting the possibility for those individuals to spread disease. As stated previously, in a study concerning receptive and distributive sharing, 93% of PWIDs stated they had not participated in receptive sharing of syringes while 83.9% of PWIDs stated having not participated in distributive sharing of needles and equipment. However, another study suggested 56% of syringes exchanged showed presence of MPU. Nonetheless, the shorter amount of time the syringes were in rotation, the less likely they were to be shared among injection users. Requiring syringes to be exchanged in a timely manner could have potential to further decrease the sharing of needles and spread of HIV and HCV.

Study Limitations

The journals and literature reviewed lacked statistical evidence to the effectiveness of needle exchange programs. Several studies relied on word of mouth reporting from participants. Many of the studies may have been biased due to research design, data collection, or funding. Because West Virginia's needle exchange program is new, it was difficult to find current data and statistics on the effectiveness of the program. Due to the lack of information on West Virginia's current program, the study relied on needle exchange programs of other states. Out of the 30 articles studied, only 25 articles qualified for the literature review. Further research is needed on syringe exchange programs to determine the successfulness of the impact needling exchanging has on individuals and healthcare costs.

Practical Implication

Though there continues to be increases in hepatitis C, specifically in West Virginia whose most recent rates are reported to be over 6000 for 2016 according to the director of the Kanawha-Charleston Health Department. Both directors interviewed from Cabell-Huntington Health Department and the Kanawha-Charleston Health Department have operated their programs on mainly grants and donations with limited resources from state and local government. These directors indicate that as more federal funding becomes available they will be able to start up more programs in other areas. These programs have been seeing on average 300 to over 400 patients a week which they say has shown the need for more needle exchange programs in West Virginia. There has continued to be the fear that more needle exchange programs will bring more drug use to communities. The directors of both health departments have reported that referring to the needle exchange programs and harm reduction service instead helps lessen that stigma associated with program as one that gives needles out to PWID. More education to communities

about what these programs offer will also be critical to overcome some of the many barriers needle exchange programs face.

CONCLUSION

Based on studies conducted on past implementation of needle exchange programs, there has been evidence that these programs are effective in the reduction of the spread on HIV and hepatitis C along with healthcare cost savings. Federal policies have reenacted the use of needle exchange programs but limit funding to these programs. The full potential of these programs has not been seen. The recent enactment of needle exchange programs is very new, and the most up-to-date data is not readily available on harm reduction program effects.

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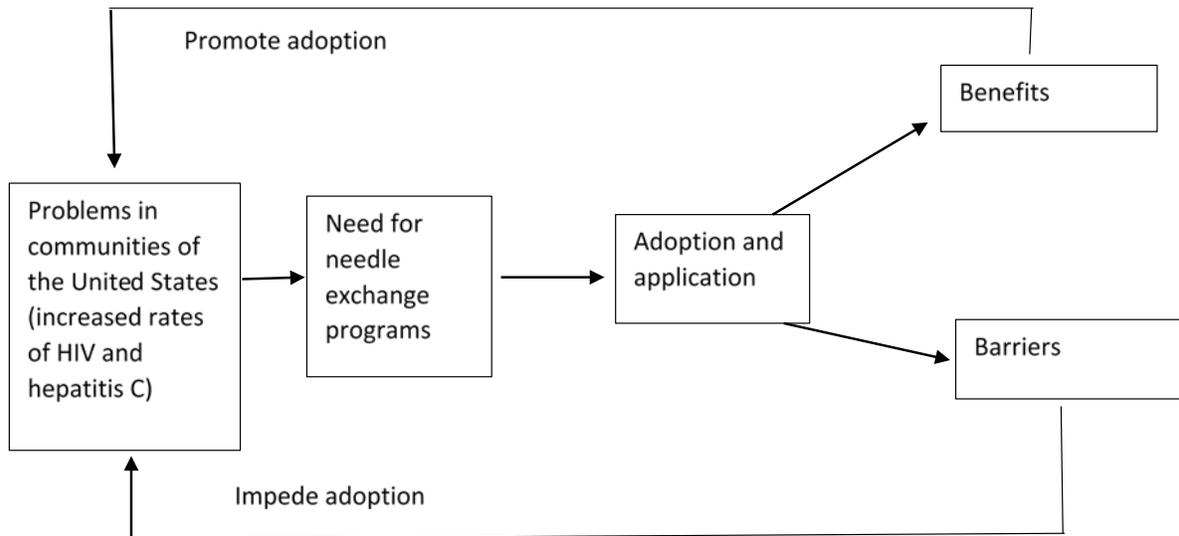
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Incorporating needle exchange programs in communities in the United States



Source: Yao, Chu, and Li (2010)

APPENDIX A

Questions Asked in Semi-Structured Interview:

- How long has your program been in place?
- What agencies are involved in the funding for the program?
- What services does your program provide?
- What results has the program seen?
- What is the amount of need for the needle exchange programs in this area?
- Has the program met that need?
- How accessible is the needle exchange program for rural areas?
- How have patients responded to the needle exchange program?
- What are the most recent numbers for HIV and viral hepatitis infections in this area?
- Are there any significant advantages or disadvantages to the program in West Virginia?