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Substance Use Disorders and HIV/AIDS Prevention and Treatment Intervention: Research and Practice Considerations

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Abstract

Social workers are often on the front lines of the HIV/AIDS epidemic – delivering prevention education and interventions, offering or linking individuals to HIV testing, and working to improve treatment access, retention, and adherence, especially among vulnerable populations. Individuals with substance use disorders face additional challenges to reducing sexual and drug risk behaviors, as well as barriers to testing, treatment, and antiretroviral therapy adherence. This paper presents current data on HIV transmission and research evidence on prevention and intervention with substance abusers and highlights how individual social workers can take advantage of this knowledge in practice and through adoption and implementation within organizations.

INTRODUCTION

HIV prevention and treatment for people living with HIV/AIDS (PLWHA) are critical service components in any public health setting, be it medical, mental health, or substance abuse. Social workers are frequently on the front lines within community based services that identify individuals at risk for HIV and other sexually transmitted diseases (STIs) or who are HIV positive and currently out of care or having difficulty adhering to their HIV care regimen. Individuals with substance use disorders continue to be a high-risk subgroup for becoming infected HIV/AIDS. Thus, regardless of service setting, it is critical for providers to understand the unique needs and circumstances of HIV prevention and intervention for clients with problem substance use.

The purpose of this paper is to present current research and discuss practice implications for social workers in the public health sector. First, a review of HIV/AIDS prevention and transmission data is presented, including the specific risk factors among individuals with substance use disorders. This is followed by a section on substance abuse treatment and its impact on HIV drug and sexual risk behaviors, and on PLWHA. Next, HIV prevention

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science is discussed, including a brief presentation of multi-level interventions using biological and behavioral approaches, addressing prevention and treatment, and including testing and linkage to care models. This is followed by a description of the National Institute on Drug Abuse (NIDA) Clinical Trials Network, an example of community-based HIV prevention and intervention effectiveness research with substance-involved populations. The paper concludes with real-world practice implications and considerations for social workers across the public health spectrum, including discussion of adoption and implementation of evidence based interventions related to HIV and substance use disorders.

HIV/AIDS in the United States

HIV prevention efforts have been successful in reducing the number of infections; an estimated 350,000 HIV infections have been prevented in the U.S. alone in the last 15 years (CDC, 2011c). However, there is additional work to be done, especially among specific subgroups of the U.S. population. Currently, there are 50,000 new infections each year and 1.2 million PLWHA (CDC, 2011c). Despite extensive efforts across the public health spectrum, including the development of evidence-based prevention interventions and technological advances such as rapid HIV testing, the annual number of new HIV infections has remained stable over the last decade (Hall et al., 2008). Prevention efforts must continue to target both reductions in new infections, as well as provide support to PLWHA to reduce the probability of transmission.

New cases of HIV infection and AIDS have become heavily concentrated in racial/ethnic minority communities. African-Americans constitute 12.8% of the US population (US Census Bureau, 2009), but 46.1% of the estimated newly diagnosed HIV infections in 2006 (CDC, 2008a). HIV prevalence rates for African Americans and Hispanics are respectively 7.6 and 2.6 times the rate for Whites (CDC, 2008a). Among women, HIV prevalence among African Americans was 18 times the rate of Whites, while Hispanics had 4 times the rate of their White female counterparts (CDC, 2008a). African Americans and American Indian/ Alaska Natives experienced the shortest survival rate after being diagnosed with HIV/AIDS, compared to all other racial/ethnic groups (CDC, 2008b). These statistics underscore severe health disparities arising from HIV in racial/ethnic minority communities and have been noted as target priority areas in the National HIV/AIDS Strategy (White House Office of National AIDS Policy, 2010).

Men who have sex with men (MSM) continue to be the most affected subgroup of people. In 2009, MSM accounted for 61% of new infections – with MSM with a history of drug injection comprising an additional 3% of new infections – while only making up about 2% of the population (CDC, 2012). Young MSM are at particularly high risk. Although overall HIV infection rates were stable among MSM from 2006–2009, they increased 34% among young (13–29) MSM (CDC, 2012). This was largely due to the 48% increase among young African American/Black MSM (CDC, 2012).

Women are another one of the fastest growing groups of people with AIDS in the U.S. (Des Jarlais et al., 2007; Latkin et al., 2007). Heterosexual transmission is the primary route of HIV and STI transmission among women. In 2009, an overwhelming proportion of women with HIV (84.8%) were infected by male sexual partners (CDC, 2009). Due to various risk conditions, women in drug-dense communities are particularly vulnerable. These include: sex under the influence of drugs or alcohol; exchange of sex for money, drugs or shelter; sex with multiple partners (Booth, Kwaitkowski, & Stephens, 1998; Logan, Cole, & Leukefeld, 2002); or a primary sexual relationship with a male partner who is often a substance user, as well (Ball & Ross, 1991). Even when women are in substance abuse treatment, they and their partners may continue to use. Thus, it is important to keep abreast of the shifting

demographic risk in the HIV epidemic – in terms of age, race/ethnicity, and gender – to better target prevention and intervention efforts.

HIV/AIDS and Substance Abuse

Substance use, including alcohol, injection drug use (IDU) and non-IDU, remains a critical factor in the U.S. HIV epidemic. Although HIV incidence among IDU has decreased, IDU and MSM with a history of IDU still account for a substantial percentage of HIV infections (i.e., 24% of infections, in 2006) (CDC, 2008a). Beyond risk from injection-related behaviors (e.g., sharing needles), use of cocaine, methamphetamine, and other stimulants is an important driver in the sexual transmission of HIV (Colfax & Shoptaw, 2005; Des Jarlais et al., 2007). Drug hunger can press individuals to exchange sex for drugs or money, and to engage in sex with multiple partners. Sex under the influence of drugs or alcohol can impair judgment, cause disinhibition and impulsivity, and enhance libido (Raj, Saitz, Cheng, Winter, & Samet, 2007). These situations also carry increased risk for sexual coercion and violence – including in response to insistence on condom use or refusal of unprotected sex (Logan et al., 2002; El-Bassel et al., 1997).

Substance use is also a significant impediment to HIV testing, entry into HIV care, and adherence to HIV antiretroviral therapy (ART) (Mellins et al., 2009; Metsch et al., 2009). Approximately one-third of HIV-infected individuals do not seek or delay care until acutely ill; a substantial subgroup are active or former drug users (Metsch et al., 2009; Bell et al., 2010).[1] IDU have higher rates of late HIV diagnosis than people in any other CDC transmission category (40% in 2004–2006; CDC, 2009). Drug-using PLWHA are more likely to be hospitalized (Fielden et al, 2008) and have longer hospital stays (Schoenbaum, Lo & Flores-Moore, 2002) than non-using PLWHA. In a study of two inner-city hospitals in Miami and Atlanta, crack cocaine use was associated with higher odds of not being in HIV primary care, not being on ART, and engaging in unprotected sex with HIV-seronegative status (Metsch et al., 2009; Bell et al., 2010).

Substance use also poses challenges to maintaining high adherence levels required for effective ART (Hendershot, Stoner, Pantalone, & Simoni, 2009; Lucas, 2010; Wood, Kerr, Tyndall, & Montaner, 2008). In a review of cohort studies examining the effects of substance use on HIV disease progression, Carrico (2011) found that substance use promotes more rapid progression, even when controlling for ART non-adherence. In a recent review, however, Milloy and colleagues (Milloy et al., 2012) show that social and structural level factors influence HIV disease progression outcomes in illicit substance-using individuals through access and adherence barriers; targeting factors such as housing, employment, and treatment transitions from jail to the community are indicated.

While these findings of greater vulnerability among substance-using PLWHA are concerning, in and of themselves, they also have wider public health significance. This is because untreated PLWHA have higher viral loads, and higher risk for HIV forward transmission (Hull & Montaner, 2011). However, there is also cause for optimism from groundbreaking 10-year prospective research with IDUs conducted in Vancouver. In this work, Wood et al., 2008 did not observe poorer survival in PLWHA with histories of IDU on ART, at average follow-up of five years. These results demonstrate that IDU who are maintained on ART can attain similar outcomes to non-IDU PLWHA.

[1]Two laboratory tests, plasma HIV RNA (viral load) and CD4 cell count, are standard indicators of HIV/AIDS disease progression. Viral load suppression is commonly defined as ≤ 400 HIV-1 RNA copies per mL of plasma; a CD4 lymphocyte cell count of < 200 cells/μL (microliter) indicates severe immunosuppression and is used as the threshold for an AIDS diagnosis (Langford, Ananworanich, & Cooper, 2007; Terzian et al., 2012; U.S. DHHS, 2011). ART has typically been recommended for CD4 cell counts of < 500 cells/μL (U.S. DHHS, 2011).

Substance Abuse Treatment as HIV Prevention

Effective substance abuse treatment and services, including, but not limited to, the delivery of opioid substitution pharamacotherapies (e.g., methadone, buprenorphine), have been shown to significantly decrease alcohol and drug use, HIV acquisition, and HIV transmission (Des Jarlais & Semaan, 2008; Metzger, Woody, & O'Brien, 2010; Volkow, Baler, & Normand, 2011). These outcomes have been demonstrated to contribute to improvement in access to and adherence to ART for substance-using PLWHA (Wood et al., 2008). In a 2010 meta-analysis (Malta, Magnanini, Strathdee, & Bastos, 2010) focusing on substance-using PLWHA, comparable levels of adherence were found for both users and non-users (around 60%). Among substance users, better ART outcomes were found among those with less severe psychiatric conditions and among those receiving opioid substitution pharmacotherapies or psychosocial support. Thus, other concurrent factors more prevalent in drug users may compromise adherence to ART; but effective substance abuse treatment can improve adherence outcomes. Thus, although overall substance abusers are likely to have poorer adherence, this is principally due to co-morbid factors that are amenable to intervention (e.g., psychiatric symptoms, employment, social stability, etc).

While substance abuse treatment has had a powerful influence on drug use and injection risk reduction, as well as ART treatment adherence, sexual risk behaviors have been slower to change and less of a focus in substance abuse treatment settings (Sorensen & Copeland, 2000). A 2001 survey of community-based drug treatment programs in the National Drug Abuse Treatment Clinical Trials Network (CTN) revealed that one 30- to 90-minute informational group was the principal form of HIV education in the 80% of clinics providing any HIV education (Shoptaw et al., 2002). Such education has been widely shown to be insufficient for reducing sexual risk behavior (Exner, Seal, & Ehrhardt, 1997; Prendergast, Urada, & Podus, 2001; Semaan et al., 2002). Given the multiple risks for substance use-involved men and women and the gaps in HIV sexual prevention, effectiveness research that tests evidence-based, safer sexual interventions in real-world treatment programs is a critical public health priority (NIH Office of AIDS Research, 2011).

HIV Prevention Science

HIV prevention interventions target a range of leverage points. They may work, singly or together, at the individual, group, structural, and/or community levels and through biological, behavioral or combined biobehavioral approaches. For example, a NIDA Clinical Trials Network (CTN) study (Metsch et al, 2012) delivering HIV testing and counseling in substance abuse treatment programs worked at the individual level to increase rates of testing and counseling among clients. At the same time, in building agency capacity to deliver testing and counseling, it also functioned as a structural intervention. Recent advances in HIV medicine underscore the importance of combination biological and behavioral interventions for prevention. For example, ART viral suppression, to reduce transmission, is rooted in the biological ART medications. However, interventions to promote adherence to these medications (e.g., targeting motivation, increasing skills) is behavioral.

Biological Prevention Interventions

ART as Prevention—The importance of increasing access and linkage to HIV services is furthered by the results from an HIV Prevention Trials Network Study known as HPTN 052. This multi-site, international trial with 1,763 serodiscordant couples demonstrated that initiation of ART by the HIV-infected partner substantially protected their HIV-uninfected sexual partner with a 96% reduction in risk of HIV transmission (Cohen et al., 2011). That is, providing ART to HIV positive individuals regardless of their CD4 cell count was highly

effective in reducing the risk of transmission. This study also showed a positive impact of early ART treatment on clinical outcomes of the HIV infected partners. As a result of these findings and the potential impact on HIV prevention, HPTN 052 was named one of Science Magazine's 2011 "Breakthrough of the Year" Studies. Also in response to these findings, the U.S. Department of Health and Human Services now recommends early ART treatment, under specific conditions, for all HIV-infected individuals.

Pre-Exposure Prophylaxis—Other recent research has also demonstrated that pre-exposure prophylaxis or PrEP, which provides daily ART to HIV negative individuals who are at high risk of transmission, lowers the chance of seroconversion. To date, PrEP has been shown effective in MSM (Grant et al., 2010) and among heterosexual men and women (CDC, 2011b; ICRC, 2011), with sufficient adherence to the medication regimen. For example, in the Preexposure Prophylaxis Initiative trial, 2,499 men from six countries who were HIV seronegative and at high risk for HIV infection were randomized to receive once-daily oral combination ART or placebo. Both groups also received comprehensive behavioral prevention services. Primary results demonstrated 44% additional protection from HIV among MSM; better adherence equated with higher effectiveness. The CDC has developed interim guidelines for healthcare providers on PrEP intervention for MSM (CDC, 2011a) and recommends following these guidelines for male and female heterosexual clients until more specific guidelines are established (CDC, 2011b).

Behavioral Prevention Interventions

Significant work has been accomplished in the development of efficacious behavioral prevention interventions for a diverse range of populations and modalities. Research suggests that interventions for substance abusing populations should be gender-tailored, provide sufficient exposure or dose (at least four sessions), and offer comprehensive skills building to produce best outcomes (Copenhaver et al., 2006; Meader, Des Jarlais, & Pilling, 2010; Prendergast et al., 2001; Semaan et al., 2002). For women, interventions should also emphasize social and cultural norms that can place women in positions of less power and control, such as negotiating with partners about condom use and safer sex (Logan et al., 2002).

In an effort to better disseminate evidence-based HIV prevention interventions, the HIV/AIDS Prevention Research Synthesis (PRS) Project was initiated by the Center for Disease Control and Prevention (CDC) in 1996. The purpose of PRS was to systematically review and summarize HIV behavioral prevention research literature with the goal of translating scientific evidence into practical information that can be used by prevention providers, state and local health departments throughout the United States, and HIV prevention researchers. These interventions had to have been formulated from established psychological and sociological theories, and had to have been tested in rigorous, randomized controlled trials. To make the PRS list, risk reduction interventions had to have been categorized as "good or best" evidence, based on the strength of evidence (e.g., intent to treat analysis, significant findings, specific behavioral outcome), follow up rates (>70%), and quality of study design (e.g., including randomization, a comparison arm, prospective data collection). The interventions had been used in all phases of HIV prevention and treatment, from reducing sexual and drug risk behaviors among HIV seronegative persons, to encouraging people to seek HIV testing, to assisting PLWHA to reduce transmission behaviors, to assisting PLWHA to engage in HIV treatment, and to assisting persons in HIV treatment to adhere to medication regimens.

To date, there are 44 best evidence and 30 good evidence risk reduction interventions on the PRS website. Sixty-eight of these are individual or group-level interventions and six are

community-level interventions (see the PRS homepage for additional information http://www.cdc.gov/hiv/topics/research/prs/index.htm). The vast majority of HIV prevention intervention research had not been conducted within substance abuse treatment programs, and especially not in so-called 'psychosocial' treatment programs (i.e., non-opioid substitution treatment programs). Those focused on substance abusers have generally targeted out of treatment or "outreach-based" populations, not those seeking treatment. Treatment populations likely require different interventions compared to out of treatment samples. For example, treatment samples can afford more intensive work on sexual risk, including communication, negotiation and other relationship factors, while out of treatment populations require more harm reduction and drug use risk interventions.

Fourteen of the 74 best or good practice risk reduction interventions are specifically targeted towards substance-involved populations. Three are specifically designed for treatment populations: (1) Modelo de IntervenciónPsicomédica (MIP): six individual sessions for Hispanic drug injectors (Robles et al., 2004); (2) Real Men are Safe (REMAS): five group sessions for men in outpatient substance abuse treatment (Calsyn et al., 2009); and (3) Safer Sex Skills Building (SSSB): five group sessions for women in outpatient substance abuse treatment (Tross et al., 2008). MIP utilizes motivational interviewing and case management techniques, while REMAS and SSSB are grounded in behavioral models focused on increasing HIV/AIDS knowledge, enhancing motivation, and improving skills (e.g., negotiation and condom use skills).

Nine of the 14 best or good evidence interventions for substance abusers have targeted out of treatment populations. An additional two are for incarcerated populations. The four "best" interventions include: (1) CLEAR – for substance-using PLWHA (Rotheram-Borus et al., 2004); (2) Female and Culturally Specific Negotiation – for HIV negative women who use crack or are IDUs (Sterk, Theall, & Elifson, 2004); (3) SHIELD – for African American substance-involved individuals (Latkin, Sherman, & Knowlton, 2003); and (4) STRIVE – for HIV negative IDU who are hepatitis C infected (Latka et al., 2008). All four of these interventions are based in cognitive behavioral therapy or social cognitive theory; three also included macro influenced components based in social action theory, theory of gender and power, and social influence. Although substance abuse treatment programs are advantageous settings to engage with and deliver HIV prevention interventions (e.g., clients may be particularly receptive to making positive changes in their lives), social workers frequently encounter individuals with problem substance use in a diverse range of settings. These interventions and strategies for identifying and engaging individuals outside a treatment setting may be particularly useful.

Consistent with HIV/AIDS health disparities among minority communities, prevention interventions have also been developed or adapted to target culturally-specific strengths and challenges. Multiple evidence-based interventions are available on the PRS website, including 27 best evidence interventions for African Americans (e.g., *Many Men, Many Voices* [Wilton et al., 2009] targeting African American men who have sex with men and *Sister-to-Sister,* a single session small group or individual skills-building intervention for inner-city African American women [Jemmott, Jemmott & O'Leary, 2007]) and 8 best evidence interventions for Hispanic populations (e.g., *Modelo de Intervención Psicomédica* (MIP) for Hispanic drug injectors [Robles et al., 2004]). Sexual risk behaviors are a product of social, cultural, and familial attitudes, norms, and experiences. Thus, HIV prevention is most effective when cultural issues are integrated into intervention materials and discussions of safer sex.

Although not specifically targeting substance abusing individuals, brief HIV prevention interventions designed for use with patients attending STI clinics may also be useful for

substance abusers. RESPECT was a multi-site randomized controlled trial comparing three HIV/STI prevention interventions among STI clinic attendees (Kamb et al., 1998). The interventions were provided in an individual counseling format. The control group received two 5-minute didactic information sessions designed to be similar to what typically happens in an STI clinic setting. The other two groups received two (brief, 20 & 60 minutes) or four (enhanced, one 20 & three 60 minute) counseling sessions individually tailored to their specific situation based on a baseline risk assessment. The two counseling condition interventions included materials consistent with the Information, Motivation, Behavioral Skills model of behavior change (Fisher & Fisher, 2000), although more skills training components were included in the enhanced condition compared to the brief condition. At the three month follow-up, all three groups had increased condom use for vaginal intercourse. Both the brief and enhanced counseling groups had increased condom use more than the control group, but not each other. This trend was present but weaker at six months, and had been lost by the nine and 12 month follow-ups. In RESPECT2, the positive effects of initial counseling were extended when a brief booster counseling intervention was provided at six months. Brief video interventions delivered to patients attending STI clinics have also been shown to reduce sexual risk behavior compared to treatment as usual (O'Donnell et al., 1998; Warner et al., 2008). Brief interventions, especially those that are video-based and require less provider training and time, can improve feasibility of adoption and implementation in busy community-based health settings.

HIV Testing and Linkage to Care—Recently, HIV testing and linkage to care, including the Seek, Test, Treat, and Retain (STTR) paradigm, have demonstrated efficacy in expanding testing and reducing viral load among people with HIV/AIDS. The "seek" and "test" components of STTR involve reaching out to vulnerable or high risk populations, such as substance users, and making them aware of their HIV status through easily accessible testing (e.g., on-site testing at treatment programs). Recent national recommendations call for health care settings, including substance use treatment programs, to offer HIV testing and have available linkage to primary medical care when a person tests positive for HIV (Branson et al., 2006). Unfortunately, research suggests that only about one-half of treatment programs provide HIV testing services, either on-site or outsourced (Brown et al., 2006; Pollack & D'Aunno, 2010; Strauss, Des Jarlais, Astone, Vassilev, 2003).

If HIV positive individuals are immediately linked to HIV medical care and started on ART, in addition to other appropriate ancillary services, then both the individual benefits from improved health and society benefits by having the individual less infectious. Linkage to care interventions such as the Antiretroviral Treatment Access Study (ARTAS) and Antiretroviral Treatment Access Study-II (ARTAS-II), used a strength based case management approach to link newly diagnosed HIV positive individuals to HIV primary care (Craw et al., 2008; Gardner et al., 2005). Patients randomly assigned to receive five case management linkage to care sessions were more likely to attend HIV primary care appointments compared to those receiving a usual care passive referral. Unfortunately in both of these studies non-injecting drug users did not benefit from the case management approach, highlighting the need to devise more effective linkage interventions for these individuals. NIDA Clinical Trials Network has recently initiated a protocol (Project HOPE) to address this concern. Case management services for HIV positive substance users with detectable viral load will be expanded to include patient navigation and motivational incentives (cash or gift cards are provided to patients when they complete healthy activities such as attending HIV care appointments, picking up ART medications, and attending substance abuse treatment) (Project HOPE: Hospital Visit as Opportunity for Prevention and Engagement for HIV-Infected Drug Users, ClinicalTrials.gov Identifier: NCT01612169, L. R. Metsch, Lead Investigator).

HIV Medication Adherence—Several interventions have been tested with the aim of improving ART adherence once initiated. Directly administered ART interventions have been shown superior to self-administered ART among individuals with substance use disorders over 6 months (Altice et al., 2007; Berg et al., 2011) and 12 months (Lucas et al., 2006). These two interventions are listed as evidenced-based interventions on the CDC's Prevention Research Synthesis project for improving ART medication adherence. Amico, Harman, & Johnson (2006) reviewed ART adherence studies from 1996–2004 and found higher effect sizes (of a medium range) for interventions targeting subgroups with known or anticipated problems with adherence (e.g., substance users). Thus, substance using populations are promising targets for improved ART adherence and viral load improvement using directly administered ART.

Other behavioral interventions also show promise for improving adherence to HIV treatment. In a pilot study of two interventions tested with crack-cocaine users, a 6-session motivational interviewing plus feedback and skills building intervention and a video-based information and debriefing intervention, both improved adherence over 6 months; however there were no differences in level of viral load (Ingersoll et al., 2011). In a randomized controlled trial with HIV positive men and women who were also hazardous drinkers, an 8-session motivational interviewing plus cognitive behavioral skills-building intervention demonstrated significant decreases in viral load, increased CD4 cell count, and increased ART adherence at 3-month follow up compared to an educational attention control (Parsons, Golub, Rosof & Holder, 2007). Sorensen and colleagues (Sorensen et al., 2006) examined a voucher incentive intervention with medication coaching (versus medication coaching alone) among HIV positive methadone patients. During the 12-week treatment phase, differences were detected in ART adherence via electronic medication cap monitoring favoring the contingency management group (78% versus 56%). Milam et al. (2005) was able to maintain high ART adherence with brief (three to five minute) counseling interventions by HIV primary care providers during routine visits. However, the intervention did not improve adherence for those previously non-adherent. More extensive interventions appear to be needed for those individuals. Similarly, more extensive (four to five session) behavioral interventions designed for patients initiating ART such as Helping Enhance Adherence to (A)ntiRetroviral Therapy (HEART, Koeing et al, 2008) and SMART Couples (Remien et al., 2005) may be useful with substance abusing HIV positive individuals.

Structural Interventions

Additional interventions have also been shown to be effective in reducing HIV transmission. Structural interventions other than universal HIV testing and treatment with ART have played a powerful role in HIV prevention. Condom distribution, particularly of male condoms, is a primary example of this. Distribution of condoms has been found to produce increases in: condom-protected sex; sexually transmitted infection incidence; condom acquisition and carrying; and even delayed sexual initiation or abstinence. These findings are clearly demonstrated in a meta-analysis of 21 studies, including 24,000 participants, representing diverse populations (i.e., commercial sex workers, youth and young adults, clinic patients, high risk adults), in the US and 14 other countries (Charania et al, 2011). There is also evidence that distribution of female condoms, especially when paired with focused training and technical assistance for (health care and human services) providers in discussing sexuality, sexual risk behavior, and safer sexual practices, increases safer sexual attitudes in clients, as well as safer sexual counseling practices among providers (Exner et al, 2012).

Needle exchange programs are another important example of efficacious structural intervention for HIV control. Needle exchange programs are most often community sites

(e.g., facility-based, storefront, mobile van, street outreach sites) where a variety of HIV and other disease harm reduction activities occur. These have included: exchange of used needles for new and sterile ones; provision of sterile equipment or paraphernalia, such as cotton, cookers, water, bleach, etc.; HIV testing and counseling and linkage to care; tuberculosis and STI screening and linkage to care; linkage to drug treatment and rehabilitation; and other services. There is powerful evidence that needle exchange programs are effective means of reducing needle-sharing among HIV-negative and HIV-positive people, reducing HIV and hepatitis B and C infection, and increasing entry into drug treatment (Des Jarlais et al, 2001; Strathdee & Vlahov, 2001; World Health Organization, 2004).

Community-based Effectiveness Research: The NIDA CTN

One way to improve the likelihood of both developing effective interventions and improving the success of adoption and implementation in the community is through enhanced emphasis on research/provider collaborations. An influential Institute of Medicine (IOM) Report, *Bridging the Gap Between Practice and Research: Forging Partnerships with Community-Based Drug and Alcohol Treatment* (Lamb, Greenlick, & McCarty, 1998), documented the schism between research knowledge and community practice, as well as the general lack of linkage and collaboration between scientific investigators and providers. In response to the IOM report, NIDA became invested in establishing partnerships between clinical treatment settings and research institutions to facilitate the study, dissemination, and adoption of treatments into the community. To help accomplish these goals, NIDA developed the National Drug Abuse Treatment Clinical Trials Network (CTN) in 2000 (Rotrosen et al., 2002).

Since its inception, the CTN has conducted five HIV-specific protocols (Tross et al., 2011). These protocols include geographically diverse programs from across the U.S. and are developed through ongoing partnerships between providers and researchers. They are specifically designed to address real-world questions and feasibility, including the use of frontline program providers and program supervisors for implementation. The HIV-related protocols include: (1) a survey of program administrators, clinicians, and state administrators to determine current availability of HIV, hepatitis C, and STI services in substance abuse treatment programs (Brown et al., 2006); (2) a brief intervention trial of HIV/hepatitis C counseling for injection and sexual risk reduction for IDUs in detoxification (Booth et al., 2011); (3) assessing rapid HIV testing in community substance abuse treatment programs with and without pre-test HIV risk reduction counseling (Metsch et al., 2012); and (4) companion intervention trials testing two gender-specific HIV prevention interventions against a standard 1-session HIV education intervention (Calsyn et al., 2009; Tross et al., 2008).

The two HIV gender-specific interventions, Real Men are Safe (REMAS) and Safer Sex Skills Building for women (SSSB), helped to answer a number of pressing questions about HIV prevention services in outpatient substance abuse treatment. First, results showed that both multi-session interventions were superior to the single-session standard HIV education session, currently the most common form of HIV prevention in community drug programs (Shoptaw et al., 2002). REMAS and SSSB both significantly reduced unprotected vaginal and anal sex acts at 6-month follow, with effect sizes (measurement of the magnitude of intervention effect) of .17 and .42, respectively (effect sizes increased to .34 and .62, respectively, when including only those participants who completed at least three of the five intervention sessions). Further, the REMAS trial also demonstrated evidence that its male-tailored, motivation and skills training intervention produced decreases in rates of drugs or alcohol with sex occasions at 3-month follow-up, while the single session HIV Education

condition participants showed an increase in these rates (Calsyn et al. 2010). Both protocols also demonstrated that community-based clinicians could be successfully trained to deliver manual-based HIV prevention. Based on review of audiotaped intervention sessions, clinicians showed high levels of fidelity to core intervention components. Experience on this study also led to an article in *Counselor* magazine discussing the importance of, as well as the challenges to, addressing the intersection of sexual health and addiction in treatment settings (Haynes, Calsyn, & Tross, 2008). REMAS has subsequently been culturally adapted and pilot tested for use with a racially and ethnically diverse group of men in substance abuse treatment since it is often not feasible for treatment programs to deliver culturally-specific interventions for each cultural/ethnic subgroup represented within client roles (Calsyn et al, in press).

The NIDA CTN HIV rapid testing trial (Metsch et al., 2012) resulted in a number of products relevant to providers working in drug treatment programs. Given the results of the trial, demonstrating that on-site rapid testing was beneficial in increasing participant receipt of HIV test results, a "blending product" was developed to assist with the dissemination of rapid testing protocols. The product includes video interviews with stakeholders, fact sheets discussing the evidence and need for on-site HIV testing at addiction treatment programs, and testing and implementation resources (available online at http://www.nattc.org/rapidtesting). Blending products are designed in collaboration between NIDA and the Substance Abuse Mental Health Services Administration's Addiction Technology Transfer Network to promote substance abuse treatment research findings.

The rapid testing trial also highlights an example of successful adoption of an evidence-based treatment following research collaboration. One of the participating sites, Lexington-Richland Alcohol and Drug Abuse Council, adopted the rapid testing procedures used in the trial, pilot testing it in another program at the site, and eventually rolling it out agency-wide. Further, this implementation process became a model for the state of South Carolina's drug treatment programs, which had previously struggled to implement rapid testing without a successful guide (Holmes, Haynes, Korte, & Brady, 2011).

Integrating HIV Prevention into Social Work Practice

Social workers are well positioned to make important contributions in HIV/STI transmission prevention, as well as assisting in optimizing the care of HIV positive individuals, which as noted above is crucial in HIV prevention. In order to provide these services, social workers need to be competent in: 1) conducting substance abuse and sexual risk assessments; 2) implementing brief HIV prevention interventions and or providing referral to more extensive prevention interventions; and 3) applying strategies related to optimal HIV treatment adherence. For additional substance abuse assessment and referral we refer the reader to the excellent review in this volume of the journal by Cochran and Fields.

To conduct a successful sexual risk assessment, providers need to be comfortable asking specific questions about a patient's sexual behavior, including at a minimum the number of sex partners in the recent past, sex/gender of partners, use of condoms for oral, anal and vaginal intercourse, and having sex under the influence of drugs or alcohol (Haynes et al., 2008). Prior research shows that substance abuse counselors often do not feel competent to carry out HIV sexual risk assessments, perceive that clients will not be open to discussing HIV risk, and that they will be uncomfortable working with clients who continually engage in behaviors that put others at risk (Mitchell & Oltean, 2007). Berns and Calsyn (2005) surveyed counselors about their knowledge and confidence in their knowledge regarding specific sexual behaviors of their clients. Counselors indicated they were somewhat confident when it came to knowledge of whether clients were sexually active, yet reported lower confidence for specific risky sex behaviors. Counselors expressed greater confidence

in their knowledge of clients drug use. Thus, although it makes sense that addiction counselors would be more comfortable discussing drug-related topics with their clients, it is critical that providers expand competencies and take advantage of opportunities to improve the health and well-being of clients across the spectrum of risk behavior.

Haynes et al. (2008) provides useful suggestions to health care providers in conducting sexual risk assessments. Social workers feeling uncomfortable or incompetent to discuss sexual behaviors with clients are encouraged to seek training in conducting such assessments or supervision support. Unfortunately there is a lack of systematic evaluation of trainings to demonstrate their effectiveness. This could be an important area of collaborative inquiry for researchers and providers.

Social workers in non-substance abuse treatment settings can further contribute to the prevention of HIV/STI by: 1) becoming competent in delivering brief prevention interventions (e.g., RESPECT, Kamb et al., 1998 and RESPECT2, Metcalf et al, 2005); 2) becoming familiar with brief video HIV prevention interventions (e.g., Safe in the City, Warner et al, 2008 and VOICES/VOCES, O'Donnell et al, 1998); and 3) assisting HIV positive individuals in remaining in HIV medical care and adhering to ART regimens. Social workers involved in long term therapeutic relationships with substance abusing individuals would be in a position to provide and follow up on brief HIV prevention interventions to help maintain outcomes over time. The CDC, in conjunction with their PRS efforts, offers periodic training in interventions like RESPECT through the Diffusion of Effective Behavioral Interventions (DEBI) program (upcoming training schedules availableonline at https://www.effectiveinterventions.org/en/Home.aspx). Similarly the DEBI program has made available the materials necessary to provide evidenced based video HIV prevention interventions. Using principles put forth in brief interventions such as those provided by Milam et al. (2005) in HIV primary care clinics, social workers could assist in maintaining high adherence in patients currently adherent to their ART regimen. For ART medication non-adherent patients, more extensive interventions such as HEART or SMART Couples are needed.

In addition, becoming familiar or trained in treatment linkage interventions such as ARTAS (Gardner et al. (2005) or ARTAS-II (Craw et al, 2008), both strengths-based case management models, would facilitate optimal care and contribute to HIV prevention efforts. The CDC provides ongoing trainings for the ARTAS intervention. Besides employing the same tools as social workers in non-addiction treatment settings, those employed in such settings can further contribute to HIV/STI prevention by promoting routine sexual risk assessments with periodic updates. In addition, it would be helpful to become competent in delivery of the more extensive gender specific HIV/STI preventions interventions shown to be effective in substance abuse treatment settings. For example, the REMAS and SSSB treatment manuals are available online through the CTN Dissemination Library (http://ctndisseminationlibrary.org/). These interventions can be implemented wholesale or integrated into ongoing substance abuse treatment groups.

Improving the Implementation Process

Evidence-based HIV prevention interventions can successfully impact the epidemic, but only when transferred to and effectively implemented by service providers. A growing area of research, known as implementation science, is particularly relevant for understanding which strategies best facilitate the adoption and integration of evidence-based HIV prevention and treatment interventions into community-based practice (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; NIH, 2006). Implementation includes a series of processes: 1) identifying and adopting an intervention; 2) preparing to deliver the intervention; 3) delivering and monitoring the intervention; 4) adapting the intervention

when necessary based on site specific context; and 5) sustaining the intervention over time within the organizational structure. Implementation research requires collaboration between researchers, program administrators, staff, and, very often, consumers within the specific target setting (e.g., substance abuse treatment programs, community mental health clinics). Social workers are particularly well-positioned to collaborate with research partners to enhance knowledge of best implementation practices.

HIV prevention and treatment interventions for substance users occur within a multi-level system – individual clients and families, service and treatment providers, organizations/ agencies, neighborhoods and communities, and local, state, and federal government agencies – all of which influence treatment priorities and philosophies and the likelihood of adopting and implementing evidence-based practices (D'Aunno, Vaughn, & McElroy, 1999; Durlak & DuPre, 2008). Thus, there are limits on an organizations ability to simply choose a prevention or treatment intervention (Lin Miller & Greene, 2005). Research evidence points to specific intervention, provider, and organizational characteristics that can positively influence successful adoption and implementation. Adoption of HIV prevention and treatment interventions is likely enhanced when the intervention is similar to the experiences and values of the providers and clients (i.e., compatible), converges with the mission and ideology of the organization, has observable benefit, and can be integrated relatively easily into current programming (Lin-Miller & Greene, 2005; Rogers, 2003). HIV-related intervention adoption is also influenced by patient/client risk behaviors and characteristics, program resources and capacity, and an organizational culture and climate supportive of research and implementation of evidence-based practices (D'Aunno, 1999; Klein & Knight, 2005; Owczarzak & Dicson-Gomez, 2011; Rogers, 2003). Prior to adopting a new intervention, it may be helpful to assess some of these multi-level influencing factors to better understand what type of intervention best fits the needs of the organization (Gandelman, DeSantis, & Rietmeijer, 2006). Some settings may benefit from organizational preparation or intervention preceding the adoption of evidence-based HIV prevention interventions.

CONCLUSION

Individuals with substance use disorders are at high risk for HIV/AIDS, both through drug risk, as well as sexual risk, behaviors. HIV/AIDS treatment can be hampered by problem substance use, including seeking testing, receiving test results, linking to treatment, staying in treatment, and adhering to HIV care regimens. Social workers interface with individuals, families, and communities challenged by both substance use disorders and HIV/AIDS, creating multiple entry points for intervention. Several key areas should be addressed to maximize the impact social work has in improving services and care for these populations: 1) include sexual risk assessment as a part of ongoing care; 2) identify potential intervention options for adoption and implementation that might be an appropriate fit with setting, population, and resources –consider behavioral, biological, and structural options; 3) assess organizational characteristics that facilitate or challenge implementation of evidence-based HIV prevention and treatment interventions and identify potential organizational interventions to address barriers; 4) conduct ongoing evaluation of intervention outcomes to assess areas for adaptation or provider drift from effective components; 5) promote linkages between substance abuse treatment programs, HIV primary care, and other public health providers; and 6) participate in and promote collaborative partnerships with researchers and other providers to enhance the effectiveness, feasibility and relevance of HIV/AIDS prevention and treatment.

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