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A Model to Provide Comprehensive Testing for HIV, Viral Hepatitis, and Sexually Transmitted Infections at a Short Term Drug Treatment Center

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Abstract

Substance users are at high risk for blood borne infections as well as those that are transmitted sexually. Substance abuse treatment centers present an opportunity to offer comprehensive counseling and testing (CCT) for HIV, viral hepatitis, and sexually transmitted infections (STIs) to this high-risk population. We examined the feasibility and acceptability of one model of CCT among substance users. CCT was offered to 145 consecutive inpatients; study participants completed a risk factor questionnaire and selected from a menu of testing options. Thirty-six percent of those approached agreed to participate and accepted at least one biologic test. Sixty-two percent of participants accepted all tests that were offered. While beneficial to those who accept testing, the described model of CCT is feasible in a drug treatment center, but acceptable to only a minority of inpatients.

INTRODUCTION

Injection Drug Users (IDUs) and their sex partners represent approximately one third of persons infected with HIV in the United States (1). Consequently, the CDC asserts that efforts to diagnose and prevent HIV among IDUs and their sex partners need to be enhanced (1). Substance users who do not inject drugs also demonstrate high-risk behaviors for sexual acquisition of HIV (2). Anyone who is at risk for blood borne infection with HIV is also at risk of becoming infected with hepatitis B and hepatitis C, and anyone at risk for sexual transmission of HIV is also at risk for other sexually transmitted infections (STIs). Substance abuse treatment centers present an opportunity to offer comprehensive HIV, viral hepatitis, and STI testing, counseling, and appropriate follow-up care to high-risk and hard-to-reach substance users.

Substance users are a medically underserved group (3). According to a multi-center study of drug abusers and their access to medical care, there are significant gaps between the medical services substance users report needing and those they receive (4). Another study found that

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drug users were less satisfied with access to health care than non-drug users (5). Drug treatment centers provide a window of opportunity to access this medically underserved population.

The CDC estimates that one-quarter of the estimated 900,000 US residents living with HIV are unaware of their infection (6). Because they are undiagnosed, they are not able to benefit from effective HIV treatment and may unknowingly transmit HIV to others. Among injection drug users in the US, 90% are hepatitis C virus (HCV) seropositive (7). An estimated 80% of those who are seropositive for HCV are actually chronically infected and can therefore transmit this infection to others (8). As HCV infection is often asymptomatic, many of those infected are unaware of their disease (9).

The integration of HIV testing with testing for viral hepatitis has been suggested on the national level (10). As there are overlapping risk factors for other STIs, and as STIs may be associated with HIV acquisition (11), adding STI testing would make the model more complete. Methodological advancements that allow for non-invasiveness and ease in STI testing for chlamydia, gonorrhea, and trichomonas could facilitate CCT in drug treatment centers.

Short-term drug treatment centers provide a window of opportunity to interface with active substance users at a time when they are seeking treatment; they may represent a good setting to offer preventative and diagnostic interventions for infectious diseases. The facilities often provide an existing infrastructure to provide medical care and supportive counseling. Further, those who enter these facilities seek to stop their drug use and pursue a healthier lifestyle.

This study examines the feasibility and acceptability of one model of comprehensive counseling and testing for HIV, hepatitis, and STIs among substance users in a drug treatment center.

METHODS

The site of the study was the Stanley Street Treatment and Resources (SSTAR) shortterm drug treatment center in Fall River, Massachusetts. SSTAR is a treatment center for adults 18 years of age or older who seek detoxification from alcohol, heroin, or other substances. The average length of stay at SSTAR is 6 days. Most patients at SSTAR have either Medicaid or no insurance.

From January 2001 to March 2001, we recruited consecutive male and female inpatients to participate in a study of comprehensive counseling and testing (CCT). Inpatients aged 18 years or older able to provide informed consent were eligible to participate. Inpatients were approached sequentially and asked, "Would you be interested in free testing for HIV, hepatitis A, B, and C, and sexually transmitted infections?" Patients interested in learning more were escorted to a private room and given details about the project. Those who agreed to participate in the study provided informed consent and locator information. Those who were not interested were asked why and their reasons were recorded. Five-dollar grocery store gift certificates were provided to all participants.

Participants were interviewed by a research assistant or research nurse with a 90-item survey that detailed drug and sexual risk behaviors, use of health care services, and knowledge of hepatitis C infection. The questionnaire was a modified version of the National Institute for Drug Abuse's (NIDA) risk behavior assessment (RBA) instrument, which has been shown to be valid and reliable in several studies (12,13). A brief educational session on viral hepatitis was administered and included information on modes of transmission, symptoms, available vaccinations, and the acceleration of liver disease by alcohol in those chronically infected with hepatitis B and C.

Participants were then escorted to the SSTAR Medical Center, which is adjacent to the drug treatment facility. Counselors at the SSTAR Medical Center provided participants with pretest counseling that was focused on harm reduction and expanded the model for HIV pretest counseling to include hepatitis and other STIs. Upon completion of pretest counseling, participants were presented with a menu of the following testing options: HIV, hepatitis A, B, and C, and STIs (gonorrhea/chlamydia/trichomonas/and syphilis). Counselors performed phlebotomies for participants testing for HIV, hepatitis A, B, and C, and syphilis. Participants were offered a physical examination for an STI or urine/vaginal swab testing. Those not choosing all tests available were asked to provide their reason for refusing individual tests and their reasons were recorded. Participants were specifically asked, "Can you please tell me why you do not wish to be tested for_____."

Arrangements were made for participants to receive results for all selected tests. Participants receiving HIV testing were told that they needed to return for their test results 7 to 10 days after testing. Those tested for hepatitis were scheduled an appointment to receive their hepatitis results from the research assistant on the day following testing. Participants testing positive for STIs through examination were treated immediately, if indicated, and urine-based results were available 5 to 7 days after testing. All participants testing positive for STIs were located and treated.

Post-test counseling for HIV infected persons was based upon a harm reduction model. Post-test counseling for participants testing positive for HCV specifically included the following: (1) advice to receive hepatitis A and B vaccines if indicated; (2) counseling on the importance of avoiding HIV co-infection because of acceleration of liver disease; (3) education to prevent hepatitis C transmission; (4) need for further liver and HCV testing by a physician; and (5) a brief alcohol reduction message. Persons testing positive for HCV were also provided with referrals to a physician and an on-site case management program.

Hepatitis A and B vaccines were offered to all seronegative participants when they were provided with their viral hepatitis test results. A nurse working in the detoxification facility administered initial vaccinations. Follow-up vaccination appointments at the SSTAR Medical Center were offered to eligible participants.

Participant serum was tested for hepatitis B and C using commercial kits (Abbott Laboratories, Abbott Park, Illinois). The Massachusetts Department of Public Health performed HIV ELISA and syphilis blood tests. Ligase Chain Reaction (LCR) was used to detect chlamydia and gonorrhea in urine when urine tests were chosen. The self-administered Inpouch™ (BioMed Diagnostics, San Jose, California) container was used to detect trichomonas in women via a vaginal swab and in men via centrifuged urine filtrate. For persons choosing physical examinations for STI, vaginal/urethral cultures were used to detect gonorrhea and chlamydia and wet mounts detected trichomonas in women.

Data was analyzed using STATA 5.0. Sample size was based upon a hypothesized acceptability rate of 30% from a pilot study. A sample size of 145 was calculated based upon an acceptance rate of 30% with a 95% confidence interval of $\pm 0.075\%$.

RESULTS

We offered CCT for HIV, viral hepatitis, and STIs to 145 inpatients in short-term drug treatment. For all those offered testing, the average age was 32, 52% were male, and 57% were active injection drug users. The reported drugs of choice were heroin (69%) and alcohol (31%). Of these 145 inpatients approached, 64% (93/145) were not interested in testing or in completing a detailed risk factor questionnaire. Thirty-six percent (52/145) did agree to participate in the study and to receive one or more biological tests.

Demographics, Drug Use, and Risk Behaviors of Those who Accepted Testing

Those 52 who agreed to participate were 54% male, 79% Caucasian, and 25% homeless. Seventy-one percent of participants reported injecting drugs at least once in their lifetime and 54% reported injecting drugs in the last 30 days, nearly two-thirds of whom shared needles (61%).

Participants who Refused Testing

Patients refusing to participate (n=93) did not differ significantly from study participants in terms of gender, age, race, days of treatment at the time of approach, or drug of choice. As seen in Figure 1, of the 93 patients refusing all testing, 50% reported recent testing as the reason for refusal. Other reasons for refusal included psychological or physical distress (20%), not being at risk for infections (17%), and not being ready for testing (13%).

Selecting from the Testing Menu

Sixty-two percent (32/52) of the participants accepted all testing including HIV, hepatitis, and STI testing. Ninety-eight percent (51/52) accepted hepatitis testing, 81% (42/52) accepted HIV testing, 71% (37/52) accepted STI testing, and all persons who accepted HIV testing also accepted hepatitis tests. Seventy-seven percent (40/52) reported to have received an HIV test at some prior time.

The one participant who did not get tested for hepatitis did not want any blood drawn because of damaged veins related to injection drug use. This participant also refused HIV testing for the same reason. The other nine participants who refused HIV testing included two who refused because they would be unable to receive their results, three who reported recent testing, and three who indicated that they would not be ready to receive their results. Fifteen participants refused STI testing. These included eight who felt they were not at risk, and five who reported recent testing.

Disease Prevalence and Eligibility for Preventative Hepatitis Vaccines (Table 1)

Prevalence of infections and rate of eligibility for preventative hepatitis vaccines are listed in Table 1. The prevalence of HCV was 55% and the prevalence of HIV was 0%. Fifty-nine percent of those who tested positive for HCV (17/29) did not know that they were infected. Participants reporting to have ever injected drugs were significantly more likely to test positive for HCV than those without a history of injection drug use (76% versus 6.7%; $p < 0.001$). The overall prevalence for any STI was 11% (4/37). Two participants tested positive for trichomonas, and two tested positive for chlamydia. Of the 51 participants testing for viral hepatitis, 45% (23/51) were eligible to receive a hepatitis B vaccine, and 78% (18/23) received a baseline vaccination. For hepatitis A, 82% (42/51) were eligible to receive a hepatitis A vaccine, and 66% (28/42) received a baseline vaccination. Most persons who did not receive a baseline vaccination were not present at the drug treatment center to receive their results and their initial vaccine.

Knowledge of Hepatitis C

One item in the questionnaire asked, "How comfortable do you feel with your knowledge about hepatitis C?" The 5 possible answers were, "I don't know anything...I know very little...I know, but I have many questions....I know but I have few questions...I know all about hepatitis C." Ninety percent of participants reported having at least some questions about hepatitis C. Participants already known to be HCV-positive were significantly more likely to report some knowledge about hepatitis C than those who were newly diagnosed with the infection ($p = 0.05$). Seventy percent of the persons not already known to be HCV-positive and self-reporting to know nothing/very little about hepatitis C had shared needles in the past 30 days.

Perception of Risk

Overall, 44% of participants (23/52) reported sharing needles and/or engaging in unprotected sex with multiple partners, partners with an STI, or partners who were with other partners within the last 30 days. Of this group who self-reported high-risk behavior, 30% (7/23) did not perceive themselves to be at risk for HIV and 59% (23/39) did not perceive themselves to be at risk for hepatitis B. Of those reporting a history of sharing needles, 26% (6/23) did not perceive themselves to be at risk for hepatitis C.

Receiving Test Results

Participants testing for hepatitis C were significantly more likely to receive their test results than those persons testing for HIV (86% vs. 40%, $p < 0.0001$). Hepatitis C test results were available the next day and HIV test results were available in 7-10 days.

Health Care

Fifty-eight percent of all participants and only 25% of participants already known to be HCV-positive had a medical examination within the prior year. Among those newly diagnosed with hepatitis C, only 17% (2/12) had received a medical exam in the past year.

DISCUSSION

Substance abuse treatment centers may represent the only contact a high-risk population of substance users makes with the medical community. In our study, only 58% of participants had received a medical examination within the prior year. Several other studies have also demonstrated the need to integrate medical care with substance abuse treatment (14,15).

In this study, the acceptance rate for study participation was surprisingly less than 40% in a population at high risk for multiple infectious diseases. While the most common reason for refusing testing was “recent testing,” this finding supports the idea of comprehensive testing. If substance users will only agree to testing at certain times, perhaps providers should ensure that they are offered testing for as many treatable and/or communicable infections as might be dictated by their risk behaviors.

The issue of “recent testing” also begs the question of the need for repeat tests after continued risk behavior. Post-test counseling must emphasize the need for repeat testing in order to put the patient’s perception of risk into perspective. Counseling is essential because, as our data makes clear, many patients do not perceive themselves at risk despite self-reported high-risk behaviors.

The second most common reason for refusing testing in our study was the physical and emotional distress associated with drug withdrawal. This finding emphasizes the need for supportive counseling and a nurturing environment at the centers. It was evident that the support of the drug treatment staff was critical to the successful implementation of medical testing during drug treatment. The design of future studies needs to include ongoing educational sessions with the drug treatment staff as well as consideration of their ideas as to how the study could best be implemented in their individual facility. Furthermore, the issue of practical barriers to testing, such as limited space and inconvenience, should not be underestimated. Patients did not like the fact that they might have to leave their floor in order to go to an interview room, or that they might miss a group session or a smoking break in order to participate in the study.

In the matter of testing results, the rate of receiving results for hepatitis was over 85% while the rate of receiving HIV results was 40%. The hepatitis test results were provided the next

day to participants who were most often still available at the drug treatment center, while the HIV results were provided seven to ten days after testing and generally required an additional trip to the clinic. This suggests a rapid turn around for test results is preferable in CCT, since return to the facility to learn a test result is unlikely. New rapid HIV testing in drug treatment centers may be well received by this population.

One objection that experts have given to HIV testing in short-term drug treatment facilities has been the potential inability of patients to emotionally cope with the possibility of an HIV-positive result. In a subsequent study, we examined inpatients' attitudes to HIV testing in short-term detoxification (16). We found that the inpatients perceive themselves coping *better* with HIV-positive test results while undergoing substance abuse treatment, which supports the view that detoxification is an acceptable setting in which to receive HIV test results. A person attempting recovery may also benefit from the knowledge that he or she is HIV negative and incorporate this awareness into new self-protective lifestyle choices. The 1998 *Guidelines for HIV Infection and AIDS in Addiction Treatment* by the American Society for Addiction Medicine also support HIV testing in detoxification centers (17).

Instead of universal screening, our study participants were offered a menu of testing options. Seventy-three percent (37/51) of participants opted to be tested for gonorrhea, chlamydia, and trichomonas. Similar to others who have found a low prevalence of chlamydia and gonorrhea among adult substance users (18), in our study the prevalence of these diseases among those who opted for testing was 5.4% (2/37) and 0% respectively. We also found a low rate of trichomonas at 5.4% (2/37). Trichomonas has been reported at higher frequencies among female substance users in other drug treatment centers (19,20). In future CCT models in drug treatment centers, it may be best to offer women universal testing for trichomonas, and offer targeted testing for gonorrhea and chlamydia among those who are aged 15-24 (21) or those who are symptomatic.

Testing provides concrete information on disease status to a population usually isolated from medical care and susceptible to infections. Treatment for STIs and initial vaccinations for hepatitis A and B are three important services that can be provided at the drug treatment center. For those with probable chronic viral hepatitis C, additional education can be provided about the importance of avoiding alcohol and co-infection with HIV. At post-test counseling, referrals to a physician and case manager can be made, support can be provided, and more education can be offered on treatment for HIV or hepatitis C.

Although no new cases of HIV were diagnosed in our study, many new cases of hepatitis C were diagnosed. For the participants, testing and counseling for hepatitis C may have been the most beneficial part of this intervention. Those who were diagnosed with hepatitis C were counseled to avoid hepatitis C transmission to others. Most of those we counseled indicated that they had not been aware that co-infection with HIV could worsen liver disease.

With our approach, less than 40% of those approached agreed to consider comprehensive testing. In a population at high risk for multiple infectious diseases, a better approach might be to simply offer all such tests routinely at a convenient time, such as at intake to the drug treatment center. Routine testing has been considered and shown to be advantageous for multiple different infectious diseases (22,23).

As mentioned, the ASAM guidelines indicate that HIV testing should be done at drug treatment centers. The CDC recognizes that those at risk for blood borne infection with HIV are also at risk for other blood borne infections, and supports the integration of HIV and hepatitis testing (10). As those at risk for sexual acquisition of STIs may also be at risk for other STIs, adding selective STI testing makes the model more complete. Initial vaccinations for hepatitis A and B can also be administered to this medically underserved population. Eventually, an HIV

vaccine might be provided in this setting as well. The medical role of drug treatment centers needs to be re-assessed, and relevant public policies re-addressed. Drug treatment centers could provide an opportune setting for comprehensive counseling, testing, and vaccination to identify, treat, and prevent the multiple infectious diseases for which substance users are at risk.

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Figure 1.
Reasons for Refusing Comprehensive Counseling and Testing among Substance Abusers in Short Term Treatment Centers

Table I
Disease Prevalence and Eligibility for Viral Hepatitis Vaccines Among Substance Users in Drug Treatment

Infection	% Testing Positive
HIV	0 (0/42)
HCV	55 (28/51)
Any STI	11 (4/37)
Eligibility for Vaccine	% Testing Negative
Hepatitis A	82 (42/51)
Hepatitis B	45 (23/51)