ABSTRACT

People who inject drugs face stigmatization by society in general, and also by healthcare workers. This creates incentives for individuals with addiction to conceal their drug use, which can interfere with optimal medical care. There are several common misconceptions about individuals who use injection drugs, including the belief that they do not care about their health. The reality is that substance use is a complex disorder that includes biological, behavioral, and social aspects. Drug users are concerned about their health. There are several opportunities to connect patients with HIV infection and substance use problems to medical care, including community outreach programs, addiction treatment centers, and counseling-testing-referral sites. One of the most important points of contact with healthcare for many of these individuals is in the correctional system. In Rhode Island, where there is routine testing of almost all prisoners upon incarceration, approximately 33% of all people in the state with HIV have been identified during incarceration. Most states do not routinely test their incarcerated populations for HIV.

Specialized programs to enhance HIV care in individuals who have recently been released from prison have been shown to retain a large proportion of patients in medical care for more than 1 year after prison discharge. Many clinicians assume that HIV-infected patients with addiction are poor candidates for antiretroviral therapy. These individuals are thought to be unlikely to adhere to treatment and to be at high risk for the development of drug-resistant HIV strains. However, there is evidence that there is little or no difference between injection drug users and nonusers in the development of drug-resistant HIV. A modified directly observed therapy approach, adapted from the directly observed therapy paradigm of tuberculosis treatment, may help to improve plasma viral load, CD4 cell counts, and other clinical outcomes in some difficult-to-reach patients with HIV infection and substance use disorders.


MANAGEMENT OF HIV CARE IN HARD-TO-REACH PATIENT POPULATIONS*

Josiah D. Rich, MD, MPH†

PROCEEDINGS

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Injection drug use is associated with a powerful societal stigma that often makes the provision of HIV care difficult. The use of injection drugs is generally viewed as fundamentally different from alcohol or other intoxicants, and most people consider the act of drug self-injection to be disturbing and repellant. This response is often shared by physicians, and the pervasive stigmatization of drug use and drug users among healthcare professionals creates a significant obstacle to optimal care for many patients with HIV infection. Most drug users can relate stories of subtle and blatant ways in which they have been discriminated against by physicians and other medical professionals. This stigmatization provides incentive for patients to conceal their drug use from healthcare providers, which, in turn, creates significant barriers to the provision of optimal medical care and also makes it more difficult to address secondary prevention of HIV.

*This article is based on a roundtable symposium held in Chicago, Illinois, on September 21, 2005.
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MISCONCEPTIONS AND ACCESS TO HEALTHCARE

There are several popular misconceptions about drug use. Illicit drug users are assumed not to care about their health and to use drugs in as large a quantity as they are able to obtain. Drug use is considered the root of all of the individual’s problems. Drug users are thought not to want treatment, and treatment itself is often regarded as ineffective. The reality is that addiction is a brain disease—a chronic, recurring illness with biological, behavioral, and social components. Drug use exerts a powerful shaping effect on every aspect of the user’s life. Opiate-addicted individuals require regular (several times per day) drug use to avoid withdrawal symptoms, and they generally work constantly to ensure a steady drug supply.

Substance use is often an attempt to self-medicate underlying mental illness by individuals who have histories of abuse or other difficult life situations, who are often from impoverished backgrounds, and who have little formal education. Drug addiction can create many difficulties, including loss of employment, eviction from homes, and damaged relationships with family and friends. This is often accompanied by employment in the sex trade, theft, drug distribution, or other behaviors that put the individual in contact with the legal and correctional system. In addition, there are several medical problems associated with addiction that are difficult to treat because of difficulties many addicts have with keeping regular appointments or adhering to medication regimens. Drug users do care about their health, despite the fact that they engage in these stigmatized behaviors. In some ways, current beliefs about drug use are similar to beliefs about psychiatric conditions, such as depression and schizophrenia a century ago, which were, at the time, generally thought to reflect moral weakness.

The physician-patient relationship can be challenged by active illicit substance use. Many healthcare providers feel threatened by a patient’s addiction. Clinicians often feel a sense of personal failure when a patient who has entered a drug rehabilitation program experiences a relapse or quits the program entirely. It is important to realize that this is the nature of addiction. It is a recurrent, relapsing condition where relapse is common. Many patients, because of the need to constantly provide a steady drug supply, try to use their physicians as sources of prescription medications that are used for resale to provide money to purchase drugs.

Many physicians respond to these tactics by not treating pain, anxiety, or other disorders in all of their patients with substance use problems. Despite these difficulties, patients have a right to receive medical care despite prejudice toward active drug users on the part of healthcare providers. Several studies have shown that drug users have much lower rates of pain treatment than non–drug-using patients with similar pain. Although these patients pose special challenges, they do respond well to genuine empathy. The challenge is to establish an empathetic, caring, understanding, culturally appropriate relationship. The development of treatment plans for patients who are being treated for substance use disorders also should anticipate relapse and include provisions to reduce damage and address relapse early.

LINKING PATIENTS TO CARE

There are several opportunities to link individuals with substance use problems to medical care. In substance use treatment centers, all of the patients are by definition admitting that they are using illicit drugs. This removes the shield of not disclosing substance use to the healthcare provider and can provide an opportunity to address not only the patient’s substance use, but also other high-risk behaviors, mental health, and chronic illnesses. Emergency rooms and medical clinics are common treatment sites for individuals with substance use problems, who are often unable to make or keep regular appointments. Other sites include community outreach programs and HIV counseling-testing-referral sites.

Many patients with addiction receive care at correctional facilities. The ever-increasing incarcerated population in the United States surpassed the 2 million people mark in 2002. Furthermore, between 8 and 10 million individuals are incarcerated (and released) each year. This group of individuals passing through corrections each year includes nearly 25% of all HIV-infected individuals in the country. This represents a significant public health opportunity, as many of these HIV-infected individuals are never diagnosed or linked to medical care. In Rhode Island, where almost all incarcerated people undergo HIV testing, approximately 33% of all individuals with HIV in the state were identified in correctional facilities. However, most states do not perform routine HIV testing of all incarcerated individuals.
The linkage to medical care among incarcerated individuals is being examined in a treatment program known as Project Bridge, which is intended to retain HIV-infected former offenders in medical care. The transition period from freedom to incarceration is difficult for anyone, but especially for individuals with opiate addiction because of withdrawal symptoms. However, for many addicts, the transition from being incarcerated to being released is even more difficult. Although incarceration is clearly stressful, basic needs are taken care of, such as a place to sleep, regular meals, and healthcare. The return to the community often involves difficulty with finding a place to live, the risk of exposure to violence, difficulty with family members, arranging for child care, and other concerns. This period is a time of high rates of relapse to drug use, drug overdose (because drug tolerance has diminished during incarceration), and high-risk sexual behavior. Project Bridge is designed to provide linkage to care during the period of transition from the correctional setting to community clinical care. HIV-positive offenders are generally contacted 90 days before their release from incarceration. A treatment plan is developed, and patients are assisted in establishing medical care, medications, and insurance coverage. There is intensive case management for 18 months after release from prison, which is carried out by a team of a social worker and an outreach worker assigned to each patient. Generally, the program entails daily contact for the first month, weekly contact for the next several months, and monthly contact thereafter. Social workers also attempt to accompany the patient to each individual medical examination and to assist with transportation. This program was evaluated in 155 patients.

When the program was offered to patients in prison, nearly all patients accepted enrollment into the program, and approximately 90% of the patients had clinic visits during the first month. The 18-month program was completed by 84% of patients. The number of patients who were homeless decreased from 17% at baseline to 4% at the completion of the program. Most of the patients (58%) were uninsured at baseline, but 100% had health insurance at the 12-month follow-up. Other forms of assistance, such as transportation, food, or benefits, were used by 100% of patients after 6 months. Very importantly, 57% of the patients received some form of mental healthcare, and 81% of the patients received substance use treatment. Referrals resulted in services received in 77% of cases. From the physician’s perspective, there are aspects of this program that are appealing, including a decreased rate of missed appointments, improved understanding of medical information with the help of case managers, and improvement in medication adherence. Conversely, experience gained during this program also illustrates things that do not work. Passive, office-based services are not as effective as interventions that involve having someone interact with patients in the community. Promises that are not kept, requiring complete abstinence, the presence of hurdles (eg, mandatory appointments or identification), inconsistency, lecturing, judging, arguing, shaming, and condescension also are rarely effective. It is also important to acknowledge the positive steps that patients make.

Implementing HIV Therapy

In prescribing medications for individuals with substance use problems, there are several drug interactions that are potentially clinically significant. It is important to know what drugs a patient is using, including prescription, nonprescription, alternative, and illicit agents. Complete up-to-date descriptions of drug interactions can be found at www.hivguidelines.org. Two interactions are of particular importance in patients with HIV and substance use problems. The nonnucleoside reverse transcriptase inhibitors (NNRTI) efavirenz and nevirapine induce methadone metabolism through CYP 450 enzymes. This interaction may precipitate opiate withdrawal in patients on methadone maintenance and increase the risk of nonadherence and relapse to narcotic use. Some protease inhibitors (PI) also influence methadone levels. There does not appear to be an important change with atazanavir, fosamprenavir, or indinavir, but lopinavir and ritonavir reduces the methadone area under the curve by 50%; ritonavir reduces methadone levels by approximately 37%. Nelfinavir and saquinavir have a modest impact on methadone levels. In most cases, increasing the methadone dose can prevent this complication, but close communication between the patient, the prescriber, and the methadone program personnel are required. Buprenorphine also has some drug-drug interactions with antiretroviral agents, but these are
modest and appear to be clinically insignificant.14 Patients who are using large quantities of heroin or other opiates also may increase their opiate use. Amphetamines, γ-hydroxybutyrate, and methylenedioxymethamphetamine all have the potential to produce a life-threatening reaction with ritonavir.15

The criteria for initiation of antiretroviral therapy (ART) for substance users are the same as for other patients, including the requirement that the patient be able to remain adherent to therapy. However, healthcare providers often use a history of current or past substance use as a reason not to provide ART, based on assumptions about the risk of nonadherence and the development of drug resistance. Adherence to ART is complex and is influenced by several factors. Predictors of improved adherence include social stability and support, confidence in HIV medications, trusting the patient-provider relationship, and participation in substance use treatment. Predictors of poor adherence include active (not past) substance use (including alcohol use), active mental illness (including depression), difficulty remembering to take medications, more complicated regimens with inconvenient dosing, and medication side effects.16,17

A study that was recently published examined the emergence of drug resistance associated with HIV care among drug users in Vancouver, British Columbia, where a government-operated healthcare system makes it relatively easy to monitor all antiretroviral agents that patients receive. These investigators compared 335 people with a history of injection drug use with 858 patients who were not using drugs, all of whom were started on ART and followed for up to 24 months. In both groups, approximately 5% to 6% of patients developed resistance to PIs over time, but there was no difference between injection drug users and nonusers in the incidence of resistance. There was a slight increase in the development of resistance to NNRTIs among drug users, although most drug users were able to use highly active ART (HAART) without the development of resistance. With multivariate analysis controlling for baseline differences between groups, these differences in the development of resistance decreased. This suggests that drug use in itself is not necessarily a reason to avoid the use of HAART for patients who otherwise meet criteria for treatment.

One approach to HIV treatment of patients with substance use problems is modified directly observed therapy (MDOT). This approach is based on directly observed therapy (DOT), which has worked very well in the management of tuberculosis.19 The goal is to decrease long-term morbidity and mortality from HIV and also limit the development of drug-resistant virus. The provision of observed therapy for HIV has been studied since 1999, beginning with single-group pilot studies and followed by a randomized controlled trial that is in progress. Preliminary results for 69 patients were recently published.19 The participants were recruited from community and hospital clinics in Rhode Island and southeastern Massachusetts. Patients had persistent viremia despite several attempts at clinic-based adherence counseling and active substance use within the past 6 months. A once-daily antiretroviral regimen, developed in consultation with their primary HIV healthcare providers, was designed to consider drug toxicity, genotype results, and prior medication regimens. Participants filled their own prescriptions and gave the medications to the study nurse for medication disbursement. Patients each kept a 1-month supply of medication for use if an outreach appointment was missed. Medications were initially delivered by a “near-peer” outreach worker 5 to 7 days per week in an intensive MDOT stage. The outreach worker visits were then gradually tapered to 1 to 3 visits per week, and adherence to treatment was monitored with DOT and logs of unobserved dosing. The first 24 patients were not followed after they stopped MDOT; the next 45 patients were monitored regardless of MDOT status. Previous HAART was noted for 93% of the patients, 96% had lifetime history of substance use, and 80% of the patients had a history of substance use in the preceding 3 months. The disposition of the patients at 1-month, 3-month, and 6-month assessment points is shown in the Table.19 The number of patients receiving DOT decreased from 81% at 1 month to 45% at the end of 6 months, suggesting that this intervention will not be effective for all patients. Some patients were incarcerated, some were moved to other supportive therapy programs, and 23% of the patients were lost to follow-up or discharged from the program. A decrease in plasma viral load (PVL) of at least 1 log unit was noted for 38% of patients after 1 month, 47% of patients after 3 months, and 33% of patients after 6 months. An improvement in CD4 cell count of at least 50 cells per mm³ was noted for 30% of patients after 1 month, 40% of patients after 3 months, and 38% of patients after 6 months. The median decrease in PVL and
increase in CD4 cell count is shown in the Figure. In this study, patients who had clearly failed clinic-based adherence interventions still had a considerable decrease in PVL on MDOT, although approximately 50% of the patients had discontinued after 6 months.

**Conclusions**

Stigmatization by healthcare professionals can create significant obstacles to optimal HIV care in individuals with illicit substance use. Popular misconceptions about the nature of addiction or about the attitudes of drug users toward their own health are quite different from reality. Although the patient-physician relationship may be challenged by the drug-addicted patient, these individuals have a right to medical care. Correctional facilities prove an important opportunity to link many HIV-infected persons with substance use to medical care. Drug-addicted patients may successfully undergo HAART, although vigilance for certain drug interactions is essential.

**Discussion**

**Dr Benson:** Most of us have injection drug users in our clinic populations, but these are not the focus of our entire clinical practice. The major challenge with incorporating many of these approaches is that they are very costly. How do you see some of the tools that you have used successfully being generalized to a larger clinic population in a setting where clinicians don’t have access to all of those resources that you have access to in your practice?

**Dr Rich:** Part of working with this population is having that specialized experience. On the other hand, a lot of what we are talking about is empathy. It’s really developing a relationship where you can listen to the patient, understand what their concerns and priorities are, and not be judgmental. We can encourage physicians to examine their own prejudice about drug use, and to try and get

<table>
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<tr>
<th>Category of Disposition</th>
<th>1 Month, % (n)</th>
<th>3 Months, % (n)</th>
<th>6 Months, % (n)</th>
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<tr>
<td>Receiving MDOT</td>
<td>81 (56)</td>
<td>64 (44)</td>
<td>45 (31)</td>
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<tr>
<td>Incarcerated</td>
<td>3 (2)</td>
<td>4 (3)</td>
<td>4 (3)</td>
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<tr>
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<td>3 (2)</td>
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<td>13 (9)</td>
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<tr>
<td>Hospitalized or supportive living situation</td>
<td>3 (2)</td>
<td>3 (2)</td>
<td>7 (5)</td>
</tr>
<tr>
<td>No contact*</td>
<td>9 (6)</td>
<td>17 (12)</td>
<td>23 (16)</td>
</tr>
<tr>
<td>Death</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>6 (4)</td>
</tr>
</tbody>
</table>

*Refused, lost to follow-up, withdrew, discharged, moved.

DOT = directly observed therapy; MDOT = modified directly observed therapy.


**Figure. Median Individual Decrease in PVL and Increase in CD4 Cell Count**

Panel A: Median individual decrease in PVL (log10) among 45 participants at 3-month and 6-month assessment points; Panel B: Median individual change in CD4 among 45 participants at 3-month and 6-month assessment points.

MDOT = modified directly observed therapy; PVL = plasma viral load.

beyond that. To try to get physicians to realize that it’s better if someone is using drugs and coming to see you than using drugs but not coming to see you. This sort of harm reduction, or risk reduction approach, or incremental change is identical to what we are using with patients who are engaging in high-risk sexual behavior. Yes, we don’t want them doing that, but if we don’t acknowledge it, we are not helping. If we acknowledge it, then maybe we can find ways to move beyond it.

**Dr Bartlett:** Do you ever use Trizivir (abacavir sulfate, lamivudine, and zidovudine; GlaxoSmithKline; Research Triangle Park, NC)?

**Dr Rich:** Alone?

**Dr Bartlett:** Yes. Trizivir very quickly came to be perceived as a bad drug. But for the active substance user, it can be very helpful. It has minimal drug interactions, and it is easy to take. I’ve often wondered about this global shift, that Trizivir was abandoned all over the world.

**Dr Treisman:** I have patients taking Trizivir who are actually still doing okay, who were doing okay when we started on it, and who don’t want to change.

**Dr Benson:** It’s a great drug when it works.

**Dr Mayer:** It’s really tragic to see someone who has a CD4 count of 15 cells per mm³, but because the patient is a drug user, they never receive ART because they are considered not quite ready.

**Dr Benson:** I think in many respects, the modification of behavior in the setting of injection drug use management should be modifying the healthcare provider’s behavior. The incremental modification of the patient’s behavior is obviously a goal, but there often needs to be modification of the healthcare provider’s behavior. How do we approach that in the healthcare setting, irrespective of what we are doing about the substance use problem?

**Dr Cargill:** I also would say that the healthcare provider’s behavior is driven by more than just substance use. Often people who present with injection drug use or substance use behaviors are also very different in other ways from the healthcare provider. It can reinforce certain stereotypes of a particular racial or ethnic background. To change our concepts we have to go back to our training. Think of how we often hear people talking about these patients. We treat them and sometimes save their lives, and then we see them again soon after for the same thing. It can be frustrating.

**Dr Treisman:** We focus on the healthcare providers and their behavior and prejudices, but there is enormous pressure on people to have high rates of undetectable PVLs in their patients and low rates of failure. We are pressured to have efficient clinic traffic. The average psychiatric patient at the Bayview Medical Center is now staying in the emergency room for 4 to 7 days, on average, and up to 15 to 18 days in some cases. We have systematically eliminated resources for difficult patients, and we have stigmatized healthcare providers who take care of them. Working with drug addicts is time consuming, it’s difficult, and we need to reward people for incremental changes, and we haven’t done that. What often happens is that length of stay is everything. If you have a long length of stay, you are a bad doctor. I agree that it is tragic when drug users do not receive ART because they are said to be not ready. If you get 50% compliance, it turns out that people benefit, even with zidovudine monotherapy. You can keep a lot of drug-addicted patients alive long enough to get them off their drugs if you treat them. But the system has to change, so that treating people who just got out of jail and who may have had a relapse of a drug problem is a good thing.

**Dr Bartlett:** What is your DOT regimen?

**Dr Rich:** It actually is several different regimens. On weekends now, they take the self-dose, generally. We use some efavirenz-based regimens, especially for people not on methadone, and more boosted protease regimens with fixed-combination, once-daily nucleoside reverse transcriptase inhibitors.

**Dr Mayer:** Could you comment on the prevalence of the use of other substances and some of the management issues?

**Dr Rich:** Alcohol use is very prevalent. Cocaine is often very destructive, and our colleagues in the western states are clearly seeing a lot of methamphetamine use, which can be equally as destructive.

**Dr Mayer:** How do we get people off cocaine? Especially now with buprenorphine, it seems that we have better tools to get people off of opiates than we do for cocaine and other stimulants.

**Dr Rich:** That’s true. Methadone and now buprenorphine are so tremendously effective that it is in some sense a relief when you treat someone who is a pure opiate addict, because you have an effective medication you can offer. Physicians can now offer it themselves if they do the 8-hour buprenorphine training. The limit has now been raised to 30 patients per
healthcare provider, thus it is more workable in a practice setting. We don't have a similar medication for cocaine or methamphetamine yet. On the other hand, for almost any addiction, there is a dose-response relationship between substance use treatment and reduction in use. The more episodes of substance use treatment, the more likely they are to reduce their substance use and reduce their risk behaviors. It is often the case that you will send a patient to detox, and he or she will come right back out and pick up his or her old habits again. The message is not that you failed, but that now you have another treatment episode behind you, you are that much wiser, you know what it took to get into treatment, you know what brought you out of it, and the next time you will watch out for those pitfalls. That's true for counseling, residential, outpatient, a 12-step program, or whatever program the individual uses.

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