

Topics in the Nursing Care of People Living with HIV/AIDS



Module IV

Triple Diagnosis: HIV, Substance Abuse, and Mental Illness

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MISSION: These modules will equip nurses with the basic knowledge needed to provide safe, comprehensive care to clients with HIV/AIDS.

INTENDED AUDIENCE: These five modules are intended for all nurses who work with clients with HIV/AIDS in doctor's offices, hospitals, ambulatory care and correctional settings.

LEARNING OBJECTIVES:

After completing this Module IV of V the nurse should be able to:

Module IV

1. discuss the implications of and therapies for triple diagnosis: HIV, substance abuse and mental illness.

OUTLINE:

Module IV

Triple Diagnosis: HIV, Substance Abuse And Mental Illness

- a. Prevalence
- b. Assessment and Screening
- c. Complications of Treatment
- d. Drug Interactions
- e. Adherence

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Module IV

Triple Diagnosis: HIV, Substance Abuse, and Mental Illness

Prevalence

In a review of studies of HIV seroprevalence, Cournos and McKinnon (1997) reported that the highest rates of HIV infection were in patients with the dual diagnosis of severe mental illness and substance use disorder. The overall prevalence rate was 18.4% and varied by substance use. The rates were 33.8% among IDUs, 15.4% among non-injection drug users, and 10.9% among alcohol users. In a study of 931 individuals with severe mental illness, the site-weighted prevalence estimate for HIV was 3.1%, approximately 8 times the overall estimated U.S. population prevalence (Rosenberg, et al., 2001). Another study was conducted with a sample of HIV-infected participants with co-morbid substance use and psychiatric problems (N=1848) or substance use problems alone (N=4745). The results suggested that dually diagnosed patients with mental illness and substance abuse disorders have approximately twice the HIV prevalence (4.7%) of those with a single diagnosis of a substance abuse disorder (2.4%) (Dausey and Desai, 2003).

Assessment and screening

In general, mental disorders of concern in HIV-infected substance abusers may be divided into three broad categories (Batki and Selwyn, 2000):

- Substance-induced mental disorders
- HIV-related mental disorders
- Medication-related mental disorders

Common mental disorders among individuals with HIV infection and concurrent substance abuse disorders include the following (Batki and Selwyn, 2000):

Adjustment Disorders. These are acute, time-limited responses to stressful events characterized by anxious or depressed mood lasting 3 to 4 weeks. Stages of adjustment to the stress of life-threatening HIV infection have been described as similar to the stages of adjustment to other illnesses. These stages generally begin with a crisis and then progress to acceptance and adaptation.

Sleep Disorders. Sleep disorders can be caused by substance abuse, psychiatric disorders, or physical illness. Insomnia is associated with abuse of central nervous system stimulants (e.g., cocaine or methamphetamine) or withdrawal from central nervous system depressants (alcohol, benzodiazepines) or opioids (heroin). Methadone sometimes causes insomnia. Psychiatric disorders such as depression and anxiety have been associated with insomnia. Length of time living with HIV disease and use of ARVs were also associated with poor sleep quality (Nokes and Kendrew, 2001). Efavirenz has well-documented side effects that include insomnia and nightmares (Lochet, et al., 2003).

Depressive Disorders. Depression has been observed in 33% of HIV-infected IDUs (Rabkin, et al. 1997). In substance abusers, depression can be caused by the use of alcohol or opiates or by withdrawal from alcohol, opiates, or stimulants. It is also a common symptom in those infected with HIV, however it is

under diagnosed. Based on the nationally representative HIV Cost and Services Utilization Study (N= 1140) 37% of people with HIV screened positive for depression but, of those, only 46% had evidence in their medical records of a diagnosis of depression (Asch, et al., 2003). Several brief questionnaires have been tested for routine use by primary care providers. These include the Beck Depression Inventory (BDI), the Zung Self-Rating Depression Scale (SDS), and the Center for Epidemiologic Studies Depression scale (CES-D). The CES-D (see below) has been validated with HIV-infected people.

CES-D DEPRESSION SCALE

Below is a list of the ways you might have felt or behaved. Please circle the number that best describes how often you have felt this way during the past week.

- 1 = Rarely or none of the time (less than 1 day)
- 2 = Some or a little of the time (1-2 days)
- 3 = Occasionally or a moderate amount of the time (3-4 days)
- 4 = Most of all of the time (5-7 days)

During the past week:

- | | |
|---|---------|
| 1. I was bothered by things that usually don't bother me | 1 2 3 4 |
| 2. I did not feel like eating; my appetite was poor | 1 2 3 4 |
| 3. I felt that I could not shake off the blues, even with help from my family and friends | 1 2 3 4 |
| 4. I felt that I was just as good as other people | 1 2 3 4 |
| 5. I had trouble keeping my mind on what I was doing | 1 2 3 4 |
| 6. I felt depressed | 1 2 3 4 |
| 7. I felt that everything I did was an effort | 1 2 3 4 |
| 8. I felt hopeful about the future | 1 2 3 4 |
| 9. I thought my life had been a failure | 1 2 3 4 |
| 10. I felt fearful | 1 2 3 4 |
| 11. My sleep was restless | 1 2 3 4 |
| 12. I was happy | 1 2 3 4 |
| 13. I talked less than usual | 1 2 3 4 |
| 14. I felt lonely | 1 2 3 4 |
| 15. People were unfriendly | 1 2 3 4 |
| 16. I enjoyed life | 1 2 3 4 |
| 17. I had crying spells | 1 2 3 4 |
| 18. I felt sad | 1 2 3 4 |
| 19. I felt that people disliked me | 1 2 3 4 |
| 20. I could not get "going" | 1 2 3 4 |

Scoring: Each response of the 20 items in this instrument is assigned a value of 0, 1, 2 or 3 as follows: 1=0, 2=1, 3=2, and 4=3. Total CES-D score is determined by summing item values across 20 items. (Note: items 4, 8, 12 and 16 are reverse scored where 1=3, 2=2, 3=1, and 4=0). Possible range: 0-60. Scores of 16 or higher suggest a clinically significant level of psychological distress. However, it does not necessarily mean that the participant has a clinical diagnosis of depression (Radloff, 1977).

Mania. The incidence of mania in people with HIV has been reported to be 8% (Lyketsos, et al., 1993). It can also be a result of substance abuse, particularly the use of cocaine and other stimulants.

Dementia. Dementia, the loss of cognitive and intellectual functions without impairment of consciousness, may occur in the triply-diagnosed patient due to chronic alcoholism, head trauma, or HIV

disease, among other causes. The risk of HIV-related dementia is highest in those who are severely immunocompromised. However, ART substantially decreases the occurrence of dementia. The diagnosis of dementia in the HIV-infected substance abuser is based on the presence of significant and disabling impairment of cognitive function (e.g., memory disturbance, disorientation, disordered judgment), behavioral function (e.g., altered behavior such as agitation or psychosis), and/or motor function (e.g., gait disturbance, incontinence). A neuropsychological examination is a necessary part of the assessment of dementia. The International HIV Dementia Scale (IHDS), shown below, can be used to screen for cognitive impairment and to determine whether additional testing is needed. The maximum score is 12. A score ≤ 10 indicates the need for further evaluation for dementia (Saktor, et al., 2005).

International HIV Dementia Scale (IHDS)

Memory-Registration – Give four words to recall (dog, hat, bean, red) – 1 second to say each. Then ask the patient all four words after you have said them. Repeat words if the patient does not recall them all immediately. Tell the patient you will ask for recall of the words again a bit later.

1. Motor Speed: Have the patient tap the first two fingers of the non-dominant hand as widely and as quickly as possible.
 - 4 = 15 in 5 seconds
 - 3 = 11-14 in 5 seconds
 - 2 = 7-10 in 5 seconds
 - 1 = 3-6 in 5 seconds
 - 0 = 0-2 in 5 seconds
2. Psychomotor Speed: Have the patient perform the following movements with the non-dominant hand as quickly as possible: 1) Clench hand in fist on flat surface. 2) Put hand flat on surface with palm down. 3) Put hand perpendicular to flat surface on the side of the 5th digit. Demonstrate and have patient perform twice for practice.
 - 4 = 4 sequences in 10 seconds
 - 3 = 3 sequences in 10 seconds
 - 2 = 2 sequences in 10 seconds
 - 1 = 1 sequence in 10 seconds
 - 0 = unable to perform
3. Memory-Recall: Ask the patient to recall the four words. For words not recalled, prompt with a semantic clue as follows: animal (dog); piece of clothing (hat); vegetable (bean); color (red). Give 1 point for each word spontaneously recalled.
 - Give 0.5 points for each correct answer after prompting
 - Maximum – 4 points.

Delirium. Delirium is an altered state of consciousness that includes confusion, disorientation, disordered cognition and memory, agitation, faulty perception, and autonomic nervous system activity. It is more common than dementia in HIV-infected substance abusers. Delirium has a high mortality rate and requires immediate treatment. It can be the result of substance intoxication or withdrawal, toxicity from medication, infection, or metabolic disturbances.

Psychosis. Psychotic symptoms may be seen in advanced HIV dementia or in delirium and can be difficult to differentiate from substance-induced hallucinations and delusions such as paranoid psychosis resulting from the use of "crack" cocaine.

Personality Disorders. HIV-infected substance abusers have higher rates of maladaptive personality and antisocial traits. These generally correlate with early onset of substance abuse. Further discussion of the interaction of personality disorders with substance abuse treatment can be accessed at <http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat5.chapter.29713>

Assessment and Referral

When assessing the presence of substance abuse with patients, the following should be considered:

- **Avoid labeling:** Address behaviors without judgment (e.g., rather than saying “You have to avoid drinking alcohol with this medicine,” you might say, “Drinking alcohol with this medicine causes serious problems. Will it be difficult for you not to drink?” And if the answer is yes, you might ask: “How can we help?”)
- **Ask open-ended questions** to elicit complete and accurate information
- **Use permissive language:** Give the patient “permission” to answer truthfully without shame
- **Acknowledge and respect gender, ethnic and cultural differences, and variations in sexual orientation**
- **Assess accuracy:** If an accurate history cannot be obtained from the client, consult a significant other or a previous health care provider (patient’s written consent is required)
- **Allow time:** Assessment may require more than one appointment, depending on the emotional/mental capacity of the patient
- **Help the patient find a personal motivation for change:** Ask: “What changes do you feel are important for you to make?” and “What changes do you feel you’re capable of making right now?”
- **Give the patient a menu of options and explore the pros and cons of each:** If the patient chooses the treatment, he or she will be more likely to be adherent.
- **Use a care team:** Know your limits and refer as needed; when making referrals, give the patient the name of an agency as well as the name of a person at the agency, or call the agency with the patient to make an appointment.

Instruments to detect and assess drug and alcohol abuse include the CAGE survey and the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) alcohol/drug abuse/dependence diagnostic criteria. The CAGE survey is a four-question format designed for use in primary care settings (see below). A positive answer to two or more questions indicates a problem with drug or alcohol use, suggesting the need for further assessment, treatment, and/or referral to drug and alcohol treatment experts.

- C Have you ever tried to **cut** down on your drinking (or drug use)?
- A Have you ever gotten **annoyed** or **angry** when people talk to you about your drinking (or drug use)? (You might ask “Does anyone ever get on your case about your drinking or drug use?”)
- G Have you ever felt **guilty** about your drinking (or drug use)?
- E Have you ever had a drink (or a drug) first thing in the morning or to get rid of a hangover (an eye opener)? (You might ask if they ever drink or use without eating.)

The DSM-IV criteria for drug dependence are developed for the 11 classes of commonly abused drugs (including alcohol) and include 7 major criteria (Table IV.1). DSM-IV criteria determine dependence by finding evidence of physical or psychological dependence on a drug or tolerance to it, disruption of social life patterns, and disregard of the negative medical consequences of using drugs. A person is considered to be drug dependent if 3 of the 7 criteria occurred within a 12-month period.

Table IV.1. DSM-IV Drug Dependence Criteria

- Presence of drug withdrawal symptoms/syndrome
- Escalation of drug doses or reduced effect of the same dose
- Persistent inability to reduce or control drug use
- Increased time obtaining and using the drug
- Personal and business activities reduced by drug use
- Substance taken in larger amounts or for longer than intended
- Knowledge of drug use's negative health and personal effects, yet continuing to use drugs

Adapted from: American Psychiatric Association, 1994.

When patients have undiagnosed or untreated mental illness or substance use disorders, general signs can be used for initial assessment. Signs of substance use disorders that indicate the need for additional assessment include the following (National Library of Medicine [NLM], 2000):

- **Intoxication or withdrawal symptoms:** Withdrawal symptoms can include tremors, delirium, hallucinations, exhaustion, convulsions, severe cravings, paranoia, and flu-like symptoms. Patients in withdrawal should be referred for inpatient detoxification and subsequent substance abuse treatment.
- **Nodding off during appointments** may indicate intoxication or withdrawal.
- **Asking for a specific psychotropic or pain medication** that may be used as drugs of abuse.
- **Presence of HCV** may have been contracted through IDU.
- **Track marks** indicate current or recent IDU.
- **Unexplained side effects** may be due to interactions with illicit drugs or alcohol.
- **Unexplained changes in appearance, behavior, eye contact, or speech** may indicate use of mood-altering substances.

General signs of mental disorders that indicate the need for additional assessment include the following (NLM, 2000).

- **Memory and concentration deficits:** Misunderstandings and difficulty understanding may indicate psychiatric issues.
- **Disrupted sleep patterns:** Insomnia (inability to fall asleep or waking up in the middle of the night) may indicate depression.
- **Talk of suicide or homicide** may be signs of underlying mental health issues.
- **Confusion and/or gaps in medical history:** A patient may be hiding substance use and/or mental illness.
- **Unexplained changes in appearance, behavior, eye contact, or speech** might be signs of the onset of mental disorders.

Categories of information necessary for a basic mental health assessment are as follows (NLM, 2000):

Initial Mental Health Assessment for the HIV-Infected Substance Abuse Treatment Patient

- **Developmental/Social History:** Childhood trauma or illness, education, employment, sexual orientation, relationship history, current support system/social network.
- **Family:** Family relationships, family psychiatric history, family substance abuse history
- **Medical History:** Date of HIV diagnosis, stage of HIV disease according to CDC classification system, most recent CD4+ t cell count, most recent viral load, HIV-related illnesses, other medical illnesses, current medications.

- **Substance Abuse History:** Age of onset of substance abuse, substance abuse description (substance type, amount, frequency, and route of administration), past or current substance abuse treatment, involvement with self-help (e.g., Alcoholics Anonymous, Narcotics Anonymous).
- **Psychiatric History:** Age of first psychiatric problem(s), outpatient treatment, inpatient treatment, past and current diagnosis/diagnoses, past and current medications and responses.
- **Current Psychiatric Symptoms:** Behavior (e.g., agitation), appearance of psychomotor retardation, cognition (level of arousal/alertness, attention/concentration, orientation, memory, calculation), mood (e.g., depression), mania, emotional instability, anxiety (acute or chronic), symptom pattern (episodic; e.g., panic attacks vs. generalized), psychotic symptoms (e.g., thought disorder), hallucinations, delusions.
- **Danger to Self or Others:** Ability to care for self, suicidality, assaultive/homicidal ideation

Treatment

Access to treatment is compromised in the patient with co-occurring HIV, mental illness, and substance abuse. Barriers to care include unstable housing, lack of food and transportation, and complexities of the care system such as required payment authorizations and complex referral practices. All of these factors can combine to delay entry or lead to failure to return to care. In a study of triply-diagnosed women lost to follow-up in an HIV clinic, a nursing outreach intervention initiated home visits to assist in making and keeping appointments and accompanying the women on their initial clinic visits over a three month period. The nurses also facilitated the integration of care among HIV, substance abuse, and mental health providers. Forty-two percent of the women in the intervention group kept all appointments over a three-month period. However, at six months the number of clinic visits had decreased sharply. Unmet needs identified by participants included eye and dental care, care for other physical illnesses, housing, transportation and food (Andersen, et al., 2005).

IDUs are less likely to receive ART than any other population. Factors associated with poor access to treatment include active drug use, younger age, female gender, suboptimal health care, not being in a drug treatment program, recent incarceration, and lack of health care provider expertise. Guidelines for HIV treatment state that ART can be successful in IDUs. Therapy, however, requires supportive clinical care sites, awareness of ARV interactions with methadone, the increased risk of side effects and toxicities, and the use of simple regimens to enhance adherence (Panel on Antiretroviral Guidelines, 2006).

Once care is made available, the cognitive impairment that accompanies both substance abuse and HIV infection can reduce adherence to medications and medical care. The patient's ability to understand education and counseling should be assessed, and the patient should be allowed to recover from the acute effects of substance intoxication or withdrawal. Even during the early stages of HIV infection, brain function associated with tasks related to memory, attention, concentration, planning, and prioritizing may be affected. Symptoms of possible cognitive impairment could be the result of HIV or from mental health and substance abuse disorders such as depression, substance-induced dementia, or mental retardation. Poorly controlled diabetes or liver disease can also lead to cognitive impairments. Neuropsychological testing can determine the presence of specific cognitive impairments.

In a trial of harm reduction group therapy for IDUs, the following cognitive-remediation strategies were used to address cognitive impairment (Avants, Margolin, Usubiaga, and Doebrick, 2004):

- Presenting material in multiple modalities to stimulate interest and facilitate learning. Material was presented verbally (didactic and discussion), visually (slides, videos, charts, written material), and experientially (practice, role-play, and behavioral games).
- Providing frequent review of materials.

- Minimizing distraction and fatigue.
- Providing consistency.
- Assessing knowledge and skill acquisition and providing immediate feedback.
- Facilitating transfer of learned skills to daily life by providing real-world examples and at-home exercises.
- Using a "memory book" to aid retention of group material and to organize and remember activities required for living a healthy lifestyle.
- Improving stress management skills by providing a 10-minute stress management technique at the conclusion of each group.

Treatment should have a range of goals that correspond to the client's capabilities. Immediate abstinence from substances may not be reasonable for many substance abusers. The harm reduction approach can be used as a framework for all drugs and alcohol, although it has primarily been applied to IDU. In harm reduction, the goal is to reduce harm from drug or alcohol use, not necessarily to reduce the substance use itself. A hierarchy of realistic goals for the patient is developed to decrease the negative consequences of drug or alcohol use. More realistic goals are addressed first as initial steps toward safer behaviors. For example, needle exchange programs, controlled drug availability, education on how to bleach shared IDU equipment, and methadone maintenance are all forms of harm reduction. Harm reduction in the case of alcohol has included making cheap alcohol more easily available to alcoholics to reduce the consumption of non-beverage alcohol products such as solvents, household cleaners, and hairspray (Riley, 1993). The Association of Nurses in AIDS Care position statement on needle and syringe exchange can be found at http://www.anacnet.org/media/pdfs/PS_Needle_Syringe_Exch_4-2003.pdf.

Methadone Maintenance Therapy

Methadone maintenance (or agonist) therapy is an effective harm reduction method for HIV-infected opioid abusers because it substitutes an oral medication for an injected drug. Methadone treatment usually requires regular attendance at a clinic where medical care, psychiatric consultation and treatment, neuropsychological evaluation, and social services can be accessed for further harm reduction interventions. In addition, longer acting opioid substitutes appear to have a normalizing effect on the immune and endocrine systems which can be disrupted by irregular use of heroin or other abused opioids (Kreek, 1991).

Methadone slows gastric emptying and is metabolized by the cytochrome P450 system. Increases or decreases of the amount of methadone in blood and tissues are mainly caused by inhibition or induction of cytochrome P450 by other drugs. This can result in opiate withdrawal or overdose and/or increase in toxicity or decreased efficacy of drugs administered concurrently with methadone. Antiretrovirals are metabolic inducers (increase the activity) of cytochrome P450 enzymes. Therefore, they result in a decrease in the amount of methadone available, and the possible precipitation of opioid withdrawal symptoms. Avants, et al. (2003) recommend careful observation of the patient and clinically guided adjustment of the daily dose of methadone.

The following are suggestions for the assessment of potential drug interactions for the patient on methadone maintenance (Ferrari, Coccia, Bertolini, and Sterniere, 2004):

- Record all drugs and any abuse substances, including alcohol. Consult this record before prescribing a new drug.
- Know the pharmacodynamics and the pharmacokinetics of all prescribed drugs and potential mechanisms of drug-drug interactions.
- Closely observe patients with illnesses (renal or hepatic insufficiency) that could modify drug kinetics and dynamics.

- Consider possible drug interactions whenever the patient complains of withdrawal symptoms, excessive sedation, or unusual symptoms.
- Watch for interactions in the patient on new therapeutic drugs.

Methadone maintenance does not provide analgesia, and it is appropriate to give opiates to patients on methadone. Because of methadone's receptor blockade, people on methadone require higher doses of pain medication, often at shorter intervals.

Buprenorphine

The availability of methadone is limited to Opioid Treatment Programs (OTP), or methadone clinics, that require special licensing. Buprenorphine is an alternative to methadone for the management of opioid dependence, and buprenorphine is available in alternate treatment settings.

Buprenorphine is an opioid partial agonist. This means that, although buprenorphine is an opioid, and thus can produce typical opioid agonist effects and side effects such as euphoria and respiratory depression, its maximal effects are less than those of full agonists like heroin and methadone. At low doses, buprenorphine produces a sufficient agonist effect to enable opioid-addicted individuals to discontinue the misuse of opioids without experiencing withdrawal symptoms. The agonist effects of buprenorphine increase linearly with increasing doses until they reach a plateau ("ceiling effect") and no longer increase with further increases in opioid dose. Thus, buprenorphine carries a lower risk of abuse, addiction, and side effects compared to full opioid agonists (Substance Abuse and Mental Health Services Administration [SAMHSA]).

Currently, a special federal waiver is required to prescribe Subutex® (buprenorphine) and Suboxone® (buprenorphine/naloxone) for opioid addiction treatment on an outpatient basis. Approved prescribers are allowed to manage only 30 patients on buprenorphine for opioid addiction as outpatients. A bill, introduced in the U.S. Senate on April 6, 2006, would eliminate the 30 patient limit for physicians who have had a waiver for more than one year. Additional information regarding the use of buprenorphine for opioid addiction is available at <http://www.buprenorphine.samhsa.gov/>

Counseling

Counseling is an important part of treatment for all substance abusers, including those with co-morbid psychiatric disorders. Individual, group, or family therapy, as well as participation in support groups can help the HIV-infected substance abuser with mental illness to maintain health, achieve recovery from substance abuse, build coping skills, and attain the best possible level of psychological function (Batki and Selwyn, 2000).

Individual therapy is appropriate for the patient who is not ready to share information with a group. However, it may not be as effective as group intervention in reducing the sense of isolation, shame, and guilt associated with HIV infection. Individual therapy can be used to prepare clients to participate in group therapy.

Family therapy, which should include any individual the patient regards as family, is often used to support patients in recovery from substance abuse. It also provides a forum to discuss partner or child abuse and HIV risk reduction for uninfected family members.

Group therapy or support groups typically include 10-12 participants with one or two group leaders. The groups may be heterogeneous or homogeneous. Variables to consider in establishing support groups are language, ethnicity, gender, sexual orientation, type of substance abuse, stage of recovery from substance

abuse, and stage of HIV infection. Those who strongly self-identify with a particular group may prefer to participate only in homogenous groups. Single-sex groups may be beneficial for those who have not disclosed their status to their partners, women who have been abused, men or women involved in the sex industry or in sex-for-drugs transactions, or men who have difficulty discussing issues of sexuality, such as sexual abuse and incest. Avants, et al. (2004) studied the effects of weekly harm reduction group therapy conducted over 12 weeks with IDUs who were receiving methadone (N=224). Participants in the intervention had higher cocaine abstinence rates and lower sexual risk behavior compared to those receiving standard care.

Drug Interactions

Some ARVs can interfere with the metabolism of both psychiatric medications and medications used in the treatment of substance abuse (e.g., methadone). They can also interfere with the metabolism of abused substances. One example is the elevated levels of methylene dioxymethamphetamines (MDMA) that are associated with ritonavir use (Henry and Hill, 1998). Most drug interactions with ARVs are mediated through inhibition or induction of hepatic drug metabolism. All PIs and NNRTIs are metabolized in the liver by the cytochrome P450 (CYP) system, particularly by the CYP3A4 isoenzyme.

Information regarding potential drug interactions between ARVs and neuroleptics, psychotropics, anticonvulsants, and methadone is available at

<http://www.hivatis.org/Guidelines/Default.aspx?Menuitem=Guidelines>.

The NY/NJ AIDS Education and Training Center (AETC) published a clinician's guide to interactions between recreational drugs and HIV antiviral medications, and the AETC National Resource Center has posted a guide to interactions between HIV-related medications and psychotropics. They also have a guide to pain and addiction management. All these are available from <http://www.aids-ed.org/aidsetc?page=cf-tc-01>.

The following are drug interactions observed between ARVs and street drugs (AETC National Resource Center, 2006; Batki and Selwyn, 2000). Additional information is available at

http://aidsetc.org/aetc/aetc?paeg=cm-314_rec_drug.

- The toxicity of MDMA (ecstasy) is significantly increased with some protease inhibitors (e.g., ritonavir). MDMA is metabolized principally through the cytochrome P450 (CYP450) 2D6 enzyme. Pharmacokinetic drug-drug interactions can occur if MDMA is combined with other recreational or therapeutic drugs that are 2D6 inhibitors. Ritonavir inhibits 2D6 as well as several other CYP450 pathways. Several cases have been reported of life threatening interactions or death in individuals who ingested MDMA while taking ritonavir (Oesterheld, Armstrong, and Cozza, 2004).
- Didanosine can increase the risk of pancreatitis with regular or heavy alcohol use.
- Amphetamine (crystal meth) levels may also be increased with the PIs ritonavir and delavirdine. (Inhibition of CYP2D6 can interfere significantly with hepatic metabolism of the amphetamine compound. Such inhibitors include delavirdine and ritonavir.) Ritonavir is the most potent CYP3A4 inhibitor and can increase amphetamine levels by a factor of 2 or 3 (AETC National Resource Center, 2006).
- The combination of ketamine ("special K") and ritonavir can lead to chemical hepatitis.
- GHB (gamma-hydroxy-butyrate, or "liquid X") can be dangerous with PIs.
- Synthetics sold as heroin may be toxic at very small doses when combined with medications. The chemicals fentanyl and alpha-methyl-fentanyl are sometimes sold as heroin. These chemicals can be potent even in tiny doses, and may be deadly if mixed with other drugs.

Antiretrovirals And Psychotropics

Like ARVs, psychopharmaceuticals may be susceptible to interactions involving the Cytochrome P450 system. For that reason, there is a higher risk of clinically significant interactions with ARV agents. Table IV.2 lists Pharmacokinetic Drug Interactions between Psychotropic Drugs and ARVs (Anderson, 2005).

Table IV.2. Pharmacokinetic Drug Interactions between Psychotropic Drugs and ARVs

Drug	CYP Substrate	CYP Inhibitor	Pharmokinetic data/comments
Amitriptyline (Elavil) Nortriptyline (Pamelor) Desipramine (Norpramin) Imipramine (Tofranil) Clomipramine (Anafranil) Doxepin (Sinequan)	2D6		Ritonavir (RTV) decreased desipramine clearance by 59% in vitro. RTV increased amitriptyline levels*. Nelfinavir (NFV) increased desipramine levels.*
Mirtazapine (Remeron)	2D6		Increases in serum level of mirtazapine may be seen with RTV co-administration.
Paroxetine (Paxil)	2D6	2D6	Increases in serum level of paroxetine may be seen with RTV co-administration.
Venlafaxine (Effexor)	2D6	2D6 (weak)	Increases in serum level of venlafaxine may be seen with RTV co-administration.
Fluoxetine (Prozac)	2D6	2C19, 2D6, 3A4 (weak)	DLV C_{min} increased by 50%, RTV AUC [#] increased by 19%.*
Citalopram (Celexa)	2C19		Drug interactions unlikely w/ARVs.
Sertraline (Zoloft)	2C19	2D6 (weak)	Drug interactions unlikely w/ARVs.
Bupropion (Wellbutrin, Zyban)	2B6, 3A4		Clinically important drug interactions w/Pis unlikely (preliminary in vitro data show weak inhibition by RTV).
Trazodone (Desyrel)	3A4		Increases in serum level of trazodone may be seen with PI co-administration. Decreases in serum level of trazodone may be seen with efavirenz (EFV) or nevirapine (NVP) co-administration.
Nefazodone (Serzone)	3A4	+3A4	Increases in serum level of nefazodone may be seen with PI co-administration. Decreases in serum level of nefazodone may be seen with EFV and NVP co-administration. Nefazodone may increase serum level of Pis and NNRTIs.
Fluvoxamine (Luvox)	2D6	+3A4	Increases in serum level of fluvoxamine may be seen with RTV co-administration. Fluvoxamine may increase serum level of Pis and NNRTIs.
Haloperidol (Haldol)	3A4, 2D6, 1A2		Increases in serum level of haloperidol may be seen with Pis. Decreases in serum level of haloperidol may be seen with EFV and NVP.
Perphenazine (Trilafon) and thioridazine (Mellaril)	2D6 (2D6 inhibitor)		Increases in serum level of perphenazine and thioridazine may be seen with NFV and RTV.
Olanzapine (Zyprexa)	1A2, 2D6		RTV decreased olanzapine AUC by 50%.*
Escitalopram (Lexapro)	2D6		No drug interaction with RTV. Interaction with other Pis and NNRTIs unlikely.

Quetiapine (Seroquel) Ziprasidone (Geodon)	3A4		Increases in serum level of quetiapine and ziprasidone may be seen with PI co-administration. Decreases in serum level of quetiapine and ziprasidone may be seen with EFV and NVP co-administration.
Aripiprazole (Abilify)	3A4, 2D6		Increases in serum level of aripiprazole may be seen with PI co-administration. Decreases in serum level of aripiprazole may be seen with EFV and NVP co-administration.
Risperidone (Risperdal)	2D6>3A4		Increases in serum level of risperidone may be seen with RTV co-administration.
Alprazolam (Xanax)	3A4		Alprazolam AUC decreased by 12%. [*] Alprazolam clearance decreased by 59% and t1/2 increased by 200%. [*]
Triazolam (Halcion) Midazolam (Versed)	3A4		RTV increased triazolam AUC 20% and increased t1/2 by 12-fold. [*] Co-administration with PIs and EFV is contraindicated.
Zolpidem (Ambien)	3A4		RTV increased zolpidem AUC by 27%. [*]
Chlordiazepoxide (Librium) Clorazepate (Tranxene) Estazolam (ProSom) Flurazepam (Dalmane) Clonazepam (Klonopin)	3A4		Increases in serum level of chlordiazepoxide, clorazepate, estazolam, clonazepam, and flurazepam may be seen with PI co-administration.
Lorazepam (Ativan) Temazepam (Restoril) Oxazepam (Serax)	Glucuron- idation		Interaction unlikely Lorazepam was not affected by EFV. [*]
Diazepam (Valium)	1A2 and 2C9> 3A4 and 2C19		RTV may decrease serum level of diazepam.
Carbamazepine	3A4	+3A4	May decrease serum level of PIs and NNRTIs. Consider TDM. ^{**}
Oxcarbazepine		-3A4	May decrease serum level of PIs and NNRTIs. Consider TDM ^{**} (especially at high dose oxcarbazepine).
Lamotrigine	Phase II Glucuron- idation		RTV, NFV, LPV/r may decrease lamotrigine serum concentration.

* Interactions based on pharmacokinetic (PK) data. If no clinical PK data available, drug-drug interaction predictions are based on pharmacology principles. ** TDM = Therapeutic Drug Monitoring. [#] AUC = area under the curve. (Pham, 2003)

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SELF ASSESSMENT TEST

MODULE IV: TRIPLE DIAGNOSIS: HIV, SUBSTANCE ABUSE AND MENTAL ILLNESS

DIRECTIONS: Please select the one best answer and circle your response directly on the self assessment test. To obtain Continuing Nursing Education credit, a minimum of 70% of the questions must be answered correctly. To assure your receipt of Continuing Nursing Education credit, please complete the self assessment test, program evaluation (reader information form) and HRSA participant information form (3 pages total).

This activity is eligible for nursing credit thorough **June 30, 2007**. Individuals who mail the required documentation noted above after this date will be ineligible for credit. The estimated time for completion of this activity is 1 hour. There is no fee for the nursing continuing education credit for this module.

Rutgers University mailing information is on the reverse side of this document.

- In the triple diagnosis of HIV, substance abuse, and mental illness:**
 - HIV infection co-occurs with mental illness and substance abuse disorder.
 - the prevalence rates of HIV infection for those with a dual diagnosis do not vary by substance use.
 - the overall prevalence rate of HIV in those with mental illness and substance abuse disorder was 10.9%.
 - the prevalence rate of HIV is 20% among non-injection drug users with mental illness.
- Mental disorders of concern in HIV-infected substance abusers do NOT include:**
 - substance-induced disorders.
 - diet-related disorders.
 - HIV-related disorders.
 - medication-related disorders.
- Which of the statements is TRUE of sleep disorders?**
 - They can result from substance abuse, psychiatric disorders, or physical illness.
 - They are not likely to occur with the use of efavirenz.
 - They are relieved by methadone.
 - They are associated with the use of central nervous system depressants.
- The International HIV Dementia Scale (IHDS) assesses the following elements of cognitive function:**
 - Memory and motor speed.
 - Delirium and mania.
 - Psychosis and delirium.
 - Dementia and personality disorder.
- The following strategy is useful in the assessment of substance abusers:**
 - Closed-ended questions.
 - A menu of options.
 - Labeling behaviors.
 - Ignoring sexual orientation.
- The following is a general sign of mental disorder and indicates the need for additional assessment:**
 - Intoxication.
 - Memory and concentration deficits.
 - Persistent inability to reduce or control drug use.
 - Nodding off during appointments.
- DSM-IV drug dependence criteria include:**
 - more time spent using the drug.
 - reduced doses of drug produce the same effect over time.
 - less time spent obtaining the drug.
 - lack of knowledge of the effects of a drug.
- Signs of mental disorders include:**
 - track marks.
 - normal sleep patterns.
 - withdrawal symptoms.
 - unexplained changes in appearance.
- An example of a harm reduction strategy is:**
 - to have abstinence as the goal of treatment.
 - to provide clean needles and syringes to injection drug user (IDUs).
 - to make solvents easily available to alcoholics.
 - to increase the negative consequences of drug use.
- Which of the following is TRUE of drug interactions?**
 - The toxicity of MDMA (ecstasy) is significantly reduced with some protease inhibitors.
 - Induction of CYP2D6 can interfere significantly with hepatic metabolism of the amphetamine compound.
 - With regular or heavy alcohol use, Videx (didanosine) can increase the risk of pancreatitis.
 - The combination of ketamine ("special K") and ritonavir can lead to renal failure.

PROGRAM EVALUATION & READER INFORMATION FORM

MODULE IV: TRIPLE DIAGNOSIS: HIV, SUBSTANCE ABUSE AND MENTAL ILLNESS

To assure your receipt of Continuing Nursing Education credit, please mail your completed self assessment test, program evaluation/reader information form and HRSA participant information form (3 pages total) to: Dr Gayle A Pearson, Assistant Dean, Rutgers, The State University, College of Nursing, Center for Professional Development, 175 University Avenue, Conklin Hall 244, Newark, New Jersey 07102 or scan and email to: cpdn@rutgers.edu. Please allow 6 to 8 weeks for education credit processing. An attendance certificate will be emailed to you at that time. If you have any questions, contact 973-353-5895 or cpdn@rutgers.edu.

PLEASE COMPLETE THIS FORM BY COMPLETELY FILLING IN THE CIRCLES WITH BLACK PEN OR PENCIL.	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE	NOT APPLICABLE
1. As a result of completing the program, I am able to meet the following program goal: to equip the correctional nurse to arrange the necessary care and services to optimize the health of the HIV-infected patient.	①	②	③	④	⑤
2. As a result of reading this module, I am able to discuss the implications and therapies when there is a triple diagnosis HIV, substance abuse and mental illness.	①	②	③	④	⑤
3. The objective of this program was relevant to the overall goals of the program.	①	②	③	④	⑤
4. The module was an effective learning tool for me.	①	②	③	④	⑤
5. The author of this module was an effective teacher.	①	②	③	④	⑤
6. The slides that accompany the module are helpful.	①	②	③	④	⑤

Time required to complete this learning activity: _____ minutes

Comments: _____

READER INFORMATION FORM

(Please print legibly as all information is needed for education credit processing.)

Name: (first and last): _____

Degree: _____ (NP, RN, LPN) Other: _____

Facility Name: _____

Facility Address: _____ Street

City _____ State _____ Zip Code _____

Email Address: _____

Please proceed to the next page and complete the HRSA participant information form.

Please completely fill in the circles (●) when answering the questions.

1. To create your unique ID number, use the month of your birth, the day of your birth, and the last four digits of your social security number. For example, May 29, 123-45-6789 has the ID number 05296789. Unique ID Number

Today's Date

2. Your Profession/Discipline (Select one)
Advanced Practice Nurse Pharmacist
Dentist Physician
Mental Health Professional Physician Assistant
Nurse Social Worker
Nurse Practitioner Substance Abuse Professional
Other Dental Professional Other (specify)

3. Your Primary Functional Role (Select one)
Administrator/Supervisor Student/Graduate Student
Care Provider/Clinician Teacher/Faculty
Case Manager Other (specify)
Intern/Resident Not Working
Researcher

4. Your Principal Employment Setting (Select one)
Community/Migrant Health Center Substance Abuse Treatment Prog.
Community Mental Health Center STD/Family Planning Clinic
Correctional Facility Tribal/Indian Health Service
HMO/Managed Care Organization Other Community-Based Service Organization (CBO)
Hospital or Hospital-Based Clinic Other Public Health Agency
Rural Health Center Other Health Care
Solo/Group Private Practice Non-health
State/Local Health Department Not Working

Questions 5-7 are about your principal employment setting

5. Is it a faith-based organization? Yes No Don't Know

6. Zip Code/Setting Rural Urban

7. Does the agency receive Ryan White CARE Act funding? Yes No Don't Know

7a. If you don't know, write the full name of your employer:

8. Are you of Hispanic, Latino, or Spanish origin? Yes No

8a. Your Racial Background (Select all that apply)
White Native Hawaiian/Other Pacific Islander
Black or African American
Asian American Indian/Alaska Native

9. Your Gender Female Male Transgender

10. Which of the following statements describes the way in which you most often provide services for HIV/AIDS patients (Select one).
Not applicable/Do not see patients (Skip the rest of this form)
Refer/transfer HIV+ patients for all medical care
Provide primary care and refer/transfer HIV+ patients for HIV treatment only
Provide all HIV treatment and refer/transfer for primary care
Provide all medical care and refer/transfer when antiretroviral treatment fails
Provide all medical care throughout the course of the disease

11. Estimate the NUMBER of HIV+ clients/patients you have personally treated/managed in practice in the past month.

Don't Know

For questions 12-18, estimate the PERCENTAGE of your HIV+ clients/patients in the past YEAR who were:

12. Racial or Ethnic Minorities
None 1-24% 25-49% 50-74% ≥75% Don't Know

13. On Antiretroviral Therapy
None 1-24% 25-49% 50-74% ≥75% Don't Know

14. Severely/Persistently Mentally Ill
None 1-24% 25-49% 50-74% ≥75% Don't Know

15. Substance Users
None 1-24% 25-49% 50-74% ≥75% Don't Know

16. Uninsured
None 1-24% 25-49% 50-74% ≥75% Don't Know

17. Women
None 1-24% 25-49% 50-74% ≥75% Don't Know

18. Incarcerated/Parolees
None 1-24% 25-49% 50-74% ≥75% Don't Know

PUBLIC BURDEN STATEMENT: An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB number. The OMB control number for this project is 0915-0281. Public reporting burden for this collection of information is estimated to be 10 minutes per form. These estimates include the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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May 2004
AETC Subsite Program Number Agency RWCA
Yes No Don't Know