Detoxification and Substance Abuse Treatment (Updated)

1 Overview, Essential Concepts, and Definitions in Detoxification

In This Chapter...

Chapter 1 provides a brief historical overview of changes in the perceptions and provision of detoxification services. It also introduces the core concepts of the detoxification field, discusses the primary goals of detoxification services, clarifies the distinction between detoxification and treatment, and highlights some of the broader issues involved with providing detoxification within systems of care.

Purpose of the TIP

This TIP is a revision of TIP 19, *Detoxification From Alcohol and Other Drugs* (Center for Substance Abuse Treatment [CSAT] 1995*d*). Significant changes in the area of detoxification services since the publication of TIP 19 include

- Refinement of patient placement procedures
- Increased knowledge of the physiology of withdrawal
- Pharmacological advances in the management of withdrawal
- Changes in the role of detoxification in the continuum of services for patients with substance use disorders, and new issues in the management of detoxification services within comprehensive systems of care
- Emerging issues regarding specific populations (e.g., women, cultural minorities, adolescents)

This TIP provides clinicians with up-to-date information in these areas. It also expands on the administrative, legal, and ethical issues commonly encountered in the delivery of detoxification services and suggests performance measures for detoxification programs. Like its predecessor, this TIP was created by a panel of experts with diverse experience in detoxification services—physicians, psychologists, counselors, nurses, and social workers, all with particular expertise to share.

Audience

The primary audiences for this TIP include substance abuse treatment counselors; administrators of detoxification programs; Single State Agency directors; psychiatrists and other physicians working in the field; primary care providers such as physicians, nurse practitioners, physician assistants, nurses, psychologists, and other clinical staff members; staff of managed care and insurance carriers; policymakers; and others involved in planning, evaluating, and delivering services for detoxifying patients from substances of abuse. Secondary audiences include public safety/police and criminal justice personnel, educational institutions, those involved with assisting workers (e.g., Employee Assistance Programs), shelters/feeding programs, and managed care organizations. The TIP also should prove useful to providers of other services in comprehensive systems of care (vocational counseling, occupational therapy, and public housing/assisted living), administrators, and payors (public, private, and managed care).

Scope

Among other issues covered in this TIP is the importance of detoxification as one component in the continuum of healthcare services for substance-related disorders. The TIP reinforces the urgent need for nontraditional settings—such as emergency rooms, medical and surgical wards in hospitals, acute care clinics, and others that do not traditionally provide detoxification services—to be prepared to participate in the process of getting the patient who is in need of detoxification into a program as quickly as possible to potentially avoid the myriad possible negative consequences associated with substance abuse (e.g., physiological and psychological disturbances/disorders, criminal involvement, unemployment, etc.). Furthermore, it promotes the latest strategies for retaining individuals in detoxification while also encouraging the development of the therapeutic alliance to promote the patient's entrance into substance abuse treatment. This includes suggestions on addressing psychosocial issues that may affect detoxification services.

This TIP provides medical information on detoxification protocols for specific substances, as well as considerations for individuals with co-occurring medical conditions including mental disorders. While the TIP is not intended to take the place of medical texts, it provides the practitioner with an overview of medical considerations.

This TIP will also bring clinicians and administrators up-to-date on important aspects of detoxification, including how the services are to be paid for. It is unusual in a clinical treatment improvement protocol to discuss issues related to how clinical services are reimbursed. However, in the field of substance abuse and detoxification services, reimbursement issues have become so intertwined with the delivery of services that the consensus panel deemed it necessary to address the conflicts and misunderstandings that sometimes arise between the care systems and the reimbursement systems.

History of Detoxification Services

Prior to the 1970s, public intoxication was treated as a criminal offense. People arrested for it were held in the "drunk tanks" of local jails where they underwent withdrawal with little or no medical intervention (Abbott et al.

1995; Sadd and Young 1987). Shifts in the medical field, in perceptions of addiction, and in social policy changed the way that people with dependency on drugs, including alcohol, were viewed and treated. Two notable events were particularly instrumental in changing attitudes. In 1958, the American Medical Association (AMA) took the official position that alcoholism is a disease. This declaration suggested that alcoholism was a medical problem requiring medical intervention. In 1971, the National Conference of Commissioners on Uniform State Laws adopted the Uniform Alcoholism and Intoxication Treatment Act, which recommended that "alcoholics not be subjected to criminal prosecution because of their consumption of alcoholic beverages but rather should be afforded a continuum of treatment in order that they may lead normal lives as productive members of society" (Keller and Rosenberg 1973, p. 2). While this recommendation did not carry the weight of law, it made a major change in the legal implications of addiction. With these changes came more humane treatment of people with addictions.

Several methods of detoxification have evolved that reflect a more humanitarian view of people with substance use disorders. In the "medical model," detoxification is characterized by the use of physician and nursing staff and the administration of medication to assist people through withdrawal safely (Sadd and Young 1987). The "social model" rejects the use of medication and the need for routine medical care, relying instead on a supportive nonhospital environment to ease the passage through withdrawal (Sadd and Young 1987). Today, it is rare to find a "pure" detoxification model. For example, some social model programs use medication to ease withdrawal but generally employ nonmedical staff to monitor withdrawal and conduct triage (i.e., sorting patients according to the severity of their disorders). Likewise, medical programs generally have some components to address social/personal aspects of addiction.

Just as the treatment and the conceptualization of addiction have changed, so too have the patterns of substance use and the accompanying detoxification needs. The popularity of cocaine, heroin, and other substances has led to the need for different kinds of detoxification services. At the same time, public health officials have increased investments in detoxification services and substance abuse treatment, especially after 1985, as a means to inhibit the spread of HIV infection and AIDS among people who inject drugs. More recently, people with substance use disorders are more likely to abuse more than one drug simultaneously (i.e., polydrug abuse) (Office of Applied Studies 2005).

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The AMA continues to maintain its position that substance dependence is a disease, and it encourages physicians and other clinicians, health organizations, and policymakers to base all their activities on this premise (AMA 2002). As treatment regimens have become more sophisticated and polydrug abuse more common, detoxification has evolved into a compassionate science.

Definitions

Few clear definitions of detoxification and related concepts are in general use at this time. Criminal justice, health care, substance abuse, mental health, and many other sys-

tems all define detoxification differently. This TIP offers a clear and uniform set of definitions for the various components of detoxification and substance abuse treatment that may prove useful to the field of detoxification.

Detoxification

Detoxification is a set of interventions aimed at managing acute intoxication and withdrawal. It denotes a clearing of toxins from the body of the patient who is acutely intoxicated and/or dependent on substances of abuse. Detoxification seeks to minimize the physical harm caused by the abuse of substances. The acute medical management of life-threatening intoxication and related medical problems generally is not included within the term *detoxification* and is not covered in detail in this TIP.

The Washington Circle Group (WCG), a body of experts organized to improve the quality and effectiveness of substance abuse prevention and treatment, defines detoxification as "a medical intervention that manages an individual safely through the process of acute withdrawal" (McCorry et al. 2000*a*, p. 9). The WCG makes an important distinction, however, in noting that "a detoxification program is not designed to resolve the long-standing psychological, social, and behavioral problems associated with alcohol and drug abuse" (McCorry et al. 2000*a*, p. 9). The consensus panel supports this statement and has taken special care to note that *detoxification is not substance abuse treatment and rehabilitation*. For further explanation, see the text box below.

The consensus panel built on existing definitions of detoxification as a broad process with three essential components that may take place concurrently or as a series of steps:

- *Evaluation* entails testing for the presence of substances of abuse in the bloodstream, measuring their concentration, and screening for co-occurring mental and physical conditions. Evaluation also includes a comprehensive assessment of the patient's medical and psychological conditions and social situation to help determine the appropriate level of treatment following detoxification. Essentially, the evaluation serves as the basis for the initial substance abuse treatment plan once the patient has been withdrawn successfully.
- *Stabilization* includes the medical and psychosocial processes of assisting the patient through acute intoxication and withdrawal to the attainment of a medically stable, fully supported, substance-free state. This often is done with the assistance of medications, though in some approaches to detoxification no medication is used. Stabilization includes familiarizing patients with what to expect in the treatment milieu and their role in treatment and recovery. During this time practitioners also seek the involvement of the patient's family, employers, and

Detoxification as Distinct From Substance Abuse Treatment

Detoxification is a set of interventions aimed at managing acute intoxication and withdrawal. Supervised detoxification may prevent potentially life-threatening complications that might appear if the patient were left untreated. At the same time, detoxification is a form of palliative care (reducing the intensity of a disorder) for those who want to become abstinent or who must observe mandatory abstinence as a result of hospitalization or legal involvement. Finally, for some patients it represents a point of first contact with the treatment system and the first step to recovery. *Treatment/rehabilitation*, on the other hand, involves a constellation of ongoing therapeutic services ultimately intended to promote recovery for substance abuse patients.

other significant people when appropriate and with release of confidentiality.

- *Fostering the patient's entry into treatment* involves preparing the patient for entry into substance abuse treatment by stressing the importance of following through with the complete substance abuse treatment continuum of care. For patients who have demonstrated a pattern of completing detoxification services and then failing to engage in substance abuse treatment, a written treatment contract may encourage entrance into a continuum of substance abuse treatment and care. This contract, which is not legally binding, is voluntarily signed by patients when they are stable enough to do so at the beginning of treatment. In it, the patient agrees to participate in a continuing care plan, with details and contacts established prior to the completion of detoxification.

All three components (evaluation, stabilization, and fostering a patient's entry into treatment) involve treating the patient with compassion and understanding. Patients undergoing detoxification need to know that someone cares about them, respects them as individuals, and has hope for their future. Actions taken during detoxification will demonstrate to the patient that the provider's recommendations can be trusted and followed.

Other Relevant Terms

As defined by the *Diagnostic and Statistical Manual of Mental Disorders, 4th edition, Text Revision* (DSM-IV-TR) (American Psychiatric Association [APA] 2000), a *substance-related disorder* is a "disorder related to the taking of a drug of abuse (including alcohol), to the side effects of a medication, and to toxin exposure" (APA 2000, p. 191). The term substance "can refer to a drug of abuse, a medication, or a toxin" (APA 2000, p. 191). In this TIP, the term *substance* refers to alcohol as well as other drugs of abuse.

Substance-related disorders are divided into two groups: substance use disorders and substance-induced disorders. According to the DSM-IV-TR, *substance use disorders* include both "substance dependence" and "substance abuse." *Substance dependence* refers to "a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues use of the substance despite significant substance-related problems. There is a pattern of repeated self-administration that can result in tolerance, withdrawal, and compulsive drug-taking behavior" (APA 2000, p. 192). *Substance abuse* refers to "a maladaptive pattern of substance use manifested by recurrent and significant adverse consequences related to the repeated use of substances" (APA 2000, p. 198). It should be noted that for purposes of this TIP, the term "substance abuse" is sometimes used to denote both *substance abuse* and *substance dependence* as they are defined by the DSM-IV-TR.

This TIP also uses the DSM-IV-TR definitions for *substance intoxication* and *substance withdrawal. Substance intoxication* is "the development of a reversible substance-specific syndrome due to the recent ingestion of (or exposure to) a substance" whereas *substance withdrawal* is "the development of a substance-specific maladaptive behavioral change, with physiological and cognitive concomitants, that is due to the cessation of, or reduction in, heavy and prolonged substance use" (APA 2000, pp. 199, 201). Figure 1-1 (p. 6) defines these and other relevant terms.

Treatment/rehabilitation includes an ongoing, continual assessment of the patient's physical, psychological, and social status, as well as an analysis of environmental risk factors that may be contributing to substance use and the identification of immediate relapse triggers as well as prevention strategies for coping with them. It also includes the delivery of primary medical care and psychiatric care, if necessary, to help the patient abstain from substance use and minimize the physical harm caused by it. Ultimately, the goal of treatment/rehabilitation is to attain a higher level of social functioning by reducing risk factors,

Figure 1-1
DSM-IV-TR Definitions of Terms

Term	Definition
Substance	A drug of abuse, a medication, or a toxin.
Substance-related disorders	Disorders related to the taking of a drug of abuse (including alcohol), to the side effects of a medication, and to toxin exposure.
Substance abuse (in this TIP, also sometimes used to denote "substance dependence")	A maladaptive (i.e., harmful to a person's life) pattern of substance use marked by recurrent and significant negative consequences related to the repeated use of substances.
Substance dependence (in this TIP, "substance abuse" is sometimes used to include "dependence")	A cluster of cognitive, behavioral, and physiological symptoms indicating that the individual is continuing use of the substance despite significant substance-related problems. A person experiencing substance dependence shows a pattern of repeated self-administration that usually results in tolerance, withdrawal, and compulsive drug-taking behavior.
Substance intoxication	The development of a reversible substance-specific syndrome as the result of the recent ingestion of (or exposure to) a substance.
Substance withdrawal	The development of a substance-specific maladaptive behavioral change, usually with uncomfortable physiological and cognitive consequences, that is the result of a cessation of, or reduction in, heavy and prolonged substance use.

Source: APA 2000.

enhancing protective factors, and thus decreasing the possibility of relapse.

Maintenance includes the continuation of counseling and support specified in the treatment plan, refinement and strengthening of strategies to avoid relapse, and engagement in ongoing relapse prevention, aftercare, and/or domiciliary care (Lehman et al. 2000).

As a final note, in this TIP persons in need of detoxification services and subsequent substance abuse treatment are referred to as patients to emphasize that these persons are coming into contact with physicians, nurses, physician assistants, and medical social workers in a medical setting in which the patient often is physically ill from the effects of withdrawal from specific substances. In some social setting detoxification programs, the terms "client" or "consumer" may be used in place of "patient."

Guiding Principles in Detoxification and Substance Abuse Treatment

The consensus panel recognizes that the successful delivery of detoxification services is dependent on standards that are to some extent empirically measurable and agreed upon by all parties. The consensus panel developed guidelines (listed in Figure 1-2) that serve as the foundation for the TIP.

Figure 1-2
Guiding Principles Recognized by the Consensus Panel

1. Detoxification does not constitute substance abuse treatment but is one part of a continuum of care for substance-related disorders.
2. The detoxification process consists of the following three sequential and essential components:
   - Evaluation
   - Stabilization
   - Fostering patient readiness for and entry into treatment

   A detoxification process that does not incorporate all three critical components is considered incomplete and inadequate by the consensus panel.
3. Detoxification can take place in a wide variety of settings and at a number of levels of intensity within these settings. Placement should be appropriate to the patient's needs.
4. Persons seeking detoxification should have access to the components of the detoxification process described above, no matter what the setting or the level of treatment intensity.
5. All persons requiring treatment for substance use disorders should receive treatment of the same quality and appropriate thoroughness and should be put into contact with a substance abuse treatment program after detoxification, if they are not going to be engaged in a treatment service provided by the same program that provided them with detoxification services. There can be "no wrong door to treatment" for substance use disorders (CSAT 2000*a*).
6. Ultimately, insurance coverage for the full range of detoxification services is cost-effective. If reimbursement systems do not provide payment for the complete detoxification process, patients may be released prematurely, leading to medically or socially unattended withdrawal. Ensuing medical complications ultimately drive up the overall cost of health care.
7. Patients seeking detoxification services have diverse cultural and ethnic backgrounds as well as unique health needs and life situations. Organizations that provide detoxification services need to ensure that they have standard practices in place to address cultural diversity. It also is essential that care providers possess the special clinical skills necessary to provide culturally competent comprehensive assessments. Detoxification program administrators have a duty to ensure that appropriate training is available to staff. (For more information on cultural competency training and specific competencies that clinicians need to be "culturally competent" see the forthcoming TIP *Improving Cultural Competence in Substance Abuse Treatment* [SAMHSA in development *a*]).
8. A successful detoxification process can be measured, in part, by whether an individual who is substance dependent enters, remains in, and is compliant with the treatment protocol of a substance abuse treatment/rehabilitation program after detoxification.

Challenges to Providing Effective Detoxification

It is an important challenge for detoxification service providers to find the most effective way to foster a patient's recovery. Effective detoxification includes not only the medical stabilization of the patient and the safe and humane withdrawal from drugs, including alcohol, but also entry into treatment. Successfully linking detoxification with substance abuse treatment reduces the "revolving door" phenomenon of repeated withdrawals, saves money in the medium and long run, and delivers the sound and humane level of care patients need (Kertesz et al. 2003). Studies show that detoxification and its linkage to the appropriate levels of treatment lead to increased recovery and decreased use of detoxification and treatment services in the future. In addition, recovery leads to reductions in crime, general healthcare costs, and expensive acute medical and surgical treatments consequent to untreated substance abuse (Abbot et al. 1998; Aszalos et al. 1999). While detoxification is not treatment per se, its effectiveness can be measured, in part, by the patient's continued abstinence.

Another challenge to providing effective detoxification occurs when programs try to develop linkages to treatment services. A study (Mark et al. 2002) conducted for the Substance Abuse and Mental Health Services Administration highlights the pitfalls of the service delivery system. According to the authors, each year at least 300,000 patients with substance use disorders or acute intoxication obtain inpatient detoxification in general hospitals while additional numbers obtain detoxification in other settings. Only about one-fifth of people discharged from acute care hospitals for detoxification receive substance abuse treatment during that hospitalization. Moreover, only 15 percent of people who are admitted through an emergency room for detoxification and then discharged receive any substance abuse treatment.

Finally the average length of stay for people undergoing detoxification and treatment in 1997 was only 7.7 days (Mark et al. 2002). Given that "research has shown that patients who receive continuing care have better outcomes in terms of drug abstinence and readmission rates than those who do not receive continuing care," the report authors conclude that there is a pronounced need for better linkage between detoxification services and the treatment services that are essential for full recovery (Mark et al. 2002, p. 3).

Reimbursement systems can present another challenge to providing effective detoxification services (Galanter et al. 2000). Third-party payors sometimes prefer to manage payment for detoxification separately from other phases of addiction treatment, thus treating detoxification as if it occurred in isolation from addiction treatment. This "unbundling" of services has promoted the separation of all services into somewhat scattered segments (Kasser et al. 2000). In other instances, some reimbursement and utilization policies dictate that only "detoxification" currently can be authorized, and "detoxification" for that policy or insurer does not cover the nonmedical counseling that is an integral part of substance abuse treatment. Many treatment programs have found substance abuse counselors to be of special help with resistant patients, especially for patients with severe underlying shame over the fact that their substance use is out of control. Yet some payors will not reimburse for nonmedical services such as those provided by these counselors, and therefore the use of such staff by a detoxification or treatment service may be impossible, in spite of the fact that they are widely perceived as useful for patients.

Payors are gradually beginning to understand that detoxification is only one component of a comprehensive treatment strategy. Patient placement criteria, such as those published by the American Society of Addiction Medicine (ASAM) in the *Patient Placement Criteria, Second Edition, Revised* (ASAM 2001), have come to the fore as clinicians and

insurers try to reach agreements on the level of treatment required by a given patient, as well as the medically appropriate setting in which the treatment services are to be delivered. Accordingly, the TIP offers suggestions for resolving conflicts as well as clearly defining terms used in patient placement and treatment settings as a step toward clearer understanding among interested parties.

2 Settings, Levels of Care, and Patient Placement

In This Chapter...

Establishing criteria that take into account all the possible needs of patients receiving detoxification and treatment services is an extraordinarily complex task. This chapter discusses the criteria for placing patients in the appropriate treatment settings and offering the required intensity of services (i.e., level of care).

Role of Various Settings in the Delivery of Services

Addiction medicine has sought to develop an efficient system of care that matches patients' clinical needs with the appropriate care setting in the least restrictive and most cost-effective manner. (For an explanation of least restrictive care, see the text box, p. 12.) Challenges to effective placement matching for clients arise from a number of factors:

- Deficits in the full range of care settings and levels of care
- Limitations imposed by third-party payors (e.g., strict adherence to standardized admission criteria)
- Clinicians' lack of authority (and sometimes sufficient knowledge) to determine the most appropriate care setting and level of care
- Insurance that does not have a substance use disorder benefit available as part of its patient coverage
- Absence of any health insurance at all (Gastfriend et al. 2000)

No clear solution or formula to meet these challenges has emerged.

Least Restrictive Care

Least restrictive refers to patients' civil rights and their right to choice of care. There are four specific themes of historical and clinical importance:

1. Patients should be treated in those settings that least interfere with their civil rights and freedom to participate in society.
2. Patients should be able to disagree with clinician recommendations for care. While this includes the right to refuse any care at all, it also includes the right to obtain care in a setting of their choice (as long as considerations of dangerousness and mental competency are satisfied). It implies a patient's right to seek a higher or different level of care than that which the clinician has planned.
3. Patients should be informed participants in defining their care plan. Such planning should be done in collaboration with their healthcare providers.
4. Careful consideration of State laws and agency policies is required for patients who are unable to act in their own self-interests. Because the legal complexities of this issue will vary from State to State the TIP cannot provide definitive guidance here, but providers need to consider whether or not the person is "gravely" incapacitated, suicidal, or homicidal; likely to commit grave bodily injury; or, in some States, likely to cause injury to property. In such cases, State law and/or case law may hold providers responsible if they do not commit the patient to care, but in other cases programs may be open to lawsuits for forcibly holding a patient.

In spite of the impediments, some progress has been made in developing comprehensive patient placement criteria. Because the choice of a treatment setting and intensity of treatment (level of care) are so important, the American Society of Addiction Medicine (ASAM) created the *Patient Placement Criteria, Second Edition, Revised* (PPC-2R) a consensus-based clinical tool for matching patients to the appropriate setting and level of care. The ASAM PPC-2R represents an effort to define how care settings may be matched to patient needs and special characteristics. These criteria currently define the most broadly accepted standard of care for the treatment of substance use disorders. ASAM criteria are intended to provide flexible clinical guidelines; these criteria may not be appropriate for particular patients or specific care settings.

The PPC-2R identifies six "assessment dimensions to be evaluated in making placement decisions" (ASAM 2001, p. 4). They are as follows:

1. Acute Intoxication and/or Withdrawal Potential
2. Biomedical Conditions and Complications
3. Emotional, Behavioral, or Cognitive Conditions and Complications
4. Readiness to Change
5. Relapse, Continued Use, or Continued Problem Potential
6. Recovery/Living Environment

The ASAM PPC-2R describes both the settings in which services may take place and the intensity of services (i.e., level of care) that patients may receive in particular settings. It is important to reiterate, however, that the ASAM PPC-2R criteria do not characterize all the details that may be essential to the success of treatment (Gastfriend et al. 2000). Moreover, traditional assumptions that certain treatment can be delivered only in a particular setting may not be applicable or valuable to patients. Clinical judgment and consideration of the patient's particular situation are required for appropriate detoxification and treatment.

In addition to the general placement criteria for treatment for substance-related disorders, ASAM also has developed a second set of place-

ment criteria, which are more important for the purposes of this TIP—the five "Adult Detoxification" placement levels of care within Dimension 1 (ASAM 2001). These "Adult Detoxification" levels of care are

1. *Level I-D: Ambulatory Detoxification Without Extended Onsite Monitoring* (e.g., physician's office, home health care agency). This level of care is an organized outpatient service monitored at predetermined intervals.
2. *Level II-D: Ambulatory Detoxification With Extended Onsite Monitoring* (e.g., day hospital service). This level of care is monitored by appropriately credentialed and licensed nurses.
3. *Level III.2-D: Clinically Managed Residential Detoxification* (e.g., nonmedical or social detoxification setting). This level emphasizes peer and social support and is intended for patients whose intoxication and/or withdrawal is sufficient to warrant 24-hour support.
4. *Level III.7-D: Medically Monitored Inpatient Detoxification* (e.g., freestanding detoxification center). Unlike Level III.2.D, this level provides 24-hour medically supervised detoxification services.
5. *Level IV-D: Medically Managed Intensive Inpatient Detoxification* (e.g., psychiatric hospital inpatient center). This level provides 24-hour care in an acute care inpatient settings.

As described by the ASAM PPC-2R, the domain of detoxification refers not only to the reduction of the physiological and psychological features of withdrawal syndromes, but also to the process of interrupting the momentum of compulsive use in persons diagnosed with substance dependence (ASAM 2001). Because of the force of this momentum and the inherent difficulties in overcoming it even when there is no clear withdrawal syndrome, this phase of treatment frequently requires a greater intensity of services initially to establish participation in treatment activities and patient role induction. That is, this phase should increase the patient's readiness for and commitment to substance abuse treatment and foster a solid therapeutic alliance between the patient and care provider.

It is important to note that ASAM PPC-2R criteria are only guidelines, and that there are no uniform protocols for determining which patients are placed in which level of care. For further information on patient placement, readers are advised to consult TIP 13, *The Role and Current Status of Patient Placement Criteria in the Treatment of Substance Use Disorders* (Center for Substance Abuse Treatment [CSAT] 1995*h*).

Because this TIP is geared to audiences that may or may not be familiar with the ASAM PPC-2R levels of care, this section discusses the services and staffing specific to the care settings that are familiar to a broad audience.

Physician's Office

It has been estimated that nearly one half of the patients who visit a primary care provider have some type of problem related to substance use (Miller and Gold 1998). Indeed, because the physician may be the first point of contact for these people, initiation of treatment often begins in the family physician's office (Prater et al. 1999). Physicians should use prudence in determining which patients may undergo detoxification safely on an outpatient basis. As a general rule, outpatient treatment is just as effective as inpatient treatment for patients with mild to moderate withdrawal symptoms (Hayashida 1998).

For physicians treating patients with substance use disorders, preparing the patient to enter treatment and developing a therapeutic alliance between patient and clinician should begin as soon as possible. This includes providing the patient and his family with information on the detoxification process and subsequent substance abuse treatment, in addition to providing medical care or referrals if necessary. Staffing should include certified interpreters for the deaf and other language

interpreters if the program is serving patients in need of those services. Physicians should be able to accommodate frequent followup visits during the management of acute withdrawal. Medications should be dispensed in limited amounts.

Level of care

Ambulatory detoxification without extended onsite monitoring

This level of detoxification (ASAM's Level I-D) is an organized outpatient service, which may be delivered in an office setting, healthcare or addiction treatment facility, or in a patient's home by trained clinicians who provide medically supervised evaluation, detoxification, and referral services according to a predetermined schedule. Such services are provided in regularly scheduled sessions. These services should be delivered under a defined set of policies and procedures or medical protocols (ASAM 2001). Ambulatory detoxification is considered appropriate only when a positive and helpful social support network is available to the patient. In this level of care, outpatient detoxification services should be designed to treat the patient's level of clinical severity, to achieve safe and comfortable withdrawal from mood-altering drugs, and to effectively facilitate the patient's transition into treatment and recovery.

Ambulatory detoxification with extended onsite monitoring

Essential to this level of care—and distinguishing it from Ambulatory Detoxification Without Extended Onsite Monitoring—is the availability of appropriately credentialed and licensed nurses (such as registered nurses [RNs] or licensed practical nurses [LPNs]) who monitor patients over a period of several hours each day of service (ASAM 2001). Otherwise, this level of detoxification (ASAM's Level II-D) also is an organized outpatient service. Like Level I-D, in this level of care detoxification services are provided in regularly scheduled sessions and delivered under a defined set of policies and procedures or medical protocols. Outpatient services are designed to treat the patient's level of clinical severity and to achieve safe and comfortable withdrawal from mood-altering drugs, including alcohol, and to effectively facilitate the patient's entry into ongoing treatment and recovery (ASAM 2001).

Staffing

Although they need not be present in the treatment setting at all times, physicians and nurses are essential to office-based detoxification. In States where physician assistants, nurse practitioners, or advance practice clinical nurse specialists are licensed as physician extenders, they may perform the duties ordinarily carried out by a physician (ASAM 2001).

Because detoxification is conducted on an outpatient basis in these settings, it is important for medical and nursing personnel to be readily available to evaluate and confirm that detoxification in the less supervised setting is safe. All clinicians who assess and treat patients should be able to obtain and interpret information regarding the needs of these persons, and all should be knowledgeable about the biomedical and psychosocial dimensions of alcohol and illicit drug dependence. Requisite skills and knowledge base include the following:

- Understanding how to interpret the signs and symptoms of alcohol and other drug intoxication and withdrawal
- Understanding the appropriate treatment and monitoring of these conditions
- The ability to facilitate the individual's entry into treatment

It is essential that medical consultation is readily available in emergencies. It is desirable that medical staff link patients to treatment services, although this may be an unreasonable expectation that cannot be met in a busy office setting. Linkage to treatment services may be provided by the physician or by

designated counselors, psychologists, social workers, and acupuncturists who are available either onsite or through the healthcare system (ASAM 2001).

Freestanding Urgent Care Center or Emergency Department

There are several distinctions between urgent care facilities and emergency rooms (ERs). Urgent care often is used by patients who cannot or do not want to wait until they see their doctor in his or her office, whereas emergency rooms are utilized more often by patients who perceive themselves to be in a crisis situation. Unlike emergency departments, which are required to operate 24 hours a day, freestanding urgent care centers usually have specific hours of operation. Staffing for urgent care centers generally is more limited than for an ER. Standard staffing includes only a physician, an RN, a technician, and a secretary. Despite these distinctions, in actual practice there is considerable overlap between the two—the ER will see medical problems that could be handled by visits to offices, and urgent care facilities will handle some cases of emergency medicine.

A freestanding urgent care center or emergency department reasonably can be expected to provide assessment and acute biomedical (including psychiatric) care. However, these settings often are unable to provide satisfactory psychosocial stabilization or complete biomedical stabilization (which includes both the initiation and taper of medications used in the treatment of substance withdrawal syndromes). Appropriate triage and successful linkage to ongoing detoxification services is essential. The ongoing detoxification services may be provided in an inpatient, residential, or outpatient setting. Patients with more than moderate biomedical or psychosocial complications are more likely to require treatment in an inpatient setting. Care in these settings can be quite costly and should be accessed only when there are serious concerns about a patient's safety.

A timely and accurate assessment in an emergency department is of the highest importance. This will permit the rapid transfer of the patient to a setting where complete care can be provided. Ideally, personnel in the emergency department will have at least a small amount of experience and expertise in identifying critically ill substance-using patients who may be about to experience or are already experiencing withdrawal symptoms. Three essential rules apply to emergency departments and their handling of intoxicated patients and patients who have begun to experience withdrawal:

Although they need not be present in the treatment setting at all times, physicians and nurses are essential to office-based detoxification.

- Emergency departments and their clinicians should never simply administer medications to intoxicated persons and then send them home.
- No intoxicated patient should ever be allowed to leave a hospital setting. All such persons should be referred to the appropriate detoxification setting if possible, although there are legal restrictions that forbid holding persons against their will under certain conditions (Armenian et al. 1999).
- A clear distinction must be made between acute intoxication on the one hand and withdrawal on the other. Acute intoxication, it must be remembered, creates special issues and challenges that need to be addressed. The risk of suicidality in patients who present in a state of intoxication needs to be

carefully assessed. Because of their volatility and often risky behavior, patients who are intoxicated, as well as those patients who have begun to experience withdrawal, merit special attention. For more on treating intoxicated patients, see chapter 3.

Inpatient detoxification provides 24-hour supervision, observation, and support for patients who are intoxicated or experiencing withdrawal.

Level of care

Care is provided to patients whose withdrawal signs and symptoms are sufficiently severe to require primary medical and nursing care services. The services are delivered under a defined set of physician-managed procedures or medical protocols. Both settings provide medically directed assessment and acute care that includes the initiation of detoxification for substance use withdrawal. Neither setting is likely to offer satisfactory biomedical stabilization or 24-hour observation. Generally speaking, triage to inpatient care can easily be facilitated from either setting.

Freestanding urgent care centers and emergency departments are outpatient settings that are uniquely designed to address the needs of patients in biomedical crisis. For patients with substance use disorders, care in these settings is not complete until successful linkage is made to treatment that is focused specifically on the substance use disorder. To accomplish this, a comprehensive assessment, taking into account psychosocial as well as biomedical issues, is recommended wherever possible.

Appreciation of the value of multidimensional patient assessment is central to the clinician's ability to decide which triage (linkage) options are least restrictive and most cost-effective for a given patient.

Staffing

Both emergency departments and freestanding urgent care units are staffed by physicians. The same rules regarding who may provide care apply here as they did in the discussion of staffing of office-based detoxification (ASAM 2001). An RN or other licensed and credentialed nurse is available for primary nursing care and observation. Psychologists, social workers, addiction counselors, and acupuncturists usually are not available in these settings. The physician or attending nurse usually facilitates linkage to substance abuse treatment.

Freestanding Substance Abuse Treatment or Mental Health Facility

Freestanding substance abuse treatment facilities may or may not be equipped to provide adequate assessment and treatment of co-occurring psychiatric conditions and biopsychosocial problems, as the range of services varies considerably from one facility to another. Inpatient mental health facilities, on the other hand, are able generally to provide treatment for substance use disorders and co-occurring psychiatric conditions. Nonetheless, like substance abuse treatment facilities, the range of available services varies from one mental health facility to another.

General guidelines for considering patient placement in either of these settings are provided below; however, it should be emphasized that a clear understanding of the specific services that a given setting provides is

indispensable to identifying the least restrictive and most cost-effective treatment option that may be available. Concern for safety is of primary importance, and the final decision regarding placement always rests with the treating physician.

Level of care

Medically Monitored Inpatient Detoxification

Inpatient detoxification provides 24-hour supervision, observation, and support for patients who are intoxicated or experiencing withdrawal. Since this level of care is relatively more restrictive and more costly than a residential treatment option, the treatment mission in this setting should be clearly focused and limited in scope. Primary emphasis should be placed on ensuring that the patient is medically stable (including the initiation and tapering of medications used for the treatment of substance use withdrawal); assessing for adequate biopsychosocial stability, quickly intervening to establish this adequately; and facilitating effective linkage to and engagement in other appropriate inpatient and outpatient services.

Inpatient settings provide medically managed intensive inpatient detoxification. At this level of care, physicians are available 24 hours per day by telephone. A physician should be available to assess the patient within 24 hours of admission (or sooner, if medically necessary) and should be available to provide onsite monitoring of care and further evaluation on a daily basis. An RN or other qualified nursing specialist should be present to administer an initial assessment. A nurse will be responsible for overseeing the monitoring of the patient's progress and medication administration on an hourly basis, if needed. Appropriately licensed and credentialed staff should be available to administer medications in accordance with physician orders.

Clinically Managed Residential Detoxification

Residential settings vary greatly in the level of care that they provide. Those with intensive medical supervision involving physicians, nurse practitioners, physician assistants, and nurses can handle all but the most demanding complications of intoxication and withdrawal. On the other hand, some residential settings have minimally intensive medical oversight. Residential detoxification in settings with limited medical oversight often is referred to as "social detoxification." (Though the "social detoxification" model is not limited to residential facilities.) Facilities with lower levels of care should have clear procedures in place for implementing and pursuing appropriate medical referral and linkage, especially in the case of emergencies. For example, a patient who is in danger of seizures or delirium tremens needs to be referred to the appropriate medical facility for acute care of presenting symptoms, possibly medicated, and then returned to a social detoxification setting for continuing monitoring and observation. The establishment of this kind of collaborative relationship between institutions provides a good example of a cost-effective way to provide adequate care to patients.

Residential detoxification programs provide 24-hour supervision, observation, and support for patients who are intoxicated or experiencing withdrawal. They are characterized by an emphasis on peer and social support (ASAM 2001). Standards published by such groups as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and the Commission on Accreditation of Rehabilitation Facilities (CARF) provide further information on quality measures for residential detoxification.

Staffing

Inpatient detoxification programs employ licensed, certified, or registered clinicians who provide a planned regimen of 24-hour, professionally directed evaluation, care, and treatment services for patients and their families. An interdisciplinary team of appropriately trained clinicians (such as physicians, RNs and LPNs, counselors, social workers, and psychologists) should be available to assess and treat the patient and to obtain and interpret information regarding the patient's needs. The number and disciplines of team members should be appropriate to the range and severity of the patient's problems (ASAM 2001).

Residential detoxification programs are staffed by appropriately credentialed personnel who are trained and competent to implement physician-approved protocols for patient observation and supervision. These persons also are responsible for determining the appropriate level of care and facilitating the patient's transition to ongoing care. Medical evaluation and consultation should be available 24 hours a day, in accordance with treatment/transfer practice guidelines. All clinicians who assess and treat patients should be able to obtain and interpret information regarding the needs of these persons and should be knowledgeable about the biomedical and psychosocial dimensions of alcohol and other drug dependence. Such knowledge includes awareness of the signs and symptoms of alcohol and other drug intoxication and withdrawal, as well as the appropriate treatment and monitoring of those conditions and how to facilitate the individual's entry into ongoing care. Staff should ensure that patients are taking medications according to their physician's orders and legal requirements (ASAM 2001).

Some residential detoxification programs are staffed to supervise self-administered medications for the management of withdrawal. All such programs should rely on established clinical protocols to identify patients who have biomedical needs that exceed the capacity of the facility and to identify which programs will likely have a need for transferring such patients to more appropriate treatment settings.

Intensive Outpatient and Partial Hospitalization Programs

An intensive outpatient program (IOP) or partial hospitalization program (PHP) is appropriate for patients with mild to moderate withdrawal symptoms. Thorough psychosocial assessment and intervention should be available in addition to biomedical assessment and stabilization. Many of these programs have close clinical and/or administrative ties to hospital centers. When needed, triage to a higher level of care should be easy to accomplish. Outpatient treatment should be delivered in conjunction with all components of detoxification.

Level of care

This level of detoxification is an organized outpatient service that requires patients to be present onsite for several hours a day. It is thus similar to a physician's office in that ambulatory detoxification with extended onsite monitoring is provided. Unlike the physician's office, in the IOP and PHP it is standard practice to have a multidisciplinary team available to provide or facilitate linkage to a range of medically supervised evaluation, detoxification, and referral services.

Detoxification services also are provided in regularly scheduled sessions and delivered under a defined set of policies and procedures or medical protocols. These outpatient services are designed to treat the patient's level of clinical severity, to achieve safe and comfortable withdrawal from mood-altering drugs (including alcohol), and to effectively facili-

tate the patient's engagement in ongoing treatment and recovery (ASAM 2001).

A partial hospitalization program may occupy the same setting (i.e., physical space) as an acute care inpatient treatment program. Although occupying the same space, the levels of care provided by these two programs are distinct yet complementary. Acute care inpatient programs provide detoxification services to patients in danger of severe withdrawal and who therefore need the highest level of medically managed intensive care, including access to life support equipment and 24-hour medical support. In contrast, partial hospitalization programs provide services to patients with mild to moderate symptoms of withdrawal that are not likely to be severe or life-threatening and that do not require 24-hour medical support. The transition from an acute care inpatient program to either a partial hospitalization or intensive outpatient program sometimes is referred to as a "step-down." Typically, whether these programs share space and staff with an acute care inpatient program or are physically distinct from a hospital structure, they have close clinical and/or administrative ties to hospital centers. Collaborative working relationships are indispensable in pursuing the goal of providing patients with the most appropriate level of care in the most cost-effective setting.

Staffing

IOPs and PHPs should be staffed by physicians who are available daily as active members of an interdisciplinary team of appropriately trained professionals and who medically manage the care of the patient. An RN or other licensed and credentialed nurse should be available for primary nursing care and observation during the treatment day. Addiction counselors or licensed or registered addiction clinicians should be available to administer planned interventions according to the assessed needs of the patient. The multidisciplinary professionals (such as physicians, nurses, counselors, social workers, psychologists, and acupuncturists) should be available as an interdisciplinary team to assess and care for the patient with a substance-related disorder, as well as patients with both a substance use disorder and a co-occurring biomedical, emotional, or behavioral condition. Successful linkage to treatment for the substance use disorder (in addition to biomedical stabilization) is central to the mission of an intensive outpatient or partial hospitalization program (ASAM 2001). For more information, see the TIP *Substance Abuse: Clinical Issues in Intensive Outpatient Treatment* [SAMHSA in development *d*].

Successful linkage to treatment for the substance use disorder (in addition to biomedical stabilization) is central to the mission of an intensive outpatient or partial hospitalization program.

Acute Care Inpatient Settings

There are several types of acute care inpatient settings. They include

- Acute care general hospitals
- Acute care addiction treatment units in acute care general hospitals
- Acute care psychiatric hospitals
- Other appropriately licensed chemical dependency specialty hospitals

These settings share the ready availability of acute care medical and nursing staff, life support equipment, and ready access to the full resources of an acute care general hospital or its psychiatric unit. This level of care provides medically managed intensive inpatient detoxification (ASAM 2001).

Level of care

Acute inpatient care is an organized service that provides medically monitored inpatient detoxification that is delivered by medical and nursing professionals. Medically supervised evaluation and withdrawal management in a permanent facility with inpatient beds is provided for patients whose withdrawal signs and symptoms are sufficiently severe to require 24-hour inpatient care. Services should be delivered under a set of policies and procedures or clinical protocols designated and approved by a qualified physician (ASAM 2001).

Staffing

Acute care inpatient detoxification programs typically are staffed by physicians who are available 24 hours a day as active members of an interdisciplinary team of appropriately trained professionals and who medically manage the care of the patient. In some States, these duties may be performed by an RN or physician assistant. An RN or LPN, as usual, is available for primary nursing care and observation 24 hours a day. Facility-approved addiction counselors or licensed or registered addiction clinicians should be available 8 hours a day to administer planned interventions according to the assessed needs of the patient. An interdisciplinary team of appropriately trained clinicians (such as physicians, nurses, counselors, social workers, and psychologists) should be available to assess and treat the patient with a substance-related disorder, or a patient with co-occurring substance use, biomedical, psychological, or behavioral conditions (ASAM 2001).

Other Concerns Regarding Levels of Care and Placement

In part because of the need to keep costs to a minimum and in part as the result of research in the field, outpatient detoxification is becoming the standard for treatment of symptoms of withdrawal from substance dependence in many locales. Most alcohol treatment programs have found that more than 90 percent of patients with withdrawal symptoms can be treated as outpatients (Abbott et al. 1995). Careful screening of these patients is essential to reserve for inpatient treatment those clients with possibly complicated withdrawal; for example, patients with subacute medical or psychiatric conditions (that in and of themselves would not require hospitalization) and those in danger of seizures or delirium tremens should receive inpatient care. Inpatient addiction treatment programs will vary in the level of acute medical or psychiatric care that can be provided. Figure 2-1 presents an overview of issues to consider in deciding between inpatient and outpatient detoxification.

ASAM criteria are being adopted extensively on the basis of their "face validity," though their outcome validity has yet to be clinically proven. Early studies of more versus less restrictive and intensive treatment settings on randomized samples generally have failed to show group differences, and studies continue to show this pattern (Gastfriend et al. 2000). Whether patients undergoing detoxification will have better results as outpatients rather than as inpatients remains to be established (Hayashida 1998).

Another consideration is that ASAM placement guidelines are not always the best guide to placing a patient in the proper setting at the proper level. For example, what is the clinician to do with the patient who qualifies for outpatient treatment according to the ASAM guidelines but is homeless in sub-zero temperatures? No provision is made for such cases. The ASAM guidelines are to be regarded as a "work in progress," as their authors readily admit (ASAM 2001, p. 19). Nevertheless, they are an important set of guidelines that are of great help to clinicians. For administrators, the standards published

Figure 2-1
Issues To Consider in Determining Whether Inpatient or Outpatient Detoxification Is Preferred

Considerations	Indications
Ability to arrive at clinic on a daily basis	Necessary if outpatient detoxification is to be carried out
History of previous delirium tremens or withdrawal seizures	Contraindication to outpatient detoxification: recurrence likely; specific situation may suggest that an attempt at outpatient detoxification is possible
No capacity for informed consent	Protective environment (inpatient) indicated
Suicidal/homicidal/psychotic condition	Protective environment (inpatient) indicated
Able/willing to follow treatment recommendations	Protective environment (inpatient) indicated if unable to follow recommendations
Co-occurring medical conditions	Unstable medical conditions such as diabetes, hypertension, or pregnancy: all relatively strong contraindications to outpatient detoxification
Supportive person to assist	Not essential but advisable for outpatient detoxification

Source: Consensus Panelist Sylvia Dennison, M.D.

by such groups as JCAHO and CARF offer guidance for overall program operations.

It has become clear that detoxification involves much more than simply medically withdrawing a patient from alcohol or other drugs. Detoxification, whether done on an inpatient, residential, or outpatient basis, frequently is the initial therapeutic encounter between patient and clinician. Irrespective of the substance involved, a detoxification episode should provide an opportunity for biomedical (including psychiatric) assessment, referral for appropriate services, and linkage to treatment services. Chapter 3 provides an overview of the psychosocial and biomedical issues relevant to detoxification, strategies to engage the patient, and an overview of providing adequate linkage to follow up treatment and services.

3 An Overview of Psychosocial and Biomedical Issues During Detoxification

In This Chapter...

Evaluating and Addressing Psychosocial and Biomedical Issues

Strategies for Engaging and Retaining Patients in Detoxification

Referrals and Linkages

Regardless of setting or level of care, the goals of detoxification are to provide safe and humane withdrawal from substances and to foster the patient's entry into long-term treatment and recovery. Detoxification presents a unique opportunity to intervene during a period of crisis and move a client to make changes in the direction of health and recovery. Hence, a primary goal of the detoxification staff should be to build the therapeutic alliance and motivate the patient to enter treatment. This process should begin even as the patient is being medically stabilized (Onken et al. 1997).

Psychological dependence, co-occurring psychiatric and medical conditions, social supports, and environmental conditions critically influence the probability of successful and sustained abstinence from substances. Research indicates that addressing psychosocial issues during detoxification significantly increases the likelihood that the patient will experience a safe detoxification and go on to participate in substance abuse treatment. Staff members' ability to respond to patients' needs in a compassionate manner can make the difference between a return to substance abuse and the beginning of a new (and more positive) way of life.

This chapter addresses the psychosocial and biomedical issues that may affect detoxification and ensuing treatment. It highlights evaluation procedures for patients undergoing detoxification, discusses strategies for engaging and retaining patients in detoxification and preparing them for treatment, and presents an overview for providing linkages to other services.

Overarching Principles for Care During Detoxification Services

- Detoxification services do not offer a "cure" for substance use disorders. They often are a first step toward recovery and the "first door" through which patients pass to treatment.
- Substance use disorders are treatable, and there is hope for recovery.
- Substance use disorders are brain disorders and not evidence of moral weaknesses.
- Patients are treated with respect and dignity at all times.
- Patients are treated in a nonjudgmental and supportive manner.
- Services planning is completed in partnership with the patient and his or her social support network, including such persons as family, significant others, or employers.
- All health professionals involved in the care of the patient will maximize opportunities to promote rehabilitation and maintenance activities and to link her or him to appropriate substance abuse treatment immediately after the detoxification phase.
- Active involvement of the family and other support systems while respecting the patient's rights to privacy and confidentiality is encouraged.
- Patients are treated with due consideration for individual background, culture, preferences, sexual orientation, disability status, vulnerabilities, and strengths.

Evaluating and Addressing Psychosocial and Biomedical Issues

Patients entering detoxification are undergoing profound personal and medical crisis. Withdrawal itself can cause or exacerbate current emotional, psychological, or mental problems. The detoxification staff needs to be equipped to identify and address potential problems.

Considerations for Conducting the Initial Evaluation

An initial evaluation will help detoxification staff foresee any variables that might complicate a safe and effective withdrawal. Figure 3-1 lists the biomedical and psychosocial domains that can affect the stabilization of the patient.

The following sections include some general guidelines and important considerations to follow when providing detoxification services.

General Guidelines for Addressing Immediate Medical Concerns

Because substance abuse affects all systems of the body and is associated with lack of self-care, it is not unusual for detoxification to be complicated by medical problems. Health professionals should screen for medical problems that may put the client at risk for a medical crisis or expose other clients or staff to contagious diseases. This section outlines important considerations for both nonmedical and medical staff. Chapter 5 provides a clinical overview of co-occurring medical conditions and is geared primarily toward medical personnel.

Co-occurring medical conditions

The initial consultation should include an evaluation of the expected signs, symptoms, and severity of the withdrawal. Detoxification is not an exact science, but any significant deviation from the expected course of withdrawal should be observed closely. Figure 3-2 (p. 26) provides

Figure 3-1
Initial Biomedical and Psychosocial Evaluation Domains

Biomedical Domains

- *General health history*—What is the patient's medical and surgical history? Are there any psychiatric or medical conditions? Are there known medication allergies? Is there a history of seizures?
- *Mental status*—Is the patient oriented, alert, cooperative? Are thoughts coherent? Are there signs of psychosis or destructive thoughts?
- *General physical assessment with neurological exam*—This will ascertain the patient's general health and identify any medical or psychiatric disorders of immediate concern.
- *Temperature, pulse, blood pressure*—These are important indicators and should be monitored throughout detoxification.
- *Patterns of substance abuse*—When did the patient last use? What were the substances of abuse? How much of these substances was used and how frequently?
- *Urine toxicology screen for commonly abused substances.*
- *Past substance abuse treatments or detoxification*—This should include the course and number of previous withdrawals, as well as any complications that may have occurred.

Psychosocial Domains

- *Demographic features*—Gather information on gender, age, ethnicity, culture, language, and educational level.
- *Living conditions*—Is the patient homeless or living in a shelter? What is the living situation? Are significant others in the home (and, if so, can they safely supervise)?
- *Violence, suicide risk*—Is the patient aggressive, depressed, or hopeless? Is there a history of violence?
- *Transportation*—Does the patient have adequate means to get to appointments? Do other arrangements need to be made?
- *Financial situation*—Is the patient able to purchase medications and food? Does the patient have adequate employment and income?
- *Dependent children*—Is the patient able to care for children, provide adequate child care, and ensure the safety of children?
- *Legal status*—Is the patient a legal resident? Are there pending legal matters? Is treatment court ordered?
- *Physical, sensory, or cognitive disabilities*—Does the client have disabilities that require consideration?

a list of signs and symptoms of conditions that require immediate medical attention. All staff members who work with patients should be aware of these and seek medical consultation for the patients as necessary.

Seizures are of special concern. Practitioners should interview the patient and family about seizure disorders and seizure history. In addition, nonmedical staff should be aware of signs of impending seizures such as tremors,

Figure 3-2
Symptoms and Signs of Conditions That Require Immediate Medical Attention

- Change in mental status
- Increasing anxiety and panic
- Hallucinations
- Seizures
- Temperature greater than 100.4° F (these patients should be considered potentially infectious)
- Significant increases and/or decreases in blood pressure and heart rate
- Insomnia
- Abdominal pain
- Upper and lower gastrointestinal bleeding
- Changes in responsiveness of pupils
- Heightened deep tendon reflexes and ankle clonus, a reflex beating of the foot when pressed rostrally (i.e., toward the mouth of the patient), indicating profound central nervous system irritability and the potential for seizures

increased blood pressure, overactive reflexes, and high temperature and pulse. It is essential that nonmedical staff be trained in protocols to prevent injury in the event of a seizure. Competence in carrying out these protocols should be evaluated by a physician or nurse clinician. For more information on seizures, see chapter 4.

All staff working with patients should be familiar with medical disorders that are associated with various addictive substances or routes of administration. Alcoholism has multiple organ effects involving the liver, pancreas, central nervous system, cardiovascular system, and endocrine system. Cocaine produces many of its medical complications through vasoconstriction (i.e., narrowing of the blood vessels), including myocardial infarction (heart attack), stroke, renal disease, spontaneous abortion, and even bowel infarction (death of tissue). Cocaine also can cause seizures and cardiac arrhythmia (irregular heartbeat). A heroin overdose can lead to a fatal respiratory depression. Intravenous drug use is particularly likely to increase the risk of infectious complications, including HIV, viral hepatitis, abscesses, and sepsis (the spreading of infection from its original site in the body). Intrapulmonary (within the lungs) administration can cause lung disorders (Dackis and Gold 1991). Nonmedical detoxification staff also should be aware of the medications used in detoxification, medications for common medical and psychiatric disorders, and signs of common medication reactions and interactions.

Infectious disease

Standard precautions should be used with all patients to protect the staff and patients against the transmission of infectious diseases, including HIV and hepatitis A, B, and C. All open wounds should be cultured and treated to prevent the spread of infections. Providers should use HIV/blood and respiratory infection precautions until HIV and respiratory infectious status are known. Patients with respiratory infections should be carefully evaluated. The panel suggests that tuberculin testing be performed or recent test results obtained on all patients to screen for active tuberculosis. A chest x-ray is recommended if indicated by the

patient's history and physical assessments. Nonmedical detoxification staff should be trained to watch for the signs of common infectious diseases passed through casual contact, including infestation with scabies and lice.

General Guidelines for Addressing Immediate Mental Health Needs

The following section provides general guidelines for treating patients who have immediate mental health needs. For more detailed information on the treatment of patients with co-occurring psychiatric conditions see TIP 42, *Substance Abuse Treatment for Persons With Co-Occurring Disorders* (Center for Substance Abuse Treatment [CSAT] 2005*c*).

Suicide

Those who are users of multiple illicit substance are more likely to experience psychiatric disorders, and the risk is highest among those who use both opiates and benzodiazepines and/or alcohol (Marsden et al. 2000). Depression is more common among those who abuse a combination of these substances, and women are at higher risk than men. Among those patients who are positive for depression, the risk of suicide is high. Marsden and colleagues' 2000 study of 1,075 clients entering treatment showed that 29 percent reported suicidal ideation in the past 3 months.

During acute intoxication and withdrawal, it is important to provide an environment that minimizes the opportunities for suicide attempts. As a precaution, locations not clearly visible to staff should be free of items that might be used for suicide attempts. Frequent safety checks should be implemented; the frequency of these checks should be increased when signs of depression, shame, guilt, helplessness, worthlessness, and hopelessness are present. When feasible, patients at risk for suicide should be placed in areas that are easily monitored by staff. Most important, when interacting with patients at risk for suicide, staff should avoid harsh confrontation and judgment and instead focus on the treatable nature of substance use disorders and the rehabilitation options available. These interactions offer an opportunity to start a dialog with the patient regarding the impact of substance use on mental illness and vice versa.

Anger and aggression

Alcohol, cocaine, amphetamine, and hallucinogen intoxication may be associated with increased risk of violence. Symptoms associated with this increased risk for violence include hallucinations, paranoia, anxiety, and depression. As a precaution, all patients who are intoxicated should be considered potentially violent (Miller et al. 1994). Programs should have in place well-developed plans to promote staff and patient safety, including protocols for response by local law enforcement agencies or security contractors. Staff working in detoxification programs should be trained in techniques to de-escalate anger and aggression. In many cases, aggressive behaviors can be defused through verbal and environmental means (Reilly and Shopshire 2002). For the protection of the staff and the patient, physical restraint should be used as a last resort and programs should be aware of local laws and regulations pertaining to physical restraint. Figure 3-3 (p. 28) lists some useful ways of managing patients who are angry and aggressive. Readers may refer to the standards published by such groups as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and the Commission on Accreditation of Rehabilitation Facilities (CARF) for further guidance. The Substance Abuse and Mental Health Services Administration (SAMHSA) also has published guidelines on the use of seclusion and restraint, which call for the reduction and possible elimination of their use (SAMHSA 2002).

Figure 3-3
Strategies for De-escalating Aggressive Behaviors

- Speak in a soft voice.
- Isolate the individual from loud noises or distractions.
- Provide reassurance and avoid confrontation, judgments, or angry tones.
- Enlist the assistance of family members or others who have a relationship of trust.
- Offer medication when appropriate.
- Separate the individual from others who may encourage or support the aggressive behaviors.
- Enlist additional staff members to serve as visible backup if the situation escalates.
- Have a clearly developed plan to enlist the support of law enforcement or security staff if necessary.
- Establish clear admission protocols in order to help screen for potentially aggressive/violent patients.
- Determine one's own level of comfort during interaction with the patient and respect personal limits.
- Ensure that neither the clinician's nor the patient's exit from the examination room is blocked.

Co-occurring mental disorders

With the patient's consent, a review of the patient's mental health history with the patient and family is useful in identifying co-occurring psychiatric conditions. Mental health professionals caring for the client should be consulted. If a pharmacy profile on the patient is available, it should be copied for review (within the confines of State and Federal confidentiality laws).

Diagnosis of co-occurring substance-related disorders and mental conditions is difficult during acute intoxication and withdrawal because it often is impossible to be precise until the clinical picture allows for the full assessment of both the effects of substance use and of the symptoms of mental disorders. As the individual moves from severe to moderate withdrawal symptoms, attention to differential diagnosis of substance use disorders and other psychiatric disorders becomes a priority (First et al. 2002). The American Psychiatric Association (APA) and the American Society of Addiction Medicine (ASAM) guidelines recommend a period of 2 to 4 weeks of abstinence before attempting to diagnose a psychiatric disorder (APA 2000; ASAM 2001).

General Guidelines for Addressing Nutritional Concerns

Malnutrition is a major concern for patients entering detoxification because the nutrient deficiencies associated with substance abuse can interfere with or even prolong the detoxification process (Nazrul Islam et al. 2001). Longstanding irregular eating habits and poor dietary intake only exacerbate the problem (Pelican et al. 1994). The detoxification process itself is stressful to the body and may result in increased nutrient requirements. Proper nutrition during recovery improves to a significant extent the adverse effects of the substance abuse (Nazrul Islam et al. 2001).

Nutritional evaluation

An evaluation of nutritional status should be a core component of detoxification. It should be noted, however, that for patients who abuse alcohol, the administration of fluids to address dehydration should be the first step, with nutritional evaluation occurring after the patient is adequately hydrated.

The nutritional evaluation should consist of laboratory and anthropometric indices, a detailed nutritional history, and nutrition counseling (Simko et al. 1995). The intervention begins in the initial acute phase of withdrawal and continues through detoxification and subsequent substance abuse treatment. If the patient consents, family members or significant others may be included in the nutritional evaluation and counseling.

Weight is an important consideration in determining the nutritional status of the person with a substance use disorder. Substance abuse may result in a reduction in food intake and disruption in the patient's metabolism that may in turn have caused an eating disorder, weight loss, and malnutrition. Conversely, weight gain may be related to inactivity and an excessive intake of highly refined carbohydrates (Zador et al. 1996). Patients should be asked whether there have been any recent changes in their weight. While a patient may appear to be adequately nourished, a skinfold caliper (an instrument that measures the thickness of a fold of skin with its underlying layer of fat) can determine body density (the relationship of the body's mass to its volume), though the body mass index may be a better indicator of nutritional status (Simko et al. 1995).

Other questions to ask during the initial evaluation concern appetite, eating patterns, food preferences, snacking habits, food allergies, food intolerance, special diets, and foods to be avoided because of cultural or religious beliefs. A food frequency questionnaire, food diary, or 24-hour food recall may be of use.

Many drug addictions are associated with abnormal glucose (sugar) metabolism. This abnormality means that the body is unable to maintain a stable concentration of glucose in the blood. Abnormally high or low blood sugar levels easily can be confused with the signs and symptoms of alcohol intoxication or withdrawal; consequently, a check of blood glucose level is particularly important in patients with a history of blood sugar abnormalities. Hypoglycemia (low levels of blood sugar) in the person with a substance use disorder may lead to drastic mood changes. When blood glucose levels drop below a certain threshold, these patients usually feel depressed, anxious, or moody and may experience cravings for their drug of choice.

Nutritional deficits associated with specific substances

As noted, the abuse of drugs can interfere with nutrient utilization and storage. Detoxification personnel should be familiar with the nutritional deficits associated with specific substances. Opioids are known to decrease calcium absorption and to increase cholesterol and body potassium levels. Magnesium deficiency often is seen in chronic alcohol dependence. Other nutrient deficiencies seen in alcohol abuse include protein, fat, zinc, calcium, iron, vitamins A and E, and the water-soluble vitamins pyridoxine, thiamine, folate, and vitamin B12 (Nazrul Islam et al. 2001). Alcohol also contains calories (7 kcal/gm) that when consumed in excessive amounts may displace nutrient-dense foods. Cocaine is an appetite suppressant and may interfere with the absorption of calcium and vitamin D. Laboratory tests for protein, vitamins, and iron and the other electrolytes are recommended to determine the extent of liver function as well as supplementation (Fontaine et al. 2001). Caution should be exercised when using supplements because of their potential interactions with other drugs and treatments.

Addressing nutritional deficits

Detoxification should include efforts to address nutritional deficits and to begin the patient on a course of improved eating habits. It is crucial to switch the paradigm from ingesting substances harmful to the body to taking in foods that heal the body (Nebelkopf 1981, 1987, 1988). The regularity of meal times, taste, and presentation are important considerations.

Attractively arranged, pleasant-tasting food may inspire the patient to consume vital nutrients and adequate calories. It is important that during the detoxification process, the patient avoid substituting one addiction for another. Consuming excessive amounts of caffeine or sugar can compromise the process and lead to relapse. Patients should be offered only decaffeinated beverages and healthful snacks instead of refined carbohydrates such as sugar-based sweets like candy, cookies, or donuts. Fresh fruits, vegetables, and other whole foods can contribute to the individual's health and wellness.

Gastrointestinal disturbances (i.e., nausea, vomiting, and diarrhea) may accompany the first phase of detoxification. Such disturbances can worsen dehydration and may disturb blood chemistry balance, which in turn can lead to mental status changes, neurological or heart problems, and other potentially dangerous medical conditions. Patients with gastrointestinal disturbances may only be able to tolerate clear liquids. When solid foods are tolerated, balanced meals consisting of low-fat foods, with an increased intake of protein (meat, dairy products, legumes), complex carbohydrates (whole grain bread and cereals), and dietary fiber are recommended (Duyff 1996). Patients undergoing detoxification may also experience constipation. Increasing the fiber content of the diet will help to alleviate this discomfort.

Considerations for patients with special dietary requirements

Patients with special dietary requirements need additional nutrition therapy. A person with diabetes, for example, should follow the dietary guidelines of the American Diabetes Association, which emphasizes individualized meal planning (American Diabetes Association 2004). A patient who is a vegetarian may have additional nutritional deficiencies, especially if she or he is a vegan (i.e., a person who avoids eating all foods derived from animals, including milk products and eggs). If a vegan enters detoxification with marginal or low nutrient stores, his or her diet should be augmented with legumes, meat analogs, textured vegetable protein, nuts, and seeds. Many other medical conditions (e.g., ulcers, heart disease, food allergies, etc.) may require special diets. At intake, any special dietary considerations should be noted.

Considerations for Intoxication and Withdrawal in Adolescents

Generally, detoxification is the same for adolescents as it is for adult clients. However, there are a few important and unique considerations for adolescent patients. For one, adolescents are more likely than adults to drink large quantities of alcohol in a short period of time, making it is especially important that detoxification providers be alert to escalating blood alcohol levels in these patients. Moreover, adolescents are more likely than adults to use drugs they cannot identify, to combine multiple substances with alcohol, to ingest unidentified substances, and to be unwilling to disclose drug use (Westermeyer 1997). As a result, the consensus panel recommends routinely screening adolescent patients for illicit drug intoxication. It also is important for staff to be trained in how to assess for the use of PCP, which can present with psychosis-like symptoms. Staff should ask the adolescent directly whether he has used PCP within the 12-hour period before entering the clinic or treatment center.

Adolescents should be placed in a secure, clean environment with observation and supportive care. If alcohol, heroin, or other drugs associated with vomiting are suspected, protecting the individual's airway and positioning the patient on his or her side to avoid aspiration (inhaling) of stomach contents are critical. In severe cases of ingestion of respiratory depressants, respiratory support may be needed. If the individual is severely combative or belligerent, physical restraint may be needed as a last resort when allowed and

appropriate. In milder cases, observation in a quiet, secure room with compassionate reassurance may be sufficient. Additionally, adolescents served in adult settings should be separated from the adult population and observed closely to ensure that they are not victimized (i.e., verbally, physically, or sexually) by adult clients. Finally, adolescents in detoxification settings should always be screened carefully for suicide potential and co-occurring psychiatric problems.

It sometimes is challenging to establish rapport with adolescents, as their experience with adults may be marked by adverse consequences. Asking open-ended questions and using street terminology for drugs and other expressions commonly used by teenagers can be helpful both in establishing rapport and in obtaining an accurate substance use history. For more information on working with adolescents, see TIP 31, *Screening and Assessing Adolescents for Substance Use Disorders* (CSAT 1999*d*), and TIP 32, *Treatment of Adolescents With Substance Use Disorders* (CSAT 1999*f*).

Considerations for Patients Who Are Parents With Dependent Children

For parents—especially women—entering detoxification programs, the safety of children often is a concern and one of the biggest barriers to retention. Even if women do not have custody of their children they often are the ones who continue to care for them. Some children may show extreme need for their mother while separated from her, and their demands could trigger unauthorized leave from detoxification. Thus, ensuring that children have a safe place to stay while their mothers are in detoxification is of vital importance. Working with women and men to identify supportive family or friends may identify temporary childcare resources. A consult or referral to the treatment facility's social services while the patient is being detoxified is indicated when the care of children is uncertain.

Considerations for Victims of Domestic Violence

While both men and women are victims of domestic abuse, women's substance use is associated with increased risk of intimate partner violence (Cunradi et al. 2002). Staff should know the signs of domestic violence and be prepared to follow procedures to ensure the safety of the patient.

Ensuring that children have a safe place to stay while their mothers are in detoxificaton is of vital importance.

If a patient discloses a history of domestic violence, trained staff can help the victim create a long-term safety plan or make a proper referral. If a safety plan is made or phone numbers for domestic violence help are provided, related information should be labeled carefully so as not to disclose its purpose (e.g., listed as women's health resources) since the abuser may go through all personal belongings. All printed information about domestic violence also should be disguised and none should be kept by the patient when she leaves the safe facility. If the victim needs to press charges or obtain a restraining order, this should be done from a safe setting (e.g., inpatient detoxification). If at all possible, the victim should be escorted to a safety shelter. It may be important that the abused person, whether male or female, not be allowed to talk to the abuser while in detoxification. Parents who are victims of domestic violence may need help with parenting skills and securing counseling and childcare. Therefore, it is important for detoxification providers to be familiar with local childcare resources. For more

information see TIP 25, *Substance Abuse Treatment and Domestic Violence* (CSAT 1997*b*).

Considerations for Culturally Diverse Patients

In providing psychosocial supports for culturally diverse patients, cultural sensitivity is of tremendous importance. Clients' expectations of detoxification, their feelings about the healthcare system generally, and their social and community support structures vary according to their cultural backgrounds. In working with any specific population, the practitioner should avoid defining the patient in terms of his culture, since over- or underemphasizing the patient's race or ethnicity can be detrimental (Clark et al. 1998). Figure 3-4 pro-

Figure 3-4
Questions To Guide Practitioners To Better Understand the Patient's Cultural Framework

- What language do you prefer we use?
- Therapists and clients sometimes have different ideas about diseases, can you tell me more about your idea of why you are in detoxification now?
- Do you require assistance for daily living activities (such as personal hygiene, shopping, paying bills, etc.)?
- What do you call your present condition/situation (as it relates to substance use)? How does your family view your present condition/situation (as it relates to substance use)?
- What is the role of alcohol or drugs in your family?
- How does your community view your present condition/situation (as it relates to substance use)? Or what is the role of alcohol or drugs in your community?
- How has your present condition/situation (as it relates to substance use) altered your status in the community?
- What experiences have you had with the healthcare system?
- Do you think your substance use is a problem for you?
- What do you think caused your present condition/situation (as it relates to substance use)?
- Why do you think it started?
- What is going on in your body?
- How has your present condition/situation (as it relates to substance use) altered your life?
- How have you tried to solve the problem(s) associated with substance use in the past? Was it helpful? What worked/didn't work?
- Why are you coming now?
- Are you on any herbal medications or special foods for this problem?
- What concerns or fears do you have about your present condition/situation (as it relates to substance use)?
- What concerns or fears do you have about this treatment?

Source: Adapted from Tang and Bigby 1996; Thurman et al. 1995.

vides clinicians with some helpful questions to guide their discussions.

Considerations for Chronic Relapsers

A patient who recently relapsed after a period of extended abstinence may feel especially hopeless and vulnerable (an abstinence violation effect). In this situation, clinicians can acknowledge progress that had been made prior to relapse and reassure the patient that the internal gains from past recovery work have not all been lost (despite the feeling at the moment that they have), perhaps reframing the severity of emotional pain as an indicator of how important recovery is to the patient.

Strategies for Engaging and Retaining Patients in Detoxification

It is essential to keep patients who enter detoxification from "falling through the cracks" (Kertesz et al. 2003). Successful providers acknowledge and show respect for the patient's pain, needs, and joys, and validate the patient's fears, ambivalence, expectation of recovery, and positive life changes. It is essential that all clinicians who have contact with patients in withdrawal continually offer hope and the expectation of recovery. An atmosphere that conveys comfort, relaxation, cleanliness, availability of medical attention, and security is beneficial to patients experiencing the discomforts of the withdrawal process. Throughout the detoxification experience, detoxification staff should be unified in their message that detoxification is only the beginning of the substance abuse treatment process and that rehabilitation and maintenance activities are critical to sustained recovery.

Educate the Patient on the Withdrawal Process

During intoxication and withdrawal, it is useful to provide information on the typical withdrawal process based on the particular drug of abuse. Usually withdrawal includes symptoms that are the opposite of the effects of the particular drug. This rebound effect can cause anxiety and concern for patients. Providing information about the common withdrawal symptoms of the specific drugs of abuse may reduce discomfort and the likelihood that the individual will leave detoxification services prematurely (for a list of withdrawal symptoms, see chapter 4). Settings that routinely encounter individuals in withdrawal should have written materials available on drug effects and withdrawal from specific drugs, and have staff who are well versed in the signs and symptoms of withdrawal. An additional consideration is providing such information to non–English-speaking patients and their families.

Interventions that assist the client in identifying and managing urges to use also may be helpful in retaining the client in detoxification and ensuring initiation of rehabilitation. These interventions may include cognitive–behavioral approaches that help the individual identify thoughts or urges to use, the development of an individualized plan to resist these urges, and use of medications such as naltrexone to reduce craving (Anton 1999; Miller and Gold 1994).

Use Support Systems

The use of client advocates to intervene with clients wishing to leave early often can be an effective strategy for promoting retention in detoxification. Visitors should be instructed about the importance of supporting the individual in both detoxification and substance abuse treatment. If available, and if the patient is stable, he or she can attend onsite 12-Step or other support group meetings while receiving detoxification services. These activities reinforce the need for substance abuse treatment

and maintenance activities and may provide a critical recovery-oriented support system once detoxification services are completed.

Maintain a Drug-Free Environment

Maintaining a safe and drug-free environment is essential to retaining clients in detoxification. Providers should be alert to drug-seeking behaviors, including bringing alcohol or other drugs into the facility. Visiting areas should be easy for the staff to monitor closely, and staff may want to search visiting areas and other public areas periodically to reduce the opportunities for acquiring substances. It is important to note, however, that personnel should be respectful in their efforts to maintain a drug-free environment. It is important to explain to patients (prior to treatment) and visitors why substances are not allowed in the facility.

Consider Alternative Approaches

Alternative approaches such as acupuncture are safe, inexpensive, and increasingly popular in both detoxification and substance abuse treatment. Although the effectiveness of alternative treatments in detoxification and treatment has not been validated in well-controlled clinical trials, if an alternative therapy brings patients into detoxification and keeps them there, it may have utility beyond whatever specific therapeutic value it may have (Trachtenberg 2000). Other treatments that reside outside the Western biomedical system, typically grouped together under the heading of Complementary or Alternative Medicine, also may be useful for retaining patients. Indeed, given the great cultural diversity in the United States, other culturally appropriate practices should be considered.

Enhancing Motivation

Motivational enhancements are particularly well-suited to accomplishing the detoxification services goal of promoting initiation in rehabilitation and maintenance activities. Use of these techniques in the detoxification setting increases the likelihood that patients will seek treatment by helping them understand the adverse consequences of continued substance use. It also establishes a supportive and nonjudgmental relationship between the substance abuse counselor and the patient—this therapeutic alliance is an important factor in the patient's choice to seek treatment services (Miller and Rollnick 2002). TIP 35, *Enhancing Motivation for Change in Substance Abuse Treatment* (CSAT 1999*c*), covers specific interventions and techniques to increase motivation to change substance-related behaviors. TIP 35 also includes some basic principles common to motivational interventions (CSAT 1999*c*, p. xvii):

- Focus on the patient's strengths.
- Show respect for a patient's decisions and autonomy; respect should be maintained at all times, even when the patient is intoxicated.
- Avoid confrontation.
- Individualize treatment.
- Do not use labels that depersonalize the patient, such as "addict" or "alcoholic."
- Empathize with the patient, making an attempt to understand the patient's perspective and accept his or her feelings.
- Accept treatment goals that involve small steps toward ultimate goals.
- Assist the patient in developing an awareness of discrepancies between her or his goals or values and current behavior.
- Listen reflectively to the patient's immediate concerns and ask open-ended questions.

In addition, the detoxification team can leverage the relationship the patient has with significant others. Using interventions such as Community Reinforcement and Family Training (CRAFT) (Miller et al. 1999), the detoxification team can help significant others in the patient's life capitalize on moments when the patient is ready for change and

assist the patient in preparing for change in a nonthreatening, nonconfrontational manner. The consensus panel does not recommend that clinicians use direct confrontation in helping a person with a substance use disorder begin the process of detoxification and subsequent substance abuse treatment. Techniques that involve purposefully confronting patients about their substance use behavior, such as the Johnson Intervention, where significant others are taught to confront the individuals using substances (Liepman 1993), have been shown to be highly effective when significant others implement them. However, subsequent studies of clinicians, groups, and programs that rely on confrontational techniques have yielded poor outcomes (Miller et al. 1995). Moreover, the vast majority of significant others do not wish to use these techniques, and for that reason these techniques are not recommended (Miller et al. 1999).

Care should be taken to ensure that any significant other who is involved in motivating the patient for therapy is appropriate for this task. Only significant others who have been appropriately introduced to the intervention by a clinician should participate. The presence of a trained facilitator is recommended, either for coaching or for facilitating the intervention. It also is important to have the recommended treatment option readily available so if the patient agrees, admission can be swift and seamless. Those individuals selected to intervene should support the patient's abstinence from substances of abuse. Furthermore, if the patient places considerable value on her or his relationships with these significant others, success is more likely (Longabaugh et al. 1993).

Tailoring Motivational Intervention to Stage of Change

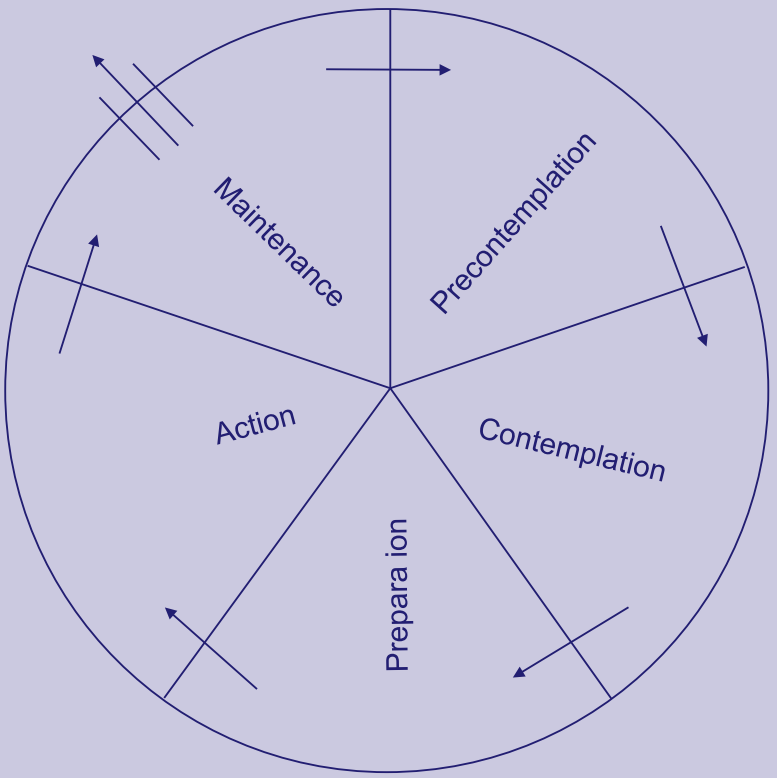
Perhaps the most well-known and empirically validated model of "readiness to change" that has been applied to substance abuse is the *transtheoretical model,* also known as the *stages of change model* (DiClemente and Prochaska 1998). The interventions to increase patient motivation for substance abuse treatment described in TIP 35, *Enhancing Motivation for Change in Substance Abuse Treatment* (CSAT 1999*c*) are based on this model.

According to the model, a client is considered to be at one of five stages of readiness to change his substance-abusing behavior, each stage being progressively closer to sustained recovery. Those stages are *precontemplation, contemplation, preparation, action,* and *maintenance.* The model assumes that individuals may move back and forth between different stages over time. A corollary to this assumption is that an individual's level of motivation is definitely *not* a permanent characteristic. Rather, motivation to change can be influenced by others, including detoxification treatment staff.

Clinicians, groups, and programs that rely on confrontational techniques have yielded poor outcomes.

In general, the basic concept is to try to move patients to the next stage of change. The clinician needs to identify any potential obstacles that might hinder the patient's progress through the stages of change. The transtheoretical model is illustrated in Figure 3-5 (p. 36) and the details of each stage are described in the text below.

Figure 3-5
The Transtheoretical Model (Stages of Change)



Source: DiClemente and Prochaska 1998.

In the *precontemplation* stage, the individual is not considering any change in substance-using behavior in the foreseeable future. Typically, a patient in this stage either is unaware that his substance use is a problem or is unwilling or too discouraged to make a change. Often, a person in the precontemplation stage has not experienced serious consequences from substance use. During the precontemplation stage, the clinician should be attentive for and seize upon any ambivalence expressed by the patient toward substance-related behaviors. Such ambivalence may be more likely to emerge during initial detoxification, before the patient has returned to a relative zone of comfort and greater denial. For patients who are determined to remain in the precontemplation stage, the main goal is to get the patient to begin to consider changing. To accomplish this, the clinician might express concern, listen to the patient's per-

spective, and keep the door open for further communication regarding treatment options.

In the *contemplation* stage, the individual has some awareness that substance use presents a problem. In this stage, the patient may express a desire or willingness to change, but has no definite plans to do so in the near future, which generally is considered to be the next 2 to 6 months. Whether it is explicitly stated or not, it is thought that most individuals in this stage are ambivalent about changing. That is, side-by-side with any desire to change is a desire to continue the current behavior. For patients in the contemplation stage, clinicians are advised to use "decisional balancing strategies" to help the patient move to the action stage (Carey et al. 1999). In this approach, the clinician helps the patient to consider the positive and negative aspects of her substance abuse and has the patient weigh them against each other with the expectation that the scale of balance tips in favor of adopting new behavior. Psychoeducation on the interaction of substance abuse with other problems, including health, legal, employment, parenting, and mental illness, can be part of this procedure. Helping the patient understand that ambivalent feelings about changing substance use behaviors are normal and expected can be particularly useful at this stage.

In the *preparation* stage, the patient is aware that his substance use presents a significant problem and desires change. Moreover, the patient has made a conscious decision to commit himself to a behavior change. This stage is defined as one in which the individual prepares for the upcoming change in specific ways, such as deciding whether a formal treatment program is needed and, if so, which one. This stage is characterized by goal setting and making commitments to stop using, such as informing coworkers, friends, and family of treatment plans. For patients in the preparation stage, clinicians should elicit the patient's goals and strategies for change and be on the alert for signs that the patient is ready to move into the action stage. It is critical that the clinician respond quickly to any requests for treatment to capitalize on this motivation before it wanes. One of the most critically important roles the clinician can play in this stage is to assist the patient in developing a plan of action or a behavioral contract, taking into account the individual needs of the patient. As part of this process the clinician should help the patient enlist social support. Exploring the patient's expectations regarding treatment and her role in it is important. Finally, because of the commonly experienced difficulty in accessing treatment, the clinician should discuss with the patient ways of maintaining motivation for change during a possible wait for entry into a treatment program, should the patient be placed, for example, on a waiting list.

In the *action* stage, the patient is taking active steps to change substance use behaviors. This includes making modifications to his habits and environment, such as not spending time in places or with people associated with drug taking behavior. These changes may even continue to be made 3 to 6 months after substance abuse has ceased.

In the *maintenance* stage, the patient is working to maintain the changes initiated in the action phase.

Fostering a Therapeutic Alliance

The therapeutic alliance refers to the quality of the relationship between a patient and his care providers and is the "nonspecific factor" that predicts successful therapy outcomes across a variety of different therapies (Horvath and Luborsky 1993). A therapeutic alliance should be developed in the context of an ability to form an alliance to a group of helping individuals—such as a healthy support network or therapeutic community. A clinically appropriate relationship between the clinician and patient that is supportive, empathic, and nonjudgmental is the hallmark of a strong therapeutic alliance.

Readiness to change predicts a positive therapeutic alliance (Connors et al. 2000). Strong alliances, in turn, have been associated with positive outcomes in patients who are dependent on alcohol (Connors et al. 1997), as well as patients involved in methadone maintenance, on such measures as illicit drug use, employment status, and psychological functioning. In addition, the practitioner's expertise and competence instill confidence in the treatment and strengthen the therapeutic alliance. Emphasis also should be given to the alliance with a social support network, which can be a powerful predictor of whether the patient stays in treatment (Luborsky 2000).

Given the importance of the therapeutic alliance and the fact that detoxification often is the entry point for patients into substance abuse treatment services, work on establishing a therapeutic alliance ideally will begin upon admission. Many of the guidelines listed above for enhancing motivation apply to establishing this rapport. Newman (1997) makes some additional recommendations for developing the therapeutic alliance, such as discussing the issue of confidentiality with patients and acknowledging that the road to recovery is difficult. He also advises being consistent, dependable, trustworthy, and available, even when the patient is not. The clinician should remain calm and cool even if the patient becomes noticeably upset. Practitioners should be confident yet humble and should set limits in a respectful manner without engaging in a power struggle. See Figure 3-6 for a list of characteristics most valuable to a clinician in strengthening the therapeutic alliance.

Referrals and Linkages

Once an individual passes through the most severe of the withdrawal symptoms and is safe and medically stable, the focus of the psychosocial interventions shifts toward actively preparing her for substance abuse treatment and maintenance activities. These interventions include (1) assessment of the patient's characteristics, strengths, and vulnerabilities that will influence recommendations for substance abuse treatment; (2) preparing the patient to participate in treatment; and (3) successfully linking the patient to treatment as well as other needed services and resources.

Figure 3-6
Clinician's Characteristics Most Important to the Therapeutic Alliance

- Is supportive, empathic, and nonjudgmental
- Knows which patients can be engaged and which should be referred to another treatment provider
- Can establish rapport with any client
- Remembers to discuss confidentiality issues
- Acknowledges challenges on the road to recovery
- Is consistent, trustworthy, and reliable
- Remains calm and cool even when a client is upset
- Is confident but humble
- Sets limits without engaging in a power struggle
- Recognizes the client's progress toward a goal
- Encourages self-expression on the part of the client

Ensuring that patients with substance use disorders enter substance abuse treatment following detoxification often is difficult. Many patients believe that once they have eliminated the substance or substances of abuse from their bodies, they have achieved abstinence. Moreover, some insurance policies may not cover treatment, or only offer partial coverage. The patient may have to go through cumbersome channels to determine if treatment is covered, and if so, how much.

Preparation should focus on eliminating administrative barriers to entering substance abuse treatment prior to discussing treatment options with the patient. Discussions with the patient should be consistent with the patient's improving ability to process and assess information in such a way that the patient appears to be acting with his or her own interests in mind.

Evaluation of the Patient's Rehabilitation Needs

To make appropriate recommendations for ongoing treatment and recovery activities, detoxification staff need to determine the individual characteristics of clients and their environments that are likely to influence the level of care, setting, and specialized services needed for recovery. ASAM's *Patient Placement Criteria, Second Edition, Revised* (PPC-2R) (ASAM 2001) provides one widely used model for determining the level of services needed to address substance-related disorders. The levels of treatment services range from community-based early intervention groups to medically managed intensive inpatient services. As noted in chapter 2, providers need to make a placement decision based on six dimensions:

1. Acute Intoxication and/or Withdrawal Potential
2. Biomedical Conditions and Complications
3. Emotional, Behavioral, or Cognitive Conditions or Complications
4. Readiness to Change
5. Relapse, Continued Use, or Continued Problem Potential
6. Recovery/Living Environment

Due to the limited time patients stay in detoxification settings, it is challenging for programs to conduct a complete assessment of the rehabilitation needs of the individual. With this in mind, detoxification programs should focus on those areas that are essential to make an appropriate linkage to substance abuse treatment services. The assessment of the psychosocial needs affecting the rehabilitation process itself may have to be left to the professionals providing substance abuse treatment. Other assessment considerations include

- Special needs, such as co-occurring psychiatric and medical conditions that may complicate treatment or limit access to available rehabilitation services
- Pregnancy, physical limitations, and cognitive impairments that limit the settings suitable for the individual
- Support system issues such as family support, domestic violence, and isolation that influence recommendations about residential versus outpatient settings
- The needs of dependent children
- The need for gender-specific treatment (for more information see the forthcoming TIPs *Substance Abuse Treatment: Addressing the Specific Needs of Women* [SAMHSA in development *e*] and *Substance Abuse Treatment: Men's Issues* [SAMHSA in development *g*]).

Figure 3-7 (p. 40) outlines the areas the consensus panel recommends for assessment to determine the most appropriate rehabilitation plan.

Appendix C lists a variety of instruments useful in characterizing the addiction and related disorders (for example, the Addiction Severity Index [ASI]), measuring motivational willingness to change (Stages of Change Readiness and Treatment Eagerness Scale [SOCRATES] and University of Rhode Island Change Assessment [URICA]), and evaluating co-occurring psychiatric conditions and social

Figure 3-7
Recommended Areas for Assessment To Determine Appropriate Rehabilitation Plans

Domain	Description
Medical Conditions and Complications	Infectious illnesses, chronic illnesses requiring intensive or specialized treatment, pregnancy, and chronic pain
Motivation/Readiness to Change	Degree to which the client acknowledges that substance use behaviors are a problem and is willing to confront them honestly
Physical, Sensory, or Mobility Limitations	Physical conditions that may require specially designed facilities or staffing
Relapse History and Potential	Historical relapse patterns, periods of abstinence, and predictors of abstinence; client awareness of relapse triggers and craving
Substance Abuse/Dependence	Frequency, amount, and duration of use; chronicity of problems; indicators of abuse or dependence
Developmental and Cognitive Issues	Ability to participate in confrontational treatment settings, and benefit from cognitive interventions and group therapy
Family and Social Support	Degree of support from family and significant others, substance-free friends, involvement in support groups
Co-Occurring Psychiatric Disorders	Other psychiatric symptoms that are likely to complicate the treatment of the substance use disorder and require treatment themselves, concerns about safety in certain settings (note that assessment for co-occurring disorders should include a determination of any psychiatric medications that the patient may be taking for the condition)
Dependent Children	Custody of dependent children or caring for noncustodial children and options for care of these children during rehabilitation
Trauma and Violence	Current domestic violence that affects the safety of the living environment, co-occurring posttraumatic stress disorder or trauma history that might complicate rehabilitation
Treatment History	Prior successful and unsuccessful rehabilitation experiences that might influence decision about type of setting indicated
Cultural Background	Cultural identity, issues, and strengths that might influence the decision to seek culturally specific rehabilitation programs, culturally driven strengths or obstacles that might dictate level of care or setting
Strengths and Resources	Unique strengths and resources of the client and his or her environment
Language	Language or speech issues that make it difficult to communicate or require an interpreter familiar with substance abuse

and family factors. Administering these instruments requires varying degrees of sophistication on the part of the clinician. All instruments should be considered for their cultural, linguistic, level of cognitive comprehension, and developmental appropriateness for each patient. For further information on patient placement see TIP 13, *The Role and Current Status of Patient Placement Criteria in the Treatment of Substance Use Disorders* (CSAT 1995*h*).

Settings for Treatment

Just as with settings for detoxification, settings where substance abuse treatment is provided often are confused with the level of intensity of the services. It is increasingly clear that although level of intensity of services and setting are both critical to successful recovery, they are two separate dimensions to be considered when linking clients to treatment. This process has been called "delinking" or "unbundling" and generally involves determining the need for social services independently from the clinical intensity (Gastfriend and McLellan 1997; McGee and Mee-Lee 1997).

Treatment and maintenance activities are offered in a variety of settings. These include settings specifically designed to deliver substance abuse treatment, such as freestanding substance abuse treatment centers, as well as settings operating for other purposes, including mental health centers, jails and prisons, and community corrections facilities. Descriptions of these settings appear below:

- *Inpatient programs* for treatment of substance abuse generally are delivered in hospitals and freestanding clinics and provide 24-hour nursing care in addition to intensive treatment for substance-related problems.
- *Residential treatment programs* normally provide 24-hour supervision by nonmedical staff and the availability of medical staff may be limited. These programs deliver highly intensive substance abuse counseling and clients may participate in the upkeep of facilities. Peer support is critical to the treatment delivered. As a general rule, patients will stay at a residential treatment facility for 7 to 30 days.
- *Therapeutic communities* (TCs) usually have 24-hour supervision by nonmedical staff or clients who have sustained recovery. They tend to provide highly intensive counseling services and rely on peer support and confrontation to shape behaviors of clients. The TC is based on concepts of self-help. Residence in a TC is longer than a patient's stay in a residential program—patients usually stay for a period of at least 30 days and often 6 months to a year. In some special situations, such as a criminal justice setting, TC residence can last 2 years or more.
- *Transitional residential programs and halfway houses* ordinarily have 24-hour supervision from nonmedical staff or clients who have sustained recovery. Patients in these programs often are working and participate in counseling and peer support during the evening and weekend hours.
- *Partial hospitalization and day treatment programs* use a combination of medical and nonmedical staff to deliver a high intensity of counseling services during daytime hours. Patients return home in the evenings.
- *Intensive outpatient programs* usually are delivered by nonmedical staff in a clinic location. Patients receive 6 to 9 hours of counseling services each week in two or three contacts.
- *Traditional outpatient services* typically are delivered by counselors in a clinic or office setting and provide fewer hours of services than the "intensive outpatient" programs.
- *Recovery maintenance activities* are not treatment but are highly valuable for ongoing sobriety maintenance. They include 12-Step and other support groups aimed at maintaining the gains accomplished in treat-

ment settings. Oxford House establishments and other "clean and sober" living environments are among the resources that clinicians should explore and perhaps incorporate in maintenance activities.

Provide Linkage to Treatment and Maintenance Activities

Approximately half of those making an appointment for treatment do not appear for their first appointment and another 20 percent or more fail to appear for the second appointment (Gottheil et al. 1997; Parker 2002). As patients near completion of detoxification, whether they take the next step and enter treatment is dependent on a number of variables. Patients who are employed, are motivated beyond the precontemplation stage, and have family and social support, as well as those with co-occurring psychiatric conditions, are more likely to initiate treatment. Conversely, those who have severe drug dependence and those who are older are less likely to follow through and enter treatment (Kirchner et al. 2000; Weisner et al. 2001). Women are more likely to initiate treatment after detoxification than men, and individuals who have health insurance that features a behavioral health carve-out and lower cost-sharing requirements are more likely to enter treatment than those who do not (Mark et al. 2003*b*). Kleinman and associates (2002) followed 279 opioid- and cocaine-dependent patients who had been in detoxification programs to determine how many had entered substance abuse treatment 30 days after leaving the detoxification program. They found that those who were on parole, homeless, or who had been using drugs for less than 20 years were more likely than others to have entered treatment.

Research indicates that patients are more likely to initiate and remain in rehabilitation if they believe the services will help them with specific life problems (Fiorentine et al. 1999). Figure 3-8 suggests strategies that detoxification personnel can use with their patients to promote the initiation of treatment and maintenance activities.

Provide Access to Wraparound Services

Patients are more likely to engage in treatment if they believe the full array of their problems

Figure 3-8
Strategies To Promote Initiation of Treatment and Maintenance Activities

- Perform assessment of urgency for treatment.
- Reduce time between initial call and appointment.
- Call to reschedule missed appointments.
- Provide information about what to expect at the first session.
- Provide information about confidentiality.
- Offer tangible incentives.
- Engage the support of family members.
- Introduce the client to the counselor who will deliver rehabilitation services.
- Offer services that address basic needs, such as housing, employment, and childcare.

Source: Carroll 1997; Fehr et al. 1991.

will be addressed, including those needs typically addressed by wraparound services (e.g., housing, vocational assistance, childcare, transportation) (Fiorentine et al. 1999). Moreover, patients receiving needed wraparound services remain in substance abuse treatment longer and improve more than people who do not receive such services (Hser et al. 1999).

As the individual passes through acute intoxication and withdrawal, it is important to ensure that the basic needs of the patient are met after discharge. These needs include access to a safe, stable, and drug-free living environment if possible; physical safety; food and clothing; ongoing health and prenatal care; financial assistance; and childcare. Ensuring access to these basic needs may be problematic, and staff must be flexible and creative in finding the means to meet the basic needs of the patient.

Clearly, services planning should extend beyond the issues of substance dependence to other areas that may affect compliance with rehabilitation. Detoxification providers should be familiar with available resources for legal assistance, dental care, support groups, interpreters, housing assistance, trauma treatment, recovery-sensitive parenting groups, spiritual and cultural support, employment assistance, and other assistance programs for basic needs. Family and other support systems also can be helpful to the patient in accessing services and should take part in the services planning as often as possible, always with the patient's consent.

To address the needs of homeless and indigent patients, detoxification providers should be familiar with emergency shelters, cash assistance, and food programs in their communities and should have established referral relationships. Assessing women, teenagers, older adults, and other vulnerable individuals for victimization by another member of the household also is important. Patients should be linked with prenatal and primary health care for domestic violence. Ideally, linkage to these programs includes more than a phone number; detoxification staff should assist patients in scheduling initial appointments and arranging for transportation.

Linkage to primary health and prenatal care as well as to community resources is essential for individuals with substance use disorders. Linkages can be an effective mechanism to assist the patient in accessing these services if they are not available as a part of the detoxification program. Formalized referral arrangements through contracts or memoranda of understanding can be useful to specify organizational obligations (D'Aunno 1997).

Minimize Access Barriers

An integral part of the process of linking an individual with rehabilitation and treatment resources is to address access barriers. Transportation, child care during treatment, the potential for relapse between detoxification discharge and treatment admission, housing needs, and safety issues such as possible domestic violence should be addressed through an individualized plan prior to discharge.

The problem of a patient's placement on a waiting list presents a special barrier to treatment. The solution lies in developing strategies to maintain motivation for treatment during the waiting period.

For pregnant women and patients with dependent children, the threat of Child Protective Services removing their children for abuse and neglect due to drug use can be a barrier to entering a treatment program.

Additionally, interacting with hostile or unfriendly practitioners and encountering resistance from family, partners, or friends can be barriers to treatment entry.

Detoxification staff should be knowledgeable about State laws regarding drug use during pregnancy and definitions of child abuse and neglect in order to be able to reassure and encourage women to enter treatment.

People who identify as having a physical or cognitive disability also face special barriers to treatment. The reader is referred to TIP 29, *Substance Use Disorder Treatment for People With Physical and Cognitive Disabilities* (CSAT 1998*g*) and TIP 36, *Substance Abuse Treatment for Persons With Child Abuse and Neglect Issues* (CSAT 2000*d*), for more information on these topics.

For racial/ethnic minorities, access barriers can be compounded by language, cultural, and financial factors. The ability of programs to develop culturally specific interventions, train staff and interpreters to respond to the specific needs of these individuals, and be aware of cultural differences in the manifestation of symptoms is critical to improving access to care. Supervision of staff and training in cross-cultural issues is equally important to all programs serving diverse patient populations. The forthcoming TIP *Improving Cultural Competence in Substance Abuse Treatment* (SAMHSA in development *a*) contains more information on this topic.

Use Case Management

Case management presents an opportunity to tailor services to individual client needs and to minimize barriers to these services (Gastfriend and McLellan 1997). Case management is a set of services managed to assist the client in accessing needed resources. It is a useful strategy to ensure that access to wraparound services such as employment, housing, health care, and basic needs are met along with minimizing barriers to accessing substance abuse treatment. As outlined in TIP 27, *Comprehensive Case Management for Substance Abuse Treatment* (CSAT 1998*a*), the common functions of case management are defined as assessment, planning, linkage, monitoring, and advocacy. Case managers can facilitate the critical linkage between detoxification services and rehabilitation by providing transportation to the rehabilitation facility, arranging for childcare, or assisting with housing needs. Additionally, case management is a widely used strategy to integrate mental health and substance abuse treatment for those with co-occurring conditions (Drake and Mueser 2000).

Linkage to Ongoing Psychiatric Services

Although it is important to make referrals for ongoing psychiatric attention, the presence of psychological symptoms should not prevent detoxification staff from referring patients to substance abuse treatment. Individuals with co-occurring psychiatric conditions appear to be able to initiate and benefit from substance abuse treatment like individuals without psychiatric conditions (Joe et al. 1995).

Since some psychiatric illnesses may affect drug cravings in patients who are substance dependent, it is important to ensure that both the psychiatric condition and the substance use disorder are addressed in rehabilitation (Anton 1999). Individuals who are taking psychotropic medications should be counseled about the importance of continuing on these medications. Whenever possible, discharge from the detoxification services should be coordinated with the patient's mental health provider in the community, and the patient should have an appointment scheduled at the time of discharge from the detoxification facility. Detoxification providers should request that the patient sign appropriate releases of information to provide assessment and other material to the mental health provider to promote continuity of care. This should only occur when the patient is medically stabilized and is in such a state of mind that he or she can make coherent decisions in this regard (e.g., while intoxicated, patients should not be permitted to sign releases).

For individuals with serious co-occurring psychiatric conditions, integrated treatment for substance use disorders and mental illness is recommended. Case management services as described above may be especially important for individuals with severe mental illness impeding their ability to access services on their own. Increasingly, substance abuse and

mental health providers are implementing models using clinicians trained to deliver both substance abuse and mental health treatment concurrently (Drake and Mueser 2000). For more information, see TIP 42, *Substance Abuse Treatment for Persons With Co-Occurring Disorders* (CSAT 2005*c*).

Linkage to Followup Medical Care

The patient's consent should be sought to involve her or his primary healthcare provider in the coordination of care. Patients with chronic medical conditions and those in need of followup care should have an appointment made for followup medical care before leaving the detoxification setting (Luborsky et al. 1997).

Considerations for Individuals With Chronic Substance Dependence

For individuals with substance abuse problems who detoxify regularly but have limited periods of abstinence, traditional treatment approaches may not be effective. In some cases, addressing other needs may provide an avenue to engage the individual with chronic substance dependence in treatment. Case management approaches can be successful at addressing the need for housing, health care, and basic needs even though the individual is not yet willing to confront the issue of drinking or other drug use (Cox et al. 1998). TIP 27, *Comprehensive Case Management for Substance Abuse Treatment* (CSAT 1998*a*), provides additional information about delivery of case management services to homeless individuals with substance use disorders and those with other complex problems. Documentation of repetitive inappropriate use of voluntary detoxification services may help pave the way for civil commitment to involuntary treatment where this is an option, and, where detoxification resources are limited, treatment systems need to be creative in designing care plans for patients seeking frequent detoxification without evidence of any therapeutic benefit.

In This Chapter...

4 Physical Detoxification Services for Withdrawal From Specific Substances

This chapter highlights specific treatment regimens for specific substances and provides guidance on the medical, nursing, and social services aspects of these treatments. It also includes considerations for specific populations. Although it is written principally for healthcare professionals, some professionals without medical training may find it of use. To accommodate a broad audience, the chapter includes definitions for technical terms that may be unfamiliar to some readers—for example, "the patient was afebrile (without fever)."

Psychosocial and Biomedical Screening and Assessment

This section covers more complex psychosocial and biomedical assessments that may occur after initial contact as an individual undergoes detoxification. Psychosocial and biomedical screening and services are closely associated: neither is likely to succeed without the other, as the case study below illustrates.

Although the medical issues in this case indicate that the patient could successfully be managed as an outpatient, careful assessment of psychosocial and biomedical aspects of the patient's condition, including lack of transportation, the risk of violence, and his inability to carry out routine medical instructions, strongly indicated that the patient remain in a 24-hour supervised setting such as a residential detoxification or treatment program. For an illustration of some of the fundamental

Case Study

A 44-year-old Caucasian male with a fifth-grade education presented to an emergency clinic in mild alcohol withdrawal with no alcohol for 9 hours. The patient was mildly tremulous with some nausea and insomnia; blood pressure was 142/94; pulse was 96. The patient was afebrile [i.e., without fever], and Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) (see below) score = 12, indicating mild withdrawal. A treatment plan was recommended that called for an outpatient 3-day fixed-dose taper of lorazepam (a benzodiazepine medication) plus multivitamins and oral thiamine. The patient was instructed to return daily for brief assessment by nursing personnel. The social worker assigned to this client pointed out that there was no reliable transportation to the clinic, there had been domestic violence on the parts of both spouses, and the patient's ability to carry out routine medical instructions was questionable.

aspects of the patient's health and psychosocial status that should be covered in screening and assessment, see Figure 3-1, p. 25.

Figure 4-1 lists several instruments useful in characterizing the intensity of specific withdrawal states (see appendix C for more information on these instruments and how to obtain them).

Biochemical Markers and Their Use

This section focuses on biochemical laboratory tests that detect the presence or absence of alcohol or another substance of abuse, may be able to quantify the level of present use, or may be able to quantify cumulative use over the past few weeks. Tests in all of these areas are reasonably well developed and validated for alcohol. *This is not the case for most other substances of abuse.* Biochemical markers are not adequate screening or assessment instruments alone, but rather are used to support a more comprehensive clinical assessment. Common uses of these biochemical markers are:

1. In the initial screening setting to support or refute other information that leads to proper diagnosis, assessment, and management.
2. For forensic purposes (e.g., evaluating a driver after an automobile accident).
3. In detecting occult (secretive or hidden) use of alcohol and other substances in therapeutic settings where abstinence, rehabilitation, and treatment are being promoted.

Clinicians also can use the presentation of information from biochemical markers to patients as an effective tool in motivational enhancement. For example, information regarding liver transaminases (specific kinds of enzymes that perform chemical reactions within the liver) helps provide the patient with objective information on the level of recent alcohol use and potential acute hepatic damage. This may help the patient move from contemplating treatment to actually beginning treatment. For a more detailed discussion of biological markers in substance abuse, see Javors and colleagues (1997).

Blood alcohol content

Blood alcohol content (BAC) can be determined by highly sensitive laboratory procedures that generally are available in most emergency departments, hospitals, and clinical chemistry laboratories. Alcohol elimination undergoes, for the most part, zero-order kinetics (decreasing a set amount per unit of time rather than a set percentage), so the concept of half-life is not really accurate. However, first-order kinetics and half-life do occur when BAC is low (i.e., below 10mg percent), and the half-life is on the order of about 15 minutes at that point. Though disappearance rates of 15mg percent per hour are probably average for moderate drinkers, higher values were seen in a group of Swedish drivers apprehended for driving while intoxicated (19mg/dL/hr) (Jones and Andersson

Figure 4-1
Assessment Instruments for Dependence and Withdrawal From Alcohol and Specific Illicit Drugs

Drug of Dependence	Instrument	Reference	Notes
Alcohol	CIWA-Ar	Sullivan et al. 1989	10 items that take 2 to 5 minutes to complete; scores 0–67, with 10 or greater as clinically significant; requires training to administer
Cocaine	Cocaine Selective Severity Assessment (CSSA)	Kampman et al. 1998	18 items that take 10 minutes to complete; high scores correlated with poor outcome
Opioids	Subjective Opiate Withdrawal Scale (SOWS)	Handelsman et al. 1987	16-item questionnaire; using a scale of 0–4, respondents rate to what extent they are currently experiencing each of 16 characteristics; higher scores indicate more severe withdrawal
	Objective Opiate Withdrawal Scale (OOWS)	Handelsman et al. 1987	Rater observes patient for about 10 minutes and indicates if any of 13 manifestations of withdrawal are present; scores can range from 0 to 13, with higher scores indicating more severe withdrawal; staff must be familiar with withdrawal signs

1996). The rate of metabolism of alcohol increases with dependence—some alcoholics can metabolize 20–25mg/dL/hr (Jones and Andersson 1996), and Jones and Sternebring (1992) have found that alcohol-dependent patients may metabolize 22mg/dL/hr during detoxification.

When knowledge of BAC is combined with clinical information, the healthcare provider can make some predictions regarding the acuteness of withdrawal. For example, in an individual whose blood alcohol level is 200mg percent but who is already showing tremulousness (shakiness of the hands), brisk reflexes, tachycardia (rapid heart rate), diaphoresis (excessive sweating), and perhaps a CIWA-Ar score in the moderate or high range (about 15 or higher), the clinician can reasonably predict that the withdrawal will be relatively severe. As noted, however, the rate of metabolism of alcohol increases with dependence. The diagnosis of alcohol intoxication is a clinical diagnosis and not based simply on a BAC. A person with a BAC of 200mg percent could be in withdrawal, intoxicated (showing related signs and symptoms), or showing no signs and symptoms of either intoxication or withdrawal. A BAC above 100mg percent does not necessarily indicate clinical intoxication. Like all laboratory procedures, the blood alcohol levels test has limitations. Usually, patient permission must be obtained prior to testing, the testing itself can be expensive, and forensic testing may be subject to specific legal procedures.

Reading Blood Alcohol Concentrations

Blood alcohol concentrations are measured in milligrams (mg) of alcohol per deciliter (dL) of blood. This figure is converted to a percentage. One hundred mg/dL equals 100mg percent or 0.1 percent. Thus, a BAC of .1mg percent is equivalent to a concentration of 100mg of alcohol per deciliter of blood.

Source: Center for Substance Abuse Treatment (CSAT) 1995*a*.

Breath alcohol levels

Although the initial cost of small breath alcohol instruments may be relatively high, the recurring costs (of disposable mouthpieces and periodic recalibration) are low. The technique is less invasive than blood testing and health providers can follow breath alcohol levels repeatedly at low expense during the course of assessment and detoxification. The detection of rapidly rising, high levels of alcohol over a short period of time may indicate alcohol poisoning overdose. Breath alcohol levels provide useful guidance in determining whether to hospitalize these patients.

Limitations on breath alcohol determinations are that patient cooperation is required and that some patients with lung diseases are not able to muster a sufficient tidal volume (forceful breath) to give an accurate reading to the machine. On occasion, patients whose breath alcohol levels indicate recent alcohol use will assert that they have recently gargled with mouthwash that contained alcohol. Having the patient rinse his mouth with water several times and then making another breath alcohol determination in 15 to 30 minutes usually will resolve whether the patient's assertion is valid.

Urine drug screens

Urine drug screens vary widely in their methods of detection, sensitivity and specificity, expense, and availability. The healthcare provider assessing patients for detoxification should be familiar with the type of assay (test measurement) being used; some examples are enzyme multiple assay techniques, thin layer chromatography, high performance liquid chromatography, urine alcohol concentration, and gas chromatography-mass spectrometry.

Informed clinicians also should be aware of which drugs are screened for by the laboratory they use, the relative time window of detection (a substance's metabolic half-life, or approximately how long a drug can be detected once ingested), and whether cross-reactivity with other interfering substances may alter outcomes. Many laboratories perform more specific confirmation testing on positive screening tests, which can largely eliminate false-positives. It is important to clarify which type of test result is being reported. Interfering and cross-reactive substances leading to false-positive tests frequently are discussed in bulletins and publications periodically published by the National Institute on Drug Abuse (NIDA) and the Centers for Disease Control and Prevention (CDC). Usually, the senior laboratory supervisor has up-to-date information in this area and often can be consulted via e-mail or telephone in an emergency. Limitations of urine drug screening include consent and privacy issues, expense, the inability to screen for some drugs of abuse, and the inability of urine drug screens to provide information on the current level of intoxication.

Urine testing should at a minimum test for the presence of

- Benzodiazepines
- Barbiturates
- Cocaine
- Amphetamines
- Opioids
- PCP

It also should be noted that current testing for opioids primarily refers to "organic" drugs that are derived from opium (i.e., heroin, codeine, and morphine). Synthetic opioids like hydrocodone and methadone are not detected by the usual tests; this is true of oxycodone as well. If the use of these drugs is suspected, special tests can be ordered. Most important, each program should tailor its urine screening tests to reflect the substance use patterns prevalent in the community.

Gamma-glutamyltransferase (GGT)

GGT has been measured in serum (the portion of the blood that has neither red nor white blood cells) for many years as a marker for liver damage. More recently, GGT has been advocated as a measure of cumulative alcohol use (Dackis 2001). Sensitivity of the test is in the 60 to 70 percent range and specificity (its ability not to misidentify or confuse alcohol use with other disorders) is in the 40 to 50 percent range. In general, both sensitivity and specificity are lower in females than males. GGT does correlate with alcohol intake but often requires heavy drinking (more than six drinks per day) to elevate it, and only about half of individuals will show elevations. The half-life of elevated serum GGT after the onset of abstinence is said to be 2 to 3 weeks with alcoholic liver disease. Chlorpromazine, phenobarbital, and acetaminophen can all raise serum GGT levels.

GGT is limited by its expense and its relatively low specificity, which sometimes leads to false-positive evaluations. GGT is helpful as a motivational enhancer in patients with a high degree of denial during detoxification. Evidence of liver damage, as measured by the GGT, provides patients with objective feedback concerning the consequences of their alcohol use and thus plays a very important role in enhancing motivation.

Hepatitis is a general term that refers to inflammation of the liver with damage to liver cells (hepatocytes). Hepatitis may be due to viruses (such as in hepatitis A, B, C) or insults to the liver from toxins (such as chemicals, alcohol, prescribed or over-the-counter medications). In any form of hepatitis, GGT may be elevated, indicating damage to liver cells. Therefore, GGT elevation does not automatically mean liver damage from alcohol use, although this is certainly one of the most common reasons for elevated GGT levels in patients hospitalized in North America. The use of GGT levels along with carbohydrate-deficient transferrin (CDT) levels is a relatively sensitive and specific indicator of alcohol use. The CDT test is discussed below.

Carbohydrate-deficient transferrin

CDT has been developed over the past 20 years as a marker of cumulative alcohol consumption but is just now becoming widely available as a clinical tool. Sensitivities appear to be in the 70 to 80 percent range, and specificities of greater than 90 percent have been found. Sensitivity and specificity are somewhat lower among females than males. Most therapeutic drugs or drugs of abuse do not appear to affect CDT levels. When CDT and GGT levels are combined, sensitivity and specificity rise to more than 90 percent (Anton 2001). CDT testing is limited by its relatively high cost, lack of clinical availability in some laboratories, and false-positive results in abstaining individuals who have endstage liver disease from causes other than alcohol use (DiMartini et al. 2001).

Mean corpuscular volume (MCV)

Erythrocyte (red blood cell) size is measured in a Coulter counter and often is part of a complete blood count; therefore, it is widely available to clinicians. Sensitivity and specificity are in the 30 to 50 percent range. Hence, caution should be exercised when interpreting an elevated MCV in relation to drinking behavior. This lab test should be considered complementary to other biological markers that are more specific and sensitive, such as GGT or CDT. Advanced age, nutritional status, cigarette

smoking, and co-occurring disease states without the presence of alcoholism may make test results abnormal.

Alcohol Intoxication and Withdrawal

Intoxication Signs and Symptoms

The clinical presentation of intoxication from alcohol varies widely depending in part on blood alcohol level and level of previously developed tolerance. At alcohol concentrations between 20mg percent and 80mg percent, loss of muscular coordination, changes in mood, personality alteration, and [increases in motor activity] begin. At levels from 80 to 200mg percent, more progressive neurologic impairment occurs with ataxia (inability to coordinate muscular activity) and slurring of speech being prominent. A variety of cognitive functions also are impaired. At blood alcohol levels between 200 and 300mg percent nausea and vomiting may occur, which along with sedation may place patients at grave risk for aspiration of stomach contents. At levels greater than 300mg percent, hypothermia (low body temperature) with impairment of level of consciousness is likely except in all but the most tolerant individuals. Coma begins to be seen at levels of 400 to 600mg percent, but this is variable, again depending on tolerance. Although exceptions are found, BACs between 600 and 800mg percent are fatal. At this point, respiratory, cardiovascular, and body temperature controls fail. See Figure 4-2 for more symptoms of alcohol intoxication.

Since the elimination rate of alcohol from the body generally is 10 to 30mg percent per hour, the goals for the treatment of alcohol intoxication are to preserve respiration and cardiovascular function until alcohol levels fall into a safe range. Patients who are severely intoxicated and comatose as the result of alcohol use should be managed in the same manner as all comatose patients, with particular care taken in monitoring vital functions, protecting respiration, and observing aspiration, hypoglycemia, and thiamin deficiency. Screening for other drugs that may contribute to the coma, as well as other sources of coma induction, should be done. Agitation is best managed with interpersonal and nursing approaches rather than additional medications, which may only complicate and delay the elimination of the alcohol.

Withdrawal Signs and Symptoms

Hippocrates, writing around 400 B.C., gave us our first written clinical picture of alcohol withdrawal when he wrote that if the patient is "in the prime of life and if from drinking he has trembling hands," it may well be the case that the patient is showing withdrawal signs and symptoms. To this day, alcohol withdrawal remains underrecognized and undertreated. The signs and symptoms of acute alcohol withdrawal generally start 6 to 24 hours after the patient takes his last drink. Alcohol withdrawal may begin when the patient still has significant blood alcohol concentrations. The signs and symptoms may include the following:

- Restlessness, irritability, anxiety, agitation
- Anorexia (lack of appetite), nausea, vomiting
- Tremor (shakiness), elevated heart rate, increased blood pressure
- Insomnia, intense dreaming, nightmares
- Poor concentration, impaired memory and judgment
- Increased sensitivity to sound, light, and tactile sensations
- Hallucinations (auditory, visual, or tactile)
- Delusions, usually of paranoid or persecutory varieties
- Grand mal seizures (grand mal seizures represent a severe, generalized, abnormal electrical discharge of the major portions of the brain, resulting in loss of consciousness, brief cessation of breathing, and muscle rigidity followed by muscle jerking; a brief period of

Figure 4-2
Symptoms of Alcohol Intoxication*

Blood Alcohol Level	Clinical Picture
20–100mg percent	• Mood and behavioral changes • Reduced coordination • Impairment of ability to drive a car or operate machinery
101–200mg percent	• Reduced coordination of most activities • Speech impairment • Trouble walking • General impairment of thinking and judgment
201–300mg percent	• Marked impairment of thinking, memory, and coordination • Marked reduction in level of alertness • Memory blackouts • Nausea and vomiting
301–400mg percent	• Worsening of above symptoms with reduction of body temperature and blood pressure • Excessive sleepiness • Amnesia
401–800mg percent	• Difficulty waking the patient (coma) • Serious decreases in pulse, temperature, blood pressure, and rate of breathing • Urinary and bowel incontinence • Death

*Varies greatly with level of tolerance (chronic users of alcohol may show less effect at any given blood alcohol level).

Source: Consensus Panelist Robert Malcolm, M.D.

sleep, awakening later with some mild to even severe confusion, generally occurs)

- Hyperthermia (high fever)
- Delirium with disorientation with regard to time, place, person, and situation; fluctuation in level of consciousness

For a discussion of seizures and delirium, including delirium tremens, see below under the heading Management of Delirium and Seizures (p. 63).

Mild alcohol withdrawal generally consists of anxiety, irritability, difficulty sleeping, and decreased appetite. Severe alcohol withdrawal usually is characterized by obvious trembling of the hands and arms, sweating, elevation of pulse (above 100) and blood pressure (greater

than 140/90), nausea (sometimes with vomiting), and hypersensitivity to noises (which seem louder than usual) and light (which appears brighter than usual). Brief periods of hearing and seeing things that are not present (auditory and visual hallucinations) also may occur. A fever greater than 101° F also may be seen, though care should be taken to determine whether the fever is the result of an infection. Seizures and true delirium tremens, as discussed elsewhere, represent the most extreme forms of severe alcohol withdrawal. Moderate alcohol withdrawal is defined more vaguely, but represents some features of both mild and severe withdrawal.

The course of these symptoms is extremely variable. An individual may progress partially through some of the symptoms noted above and then have a slow improvement. Other individuals may have mild to moderate symptoms with almost abrupt resolution. Yet another group may present with a grand mal seizure or with hallucinations. Some people with alcohol dependence, regardless of their pattern of drinking or the extent of drinking, appear to develop minor symptoms or show no symptoms of withdrawal. Infrequent binge drinkers seem less likely to have withdrawal symptoms than individuals who are heavy regular users of alcohol who then abruptly cease their alcohol use, but this is not well substantiated. As previously discussed in the assessment section, the use of a standardized clinical rating instrument for withdrawal such as the CIWA-Ar is valuable because it guides the clinician through multiple domains of alcohol withdrawal and allows for semi-quantitative assessment of nausea, tremor, autonomic hyperactivity, anxiety, agitation, perceptual disturbances, headache, and disorientation. Age, general health, nutritional factors, and possible co-occurring medical or psychiatric conditions all appear to play a role in increasing the severity of the symptoms of alcohol withdrawal.

The most useful clinical factors to assess the likelihood and the extent of a current withdrawal is the patient's last withdrawal and the number of previous withdrawals (treated or untreated) experienced, with three or four being a particularly significant number for the appearance of severe withdrawal reactions unless adequate medical care is provided. This assumption that this phenomenon will manifest itself, which has been referred to as the "kindling hypothesis," is well-established in the research literature (Booth and Blow 1993; Wojnar et al. 1999). Uncomplicated or mild to moderate withdrawal is characterized by restlessness, irritability, anorexia (lack of appetite), tremor (shakiness), insomnia, impaired cognitive functions, and mild perceptual changes. Complicated or severe medical withdrawal has one or more elements of delirium, hallucinations, delusions, seizures, and disturbances of body temperature, pulse, and blood pressure.

Medical Complications of Alcohol Withdrawal: Possible Fatal Outcomes

Seizures; delirium tremens (severe delirium with trembling); and dysregulation of body temperature, pulse, and blood pressure are outcomes in severe alcohol dependence that can lead to fatal consequences. Other medical complications of alcohol withdrawal include infections, hypoglycemia, gastrointestinal (GI) bleeding, undetected trauma, hepatic failure, cardiomyopathy (dilation of the heart with ineffective pumping), pancreatitis (inflammation of the pancreas), and encephalopathy (generalized impaired brain functioning). The suspicion of impending complications or their appearance will require hospitalization of the client and possible intensive care unit level of management. Consultation with internists specializing in infectious disease, pulmonary care, and hepatology; surgeons; neurologists; psychiatrists; anesthesiologists; and other specialists also may be warranted, depending on the nature of the complications.

Management of Withdrawal Without Medication

The management of an individual in alcohol withdrawal without medication is a difficult matter because the indications for this have not been established firmly through scientific studies or any evidence-based methods. Furthermore, the course of alcohol withdrawal is unpredictable and currently available techniques of screening and assessment do not allow us to predict with confidence who will or will not experience life-threatening complications. Severe alcohol withdrawal may be associated with seizures due to relative impairment of gamma-aminobutyric acid (GABA) and relative over-activity of N-methyl-D-aspartate systems (a subtype of the excitatory glutamate receptor system) (Moak and Anton 1996). The failure to treat incipient convulsions is a deviation from the established general standard of care.

Positive aspects of the nonmedication approach are that it is highly cost-effective and provides inexpensive access to detoxification for individuals seeking aid. Observation is generally better than no treatment, but people in moderate to severe withdrawal will be best served at a higher level of care. Young individuals in good health, with no history of previous withdrawal reactions, may be well served by management of withdrawal without medication. However, personnel supervising in this setting should possess assessment abilities and be able to summon help through the emergency medical system. Methods of withdrawal management without medication include frequent interpersonal support, provision of adequate fluids and food, attention to hygiene, adequate sleep, and the maintenance of a no-alcohol/no-drug environment.

Social Detoxification

Social detoxification programs are defined as short-term, nonmedical treatment services for individuals with substance use disorders. A social detoxification program offers room, board, and interpersonal support to intoxicated individuals and individuals in substance use withdrawal. The consensus panel has found that in actual practice, social detoxification programs vary greatly in their approach and scope. Some programs offer some medical and nursing onsite supervision, while others provide access to medical and nursing evaluation through clinics, urgent care programs, and emergency departments. Some social detoxification programs only offer basic room and board for a "cold turkey" detoxification, while other programs offer supervised use of medications. Sometimes medications are prescribed at the onset of withdrawal by healthcare professionals in an outpatient setting, while the staff in the social detoxification program supervises the administration of these medications. Whatever the particular situation might be, there should always be medical surveillance, including monitoring of vital signs, as part of every social detoxification program.

For alcohol, sedative-hypnotic, and opioid withdrawal syndromes, hospitalization (or some form of 24-hour medical care) is generally the preferred setting for detoxification, based on principles of safety and humanitarian concerns.

The consensus panel agrees that for alcohol, sedative-hypnotic, and opioid withdrawal syndromes, hospitalization (or some form of 24-hour medical care) is generally the preferred setting for detoxification, based on principles of safety and humanitarian concerns. When hospitalization cannot be provided, a setting that provides a high level of nursing and medical backup 24 hours a day, 7 days a week is desirable. The panel readily acknowledges that social detoxification programs are, for some

communities, the only available resources for uninsured, homeless individuals. Social detoxification is preferable to detoxification in unsupervised settings such as the street, shelters, or jails. The panel also notes that in some large urban areas, social detoxification programs have longstanding, excellent reputations of providing high-quality supervision and nurturance for their clients. Social detoxification programs are organized and funded by a variety of sources, including faith-based organizations, community charities, and municipal and other local governments.

For a substantial group of individuals, substance use withdrawal syndromes do not lead to fatal outcomes or even significant morbidity.

The genesis of social detoxification is complex. Often, these programs grew out of community needs when no other alternatives were available. Early reports (Whitfield et al. 1978) indicated that many individuals in alcohol withdrawal could be managed successfully without medications in a social detoxification setting. Subsequent reviews that have revisited the topic (Lapham et al. 1996) have reached similar conclusions. Critical analysis of these reports by the consensus panel indicates that some of the scientific issues were oversimplified and misleading. A number of these studies, in fact, excluded many seriously ill clients from their surveys prior to referral to social detoxification. Some of these surveys had a very high staff-to-client ratio during social detoxification, thus providing an unusually high level of psychological support. This level of staffing is not frequently found today in social detoxification programs.

The consensus panel acknowledges that, for a substantial group of individuals, substance use withdrawal syndromes do not lead to fatal outcomes or even significant morbidity. Determining which individuals will have benign outcomes often is difficult, and in fact this determination prior to social detoxification referral frequently is not made. Some incorrect beliefs have sprung up in the context of social detoxification: Individuals undergoing opioid withdrawal often are considered to require hospitalization to alleviate suffering, while individuals undergoing alcohol withdrawal sometimes are, for a variety of reasons, denied hospital-level treatment for detoxification, even though alcohol withdrawal produces suffering and may have fatal consequences.

The consensus panel agreed on several guidelines for social detoxification programs:

- Such programs should follow local governmental regulations regarding their licensing and inspection.
- It is highly desirable that individuals entering social detoxification be assessed by primary care practitioners (physicians, physician assistants, nurse practitioners) with some experience in substance abuse treatment.
- Such an assessment should determine whether the patient currently is intoxicated and the degree of intoxication, the type of withdrawal syndrome, severity of the withdrawal, information regarding past withdrawals, and the presence of co-occurring psychiatric, medical, and surgical conditions that might well require specialized care (see chapter 3, Figure 3-1, p. 25).
- Particular attention should be paid to those individuals who have undergone multiple withdrawals in the past and for whom each withdrawal appears to be worse than previous ones—this is the so-called "kindling effect" (Ballenger and Post 1978; Booth and Blow 1993; Malcolm et al. 2000; Shaw et al. 1998; Wojnar et al. 1999; Worner 1996). Subjects with a history of severe withdrawals, multiple withdrawals, delirium

tremens, or seizures are not good candidates for social detoxification programs.

- All social detoxification programs should have an alcohol- and drug-free environment, have personnel who are familiar with the features of substance use withdrawal syndromes, have training in basic life support, and have access to an emergency medical system that can provide transportation to emergency departments and other sites of clinical care.

Management of Withdrawal With Medications

Over the last 15 years several reviews and position papers (Fuller and Gordis 1994; Lejoyeux et al. 1998; Mayo-Smith 1997; Nutt et al. 1989; Shaw 1995) have asserted that only a minority of patients with alcoholism will in fact go into significant alcohol withdrawal requiring medications. Identifying that significant minority sometimes is problematic, but there are signs and symptoms of impending problems that can alert the caretaker to seek medical attention.

Deciding on whether to use medical management for the treatment of alcohol withdrawal requires that patients be separated into three groups. The first and most obvious group comprises those clients who have had a previous history of the most extreme forms of withdrawal, that of seizures and/or delirium. This group is discussed in more detail below, but in general, the medication treatment of this group in early abstinence, whether or not they have had the initiation of withdrawal symptoms, should proceed as quickly as possible.

The second group of patients requiring immediate medication treatment includes those patients who are already in withdrawal and demonstrating moderate symptoms of withdrawal.

The third group of patients includes those who may still be intoxicated and therefore have not had time to develop withdrawal symptoms or who have, at the time of admission, been abstinent for a few hours and have not developed signs or symptoms of withdrawal. A decision regarding medication for this group should be in part based on age, number of years of alcohol dependence, and the number of previously treated or untreated severe withdrawals (three or four appears to be a significant threshold in predicting future serious withdrawal) (Shaw 1995). If there is an opportunity to observe the patient in the emergency department of the clinic or similar setting over the next 6 to 8 hours, then it is possible to delay a decision regarding treatment and periodically reevaluate a client of this category. If this is not possible, then the return of the patient to a setting in which there is some supervision by family, significant others, or in a social detoxification program is desirable.

The decision as to whether to give the patient a single medication dose prior to discharge and perhaps provide one or two additional medication doses to be administered in the referral setting rests on adequacy of supervision, the probability of whether the patient will drink while undergoing treatment, and whether the patient can or will return for assessments the following day. In some circumstances, no treatment may be safer than treatment with medication. Mayo-Smith (1997) has shown that benzodiazepines confer protection against alcohol withdrawal seizures and thus patients with previous seizures should be treated early. The same applies to delirium. Both of these topics will be explored in greater detail in the next section. Extremely heavy drinking in the weeks prior to complete cessation also predicts more severe withdrawal (Lejoyeux et al. 1998), but confirming such a history often is difficult.

A less accepted and more controversial position on the indications for medication treatment for alcohol withdrawal springs from studies that attempt to measure oxidative stress, which is the formation of oxidative free radicals (chemicals that damage proteins), and stress hormones during alcohol withdrawal (Dupont et al. 2000; Tsai et al.

1998). These studies have asserted that individuals who are undergoing mild withdrawal without treatment still have the formation of toxic oxidative products which have the hypothetical potential of producing neuronal damage and perhaps some cell death. Lending support to this argument is the fact that alcohol withdrawal appears to be progressive in that it worsens with each successive episode (Malcolm et al. 2000) and that some patients dependent on alcohol develop evidence of dementia over time. On the other hand, age, nutritional status, trauma, co-occurring conditions, and other unspecified events also probably contribute to this process.

The decision to treat a patient in alcohol withdrawal or at potential risk for alcohol withdrawal will in great part rest on the clinical judgment of the practitioner, relying on the factors noted above in addition to the issue of whether treatment may in fact actually do more harm than good. This topic is discussed below under the heading Limitations of Benzodiazepines in Outpatient Treatment (p. 60). For more information about medication-assisted treatment, see TIP 43, *Medication-Assisted Treatment for Opioid Addiction in Opioid Treatment Programs* (CSAT 2005*d*).

Benzodiazepine treatment of alcohol withdrawal

Depending upon the clinical setting and the patient circumstances, there are several acceptable regimens for treating alcohol withdrawal that make use of benzodiazepines. These drugs remain the medication class of choice for treating alcohol withdrawal. The early recognition of alcohol withdrawal and prompt administration of a suitable benzodiazepine usually will prevent the withdrawal reaction from proceeding to serious consequences. Patients suspected of alcohol withdrawal should be seen promptly by a primary care provider (physician, nurse practitioner, physician assistant) who has experience in diagnosing and managing alcohol withdrawal. Practitioners are reminded that benzodiazepines have side effects and limitations. These limitations are far more prominent when treating alcohol withdrawal in an outpatient setting.

Loading dose of a benzodiazepine

Medical or nursing administration of a slowly metabolized benzodiazepine, frequently intravenously, but sometimes orally, may be carried out every 1 to 2 hours until significant clinical improvement occurs (such as reducing the CIWA-Ar score to 10 or less) or the patient becomes sedated (Sellers and Naranjo 1985). Patients at grave risk for the most severe complications of alcohol withdrawal or who are already experiencing severe withdrawal should be hospitalized and can be treated with this regimen. In general, patients with severe withdrawal may receive 20mg of diazepam or 100mg of chlordiazepoxide every 2 to 3 hours until improvement or sedation prevails. Oversedation, ataxia (lack of muscular coordination), and confusion, particularly in elderly patients, may occur with this protocol. The treatment staff should closely monitor hemodynamic (blood pressure and pulse) and respiratory features. They should particularly be prepared to detect and rapidly treat apnea (no breathing) with assisted ventilation. Having experienced staff with adequate time to frequently monitor the patient and provide intravenous medication is necessary.

Symptom-triggered therapy

Using the CIWA-Ar or similar alcohol withdrawal rating scales, medical personnel can be trained to recognize signs and symptoms of alcohol withdrawal, make a rating, and based on that rating administer benzodiazepines to their patients only when signs and symptoms reach a particular threshold score. Studies have demonstrated that appropriate training of nurses in the application of the CIWA-Ar dramatically reduces the number of patients who need to receive symptom-triggered medication (Saitz et al. 1994; Wartenberg et al. 1990). This regimen has been used successfully with short, intermediate, and long half-life benzodiazepines.

The training of staff in a standardized procedure of administering rating scales is important and periodic retraining to ensure continued reliability among raters is essential. A typical routine of administration of symptom-triggered therapy is as follows: Administer 50mg of chlordiazepoxide (Librium) for CIWA-Ar > 9 and reassess in 1 hour. Continue administering 50mg chlordiazepoxide every hour until CIWA-Ar is < 10. Dosage amount and frequency can be modified depending on the individual clinical situation as determined by the medical provider. Patients with a history of withdrawal seizures should receive scheduled doses of a long-acting benzodiazepine (e.g., diazepam [Valium], 20mg every 6 hours for 3 days) regardless of CIWA-Ar score, and should receive additional doses if indicated by elevated CIWA-Ar score. It must be noted here that symptom-triggered therapy is not recommended for outpatient detoxification. Symptom-triggered therapy requires monitoring and decision-making by a healthcare professional.

Gradual, tapering doses

Before beginning any tapering regimen, the patient must be fully stabilized; that is, all signs and symptoms of withdrawal must be improved. Without proper stabilization, no tapering scheme will succeed. Once the patient has been stabilized, oral benzodiazepines can be administered on a predetermined dosing schedule for several days and gradually tapered over time. This is a commonly used regimen.

Dosing protocols vary widely among treatment facilities based on the needs of the patient population. One example is that patients might receive 50mg of chlordiazepoxide or 10mg of diazepam every 6 hours during the first day of treatment and 25mg of chlordiazepoxide or 5mg of diazepam every 6 hours on the second and third days. This approach to dosing, that is, every 6 hours, is not as accurate in tailoring medications to counter symptoms; a more precise dosing regimen is titrating (adjusting dosage in light of drug response) according to severity of symptoms. An alternative regimen might be the administration of 1 to 2mg lorazepam two or three times a day the first day, followed by gradual reduction over the next 3 to 5 days. The general approach to tapering is to establish an acute dose in the first 24 hours, then to reduce it over the next three days: for example, 400 chlordiazepoxide total on day 1, then 300, 200, 100, and off on day 5. This has to be extended if lorazepam is used. Doses of withdrawal medication are omitted if the patient is sleeping soundly, showing signs of oversedation, or exhibiting marked ataxia.

Benzodiazepines remain the medication class of choice for treating alcohol withdrawal.

The use of gradual, tapering doses is appealing in settings where trained nursing or medical observations cannot be made frequently; however, this in itself is a pitfall. Under- or overmedication with this regimen can occur depending on benzodiazepine tolerance; the presence of chronic cigarette smoking, which induces benzodiazepine metabolism; liver function; age; and the presence of co-occurring medical or psychiatric conditions. The use of this regimen may be problematic in the outpatient settings in which it frequently is applied. Supplying the patient with 4 to 5 days of a benzodiazepine and facing the probability that the patient may drink and take the benzodiazepine is a hazard. It is important to enforce strict limitations on driving automobiles, climbing, or operating hazardous machinery.

Single daily dosing protocol

Jauhar and Anderson (2000) compared single daily dosing of diazepam to multiple daily dosing of chlordiazepoxide in inpatients being treated for alcohol withdrawal. Patients in the diazepam single daily dose group did as well as the chlordiazepoxide multiple dosing group. The authors suggest that this regimen might be attractive in community or social detoxification settings, particularly if patients could be monitored between administered doses. Further study with a larger group of patients is needed.

The choice of the specific benzodiazepine for any particular regimen depends on a number of factors, but the most significant factor is that the clinician administer one that she has the most experience using. Despite 30 years of research, no single benzodiazepine has emerged as the number one drug of choice in treating alcohol withdrawal. All benzodiazepines studied have worked better than placebo but have been roughly equivalent with each other. Many clinicians prefer long half-life benzodiazepines such as chlordiazepoxide and diazepam, desiring less frequent daily dosing, relatively steady serum levels, and the ability of these drugs to self-taper based on their long half-lives.

Diazepam and chlordiazepoxide

Both diazepam and chlordiazepoxide have excellent rapid oral absorption and are available for intravenous (IV) use. Intramuscular use of these drugs is to be discouraged since muscle absorption is erratic. One study suggests that if chlordiazepoxide (Librium) is taken in overdose with alcohol, it is less likely to be fatal than diazepam (Valium) (Serfaty and Masterton 1993). Detractors of the use of these two drugs point out that they have long half-lives (although some clinicians see this as an advantage because it prevents the emergence of withdrawal symptoms between doses), have multiple active metabolites, and go through many oxidative metabolic steps in the liver. Older patients or patients with liver disease are likely to accumulate these medications quickly without being able to metabolize them. Possible consequences include oversedation or ataxia, and on rare occasions, confusion may ensue.

Lorazepam

Lorazepam (Ativan) has an intermediate half-life of about 8–15 hours, and although it usually is administered in multiple doses each day, it can be given approximately twice per day. Lorazepam, with its shorter half-life and lack of storage in adipose (fatty) tissue, actually has to be given more frequently than the long-acting preparations, not less. It is absorbed easily orally, intramuscularly, and intravenously. Older patients and patients with severe liver disease tolerate it well and it is an effective anticonvulsant in blocking a second alcohol withdrawal seizure (D'Onofrio et al. 1999). However, it has been suggested that seizures may occur late in detoxification with short-acting benzodiazepines such as lorazepam and oxazepam (Shaw 1995).

Oxazepam

Oxazepam (Serax) often is favored by internists and hepatologists treating alcohol withdrawal in patients with severe liver failure. It has a relatively short half-life of 6 to 8 hours. Its metabolism is very simple and it has no metabolites. The agent is relatively limited in that its oral absorption is quite slow compared to other benzodiazepines, it must be given three to four times a day, and is only available in the United States in an oral form.

Ultimately, the experience of the treating clinician, characteristics of the patient, and the setting in which he will be treated will determine the choice of drug. Although all benzodiazepines are now generic in the United States, costs vary and this too may be a factor in choice.

Limitations of benzodiazepines in outpatient treatment

Although benzodiazepines remain the mainstay of treatment for alcohol withdrawal, they have limitations that are particularly pronounced when treating outpatients. Benzodiazepines' potential interactions with alcohol can lead to coma and respiratory suppression, motor inco-

ordination (leading to falls and automobile accidents), and abuse of the medications. Abuse usually is in the context of the concurrent use of alcohol, opioids, or stimulants.

There are two other limitations of benzodiazepines that may be relevant in some clinical settings for some patients. First, although benzodiazepines have been studied for more than 30 years and are effective for suppressing alcohol withdrawal symptoms at any one episode, their ability to halt the progressive worsening of each successive alcohol withdrawal reaction is in question. There are now at least nine studies that have found that an ever-increasing number of previous alcohol withdrawals increases the severity of withdrawal, particularly seizures and delirium tremens, and decreases responsiveness to benzodiazepines (Ballenger and Post 1978; Booth and Blow 1993; Brown et al. 1988; Gross et al. 1972; Lechtenberg and Worner 1990, 1992; Malcolm et al. 2000; Shaw et al. 1998; Worner 1996). A tenth study (Wojnar et al. 1999) found that increasing severity of alcohol withdrawal symptoms was observed only in a minority (22 percent) of 418 repeatedly treated clients. However, within this group of one in five individuals, seizures were three times more common than in the larger, nonprogressive group and premature age of death was 7 years younger than for the nonprogressive group. In the majority of these studies, patients were treated with benzodiazepines, although in a few, phenobarbital was used.

A second, and at present more hypothetical, concern about benzodiazepine use to treat outpatients in alcohol withdrawal is that they may "prime" or reinstate alcohol use during their administration. Two preclinical studies support this premise (Deutsch and Walton 1977; Hedlund and Wahlstrom 1998). A recent randomized, blinded, clinical trial comparing carbamazepine to lorazepam for the outpatient treatment of alcohol withdrawal found that the outpatients on lorazepam were three times as likely to drink as those on carbamazepine. The lorazepam group drank about twice as much alcohol in the immediate post-detoxification period than the carbamazepine group (Malcolm et al. 2002).

For a list of potential contraindications to using benzodiazepines to treat alcohol withdrawal in certain patients, see Figure 4-3.

Other medications

Barbiturates

Barbiturates have been used for nearly a century for the treatment of alcohol withdrawal. Most barbiturates, other than phenobarbital, have fallen into disfavor because of severe

Figure 4-3
Potential Contraindications To Using Benzodiazepines To Treat Alcohol Withdrawal

- Previous allergic reaction
- Previous paradoxical disinhibition (e.g., violence, agitation, self-harm)
- Previous serious adverse outcomes that could have medico-legal consequences if they re-occur (e.g., fractured hip, status epilepticus [continuous seizures of several minutes])
- Severe alterations in mental status with low dose of benzodiazepines (e.g., confusion, delirium)
- An outpatient setting where benzodiazepine use with alcohol has occurred previously with extreme intoxication leading to injuries, coma, or apnea

Source: Consensus Panelist Robert Malcolm, M.D.

Delirium and seizures are the two most pathological responses seen in alcohol withdrawal.

lethal interactions with alcohol, death from overdose of the agents alone, rapid tolerance, and high abuse potential. Barbiturates are highly addictive. In clinical practice, the medication is effective both for the treatment of alcohol withdrawal and sedative-hypnotic withdrawal although few controlled trials have been conducted with it (Wilbur and Kulik 1981). Phenobarbital has a long half-life and may rapidly accumulate. Overdoses with phenobarbital also can be fatal. Members of the consensus panel recommend its use only in highly supervised settings.

Anticonvulsants

Anticonvulsants have been used in Europe for a quarter of a century for the treatment of alcohol withdrawal. Carbamazepine (Atretol, Tegretol) has been shown in at least three trials to be as effective as various benzodiazepines in mild to moderate alcohol withdrawal (Malcolm et al. 2001). Although less well studied, valproic acid also has been shown to be effective (Reoux et al. 2001). Older, first-generation anticonvulsants have limitations in that they only have been studied in mild to moderate withdrawal, can on rare occasions have serious hepatic and bone marrow toxicities, interact with several other classes of medication, and are only available in oral forms. They are not, however, controlled substances, are not abused, and as previously noted, carbamazepine may have the propensity to reduce some of the indices of drinking behavior immediately in the post-withdrawal treatment of outpatients. Newer drugs such as tiagabine, oxcarbazepine, and gabapentin do not appear to have these liabilities, but sufficient studies have not been done to confirm their effectiveness and safety.

Other agents

Beta blockers and alpha adrenergic agonists such as clonidine have been used in the treatment of alcohol withdrawal. They do not prevent seizures in delirium and have only modest benefits for ameliorating symptoms of withdrawal. However, some patients will have tachycardia (rapid heartbeat) and hypertension (high blood pressure) that will not be controlled by benzodiazepines, and beta blockers and alpha adrenergic agonists can be of use in these patients. Calcium channel antagonists will also ameliorate some symptoms of alcohol withdrawal. As with beta blockers and clonidine, calcium channel antagonists should be considered adjunctive therapy primarily to manage extreme hypertension during withdrawal.

Antipsychotics

Antipsychotics have long been used to control extreme agitation, hallucinations, delusions, and delirium during alcohol withdrawal. Older, low-potency drugs such as chlorpromazine generally are avoided since they can reduce the seizure threshold. High-potency drugs such as haloperidol (Haldol) also can reduce the seizure threshold, but less commonly. Haloperidol and related agents are available for oral, intramuscular, and IV administration. Clinicians should note that since antipsychotics can lower the seizure threshold, their use during alcohol withdrawal should be undertaken with great care and close supervision of the patient is required.

Relapse prevention agents

Relapse prevention agents such as naltrexone and acamprosate are under consideration as additional therapies during late withdrawal treatment, although they are not effective for alcohol detoxification. Since one-third to one-half of outpatients detoxifying with benzodiazepines will either drink or leave treatment prematurely, naltrexone and acamprosate may be valuable in assisting in reducing the probability of the individual drinking during late detoxification. High-dose naltrexone therapy has been associated with some liver toxicity, but this has not been reported in individuals taking therapeutic doses to enhance relapse

prevention. Acamprosate may produce diarrhea and this may be already present in some individuals in alcohol withdrawal. Thus far no well-controlled studies have been conducted to provide guidelines as to when these medications should be introduced during detoxification or whether it would be better to wait until the early phase of rehabilitation. For an extended review, see Kranzler and Jaffe (2003).

Other medications

Abecarnil (Anton et al. 1997), and more recently baclofen (Addolorato et al. 2002), have both shown promise in the treatment of alcohol withdrawal. However, insufficient information has been accumulated on these drugs, and therefore they are not recommended for use in clinical patient settings. Their use in alcohol withdrawal should be considered experimental and premature for the present.

Management of Delirium and Seizures

Delirium and seizures are the two most pathologic responses seen in alcohol withdrawal. The major goal of medical management is to avoid seizures and a special state of delirium called delirium tremens (DTs) with aggressive use of the primary detoxification drug (e.g., higher doses of a benzodiazepine). Prevention is essential where DTs are concerned. DTs do not develop suddenly but instead progress from earlier withdrawal symptoms. Properly administered symptom-triggered medication approaches will prevent DTs and limit overmedication that can occur when high-dose benzodiazepines are administered without regard to clinical response. It can be challenging clinically to differentiate impending DTs versus benzodiazepine toxicity on day 3 of detoxification. When in doubt, in most cases it is safer to overmedicate than to undertreat and allow DTs to develop. Flumazenil (Romazicon) can be used to reverse benzodiazepine overdose.

Death and disability may result from DTs or seizures without medical care. Several factors are related to severity of alcohol withdrawal: high amounts of alcohol being consumed in the weeks prior to treatment, the severity of the last withdrawal episodes, and the number of previously treated or untreated withdrawal episodes. Other factors such as increasing age; the patient's general health, including nutritional status; the presence of co-occurring medical, surgical, and psychiatric disorders; and the use of medications (prescription, over-the-counter, or herbal) also can amplify severity of withdrawal symptoms. Early proper medical management of alcohol withdrawal reduces the probability of these complications, assuming early recognition.

For patients with a history of DTs or seizures, early benzodiazepine treatment is indicated at the first clinical contact setting (e.g., doctor's office, clinic, urgent care, emergency department). Patients with severe withdrawal symptoms, multiple past detoxifications (more than three), and co-occurring unstable medical and psychiatric conditions should be managed similarly.

Once an initial clinical screening and assessment have been made, and the diagnosis is reasonably certain, medication should be given. Giving the patient a benzodiazepine should not be delayed by waiting for the return of laboratory studies, transportation problems, or the availability of a hospital bed. Early thiamine and multivitamin administration also should be done at this time. Once full DTs have developed, they tend to run their course despite medication management, and there is little evidence in the medical literature to suggest that any medication treatment can immediately abort DTs.

Patients presenting in severe DTs should have emergency medical transport to a qualified emergency department and generally will require hospitalization. If the DTs are severe, patients may need to be placed in an intensive care unit (ICU), and in such settings continuous monitoring of cardiac rhythm, pulse, blood pressure, oxygen saturation, temperature, and respiration rates begins with the emergency medical system and continues in the emergency department and ICU.

Early care will depend on medical and surgical complications and may involve protocols from advanced cardiac life support (ACLS) and/or advanced trauma life support. Correction of fluids and electrolytes (salts in the blood), hyperthermia (high fever), and hypertension are vital. Loading doses (rapid administration of initial high doses) of IV diazepam or lorazepam are recommended, as are IV thiamine (prior to IV glucose) and multiple vitamins. The physician should consider intramuscular or intravenous haloperidol (Haldol and others) to treat agitation and hallucinations. Nursing care is vital, with particular attention to medication administration, patient comfort, soft restraints, and frequent contact with orienting responses and clarification of environmental misperceptions.

Alcohol withdrawal seizures represent another management challenge (Ahmed et al. 2000), since no large-scale clinical studies have been conducted to establish firmly best treatment practices. The majority of alcohol withdrawal seizures occur within the first 48 hours after cessation or reduction of alcohol, with peak incidence around 24 hours (Victor and Adams 1953). Most alcohol withdrawal seizures are singular, but if more than one occurs they tend to be within several hours of each other. While alcohol withdrawal seizures can occur several days out, a higher index of suspicion for other causes is prudent. Someone experiencing an alcohol withdrawal seizure is at greater risk for progressing to DTs, whereas it is extremely unlikely that a patient already in DTs will also then experience a seizure.

The occurrence of an alcohol withdrawal seizure happens quickly, usually without warning to the individual experiencing the seizure or anyone around him. The patient loses consciousness, and if seated usually slumps over, but if standing will immediately fall to the floor. The patient's body is rigid, and breathing ceases. This part of the seizure is called the tonic phase, which usually lasts for a few seconds and rarely more than a minute.

The next part of the seizure (more dramatic and generally remembered by witnesses) consists of jerking of head, neck, arms, and legs. Breathing resumes during this clonic phase of the seizure but may be irregular. During the clonic phase, the lips, tongue, or inside of the cheeks may be bitten. Involuntary urination or a bowel movement may occur. Immediately after the jerking ceases, the patient generally has a period of what appears to be sleep with more regular breathing. Vomiting may occur at this time. The period of sleep may be a few seconds with awakening or a few minutes. Rarely, the patient may appear not to waken at all and have a second period of rigidity followed by muscle jerking. This is known as status epilepticus. Upon awakening, the individual usually is mildly confused as to what has happened and may be disoriented as to where she or he is. This period of post-seizure confusion generally lasts only for a few minutes but may persist for several hours in some patients. Headache, sleepiness, nausea, and sore muscles may persist in some individuals for a few hours. See the text box on the next page for what to do in the event of a seizure.

Patients who start to retch or vomit should be gently placed on their side so that the vomitus (stomach contents vomited) may exit the mouth and not be taken into the lungs. Vomitus taken into the lungs is a severe medical condition leading to immediate difficulty breathing and, within hours, severe pneumonia.

Predicting who will have a seizure during alcohol withdrawal cannot be accomplished with any great certainty. There are some factors that clearly increase the risk of a seizure, but even in individuals with all of these factors, most patients will not have a seizure. Out of 100 people experiencing alcohol withdrawal only two or three of them will have a seizure. The best single predictor of a future alcohol withdrawal seizure is a previous alcohol withdrawal seizure. Individuals who have had three or more documented withdrawal episodes in the past are much more likely to have a seizure regardless of other factors including age, gender, or overall medical health. However, certain other factors may increase the risk of seizures for all patients:

What To Do in the Event of a Seizure

- At the first sign of what appears to be a seizure, lay witnesses should summon trained medical personnel.
- Depending on the setting, this may mean calling 911 or calling the nurse or physician who is on duty for the clinic or hospital unit.
- While awaiting medical help, a layperson witnessing an alcohol withdrawal seizure should gently attempt to prevent injury to the person as he or she slumps or falls to the floor by protecting the individual's head and body from hard or sharp objects. Often, though, the initial loss of consciousness and fall is not seen by anyone.
- In the jerking phase of the seizure, if the jerking is extreme, it is important to protect the head from extreme head-banging by placing a soft object under the head and neck. Sometimes placing one's hand or shoe under the head is adequate.
- No attempt should be made to insert anything in the mouth (such as spoons, pencils, pens, tongue blades). Such attempts at object insertion may cause damage to the teeth and tongue, or objects may get partially swallowed and obstruct the airway.
- Patients who start to retch or vomit should be gently placed on their side so that the vomitus (stomach contents vomited) may exit the mouth and not be taken into the lungs. Vomitus taken into the lungs is a severe medical condition leading to immediate difficulty breathing and, within hours, severe pneumonia.
- Even if the individual appears to become fully awake, alert, and oriented without any harm following a seizure, it is strongly recommended that he be referred for medical evaluation.
- Individuals who awaken confused and disoriented should be given brief reassuring and soothing messages to reorient them as to what happened and where they are.

- Having drunk for more than two decades
- Having poor general medical health and poor nutritional status
- Having had previous head injuries
- Having had disturbances of serum calcium, sodium, potassium, or magnesium

Patients having a witnessed seizure can be treated with IV diazepam or lorazepam and ACLS protocol procedures. This reduces but does not completely prevent the likelihood of a second seizure (D'Onofrio et al. 1999). In the rare patient with recurrent multiple seizures or status epilepticus (continuous seizures of several minutes) an anesthesiology consultation may be required for general anesthesia. Evaluation of electrolyte disturbances, central nervous system (CNS) trauma, and consideration of sedative-hypnotic withdrawal should be reviewed.

Patients who have had a single witnessed or suspected alcohol withdrawal seizure should be immediately given a benzodiazepine, preferably with IV administration. The study by D'Onofrio and colleagues (1999) indicated that a single dose of 1mg of IV lorazepam reduced recurrent seizure risk, reduced rates of return to emergency departments, and lowered hospitalization rates. Despite this report, the consensus panel agrees that hospitalization for further detoxification treatment is strongly advised to monitor and ameliorate other withdrawal symptoms, reduce suffering, and stabilize the patient for rehabilitation treatment.

The addition of anti-epileptic drugs (AEDs) has not been established as effective (Chance 1991; Hillbom and Hjelm-Jager 1984; Rathlev et al. 1994). This is primarily based on evaluations of phenytoin (Dilantin and others). Newer AEDs have not been studied extensively for preventing alcohol withdrawal seizures. The consensus panel suggests that AED therapy should be considered in alcohol withdrawal patients with multiple past seizures (of any cause), a history of recent head injury, past

meningitis, encephalitis, or family history of seizures. Further evaluation of a first seizure often warrants neurologic evaluation (computerized tomography and electroencephalogram), even if the seizure may be suspected to have been due to alcohol withdrawal.

Patient Care and Comfort

Interpersonal support and hygienic care along with adequate nutrition should be provided. Staff assisting patients in detoxification should provide whatever assistance is necessary to help get patients cleaned up after entering the facility and bathed thoroughly as soon as they have been medically stabilized. Attention to the treatment of scabies, body lice, and other skin conditions should be given. Screening for tuberculosis should be done. Dental and oral care should be made available. The patient should be screened for physical trauma, including bruises and lacerations. Tetanus immunization may be necessary. Patients with an altered mental status or altered level of consciousness should be seen in emergency departments, evaluated, and possibly hospitalized. Staff should continue to observe patients for head injuries after admission because some head injuries, such as subdural hematomas, may not immediately be evident and cost considerations may preclude obtaining a brain scan in some settings.

Other Immediate Concerns

Alcohol may interact with several classes of medicine to produce serious CNS depression. Some examples include benzodiazepines, barbiturates, meprobamate, and other sedative hypnotic groups. Metoclopramide and sedating antipsychotic medicines such as phenothiazines also can produce CNS suppression. A disulfiram-like (Antabuse) reaction characterized by flushing, sweating, tachycardia, nausea, and chest pain has been reported for metronidazole and several antibiotics including, but not limited to, cefamandole, cefoperazone, and cefotetan. Acetaminophen in low doses may act acutely with alcohol to produce hepatotoxicity (liver damage). Clinicians also should determine whether the patient is using aspirin or nonsteroidal anti-inflammatory medications (for example, Motrin or Advil, both containing ibuprofen) in conjunction with alcohol use. Antidiabetic agents in concert with alcohol may produce hypoglycemia (low blood sugar) and lactic acidosis (blood that has become too acidic). The therapeutic efficacy and margin of safety for the use of anti-anxiety medications, antidepressants, and antipsychotic medication is thought by some to be lessened by alcohol use, but this is based largely on anecdotal information. Alcohol interacts with numerous other classes of medications that lead to less serious results. Some important examples are sedatives, tranquilizers, antiseizure medications, and anticoagulants (blood thinners) such as Coumadin. Patients who may be taking such medications need to be carefully observed and have their medications carefully monitored.

Opioids

Opioids are highly addicting, and their chronic use leads to withdrawal symptoms that, although not medically dangerous, can be highly unpleasant and produce intense discomfort. All opioids (e.g., heroin, morphine, hydromorphone, oxycodone, codeine, and methadone) produce similar effects by interacting with endogenous (produced by the body itself) opioid (μ, δ, and κ) receptors (that is, specific sites on cells where these substances bind to the cell). Opioid agonists stimulate these receptors and opioid antagonists block them, preventing their action.

Opioid Withdrawal Symptoms

All opioid agents produce similar withdrawal signs and symptoms with some variance in severity, time of onset, and duration of symptomatology, depending on the agent used, the duration of use, the daily dose, and the interval between doses. For instance, heroin withdrawal typically begins 8 to 12 hours after the last heroin dose and subsides within a period of 3 to 5 days. Methadone withdrawal typically begins 36 to 48 hours after the last dose, peaks

after about 3 days, and gradually subsides over a period of 3 weeks or longer. Physiological, genetic, and psychological factors can significantly affect intoxication and withdrawal severity. Figure 4-4 summarizes many of the common signs and symptoms of opioid intoxication and withdrawal.

The clinician uses intoxication and withdrawal measures as guides to avoid under- or overmedicating patients during medically supervised detoxification; the number and intensity of signs determine the severity of opioid withdrawal. It is important to appreciate that untreated opioid withdrawal gradually builds in severity of signs and symptoms and then diminishes in a self-limited manner. *Repeated assessments* should be made during detoxification to determine whether symptoms are improving or worsening. Repeated assessments also should address the effectiveness of pharmacological interventions. Detoxification strategies should aim to establish control over the opioid withdrawal syndrome, after which dose reductions can be made gradually.

Medical complications associated with opioid withdrawal can develop and should be quickly identified and treated. Unlike alcohol and sedative withdrawal, uncomplicated opioid withdrawal is not life-threatening. Rarely, severe gastrointestinal symptoms produced by opioid withdrawal, such as vomiting or diarrhea, can lead to dehydration or electrolyte imbalance. Most individuals can be treated with oral fluids, especially fluids containing electrolytes, and some might require intravenous therapies. In addition, underlying cardiac illness could be made worse in the presence of the autonomic arousal (increased blood pressure, increased pulse, sweating) that is characteristic of opioid withdrawal. Fever may be present during opioid withdrawal and typically will respond to detoxification. Other causes of fever should be evaluated, particularly with intravenous users,

Figure 4-4
Signs and Symptoms of Opioid Intoxication and Withdrawal

Opioid Intoxication	Opioid Withdrawal
Signs Bradycardia (slow pulse) Hypotension (low blood pressure) Hypothermia (low body temperature) Sedation Meiosis (pinpoint pupils) Hypokinesis (slowed movement) Slurred speech Head nodding **Symptoms** Euphoria Analgesia (pain-killing effects) Calmness	**Signs** Tachycardia (fast pulse) Hypertension (high blood pressure) Hyperthermia (high body temperature) Insomnia Mydriasis (enlarged pupils) Hyperreflexia (abnormally heightened reflexes) Diaphoresis (sweating) Piloerection (gooseflesh) Increased respiratory rate Lacrimation (tearing), yawning Rhinorrhea (runny nose) Muscle spasms **Symptoms** Abdominal cramps, nausea, vomiting, diarrhea Bone and muscle pain Anxiety

Source: Consensus Panelist Charles Dackis, M.D.

Methadone is the most frequently used agent approved for detoxification by the FDA, and a new medication, buprenorphine, has been approved for use.

because HIV infection, viral hepatitis, abscesses, infected injection sites, and pneumonia occur commonly in this population and always require medical attention. Anxiety disorders, especially those involving panic anxiety, also might show increased intensity during opioid withdrawal. Finally, any condition involving pain is likely to worsen during opioid withdrawal because of a reduced pain threshold and the lack of analgesia (pain relief) afforded by opioid use. This phenomenon is particularly common with dental pain and chronic back pain.

Management of Withdrawal Without Medications

It is not recommended that clinicians attempt to manage significant opioid withdrawal symptoms (causing discomfort and lasting several hours) without the effective detoxification agents discussed below. Even mild levels of opioid use commonly produce uncomfortable levels of withdrawal symptomatology. Management of this syndrome without medications can produce needless suffering in a population that tends to have limited tolerance for physical pain.

Management of Withdrawal With Medications

The management of opioid withdrawal with medications is most commonly achieved through the use of methadone (in addition to adjunctive medications for nausea, vomiting, diarrhea, and stomach cramps). Federal regulations restrict the use of methadone for opioid withdrawal to specially licensed programs, except in cases where the patient is hospitalized for treatment of another acute medical condition. Methadone is the most frequently used agent approved for detoxification by the Food and Drug Administration (FDA), and a new medication, buprenorphine (discussed below), has been approved for use. Methadone can be used for detoxification from heroin and all opioid agonists.

Another commonly used agent is clonidine (Gold et al. 1984), an α-adrenergic agonist that relieves most opioid withdrawal symptoms without producing opioid intoxication or drug reward. However, since clonidine detoxification is less effective against many opioid withdrawal symptoms, adjunctive medicines often are necessary to treat insomnia, muscle pain, bone pain, and headache. Adjunctive agents should not be used in the place of an adequate detoxification dosage. Additional opioid agonists could be used theoretically for detoxification but would have to be administered "off label," because the FDA has approved only methadone for this purpose. Off-label use (prescribing an agent approved for another condition) could be difficult to justify, given the efficacy of methadone in reversing opioid withdrawal.

Detoxification is indicated for treatment-seeking persons who display signs and symptoms sufficient to warrant treatment with medications and for whom maintenance is declined or for some reason is not indicated or practical. In addition, individuals dependent on opioids sometimes are hospitalized for other health problems and may require hospital-based detoxification even though they are not

seeking substance abuse treatment. Such patients also can be maintained on methadone during the course of hospitalization for any condition other than opioid addiction. The hospital does not have to be a registered opioid treatment program, as long as the patient was admitted for a detoxification treatment for some substance other than opioids. On the other hand, some persons may not have used sufficient amounts of opioids to develop withdrawal symptoms, and for others sufficient time may have elapsed since their last dose to extinguish withdrawal and eliminate the need for detoxification.

Methadone

This section discusses methadone as an agent for detoxification. For detailed information on methadone maintenance, readers are referred to TIP 43 *Medication-Assisted Treatment for Opioid Addiction in Opioid Treatment Programs* (CSAT 2005*d*). While methadone is one of the more common medications for opioid detoxification, its use is highly regulated and it can only be prescribed for withdrawal by a doctor at a Substance Abuse and Mental Health Services Administration (SAMHSA)-certified methadone clinic or if the patient is being hospitalized for another medical condition. (Detoxification programs may become certified to prescribe methadone by undergoing the process described in TIP 43.) Federal regulations allow for the use of methadone in both a short-term detoxification treatment of less than 30 days and a long-term treatment of 30 to 180 days. The regulations also specify that if a patient has failed two detoxification attempts in a 12-month period he or she must be evaluated for a different course of treatment (e.g., ongoing opioid substitution therapy).

Methadone is a long-acting agonist at the μ-opioid receptor site that, in effect, displaces heroin (or other abused opioids) and restabilizes the site, thereby reversing opioid withdrawal symptoms. If maintained for long enough, this stabilizing effect can even reverse the immunologic and endocrinologic defects caused by long-term heroin addiction. This is one of many important reasons to consider conversion to maintenance during most methadone detoxification admissions.

Once the dose requirement for methadone has been established, methadone can be given once daily and generally tapered over 3 to 5 days in 5 to 10mg daily reductions. The initial dose requirement is determined by estimating the amount of opioid use and gauging the patient's response to administered methadone. Clinicians should take care not to underdose patients with methadone; adequate dosage is vitally important. Patients sometimes exaggerate their daily consumption to receive greater dosages of methadone. For this reason, history is no substitute for a physical examination that screens for signs of opioid withdrawal. Treating clinicians should not only be familiar with the intoxication and withdrawal signs that are set forth in Figure 4-4 (p. 67), but also should be skilled in discerning these features of opioid withdrawal. Avoidance of overmedicating is crucial during methadone detoxification because excessive doses of this agent can produce overdose, whereas opioid withdrawal does not constitute a medical danger in otherwise healthy adults. For more information on methadone and other medications used to treat opioid addiction, see TIP 43, *Medication-Assisted Treatment for Opioid Addiction in Opioid Treatment Programs* (CSAT 2005*d*).

Patients with significant opioid dependence may require a starting dose of 30 to 40mg per day; this dose range should be adequate for even the most severe withdrawal. If the degree of dependence is unclear, withdrawal signs and symptoms can be reassessed 1 to 2 hours after giving a dose of 10mg of methadone. The practice of giving a dose of methadone and later assessing its effect (also termed a challenge dose) is an important intervention of detoxification. Sedation or intoxication signs after a methadone challenge dose indicate a lower starting dose. Similarly, intoxication at any point of the detoxification

signals the need to hold or more rapidly wean (reduce to a zero dose) the methadone. Care should be taken to avoid giving methadone to newly admitted patients with signs of opioid intoxication, since overdose could result. Note that methadone stabilization is the treatment of choice for patients who are pregnant and opioid dependent.

Clonidine (Catapres)

Clonidine was originally marketed and approved for the treatment of high blood pressure but also has been used for opioid detoxification since 1978. While clonidine is not FDA approved for treatment of opioid withdrawal, it is widely used "off label" for this purpose (Alling 1992) because the research literature substantiates its effectiveness for this condition. Advantages of clonidine over methadone in the treatment of opioid withdrawal are as follows:

- Clonidine does not produce opioid intoxication and is not reinforcing.
- The FDA does not classify clonidine as having abuse potential. Yet some abuse has been reported. (See p. 107 under the section on pregnant women and opioids.)
- Since clonidine does not interact with the μ-opioid receptor, detoxification occurs without opioids.
- No special licensing is required for the dispensing of this medication.

One disadvantage to methadone detoxification with naltrexone (an opioid antagonist), compared with clonidine, is that naltrexone, when it is prescribed for abstinence, can precipitate opioid withdrawal if given too soon after the last methadone dose. This problem does not exist with clonidine, making this agent particularly beneficial in a drug-free treatment program or a therapeutic community.

Nevertheless, patients addicted to opioids generally prefer methadone over clonidine detoxification. Although clonidine alleviates some symptoms of opioid withdrawal, it usually is relatively ineffective for insomnia, muscle aches, and drug craving. Completion rates for opioid detoxification using clonidine have been low (ranging from 20 to 40 percent); those patients who complete the procedure are more likely to be dependent on opioids other than heroin, have private health insurance, and report lower levels of subjective withdrawal symptoms than those who do not complete (Strobbe et al. 2003).

An appropriate protocol for clonidine is 0.1mg administered orally as a test dose. A dose of 0.2mg might be used initially for patients with severe signs of opioid withdrawal or for those patients weighing more than 200 pounds. The sublingual (under the tongue) route of administration also may be used. Clinicians should check the patient's blood pressure prior to clonidine administration and clonidine should be withheld if systolic blood pressure is lower than 90 or diastolic blood pressure is below 60. These parameters can be relaxed to 80/50 in some cases if the patient continues to complain of withdrawal and is not experiencing symptoms of orthostatic hypotension (a sudden drop in blood pressure caused by standing). Clonidine (0.1 to 0.2mg orally) can then be given every 4 to 6 hours on an as-needed basis. Clonidine detoxification is best conducted in an inpatient setting, as vital signs and side effects can be monitored more closely in this environment. In cases of severe withdrawal, a standing dose (given at regular intervals rather than purely "as needed") of clonidine might be advantageous (Alling 1992). The daily clonidine requirement is established by tabulating the total amount administered in the first 24 hours, and dividing this into a three or four times per day dosing schedule. Total clonidine should not exceed 1.2mg the first 24 hours and 2.0mg after that, with doses being held in accordance with parameters noted above. The standing dose is then weaned over several days. Clonidine must be tapered to avoid rebound hypertensions.

The clonidine transdermal (administered through the skin) patch, FDA approved in

1986 for the treatment of hypertension (high blood pressure), also is used in opioid detoxification. However, the safety of the patch for treatment of opioid withdrawal has not been sufficiently studied in controlled clinical trials. The transdermal route of administration has the disadvantage of continued clonidine action even after the patch has been removed. Blood pressure effects of clonidine can therefore be prolonged, leading to undesirable and persistent reductions of blood pressure. For this reason, it has been recommended that the patch be used only if the patient's blood pressure is monitored regularly (Alling 1992).

The clonidine patch is available in three sizes that deliver a total daily oral equivalent clonidine dose of 0.2mg (3.5 cm^2), 0.4mg (7.0 cm^2), or 0.6mg (10.5 cm^2). The patch supplies clonidine for up to 7 days and one patch application usually is sufficient. The convenience of one application allows the clinician to avoid the disruption that multiple dosing might have during rehabilitative programming. In particular, patients can focus on rehabilitative treatment without being distracted by the need to ask repeatedly for oral clonidine doses. Vital signs should be monitored at least four times daily to assess persistent signs and symptoms of withdrawal or undesirable effects of clonidine on blood pressure.

Buprenorphine

Buprenorphine, a partial α-opioid agonist that is FDA approved in an injectable form (Buprenex) for the treatment of pain, has recently been approved as a detoxification agent and for opioid maintenance treatment as an alternative to methadone maintenance. A number of clinical trials have reported it to be effective for heroin detoxification (Becker et al. 2001; Bickel et al. 1988; Diamant et al. 1998), and the medication should play an important role in gradually removing patients from methadone maintenance (Amass et al. 2004; Banys et al. 1994; Johnson et al. 2000).

Buprenorphine is available in oral form as Subutex, which contains only buprenorphine, and is meant for patients who are starting treatment for drug dependence. Another form, Suboxone, contains buprenorphine and naloxone and is intended for persons dependent on opioids who have already started and are continuing medication therapy. Buprenorphine has great affinity for the μ-opioid receptor, in spite of being only a partial agonist, and can displace other opioids such as heroin. This feature gives buprenorphine the ability to precipitate opioid withdrawal when administered to patients who have recently used heroin (Kosten and McCance-Katz 1995).

One advantage of buprenorphine is that it can be dispensed at a physician's office, unlike methadone, which can be dispensed only at designated treatment centers.

An advantage to buprenorphine is its safety. Because of the partial agonist action, buprenorphine has a "ceiling effect" with regard to overdose potential (Walsh et al. 1994). That is, unlike methadone, which produces increasing respiratory suppression with increasing dose, respiratory effects of buprenorphine tend to level off due to its partial agonist action. Another advantage of buprenorphine is that it can be dispensed at a physician's office, unlike methadone, which can be dispensed only at designated treatment centers. This makes access to this medication for opioid dependence much more convenient for both patient and clinician. See TIP 40, *Clinical Guidelines for the Use of Buprenorphine in the Treatment of Opioid Addiction* (CSAT 2004*a*).

Unlike methadone, buprenorphine may be prescribed by physicians who are not connected with a certified opioid treatment program. However, there is a still a specific training and certification process physicians must undergo in order to prescribe the medication. Information on the legal aspects of prescribing buprenorphine and rules for carrying out detoxification in the physician's office can be found at http://www.buprenorphine.samhsa.gov/. Information given at the site includes the following on the Drug Addiction Treatment Act (DATA) of 2000: "[DATA 2000] expands the clinical context of medication-assisted opioid addiction treatment by allowing qualified physicians to dispense or prescribe specifically approved Schedule III, IV, and V narcotic medications for the treatment of opioid addiction in treatment settings other than the traditional Opioid Treatment Program (i.e., methadone clinic). In addition, DATA 2000 reduces the regulatory burden on physicians who choose to practice opioid addiction therapy by permitting qualified physicians to apply for and receive waivers of the special registration requirements defined in the Controlled Substances Act" (SAMHSA 2002).

Inpatient treatment can provide additional support, medical supervision, and rehabilitative treatment that serve as disincentives to relapse.

Terminating Methadone Maintenance Treatment

Individuals seeking the discontinuation of methadone maintenance require a much more lengthy detoxification process than that described above for heroin. The methadone dose should be tapered gradually by 5 to 10mg/week until a daily dose of 30 to 40mg has been attained. At that time, detoxification with either clonidine or smaller doses of methadone can be instituted. The use of clonidine has the advantage of brevity as a complete clonidine detoxification usually can be conducted within 2 to 3 weeks (Gold et al. 1984).

Once the daily dose requirement has been established by using the principles outlined above, the patient can be placed on a standing dose of clonidine. The dose required usually is in the range of 0.2mg, three to four times daily, although titration (adjustment of dosage in light of drug response) is necessary based on the information gathered during the clinical examination. Additional doses as needed (sometimes abbreviated "PRN") of 0.2mg clonidine also can be given and blood pressure parameters must be followed prior to the administration of standing and PRN doses to avoid orthostatic hypotension. The initial standing dose can be reduced to 0.1mg, given three to four times daily, after one week of detoxification, with PRN doses of 0.1mg available. After a period of 1 week on this reduced dosage, clonidine is given for an additional week only if needed. Because clonidine does not reverse all opioid withdrawal symptoms, especially insomnia, adjunctive medications for symptom relief of insomnia, nausea, diarrhea, etc. usually are required. Clonidine detoxification is best conducted on an inpatient basis to ensure appropriate vital sign monitoring. Inpatient treatment also reduces the impulse to relapse, especially if the detoxification is difficult.

Methadone detoxification can be continued once a daily dose of 30 to 40mg is achieved, as described above. The dose can be reduced to 20mg per day by a reduction of 5 to 10mg/week. Once the patient is on 20mg/day, methadone can be reduced by 1 to 2mg daily, depending on clinical measures of withdrawal. As with clonidine detoxification, the final 2 to 3 weeks of methadone detoxification is associated with recidivism (relapsing).

Inpatient treatment, if available, can provide additional support, medical supervision, and rehabilitative treatment that serve as disincentives to relapse.

Rapid and Ultrarapid Detoxification

Although there are few data showing that the rapid or ultrarapid methods of opioid detoxification show a positive correlation with the likelihood of a patient's being abstinent a few months later, efforts persist to make the detoxification process shorter and easier. This stems in part from the desire of the person addicted to opioids for a rapid, painless procedure, and in part from an attempt to coax more such persons into treatment (fewer than one in five people with substance use disorders in the United States are in treatment at any time) (Office of National Drug Control Policy 2002). Another contributing factor is the American culture's search for rapidity in most endeavors. Finally, the desire for rapid opioid detoxification is a remnant of the belief system of a century ago, when detoxification often was erroneously equated with cure.

Rapid methods of detoxification have at their core the use of narcotic antagonists; for example, naloxone, naltrexone, or nalmefene, to precipitate narcotic withdrawal by displacing exogenous opioids (those not produced by the body itself) from the receptor sites. The ensuing severe symptoms then are managed by a variety of medications and techniques. This procedure was tried in the mid-1970s (Blachly et al. 1975; Resnick et al. 1977), using naloxone combined with benzodiazepines or propranolol to ameliorate symptoms, but relief was insufficient for the technique to be considered useful.

With the discovery of clonidine as a nonopioid that could successfully treat much of the withdrawal syndrome (Gold et al. 1978), the method became more successful, but was still problematic. Using combinations of clonidine, naltrexone, benzodiazepines, and other adjunct medications, the method was refined and shortened during the 1980s (Charney et al. 1982, 1986; Kleber et al. 1987; Riordan and Kleber 1980; Vining et al. 1988) so that a blocking dose of naltrexone—at least 25mg—usually was used by the second or third day of treatment. The rate-limiting factor of this rapid clonidine-naltrexone method is its capacity to adequately relieve the precipitated withdrawal symptoms in the conscious patient. Golden and Sakhrani (2004) found that 25 percent of the 20 patients they studied who were undergoing rapid detoxification using clonidine and naltrexone developed delirium and had to discontinue the procedure after the first day, and another patient dropped out before completion.

The 1990s witnessed a variety of attempts to overcome this barrier by using general anesthesia or heavy sedation. Although the ultrarapid procedure under anesthesia has received wide publicity, controlled studies that would make it possible to evaluate the risk/benefit ratio are absent. The procedure is still unproven and controversial. For a brief review of studies done in this area, see Stine and colleagues (2003).

Patient Care and Comfort

Opioid detoxification, when properly conducted, usually can be concluded without significant patient discomfort. Aside from the compassionate goal of preventing unnecessary suffering, appropriate opioid detoxification strengthens the therapeutic alliance between the patient and clinician and prevents patients from leaving treatment prematurely. Discomfort also can indicate that too low a dose of the detoxification agent is being administered. Mere symptomatic treatment is not a substitute for reversing opioid withdrawal and care should be taken to avoid masking symptoms that would better respond to detoxification.

Nevertheless, patients receiving adequate detoxification doses still may complain of symptoms that can be treated with adjunctive

medications. Insomnia can be treated with diphenhydramine (Benadryl) 50 to 100mg, trazodone (Desyrel) 75 to 200mg, or hydroxyzine (Vistaril) 25 to 50mg at bedtime. Benzodiazepines should be avoided unless required for concomitant alcohol or sedative detoxification. Headache, muscle aches, and bone pain can be managed with acetaminophen (e.g., Tylenol), aspirin, or ibuprofen (e.g., Motrin) as needed. Abdominal cramps are rare when the detoxification dose is sufficient but can be ameliorated with dicyclomine (e.g., Bentyl) 10 to 20mg every 6 hours. Mylanta or Maalox can be administered for epigastric complaints and bismuth subcarbonate (e.g., Pepto-Bismol) 30 cc can be given every 2 to 3 hours for diarrhea. Constipation, a frequent complaint during methadone maintenance, usually can be managed with milk of magnesia at 30 cc daily.

Opioid dependence, particularly intravenous heroin dependence, is associated with a number of medical conditions. For this reason, a complete physical examination, review of systems, and laboratory evaluation (when indicated) should be conducted. The patient should be screened for tuberculosis as well as for commonly encountered medical complications. These include HIV/AIDS, viral hepatitis (especially B and C), other sexually transmitted diseases, and opportunistic infections. Injection sites should be examined for infection or abscess and patients should be queried about night sweats, chills, nutritional intake, diarrhea and gastrointestinal distress, fever, and cough. History or evidence of trauma also should be elicited as part of a comprehensive assessment upon which a full treatment plan will be based. In general, patients should be ambulatory and able to participate in rehabilitative activities during detoxification. However, during the first 24 hours they may require bed rest or reduced activity.

Benzodiazepines and Other Sedative-Hypnotics

Intoxication and Withdrawal Symptoms Associated With Benzodiazepines and Other Sedative-Hypnotics

Patients intoxicated with sedative-hypnotics appear similar to individuals intoxicated with alcohol. Slurred speech, ataxia, and poor physical coordination are prominent. If benzodiazepines are used alone, breath and blood alcohol levels should be zero. It should be remembered that benzodiazepines, when ingested alone, intentionally, or accidentally in overdose, rarely lead to death by themselves. Unfortunately, most individuals who ingest benzodiazepines also may be using alcohol, other sedative-hypnotics, or other drugs of abuse, which in combination with benzodiazepines could be fatal if not managed appropriately.

Management of benzodiazepines and other sedative-hypnotics in overdose is in part supported following principles of ACLS with particular attention to ventilation. Additionally, removal of the benzodiazepine from the gastrointestinal tract using lavage and a cathartic is generally carried out, particularly if the overdose is recent. Flumazenil (Romazicon) is a competitive antagonist that acts at the benzodiazepine receptor. It can reverse the sedative and overdose effects of benzodiazepines but not of alcohol or other sedative-hypnotics. The medication is administered via IV by slow push (2 to 3 minutes) and dosage varies, depending on whether one is treating sedation reversal or overdose coma-reversal. Flumazenil is only effective in benzodiazepine overdose and is not an effective antidote against other drugs. Clinicians should be aware that in chronic benzodiazepine users who are physically dependent, flumazenil may induce seizures, high blood pressure,

and delirium. So patients who are comatose from benzodiazepines and are benzodiazepine dependent may move quickly from coma to acute benzodiazepine withdrawal symptoms when flumazenil is administered.

Assessing the potential or actual severity of a benzodiazepine and other sedative-hypnotic abstinence syndrome is based primarily on clinical information obtained from the patient, significant others, and physical assessment. Confirmation of length of benzodiazepine treatment with significant others, local pharmacies, and treating physicians is useful. Specific name of medication, dose, and duration of therapy are vital. The presence or absence of alcohol use is also important to know, as with the use of other sedative-hypnotics, such as medications for sleep. The existence of co-occurring psychiatric disorders such as panic disorder also are important factors and should be investigated. Cigarette smoking tends to induce the metabolism of some benzodiazepines and this can be a factor in scheduling a taper. Physical assessment, with particular attention to mental status, and neurologic exams are important. Determination of vital signs also provides guidance. A urine drug screen may confirm the presence of benzodiazepines but otherwise will not be particularly helpful. Although sedative-hypnotic withdrawal scales have been used in research studies, they are not widely available for clinical practice.

Medical complications of withdrawal from benzodiazepines include problems similar to those seen in alcohol withdrawal. Seizures are particularly worrisome and may occur without being preceded by other evidence of withdrawal. As in alcohol withdrawal, seizures and delirium represent the most extreme pathology seen. Anecdotal reports appearing in the literature also have described distortions in taste, smell, and other perceptions. Since many individuals who take benzodiazepines have underlying anxiety disorders, it often is difficult during periods of withdrawal to determine whether symptomatology is related to withdrawal or the emergence of panic attack symptoms. Elderly patients who are being withdrawn from benzodiazepine are at risk for falls and myocardial infarctions. Delirium without marked autonomic hyperactivity (no elevations of pulse, blood pressure, or temperature) also may be seen in the elderly. The management of benzodiazepine withdrawal is not recommended without medical supervision. All benzodiazepines should be tapered rather than stopped abruptly, regardless of dose or duration of use—unless it is a matter of use for only a few days (Ashton 2002).

Patients intoxicated with sedative-hypnotics appear similar to individuals intoxicated with alcohol. Slurred speech, ataxia, and poor physical coordination are prominent.

Management of Withdrawal With Medications

There are a limited number of controlled trials that can provide guidance regarding the management of benzodiazepine and other sedative-hypnotic withdrawal. For reviews, see Rickels and colleagues (1999) and Eickelberg and Mayo-Smith (1998). One strategy that is appropriate is to begin with a slow taper of the benzodiazepine that the patient already is taking. This taper may be conducted over several weeks or perhaps even months. This may be effective in cases of long-acting benzodiazepines but often is not effective in detoxification from short half-life benzodiazepines. Sometimes switching to another benzodiazepine in a patient who has had serious loss of control and abuse problems with his primary agent is therapeutic. Another strategy is to switch the patient to another benzodiazepine with a long half-life. Frequently chlorodiazepoxide and

clonazepam are recommended. Figures 4-5 and 4-6 (p. 78) give the equivalent doses of these medicines along with numerous other sedative-hypnotics and benzodiazepines.

Another alternative is phenobarbital substitution. For patients who have used high doses of benzodiazepines for an extended period of time, hospitalization is always prudent. Outpatient detoxification should be reserved for patients whose doses of benzodiazepines were mainly in therapeutic ranges, who do not have polysubstance dependence, and who are reliable and have reliable significant others to aid in monitoring and supervising their progress. In the outpatient setting, patients and families need to be informed that even with sound withdrawal treatment, seizures and delirium are possible. The individual should be instructed not to drive or operate dangerous machinery during treatment and perhaps for several weeks thereafter. Recurring assessment will be necessary, particularly around times of dosage reductions. Pregnant patients will need to be detoxified slowly and in consultation with an obstetrician.

A variety of cognitive and behavioral techniques have been proposed to assist in the presence of a medication taper. These techniques alter negative cognitions regarding medication cessation, provide patient education, and provide alternative cognitive and behavioral techniques for anxiety reduction and sleep enhancement during detoxification (Spiegel 1999).

Anticonvulsants such as carbamazepine and valproate, as well as sedating antidepressants such as trazodone and imipramine, have been advocated for use in withdrawal (Dickinson et al. 2003). Rickels and colleagues (1999) assert that these drugs have some beneficial effect in the management of relatively low-dose benzodiazepine discontinuation in their ability to reduce patients' subjective complaints, but that, in more severe withdrawal syndromes, they do not decrease symptoms. Imipramine can lower the seizure threshold and therefore is not recommended. The use of anticonvulsants is probably best reserved as an adjunctive medicine to the long-acting benzodiazepine or phenobarbital. The use of buspirone for benzodiazepine detoxification is ineffective and should not be considered. For patients with major autonomic symptoms during withdrawal that cannot be controlled by the primary treating agent, consideration of the use of a low dose of clonidine or propranolol may be helpful.

Preparing patients and starting detoxification during a period of low external stressors, with patient commitment to tapering, and a plan to manage underlying anxiety disorders, also are important in detoxification. A flexible detoxification schedule is advised. During periods of increased withdrawal symptoms, dosage should be stabilized or even increased for a period of days. Frequent in-person or phone contact with the patient is vital. Patients being detoxified in the outpatient setting may need to be seen several times per week, especially at times of dosage reductions.

Stimulants

Cocaine and amphetamines (such as methamphetamine) are the most frequently abused central nervous system stimulants. These agents are intensely rewarding and are self-administered by laboratory animals to the point of death. Individuals dependent on stimulants experience profound loss of control over stimulant intake, presumably in response to the stimulation and disruption of endogenous (originating internally) reward centers (Dackis and O'Brien 2001). They often use stimulants in a binge pattern that is followed by periods of withdrawal. It is not clear whether craving occurs predominantly during stimulant with-

Figure 4-5
Benzodiazepines and Their Phenobarbital Withdrawal Equivalents

Generic name	Trade name	Therapeutic dose range (mg/day)	Dose equal to 30mg of phenobarbital for withdrawal (mg)**	Phenobarbital conversion constant
Benzodiazepines				
alprazolam	Xanax	0.75–6	1	30
chlordiazepoxide	Librium	15–100	25	1.2
clonazepam	Klonopin	0.5–4	2	15
clorazepate	Tranxene	15–60	7.5	4
diazepam	Valium	4–40	10	3
estazolam	ProSom	1–2	1	30
flumazenil	Mazicon	***	***	***
flurazepam	Dalmane	15–30*	15	2
halazepam	Paxipam	60–160	40	0.75
lorazepam	Ativan	1–16	2	15
midazolam	Versed	***	***	***
oxazepam	Serax	10–120	10	3
prazepam	Centrax	20–60	10	3
quazepam	Doral	15*	15	2
temazepam	Restoril	15–30*	15	2
triazolam	Halcyon	0.125–0.50*	0.25	120

* Usual hypnotic dose.
** Phenobarbital withdrawal conversion equivalence is not the same as therapeutic dose equivalency. Withdrawal equivalence is the amount of the drug that 30mg of phenobarbital will substitute for and prevent serious high-dose withdrawal signs and symptoms.
*** Not applicable.

Source: American Psychiatric Association (APA) 1990; Wesson and Smith 1985.

Figure 4-6
Other Sedative-Hypnotics and Their Phenobarbital Withdrawal Equivalents

Generic name	Trade name(s)	Common therapeutic indication	Dose equal to 30mg of therapeutic dose range (mg/day)	Phenobarbital for withdrawal (mg)**	Conversion constants
Barbiturates					
amobarbital	Amytal	sedative	50–150	100	0.33
butabarbital	Butisol	sedative	45–120	100	0.33
butalbital	Fiorinal, Sedapap	sedative/ analgesic*	100–300	100	0.33
pentobarbital	Nembutal	hypnotic	50–100	100	0.33
secobarbital	Seconal	hypnotic	50–100	100	0.33
Others					
buspirone	Buspar	sedative	15–60	***	***
chloral hydrate	Noctec, Somnos	hypnotic	250–1,000	500	0.06
ethchlorvynol	Placidyl	hypnotic	500–1,000	500	0.06
glutethimide	Doriden	hypnotic	250–500	250	0.12
meprobamate	Miltown, Equanil, Equagesic	sedative	1,200–1,600	1,200	0.025
methylprylon	Noludar	hypnotic	200–400	200	0.15

* Butalbital usually is available in combination with opioid or non-opioid analgesics.
** Phenobarbital withdrawal conversion equivalence is not the same as therapeutic dose equivalency. Withdrawal equivalence is the amount of the drug that 30mg of phenobarbital will substitute for and prevent serious high-dose withdrawal signs and symptoms.
*** Not cross-tolerant with barbiturates.

Source: APA 1990; Wesson and Smith 1985.

drawal or after these symptoms have largely disappeared. While the processes that govern addiction to cocaine and amphetamines are believed to be similar, recent animal research suggests that there are also subtle differences in the ways in which these two types of drugs create sensitization (and perhaps addiction) in regular users (Li et al. 2005).

Stimulant Withdrawal Symptoms

Stimulants are associated with withdrawal symptoms that differ markedly from those seen with opioid, alcohol, and sedative dependence (see Figure 4-7). While most clinicians believe that alcohol and heroin withdrawal should be treated aggressively with detoxification, there has been little emphasis on treating symptoms of stimulant withdrawal. Consequently, no medications have been developed for this purpose. This situation is understandable because stimulant withdrawal usually does not involve medical danger or intense patient discomfort. However, if stimulant withdrawal predicts poor outcome, it may be a reasonable target for clinical interventions.

An often overlooked but potentially lethal "medical danger" during stimulant withdrawal is the risk of a profound dysphoria (depression, negative thoughts and feelings) that may include suicidal ideas or attempts. This may be, in part, a physiological response to cocaine or amphetamine withdrawal and, in part, a reaction to individuals' acute realization of the devastating psychosocial consequences after a binge ends. While both cocaine and amphetamine users may experience depression during withdrawal, the period of depression experienced by amphetamine users is more prolonged and may be more intense. Amphetamine users, in particular, should be monitored closely during detoxification for signs of suicidality and treated for depression if appropriate.

Although the literature on cocaine withdrawal is controversial, reasonable consensus supports the constellation of symptoms depicted in Figure 4-7 (Coffey et al. 2000; Cottler et al. 1993). These symptoms often disappear after several days of stimulant abstinence but can persist for 3 to 4 weeks (Coffey et al. 2000). In addition, since individuals addicted to stimulants often fail to achieve abstinence, withdrawal symptoms can be a persistent component of active addiction. In addition, individuals addicted to stimulants may experience impairment in hedonic function (ability to experience pleasure) that has been ascribed to stimulant-induced disruptions of endogenous reward centers (Dackis and O'Brien 2002). Research on animals has found that exposure to high doses of methamphetamine results in changes to both the dopaminergic and serotonergic systems of the brain (Nordahl et al. 2005) and dopamine abnormalities among animals and humans who had been ingesting cocaine (Schuckit 2000).

Figure 4-7
Stimulant Withdrawal Symptoms

• Depresion	• Poor concentration
• Hypersomnia (or insomnia)	• Psychomotor retardation
• Fatigue	• Increased appetite
• Anxiety	• Paranoia
• Irritability	• Drug craving

Source: Consensus Panelist Robert Malcolm, M.D.

Researchers have also observed abnormalities in regions of the brain that govern attention and memory in animals that were regularly administered methamphetamine (Nordahl et al. 2005).

Although cocaine withdrawal has traditionally been viewed as relatively mild (Satel et al. 1991; Weddington et al. 1990), evidence suggests that individuals dependent on cocaine with severe stimulant withdrawal are more likely to have a poor clinical outcome (Kampman et al. 2001*a*). The level of withdrawal symptoms, therefore, may be clinically significant and should be monitored and recorded for future treatment (Kampman et al. 2001*b*). Kampman reported significantly higher dropout rates in individuals dependent on cocaine who scored high on the Cocaine Selective Severity Assessment (CSSA), a reliable and valid structured interview designed to capture cocaine withdrawal symptoms (Kampman et al. 1998). Patients with high scores on the CSSA were five times more likely to leave treatment and four times more likely to resume cocaine use than those with low scores (Mulvaney et al. 1999). The CSSA is an easily administered 18-item questionnaire. Each item is a 7-point rating scale, so that a person can score a number of points on any given question. Scores in excess of 22 indicate the presence of significant cocaine withdrawal. See appendix C for more information on the CSSA. Given the poor prognosis associated with cocaine withdrawal, it is reasonable that more clinical attention be directed toward this phenomenon.

Medical Complications of Stimulant Withdrawal

As previously noted, stimulant withdrawal is not usually associated with medical complications. However, patients with recent cocaine use can experience persistent cardiac complications, including prolonged QTc interval and vulnerability for arrhythmia and myocardial infarction (Chakko and Myerburg 1995). QT is an interval of time that can be measured on an electrocardiogram (between the q wave and the t wave), while QTc is the relative (or "corrected") QT interval. Some conditions and many drugs (LAAM, other opioids, and even antibiotics) can cause the interval to lengthen and this can result in cardiac rhythm disturbances. Anterior chest pain or cardiac symptoms should therefore be fully evaluated in these individuals. Seizures also may be a complication of stimulant abuse and can occur during detoxification. Persistent headaches could represent a subdural, subarachnoid, or intracerebral bleed (bleeding in or around the brain) and should be appropriately evaluated. It also should be emphasized that people who abuse stimulants usually become addicted to other substances, such as alcohol, sedatives, or opioids, and therefore can experience any of the complications ascribed to detoxification from these substances. Covert (secretive) use of other substances should be suspected and assessed with urine toxicology.

Management of Withdrawal Without Medications

The most effective means of treating stimulant withdrawal involves establishing a period of abstinence from these agents. Access to brief hospitalization, a level of care previously available for those who abuse stimulants, has been largely eliminated by managed care initiatives. In its place, intensive outpatient treatment can assist the patient to cease use long enough for withdrawal symptoms to abate entirely. Rehabilitative approaches to achieve stimulant abstinence have been reviewed elsewhere (Dackis and O'Brien 2001). The avoidance of cue-induced craving is particularly important in these individuals, especially in light of research that shows limbic activation (activity in a certain part of the brain) in response to cue-induced craving (Childress et al. 1999). It also is important that individuals dependent on stimulants abstain from other addictive substances.

Management of Withdrawal With Medications

There are no medications with proven efficacy to treat stimulant withdrawal. However, researchers have investigated some medications for cocaine detoxification. Amantadine may help reduce cocaine use in patients with more severe withdrawal symptoms (Kampman et al. 2000). Modafinil, an antinarcolepsy agent with stimulant-like action, is currently under investigation by one research group as a cocaine detoxification agent (Dackis and O'Brien 2002). One small study in Thailand found the antidepressant mirtazapine (Remeron) was effective at reducing a number of the symptoms associated with amphetamine withdrawal (Kongsakon et al. 2005). None of these medications, however, are approved for use in treating stimulant withdrawal and further research is needed. Gorelick and colleagues (2004) review the full range of clinical literature on pharmacological intervention for cocaine addiction.

Patient Care and Comfort

Since stimulant withdrawal is not associated with severe physical symptoms, adjunctive medications are seldom required. These patients often are sleep deprived and might be unable to benefit from therapeutic activities during the first 24 to 36 hours of abstinence. They often are hungry and in need of large meal portions initially as their food intake may have been inadequate during active addiction. Stimulant users also may be irritable and care should be taken to avoid needless confrontation during the initial withdrawal phase. Headaches often are reported and can be treated symptomatically. Persistent headaches should be evaluated, as cocaine can produce cerebrovascular disease. Similarly, chest pain of possible cardiac origin should be evaluated medically with electrocardiography, cardiac enzymes, and appropriate medical attention. On occasion, patients undergoing withdrawal from cocaine or amphetamines report insomnia and may benefit from diphenhydramine (Benadryl) 50 to 100mg, trazodone (Desyrel) 75 to 200mg, or hydroxyzine (Vistaril) 25 to 50mg at bedtime. Benzodiazepines should be avoided unless required for concomitant alcohol or sedative detoxification. As stimulant withdrawal symptoms wane, patients are best treated with an active rehabilitative approach that combines entry into substance abuse treatment with support, education, and changes in lifestyle.

Other Immediate Concerns

Central nervous system stimulants exert most of their toxic effects through vasoconstriction (constriction of the blood vessels). Consequently, a number of medical conditions can arise from ischemia (lack of proper blood supply) or infarction (death of tissue as the result of lack of blood supply) as a result of stimulant use. Myocardial (heart muscle) infarction and stroke are widely recognized complications of stimulant use. However, other problems such as spontaneous abortion, bowel necrosis (tissue death), and renal (kidney) infarction also have been reported from cocaine-induced vasoconstriction. Cardiac arrhythmias also are common. Other medical problems that are associated with stimulant dependence include dental disease, neuropsychiatric abnormalities, and movement disturbances/disorders.

> Intensive outpatient treatment can assist the patient to cease use long enough for withdrawal symptoms to abate entirely.

Antidepressants, such as selective serotonin reuptake inhibitors, can be prescribed for the depression that often accompanies methamphetamine or other amphetamine withdrawal.

Inhalants/Solvents

Withdrawal Symptoms Associated With Inhalants/Solvents

The term "inhalants" is used to describe a large and varied group of psychoactive substances that all share the common characteristic of being inhaled for their effects. They are commonly found in household, industrial, and medical products. These drugs are used primarily by adolescents, although some, especially the nitrates, are used by adults as well (NIDA 2000). Figure 4-8 presents some of the more commonly abused inhalants.

Dependence on inhalants and subsequent withdrawal symptoms are both relatively uncommon phenomena (Balster 2003). There is no *specific* or characteristic withdrawal syndrome that would include all drugs in the inhalant class. Intoxication with the solvents, aerosols, and gases often produces a syndrome most like that of alcohol intoxication but lasting only 15 to 45 minutes (Miller and Gold 1990). Rarely, symptoms similar to sedative withdrawal have been described, including "fine tremors, irritability, anxiety, insomnia, tingling sensations, seizures and muscle cramps" (Miller and Gold 1990, p. 87). Toluene withdrawal has been reported to cause delirium tremens (Miller and Gold 1990). Longtime users also may exhibit weakness, weight loss, inattentive behavior, and depression (NIDA 2005). It has been reported that withdrawal symptoms can occur with as little as 3 months of regular usage (Ron 1986). When present, the withdrawal typically lasts 2 to 5 days (Evans and Raistrick 1987).

In addition to their short-term intoxicating affects, nitrates are used to enhance sexual pleasure by vasodilation (dilation of blood vessels) that produces a rush and sensation of warmth. There is no withdrawal syndrome that has been associated with nitrate abuse.

There are no specific assessment instruments available to measure inhalant withdrawal symptoms. A patient who presents with a history of inhalant use and symptoms of sedative-like withdrawal should alert the clinician to the possibility of inhalant withdrawal. These patients require a complete history and physical exam. Additionally, a blood alcohol level and urine drug screen are helpful in the cases of suspected polydrug abuse.

Medical Complications of Withdrawal From Inhalants/Solvents

There are a large number of medical complications associated with inhalant abuse and intoxication. Many of these complications are not the result of withdrawal but may still be seen when the patient presents to the clinician. Most inhalants produce some neurotoxicity with cognitive, motor, and sensory involvement. Additionally, damage to internal organs including the heart, lungs, kidneys, liver, pancreas, and bone marrow has been reported.

Management of Withdrawal Without Medications

It is crucial to provide the patient with an environment of safety that removes him from access to inhalants. This can pose a challenge due to the almost universal availability of these drugs in society. Many of the medical consequences of inhalant usage will remit once the patient achieves abstinence (Balster 2003). The patient should be monitored for withdrawal symptoms and changes in mental status.

Most patients presenting for treatment of inhalant dependence will be adolescents. Ideally, they should be entered into an age-appropriate treatment program that meets their medical and psychosocial needs. Supportive care, including helping them to get enough sleep and a well-balanced diet, usually will be sufficient to get patients safely through withdrawal (Frances and Miller 1998).

Figure 4-8
Commonly Abused Inhalants/Solvents

Type	Example	Chemicals in Inhalant/Solvent
Adhesives	Airplane glue	Toluene, ethyl acetate
	Other glues	Hexane, toluene, methyl chloride, acetone, methyl ethyl ketone, methyl butyl ketone
	Special cements	Trichloroethylene, tetrachloroethylene
Aerosols	Spray paint	Butane, propane (U.S.), fluorocarbons, toluene, hydrocarbons, "Texas shoe shine" (a spray containing toluene)
	Hair spray	Butane, propane (U.S.), chlorofluorocarbons (CFCs)
	Deodorant; air freshener	Butane, propane (U.S.), CFCs
	Analgesic spray	CFCs
	Asthma spray	CFCs
	Fabric spray	Butane, trichloroethane
	PC cleaner	Dimethyl ether, hydrofluorocarbons
Anesthetics	Gaseous	Nitrous oxide
	Liquid	Halothane, enflurane
	Local	Ethyl chloride
Cleaning agents	Dry cleaning	Tetrachloroethylene, trichloroethane
	Spot remover	Xylene, petroleum distillates, chlorohydrocarbons
	Degreaser	Tetrachloroethylene, trichloroethane, trichloroethylene

Management of Withdrawal With Medications

Patients presenting with only inhalant withdrawal are unusual. Clinicians should promptly ascertain if the patient has been abusing any other substances and proceed with appropriate detoxification as clinically indicated. When a patient presents with (1) a history of extensive inhalant usage, (2) a sedative-like withdrawal syndrome, and (3) no significant history or laboratory data that supports other substances, then the clinician can assume that the patient is in inhalant withdrawal.

As noted before, withdrawal from inhalants is similar to withdrawal from sedative-hypnotics. No systematic detoxification protocol has been established, although some clinicians have found phenobarbital useful (CSAT 1995*d*). The usefulness of benzodiazepines is unknown but would seem a reasonable alternative given our current understanding of inhalant withdrawal (Brouette and Anton 2001). No other medications have been routinely used for inhalant withdrawal.

Patient Care and Comfort

For patients who have only been abusing inhalants, treatment of insomnia during withdrawal is not usually necessary. Sedative substitution during the period of detoxification may allow the patient to sleep. However, a period of postdetoxification insomnia should be expected and usually can be treated by the

Figure 4-8 (continued)
Commonly Abused Inhalants/Solvents

Solvents and gases	Nail polish remover	Acetone, ethyl acetate
	Paint remover	Toluene, methylene chloride, methanol acetone, ethyl acetate
	Paint thinner	Petroleum distillates, esters, acetone
	Correction fluid and thinner	Trichloroethylene, trichloroethane
	Fuel gas	Butane, isopropane
	Lighter	Butane, isopropane
	Fire extinguisher	Bromochlorodifluoromethane
Food products	Whipped cream	Nitrous oxide
	Whippets	Nitrous oxide
"Room odorizers"	Locker Room, Rush, Poppers	Isoamyl, isobutyl, isopropyl or butyl nitrate (now legal), cyclohexyl

Source: Balster 2003.

recommendation of good sleep hygiene practices such as avoiding caffeine, daytime napping, and overstimulation in the evening.

If the patient is able to refrain from inhalant (and other substance) use and has no serious psychiatric or medical consequences, then outpatient treatment should be the first option. Inpatient or residential treatment should be used for those patients who cannot achieve abstinence or have serious co-occurring medical or psychiatric disorders. Hospitalized patients will need a thorough history and physical exam. Therapy to address denial, addiction, and pertinent psychosocial issues should be initiated as soon as possible during the hospitalization. Supportive care and abstinence will resolve most medical problems associated with chronic inhalant usage (Balster 2003).

Nicotine

In 2004, approximately 44.5 million adults were cigarette smokers (23.4 percent were men and 18.5 percent were women) (CDC 2005*a*). Nicotine addiction in the form of cigarette smoking accounts for more deaths each year than AIDS, alcohol, cocaine, heroin, homicide, suicide, motor vehicle crashes, and fires combined (U.S. Department of Health and Human Services [U.S. HHS] 2000*b*). Between 1995 and 1999, there were 490,000 smoking-related premature deaths annually, and smoking cost the country at least $157 billion yearly in health-related economic losses. This amounts to approximately $7.18 per pack of cigarettes (Fellows et al. 2002), a truly staggering figure.

Smokers are at increased risk for several medical problems, including myocardial infarction, coronary artery disease, hypertension, stroke, peripheral vascular disease,

chronic obstructive lung disease, chronic bronchitis, and several types of cancer (lung, stomach, head and neck, and bladder). Other problems associated with nicotine addiction include gastro-esophageal reflux disease and gastric ulcerations, cataracts, and premature wrinkling of the skin. There also appears to be an antiestrogen effect (suppression of an important hormone) that may lead to early development of osteoporosis in women (Okuyemi et al. 2000).

In 1988, the U.S. Surgeon General's Report concluded that nicotine is the principal addictive agent in tobacco. Nicotine binds to nicotinic acetylcholine receptors in the brain and has the direct ability to stimulate the release of dopamine in the nucleus accumbens area. The nucleus accumbens has long been considered the "reward center" in the brain. This increase in dopamine is similar to what occurs when patients use stimulants and is felt to be an essential element in the reward process of addiction (Glover and Glover 2001).

As many as 90 percent of patients entering treatment for substance abuse are current nicotine users (Perine and Schare 1999). There has long been controversy in the field of addiction medicine as to how best to handle the problem of nicotine dependence in patients seeking treatment for other types of substance abuse. Traditionally, it has been argued that patients would find that trying to stop smoking while also contending with other (more pressing) addiction problems would be too difficult and distracting in early abstinence. However, others argue that nicotine dependence is a lethal disease and that physicians have the responsibility to intervene in this addiction with the same aggressiveness they show toward other addictive substances. This pro-intervention position has received increasing attention from clinicians, inasmuch as it is now understood that alcohol consumption is associated with increased nicotine usage (Henningfield et al. 1984). Gulliver and colleagues (1995) have demonstrated that the urge to smoke is correlated with the urge to drink, and others have shown that continued nicotine dependence may be a relapse trigger for resumption of drinking (Stuyt 1997). The concern that smoking cessation may precipitate relapse to other substances of abuse has not been supported in the literature (Hughes 1995).

Treatment programs that have attempted to treat nicotine dependence in conjunction with other drugs of addiction have met with limited success (Bobo and Davis 1993; Burling et al. 1991; Hurt et al. 1994) and have generated increased interest in smoking cessation as a part of a patient's overall substance abuse treatment (Sees and Clark 1993). One study reported that forcing unmotivated patients (or patients who did not consider smoking a problem) to quit was countertherapeutic (Trudeau et al. 1995).

Moreover, it has traditionally been accepted that nicotine detoxification concurrent with detoxification from other substances makes the undertaking more difficult. Several factors are involved including the following: (1) patient ambivalence and/or lack of interest in smoking cessation; (2) physician ambivalence about the importance of smoking cessation early in treatment; (3) staff's use of nicotine; (4) staff's ambivalence about the importance of nicotine cessation early in treatment; (5) easy availability of cigarettes from peers, family, visitors, staff, and at 12-Step meetings; (6) lack of sufficient training and expertise on the part of physicians and staff in managing nicotine withdrawal; and (7) staff resistance to patient smoking cessation because withdrawal symptoms include irritability, anxiety, and depression, all of which can make patients more difficult to manage.

Withdrawal Symptoms Associated With Nicotine

The *Diagnostic and Statistical Manual of Mental Disorders, 4th edition, text revision* (DSM-IV-TR) (APA 2000) notes that typically, a person in nicotine withdrawal will have four

or more of the signs presented in Figure 4-9, though some clinicians believe that three or more is sufficient to make the diagnosis of nicotine withdrawal. Furthermore, it should be noted that symptoms vary in duration and intensity, with decreased heart rate and lightheadedness resolving in 48 hours, while increased appetite may remain present for weeks to months (Glover and Glover 2001). Smokers who have severe craving during withdrawal are less likely to be successful in their attempt at quitting (Hughes and Hatsukami 1992). Depression during withdrawal also has been linked to relapse to smoking (Covey et al. 1993).

Assessing Severity

Since 1978, the standard instrument used to measure physical dependence on nicotine has been the eight-item Fagerstrom Tolerance Questionnaire (FTQ) (Fagerstrom 1978). A later revision known as the Fagerstrom Test for Nicotine Dependence (FTND) (see Figure 4-10) has been reduced to six questions (Giovino et al. 1995; Heatherton et al. 1991). Scores greater than seven are consistent with nicotine dependence.

While both the FTQ and FTND are very useful for estimating a patient's physical dependence on nicotine, there is still a need to assess more accurately the degree to which smoking behavior plays a role in maintaining addiction. The Glover-Nilsson Smoking Behavioral Questionnaire (GN-SBQ) is an 11-question, self-administered test that evaluates the impact of behaviors and rituals associated with smoking (see Figure 4-11, p. 88). It was designed to assist clinicians in identifying and quantifying behavioral aspects of smoking that play a role in maintaining nicotine dependence, which can then help the clinician develop a cessation strategy that takes into account both physical dependence and behavioral dependence (Glover et al. 2002).

Figure 4-9
DSM-IV-TR on Nicotine Withdrawal

A. Daily use of nicotine for at least several weeks.

B. Abrupt cessation of nicotine use, or reduction in the amount of nicotine used, followed within 24 hours by 4 or more of the following signs:

1. Dysphoric or depressed mood
2. Insomnia
3. Irritability, frustration, or anger
4. Anxiety
5. Difficulty concentrating
6. Restlessness
7. Decreased heart rate
8. Increased appetite or weight gain

C. The symptoms of Criterion B cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The symptoms are not due to a general medical condition and are not better accounted for by another mental disorder.

Source: APA 2000, pp. 244–245.

Figure 4-10
Items and Scoring for the Fagerstrom Test for Nicotine Dependence

Questions	Answers	Points
1. How soon after you wake up do you smoke your first cigarette?	Within 5 minutes 6–30 minutes 31–60 minutes After 60 minutes	3 2 1 0
2. Do you find it difficult to refrain from smoking in places where it is forbidden (e.g., in church, at the library, in the cinema, etc.)?	Yes No	1 0
3. Which cigarette would you hate most to give up?	The first thing in the morning All others	1 0
4. How many cigarettes/day do you smoke?	10 or less 11–20 21–30 31 or more	0 1 2 3
5. Do you smoke more frequently during the first hours of waking than during the rest of the day?	Yes No	1 2
6. Do you smoke if you are so ill that you are in bed most of the day?	Yes No	1 0

Source: APA 1996.

To better understand a patient's level of nicotine dependence, providers can assess biochemical markers including nicotine, cotinine, and carbon monoxide. Nicotine and its metabolite cotinine can be measured in urine, blood, or saliva. Cotinine continues to be present in bodily fluids for up to 7 days after cessation. Clinicians should use caution when interpreting the meaning of nicotine and cotinine assays, as they are not specific to tobacco-derived nicotine and may indicate the patient's compliance with nicotine replacement therapy rather than smoking.

Carbon monoxide is easily measured in expired breath and can show whether the patient has been smoking within a few hours prior to the test. It can be used to monitor smoking cessation for patients receiving nicotine replacement therapy and patients often find it a helpful motivator in their attempt to maintain abstinence (Benowitz 1983).

Medical Complications of Withdrawal From Nicotine

There are no major medical complications precipitated by nicotine withdrawal itself. However, patients frequently experience uncomfortable withdrawal symptoms starting within a few hours of cessation. In addition to the symptoms previously noted, patients may complain of increased coughing, a desire for sweets, and difficulty concentrating (Hughes and Hatsukami 1992). Clinicians should be aware that withdrawal symptoms can masquer-

Figure 4-11
The Glover-Nilsson Smoking Behavioral Questionnaire (GN-SBQ)

Please indicate your choice by circling the number that best reflects your choice.
0 = Not at all; 1 = Somewhat; 2 = Moderately so; 3 = Very much so; 4 = Extremely so

How much do you value the following (Specific to Questions 1–2)?

1.	My cigarette habit is very important to me.	0	1	2	3	4
2.	I handle and manipulate my cigarette as part of the ritual of smoking.	0	1	2	3	4

Please indicate your choice by circling the number that best reflects your choice. (Specific to Questions 3–11).
0 = never; 1 = seldom; 2 = sometimes; 3 = often; 4 = Always

3.	Do you place something in your mouth to distract you from smoking?	0	1	2	3	4
4.	Do you reward yourself with a cigarette after accomplishing a task?	0	1	2	3	4
5.	If you find yourself without cigarettes, will you have difficulties in concentrating before attempting a task?	0	1	2	3	4
6.	If you are not allowed to smoke in certain places, do you then play with your cigarette pack or a cigarette?	0	1	2	3	4
7.	Do certain environmental cues trigger your smoking (e.g., favorite chair, sofa, room, car, or drinking alcohol)?	0	1	2	3	4
8.	Do you find yourself lighting up a cigarette routinely (without craving)?	0	1	2	3	4
9.	Do you find yourself placing an unlit cigarette or other objects (pen, toothpick, chewing gum, etc.) in your mouth and sucking to get relief from stress, tension or frustration, etc.?	0	1	2	3	4
10.	Does part of your enjoyment of smoking come from the steps (ritual) you take when lighting up?	0	1	2	3	4
11.	When you are alone in a restaurant, bus terminal, party, etc., do you feel safe, secure, or more confident if you are holding a cigarette?	0	1	2	3	4

TOTAL_____

Scoring for Behavioral Dependence

<12	Mild
12–22	Moderate
23–33	Strong
>33	Very Strong

*S*ource: Glover et al. 2002

ade as other psychiatric conditions, especially anxiety and depression (see Figure 4-12).

Smoking cessation also may affect the metabolism of other drugs primarily through the Cytochrome P 450 (CYP450) system. This system is one of many hepatic liver enzyme systems that is responsible for the metabolic breakdown of various drugs into inactive compound products. Different drugs and compounds have varying affinities for the CYP450 system. The higher the affinity, the faster the breakdown of the drug or compound in the body. Some compounds can slow the metabolism or breakdown of other drugs with a lower affinity, leading to a buildup of that drug or compound in the body.

During detoxification from nicotine, some medications will have their metabolism altered, including theophylline, caffeine, tacrine, imipramine, haloperidol, pentazocine, propranolol, flecainide, and estradiol; in general, these effects are short-lived and seldom drastic. Nicotine also reduces beta blockers' ability to lower blood pressure and heart rate and decreases the amount of sedation from benzodiazepines as well as decreases the amount of pain relief provided by some opioids, most likely because of its stimulant effects (Zevin and Benowitz 1999). A complete discussion of nicotine's effects on medications is beyond the scope of this TIP and physicians are encouraged to consult the *Physicians' Desk Reference* (2004) or equivalent pharmaceutical guide. Figure 4-13 (p. 90) shows the effects of abstinence from smoking on blood levels of a number of medications.

Management of Withdrawal Without Medications

About one third of current smokers attempt to quit smoking each year and more than 90 percent of these try to do so without any formal nicotine cessation treatment. Most smokers will make several attempts on their own to quit and ultimately, only about 50 percent are successful over a lifetime (U.S. HHS 2000*b*). While some smokers are able to quit on their own, others may require intervention in the form of behavioral treatment and/or pharmacotherapy.

There are insufficient data available to determine who will benefit most from a particular type of treatment. Some patients may prefer to stop smoking without the use of medication. An elevated score on the GN-SBQ would indicate a strong behavioral component to smoking that might guide the clinician in recommending behavioral treatment as a primary intervention. Patients who also have elevated FTQ scores may benefit by a combination of behavioral and pharmaceutical intervention.

Figure 4-12
Some Examples of Nicotine Withdrawal Symptoms That Can Be Confused With Other Psychiatric Conditions

Anxiety
Depression
Increased REM (rapid eye movement) sleep
Insomnia
Irritability
Restlessness
Weight gain

Source: APA 1996.

Figure 4-13
Effects of Abstinence From Smoking on Blood Levels of Psychiatric Medications

Abstinence Increases Blood Levels	Abstinence Does Not Increase Blood Levels	Effect of Abstinence on Blood Levels Is Unclear
Clomipramine Clozapine Desipramine Desmethyldiazepam Doxepin Fluphenazine Haloperidol Imipramine Oxazepam Nortriptyline Propranolol	Amitriptyline Chlordiazepoxide Ethanol Lorazepam Midazolam Triazolam	Alprazolam Chlorpromazine Diazepam

Source: APA 1996.

The U.S. Public Health Service's *Treating Tobacco Use and Dependence: Clinical Practice Guideline* is a comprehensive review of the smoking cessation literature (Fiore et al. 2000*a*). It discusses a range of nonpharmacological interventions for the management of withdrawal from nicotine; these can be separated into two basic categories: self-help interventions and behavioral interventions (Anderson and Wetter 1997).

Self-help interventions

Many tobacco users prefer to attempt to quit without any assistance from professionals. A number of self-help products are available that can assist them in their cessation attempts. These include a wide array of pamphlets, manuals, video- and audiotapes (e.g., from the American Lung Association and the National Cancer Institute), 12-Step self-help support groups, and telephone helplines. The U.S. Public Health Service's *Guideline*, which analyzed all types of self-help interventions together, found that the self-help approach to cessation yielded results only slightly better than no intervention at all. To date, self-help interventions alone have not been very successful at helping people achieve abstinence from tobacco. The *Guideline* suggests, however, that self-help can be a useful adjunct to other forms of treatment (Fiore et al. 2000*a*).

One type of self-help intervention that shows some promise is the use of computer-generated personalized written feedback for patients. The computer makes recommendations based on an individual's response to standardized questions about her smoking (Etter and Perneger 2001; Shiffman et al. 2000).

Behavioral interventions

The U.S. Public Health Service study noted that when physicians took as little as 3 minutes to advise their patients to stop smoking, long-term quit rates were modestly improved from 7.9 percent to 10.2 percent (Fiore et al. 2000*a*). Westmaas and colleagues note that "simple, clear advice from a physician can be considered an easy, cost-effective intervention that not only moves smokers closer to the decision to quit, but also may motivate some smokers to make an actual attempt"

(Westmaas et al. 2000, p. 58). The greater the amount of time in face-to-face interventions, the higher the success rate for patients, but interventions as short as 3 minutes have been found to be effective (Fiore et al. 2000*a*). A counseling session of longer than 10 minutes produced a cessation rate of 20.1 percent compared to a rate of 10.9 percent for no treatment. The guideline also indicated that if cessation information is given by multiple types of providers (e.g., physician, psychologist, dentist, nurse, and pharmacist) it can have a dramatic effect on cessation rates, increasing the rate to 23 percent compared to 10.8 percent for patients who had no provider contact.

A review of behavioral intervention studies concluded that both supportive care by a clinician and the ability of patients to develop problemsolving and coping skills improved success rates for smoking cessation (Anderson and Wetter 1997). Other components such as cigarette fading (gradually decreasing the number of cigarettes smoked over a period of time), establishing a quit date, enhanced environmental support, improved diet and increased exercise, relaxation training, and contingency contracting were not associated with improved outcome. Aversive conditioning, such as rapid smoking techniques, is effective but not routinely recommended (Fiore et al. 2000*a*).

Management of Withdrawal With Medications

A U.S. Public Health Service panel recommends that all primary care physicians provide a five-step intervention, known as the "5 A's," to all tobacco users. The panel recommends that all smokers who want to quit should be offered active medication that has been approved for assisting in smoking cessation unless there is a medical contraindication (Fiore et al. 2000*a*). Figure 4-14 provides a summary of the "5 A's" for brief intervention.

Nicotine Replacement Therapy (NRT)

Nicotine polacrilex gum was approved by the FDA in 1984. In the 1990s other NRTs received FDA approval, including the nicotine transdermal patch, the nicotine nasal spray, and the nicotine inhaler. Nicotine gum and nicotine transdermal patch are now available over the counter. After the acute withdrawal period, patients are then weaned off the medication until they become nicotine free. All NRTs are

Figure 4-14
The "5 A's" for Brief Intervention

Ask about tobacco use. Identify and document tobacco use status for every patient at every visit.
Advise to quit. In a clear, strong, and personalized manner urge every tobacco user to quit.
Assess willingness to make a quit attempt. Is the tobacco user willing to make a quit attempt at this time?
Assist in quit attempt. For the patient willing to make a quit attempt, use counseling and pharmacotherapy to help him or her quit.
Arrange followup. Schedule followup contact, preferably within the first week after the quit date.

Source: Fiore et al. 2000*a*, p. 26.

effective, with 1-year quit rates between 11 and 34 percent (Okuyemi et al. 2000).

There has been some concern about the addictive potential of NRTs, and it has been reported that 5 to 20 percent of patients using nicotine polacrilex gum continue to use it for more than 1 year (Hughes 1989). There was also initial concern that the nicotine nasal spray, with its rapid onset of action and high plasma concentrations, might become a drug of abuse. This has not been reported in the literature, and it could be speculated that this is because of the nasal spray's relatively uncomfortable side effects that cause many patients to dislike the product (Schuh et al. 1997). In general, withdrawal symptoms from NRTs are mild compared to those that occur in smoking cessation, and continued use of these products may be the result of patients' fear of returning to active smoking (APA 1996). For those patients who continue to use NRTs, providers should balance the patient's continued dependence on nicotine with the considerable health benefit of decreasing active tobacco usage. It is clear that constituents of tobacco other than nicotine are responsible for causing cancer. No ill effects have been attributed to long-term use of nicotine replacement therapy (Benowitz and Gourlay 1997).

Patients should be encouraged to use combined NRT treatments if they are unable to quit using a single type of first line pharmacotherapy.

Bupropion SR

Bupropion SR (Sustained Release) was initially manufactured under the name Wellbutrin as a treatment for major depressive disorder. In 1997, the FDA approved bupropion SR for smoking cessation, and it has been marketed under the name Zyban. Bupropion is a novel antidepressant that is involved primarily with dopamine but also affects adrenergic mechanisms in the central nervous system. Its exact mechanism of action is unknown, but it is not a nicotine substitute or replacement like the NRTs. The recommended dose is 150mg daily for 3 days and then 150mg twice daily for 7 to 12 weeks. Typically patients set their quit date 1 to 2 weeks from the time they start the medication in order to get the drug to therapeutic levels. This is an ideal time for the patient to focus on making behavioral changes and enlisting social support to augment his quit attempt. Bupropion SR has proven useful in smoking cessation with a 12-month abstinence rate of 35.5 percent compared to a placebo at 15.6 percent and the nicotine patch at 16.4 percent (Westmaas et al. 2000). The most commonly reported side effects include dry mouth and insomnia. Bupropion SR should not be used in patients with a history of seizures, heavy alcohol use, head trauma, or with anorexia or bulimia.

Other nonnicotine pharmacotherapy

Covey and colleagues examined nonnicotine pharmaceutical products that have been evaluated in controlled trials of smoking cessation (Covey et al. 2000). These drugs include the following:

- The alpha-2 agonist antihypertensive, clonidine
- The tricyclic antidepressant, nortriptyline
- The monoamine oxidase inhibitor (MAOI) antidepressant, moclobemide
- The serotonin 5-HT1A agonist anxiolytic, buspirone

- The antihypertensive CNS nicotinic receptor blocker, mecamylamine
- Oral dextrose tablets

Although none of these agents has been approved by the FDA for smoking cessation, clonidine, nortriptyline, and moclobemide have all been found to be effective treatments (Covey et al. 2000). Clonidine may be a helpful adjunct to nicotine replacement during acute nicotine withdrawal. Doses of 0.05mg to 0.1mg three times a day can be tried as tolerated (sedation and low blood pressure are concerns), and the medication needs to be tapered when discontinued to avoid rebound hypertension.

The Public Health Service's *Treating Tobacco Use and Dependence: Clinical Practice Guideline* (Fiore et al. 2000*a*) has classified nortriptyline and clonidine as second-line treatments. Clonidine is an antihypertensive and may be appropriate for patients addicted to certain types of drugs but not appropriate for others. The antidepressant selective serotonin reuptake inhibitor (SSRI) fluoxetine has been tested in a number of multisite trials (Cook et al. 2004; Hitsman et al. 1999; Niaura et al. 2002) and found to have a small benefit at best, although for patients who experience mild depressive states it may be a worthwhile adjunctive treatment. The usefulness of other SSRIs for smoking cessation is unknown, but studies have generally been unfavorable. More information on smoking cessation for people with co-occurring substance use and other mental disorders can be found in appendix D of TIP 42, *Substance Abuse Treatment for Persons With Co-Occurring Disorders* (CSAT 2005*c*).

Combination drug therapy

Combining NRT products

NRT products typically provide less than half the nicotine plasma levels that cigarette users achieve through smoking (Benowitz et al. 1997; Dale et al. 1995; Gupta et al. 1995; Lawson et al. 1998). To attempt to increase nicotine levels, several clinical trials have evaluated the effectiveness of combining available products. The simultaneous use of nicotine gum and the nicotine patch has been evaluated in several studies. Short-term gains in cessation were seen with the combination compared to either medication alone, but no long-term benefits in abstinence were demonstrated (Anderson and Wetter 1997). Blondal and colleagues (1999) compared the combination of nicotine nasal spray and the nicotine patch to the patch alone and found that at 3 months 37 percent of the patients were smoke free (compared to 25 percent for the patch alone). An open-label study of the combined use of nicotine inhaler and the nicotine patch found a 12-week cessation rate of 30 percent and good tolerability for the combination (Westman et al. 2000).

So-called "combination NRT" involves combining different types of nicotine replacement products, such as the patch and gum, on the premise that doing so will boost nicotine blood levels. Further rationale for this practice is that a "passive" nicotine delivery system (i.e., patch) produces relatively steady levels of nicotine in the body that prevent the user from going below a threshold minimum while "active" NRTs (i.e., gum, inhaler, spray, sublingual tablet, etc.) permit the user to respond to situational cravings with ad libitum dosing on an acute basis. Several clinical trials have evaluated the effectiveness of combining available NRT products (for a review see Silagy et al. 2000). After reviewing available data, the *Guideline* panel (Fiore et al. 2000*a*) felt that there was moderately strong evidence to conclude that "Combining the nicotine patch with a self-administered form of nicotine replacement therapy (either the nicotine gum or nicotine nasal spray) is more efficacious than a single form of nicotine replacement, and patients should be encouraged to use such combined treatments if they are unable to quit using a single type of first-line pharmacotherapy" (Fiore et al. 2000*a*, p. 77).

NRT using high-dose nicotine patch therapy

The highest dose of nicotine available by patch is 22mg. Several studies have evaluated whether higher doses of nicotine (up to 44mg) improve abstinence rates. The effect of this strategy has been small and the routine use of higher dose patches is not recommended (Hughes et al. 1999; Killen et al. 1999).

Combining nicotine patch and bupropion SR

In a double-blind, placebo-controlled study, the combination of bupropion SR and the nicotine transdermal patch showed higher abstinence rates at 12 months (35.5 percent) compared to bupropion SR alone (30.3 percent), nicotine patch alone (16.4 percent), or placebo patch and pill group (15.6 percent) (Jorenby et al. 1999). This combination was well tolerated. Clinicians who use this combination should first start the patient on bupropion SR 150mg for 3 days and then increase the dosage to 150mg twice daily for 1 to 2 weeks prior to the day of smoking cessation. On the "quit day," nicotine patch therapy should be initiated and the combination treatment continued for 3 to 6 months (Okuyemi et al. 2000).

Patient Care and Comfort

Most smokers attempt cessation on an outpatient basis and without any assistance from professionals. However, if a patient decides that she or he wants help with smoking cessation, it is important for the clinician to present a supportive and nonjudgmental attitude and develop a therapeutic alliance with the patient. It must be emphasized that nicotine dependence is a chronic relapsing disorder and that patients often make several attempts at quitting before succeeding.

Most smokers who want treatment will seek help from their primary care physician. The physician has the responsibility of providing pharmaceutical treatment, education about common problems associated with cessation, and emotional support to patients attempting to quit. Discussing nicotine withdrawal symptoms can often help allay patient concerns.

Fear of weight gain is a barrier for many who want to quit smoking (French et al. 1995). This is an especially important issue for women and may deter their attempts to stop smoking (Gritz et al. 1989). Though the health gains of stopping smoking clearly outweigh the health risks of weight gain, this argument does little to assuage patients' fears. Dieting during smoking cessation is not recommended in general and has been shown to increase the likelihood of smoking relapse (Hall et al. 1992). Physicians should, however, recommend both exercise and proper nutrition for patients attempting to stop smoking. Patients should be informed that alcohol use also is considered a risk factor for relapse to smoking by most clinicians (Shiffman 1982), and patients who can abstain from drinking during the withdrawal period should do so.

Patients generally will find a smoke-free environment helpful during quit attempts. If the patient lives in a household where others smoke, household members and friends can help by not smoking in front of the patient and limiting the number of smoking cues in their residence.

Patients with more severe nicotine dependence may benefit from enrollment in a specialized smoking cessation program. They might also benefit from more intensive medical management using several drugs (NRT + anticraving), medication for longer periods of time, closer followup, and longer enrollment in treatment. There are a number of cessation programs available from organizations such as the American Lung Association (http://www.lungusa.org) and the American Cancer Society (http://www.cancer.org). Some community and local organizations also sponsor smoking cessation programs. For the most severely dependent smokers, there are a limited number of residential facilities that treat nicotine dependence on an inpatient basis (Hurt et al. 1992). Providers of detoxification

services should be familiar with the programs available in their communities in order to make referrals.

Marijuana and Other Drugs Containing THC

Marijuana and hashish are the two substances containing THC (delta-9-tetrahydrocannabinol) commonly used today. The field of addiction medicine has given considerable attention to the question of whether there is a specific withdrawal syndrome associated with cessation from prolonged THC use. In the past, many have stated that there is no acute abstinence syndrome that develops in people who abruptly discontinue THC (CSAT 1995*d*). More recently this has been called into question and most experts now believe that a THC-specific withdrawal syndrome does occur in some patients who are heavy users (Budney et al. 2001), though cannabis withdrawal is not yet included in the APA's *Diagnostic and Statistical Manual of Mental Disorders*.

The THC abstinence syndrome usually starts within 24 hours of cessation. The amount of THC that one needs to ingest in order to experience withdrawal is unknown. It can be assumed, however, that heavier consumption is more likely to be associated with withdrawal symptoms. The most frequently seen symptoms of THC withdrawal are anxiety, restlessness and irritability, sleep disturbance, and change in appetite (usually anorexia). Other symptoms of withdrawal are less frequently seen and appear to include tremor, diaphoresis (sweating), tachycardia (elevated heart rate), and GI disturbances, including nausea, vomiting, and diarrhea. Cognitive difficulties including depression also have been reported and may persist but usually improve with time. There are no medical complications of withdrawal from THC, and medication is generally not required to manage withdrawal.

Clinicians may see a variety of the symptoms mentioned above, but these generally require no immediate medication during the detoxification period and usually are self-limiting. However, the clinician should be aware of the potential for more persistent problems. Screening the patient for suicidal ideation or other mental health problems is warranted. Some reviews have advocated the use of buspirone as an alternative to benzodiazepines for the management of persistent generalized anxiety (Gatch and Lal 1998). Other common problems encountered during withdrawal can be managed with nonaddictive, supportive medications. For patients with more persistent difficulty sleeping, clinical experience suggests that Trazodone may be useful. Trazodone can lead to low blood pressure upon standing, dizziness, and may increase falls, particularly in individuals over age 60. Benzodiazepines and other addictive medications should be avoided.

Most experts now believe that a THC-specific withdrawal syndrome does occur in some patients who are heavy users, though cannabis withdrawal is not yet included in the APA's *Diagnostic and Statistical Manual of Mental Disorders*.

The patient should be encouraged to maintain abstinence from THC as well as other addictive substances. Some patients will require a substance-free, supportive environment to achieve and maintain abstinence. Clinicians should educate all patients about the effects of withdrawal, validate their complaints, and reassure them that their symptoms will likely improve with time. Symptomatic relief may be provided in order to increase the patient's comfort.

There are no clinical assessment instruments available that measure THC withdrawal. Both animal and human studies indicate that a withdrawal syndrome starts within 24 hours of cessation and may last for up to a week.

Anabolic Steroids

Anabolic steroids, as differentiated from corticosteroids and female gonadotropic hormones, are androgens (male hormones) and subject to abuse as a means of increasing muscle mass. These agents also can produce aggressive, manic-like behavior that may include delusions (Lukas 1998). Males involved in professional sports, weight lifting, body building, or other pursuits that value muscular mass are more likely to use these substances than are women, although use in women has been reported. Adolescents use anabolic steroids to improve their appearance and may have increased access to these compounds (Yesalis et al. 1993). The large numbers of anabolic steroid preparations that have medical and veterinary uses are primarily obtained illegally through diversion. High doses of anabolic steroids can be medically dangerous but side effects, usually involving endocrine, liver, central nervous system, and cardiac function, tend to be reversible upon cessation of anabolic steroid use. However, neither cessation nor disclosure of anabolic steroid use can be assumed when treating these individuals.

> Interventions directed toward cessation should involve patient education regarding the dangers and medical complications of anabolic steroids, their behavioral effects, and a thorough evaluation of the patient's rationale for misuse.

Withdrawal Symptoms Associated With Steroids

Anabolic steroids can be associated with withdrawal symptoms emerging after their abrupt discontinuation. Withdrawal symptoms include (in descending order of prevalence) craving for more steroids, fatigue, depression, restlessness, anorexia (loss of appetite), insomnia, reduced libido (sex drive), headaches, and nausea (Lukas 1998). It is not known how commonly this syndrome occurs, but steroid withdrawal appears more likely in heavy users. The clinician's index of suspicion should be raised when evaluating individuals who are predisposed to steroid misuse and who exhibit these symptoms. Also indicative of possible steroid abuse are certain physiological signs of androgen exposure, including hair loss, acne, dysuria (difficult or painful urination), small testicles, edema of the extremities, and rapid weight gain. Females can develop decreased breast size, acne, virilism (clitoral enlargement, excessive and abnormal bodily hair growth, male pattern baldness) and amenorrhea (suppression of menstruation). Males who abuse steroids have been reported to possess a distorted body image and may inaccurately view themselves as small and weak (Pope et al. 1993).

Medical Complications of Steroid Withdrawal

Due to anabolic steroids' long duration of action, side effects that might emerge cannot be quickly reversed by the discontinuation of these substances. Therefore, related side effects might require medical management beyond the simple recommendation that steroids immediately be discontinued. Persistent side effects include urinary tract infections, bladder irritability, skin blistering (at the injection site), erythema (abnormal skin redness) when given as a skin patch, and

priapism (prolonged erections lasting hours). The latter condition involves a painful penile erection and constitutes an emergency that requires specialized medical attention. Edema (swelling) of the hands or feet, commonly seen with anabolic steroids, can be treated with diuretics (medications that increase urine flow). Elevated liver function tests and jaundice usually resolve with cessation of anabolic steroid administration, although hepatic carcinoma (cancer of the liver) has been reported. Other side effects such as headache, nausea, vomiting, acne, insomnia, and lethargy are time-limited and resolve after steroid cessation. Behavioral disturbances, such as psychosis or severe aggressiveness, should be treated symptomatically with appropriate psychopharmacological interventions. In extreme cases of psychotic or manic presentations, emergency psychiatric hospitalization might be necessary to address dangerousness to self or others.

Management of Steroid Withdrawal

There is no recommended detoxification protocol for anabolic steroids. The key medical goal is that of persuading the patient to cease steroid misuse. This intervention should be followed by evaluating and treating any side effects (discussed above) that might be present. Interventions directed toward cessation should involve patient education regarding the dangers and medical complications of anabolic steroids, their behavioral effects, and a thorough evaluation of the patient's rationale for misuse. A family meeting often is helpful if agreed upon by the patient. Unfortunately, education alone often is insufficient. Patients with distorted body images might be especially difficult to dissuade from steroid misuse, and referral to psychotherapy by a qualified clinician trained in the treatment of body image disorder should be considered. Similarly, patients who derive significant muscle gain from anabolic steroids might be resistant to cessation and may conceal continued steroid use.

Patient Care and Comfort

Patient comfort during steroid withdrawal can be achieved by addressing side effects, if present, that are discussed above. Counseling also is a useful intervention and specialized psychiatric interventions may be necessary. If the individual also is using other substances of abuse, referral to drug or alcohol rehabilitative treatment should be made.

Club Drugs

Club drugs represent diverse classes of drugs that include sedative-hypnotic type agents as well as stimulant/hallucinogens. Club drugs are illicit drugs used in the setting of nightclubs, dance clubs, parties, and "raves." Raves are overnight dance parties, usually with several hundred people in attendance.

Abuse of these drugs by adolescents and young adults has risen greatly in recent years. All healthcare professionals need familiarity with their short- and long-term effects. Although withdrawal syndromes have been reported with some of these drugs, this is not the most common clinical problem. Intoxication and severe intoxication with overdose are more frequent problems. With some of these compounds, there appears to be the potential for neurotoxicity (destructive effects on the nervous system) and persistent psychiatric and neurologic syndromes. At the present time, much of the available information regarding club drugs comes from surveys and anecdotal case reports. Human laboratory studies and rigorously controlled clinical trials are not common.

One difficulty in assessing the effects of intoxication, overdose, withdrawal, and long-term health consequences of club drugs is that in general, there are no baseline evaluations of individuals before they used club drugs. Also, these individuals abuse more than one substance. Some of these patients may have had moderate to severe psychopathology (including psychosis) prior to their introduction to club drugs. In the past, some club drugs were

referred to as "designer drugs" because of their production in a laboratory rather than being processed from plant products.

Hallucinogens

Hallucinogens are a broad group of substances that can produce sensory abnormalities and hallucinations. Most hallucinogens have some adrenergic effects as well. Hallucinogens also are referred to as psychedelics and psychomimetics. The more traditional hallucinogens such as lysergic acid diethylamide (LSD) are considered primarily serotonergic-acting agents. Some of the other compounds include phenylethylamines which have hallucinogenic properties but act like amphetamines as well. These drugs include mescaline and MDMA (3,4-methylenedioxy-N-methylamphetamine). Other drugs include MDA (3,4-methylenedioxyamphetamine) and DOM (dimethyloxymethylamphetamine). (See section on ecstasy below.) Other hallucinogens are acetylcholine antagonists. These include belladonna, drugs such as benzotrophine used to treat parkinsonian symptoms, and many common over-the-counter antihistamines.

Hallucinogen intoxication often begins with autonomic effects, sometimes nausea and vomiting, and mild increases of heart rate, body temperature, and slight elevations of systolic blood pressure. Dizziness and dilated pupils may occur. The prominent effects during intoxication are sensory distortions with illusions and hallucinations. Visual distortions are more common than auditory or tactile ones. So-called "bad trips" may involve anxiety including panic attacks, paranoid reactions, anger, violence, and impulsivity. Either due to delusions or misperceptions, individuals may feel they can fly or have special powers, and thus injure themselves in falls or other accidents. Suicide attempts also can occur during "bad trips" and possible suicidal ideation should be carefully evaluated, even though it may be quite transient.

Withdrawal syndromes have not been reported with hallucinogens; however, considerable attention has been paid to residual effects such as delayed perceptual illusions with anxiety, "flashbacks," residual psychotic symptoms, and long-term cognitive impairment. Controversies around these issues are not important in the clinical setting. The important thing is to determine whether residual symptoms are present and provide an appropriate environment and appropriate care for the individual who has them. Generally, staff of emergency rooms, clinics that treat people who abuse substances, and social detoxification centers have individuals who are very familiar with "talking down" individuals with bad hallucinogenic trips.

Acute intoxication and bad trips usually can be managed with placement of the individual in a quiet, nonstimulating environment with immediate and direct supervision so that the patient does not cause harm to herself or to others. Occasionally, a low dose of a short- or intermediate-acting benzodiazepine may be useful to control anxiety and promote sedation. Individuals with chronic depressive-like reactions may require antidepressant therapy. Individuals with residual psychotic symptoms are likely to require antipsychotic medications. On rare occasions, the use of a low dose, high-potency antipsychotic medication may be required orally or parenterally (any method other than the digestive tract, e.g., intravenously, subcutaneously, or intramuscularly). Assessment of residual psychiatric and cognitive symptoms should be made prior to treatment referral.

Gamma-hydroxybutyrate (GHB)

GHB use has increasingly been reported in night clubs and at raves by adolescents and young adult populations. GHB is a compound that is produced in the central nervous system, and it acts as an inhibiting neurotransmitter similar to GABA (Shannon and Quang 2000). In pharmacologic (medication-propor-

tioned) doses, GHB serves as a sedative-hypnotic medication. GHB intoxication may look like alcohol or sedative-hypnotic intoxication.

Although GHB is illegal, psychotropic compounds similar to GHB such as gamma-hydroxy lactone (GBL) and 1,4-butanediol (1,4-BD) are widely available chemical compounds and may be obtained through catalogs and the Internet. These compounds produce effects similar to those of GHB. At the present, overdose syndromes are more likely to be seen than withdrawal syndromes. Overdose syndromes may require airway and respiratory management. GHB has been studied in Europe (Addolorato et al. 1999*a*) in a randomized, single-blind study comparing it to diazepam as a treatment for alcohol withdrawal. GHB was as effective as diazepam in suppressing alcohol withdrawal symptoms and was said to be quicker in reducing anxiety and agitation with less sedation than diazepam. Because of its history of abuse in the United States, it is unlikely to be viewed as a therapeutic agent any time in the near future.

Miotto and Roth (2001) describe a GHB withdrawal syndrome, noting that it shares features of both alcohol and benzodiazepine withdrawal. They have found this syndrome most pronounced in patients who have taken GHB around-the-clock, at 2- to 4-hour intervals. The GHB withdrawal syndrome has the prolonged duration of symptoms found in benzodiazepine withdrawal and features delirium tremens that appear early (often within an hour) with peak manifestations occurring within 24 hours; the delirium may last up to 14 days. Confusion, psychosis, and delirium are the most prominent features of GHB withdrawal, and the autonomic effects (i.e., tremor, diaphoresis [sweating], hypertension, and temperature changes) are less severe than found in alcohol withdrawal. They note that brief periods of significant tachycardia (rapid heart rate) begin early in GHB withdrawal. Garvey and Fitzmaurice (2004) also report seizure activity in a case of GHB withdrawal in a male who had been using the substance regularly over a 2-year period, and Rosenberg and colleagues (2003) note that in severe cases GHB withdrawal may be life-threatening.

Milder cases of GHB withdrawal syndrome may be managed with benzodiazepines such as lorazepam and supportive care. However, in more severe cases high doses of intravenous benzodiazepines (e.g., lorazepam) or barbiturates (e.g., phenobarbital, pentobarbital) may be required (Miotto and Roth 2001; Rosenberg et al. 2003). Patients experiencing GHB withdrawal are likely to have a high tolerance for the sedative effects of benzodiazepines and require large and frequent doses to manage the withdrawal (Miotto and Roth 2001); in cases where high doses of lorazepam prove ineffective, pentobarbital may be effective (Sivilotti et al. 2001). Clonidine may be used to treat episodes of tachycardia (rapid heart rate) (Miotto and Roth 2001).

Withdrawal syndromes have not been reported with hallucinogens; however, considerable attention has been paid to residual effects such as delayed perceptual illusions with anxiety, "flashbacks," residual psychotic symptoms, and long-term cognitive impairment.

Ecstasy

MDMA (3, 4-methylenedioxy-methamphetamine) commonly known as ecstasy, was synthesized around the turn of the century and patented by Merck Pharmaceuticals in 1914 (Christophersen 2000; Parrot et al. 2000). These drugs are phenel-ethylene stimulants

with various substitution groups off the benzene ring that give the medications hallucinogenic properties. There are a number of related compounds that are designated by their initials (MDMA, MDA, MDEA, DOM, 2-CB, and DOT). Clinicians are likely to have to manage the complications of intoxication and overdose but not withdrawal.

Patients using MDMA or related compounds frequently are hyperactive and hyperverbal, reporting heightened tactile and visual sensations. They frequently will use camphor on the skin in facial masks, gloves, and other clothing to heighten their tactile sensations. Sometimes light sticks are used to heighten visual experiences at raves. Hyperthermia, dehydration, water intoxication with low sodium, rhabdomyolysis (severe muscular injury and breakdown of muscle fibers), renal failure, cardiac arrhythmia, and coma have been reported.

MDMA has been proven to be toxic to serotonergic neurons in several animal studies. Heavy ecstasy users can have paranoid thinking, psychotic symptoms, obsessional thinking, and anxiety (Parrott et al. 2000). Impaired cognitive performance in heavy ecstasy users also has been identified (Gouzoulis-Mayfrank et al. 2000). Ecstasy users performed more poorly than control groups in complex attention, memory, and learning tasks. The duration or permanence of such effects has not yet been well studied.

Ketamine and PCP (Phencyclidine)

Ketamine and PCP (phencyclidine) were both developed in the 1950s as anesthetic agents for humans. Phencyclidine was briefly marketed for human anesthetic use but taken off the market because of an unusual high incidence of psychotic symptoms. PCP remains in legitimate use for veterinarian anesthesia for large animals as does ketamine for small animals. Although both drugs were originally developed for intravenous use, they are now manufactured illicitly as oral drugs of abuse. PCP frequently is sold as LSD.

Some studies have found that ketamine and PCP act specifically at the MDMA/glutamate receptor as noncompetitive MDMA receptor antagonists. Research in animals indicates that both drugs are reinforcing, in that animals will press a bar to obtain doses of either drug. Furthermore, in these same animal models, abstinence syndromes have been observed. Withdrawal symptoms in humans have included depression, drug craving, increased appetite, and hypersomnolence (excessive sleep).

In the clinical setting, syndromes of acute intoxication with hallucinations, delusions, agitation, and violence are the most pressing problems. A human laboratory study (Lahti et al. 2001) conducted a comparison of ketamine and placebo in normal volunteers never exposed to ketamine and to people with schizophrenia with a previous history of ketamine use. In both groups, ketamine produced a dose-related, but brief, increase in psychotic symptoms. The magnitude of ketamine-induced positive psychotic symptoms was similar for both groups, although the schizophrenia group had higher baseline scores.

Although originally MDMA receptor antagonists were felt to have neuroprotective effects (preventing damage to brain cells) and have been explored as post-stroke medications, there is some evidence now that ketamine and PCP may in fact have some neurotoxic effects. Studies (e.g., Curran and Monaghan 2001) have found greater memory impairment among chronic ketamine users than infrequent ketamine users. Acute human laboratory studies by this group indicate persistent memory impairment with ketamine exposure. This same study did not find persistent psychotic features beyond acute use.

In the clinical setting, ketamine and PCP use require management for the agitation and psychotic features produced during acute use. Occasionally, patients will have such large

overdoses, intentionally or accidentally, that they will require airway management and ventilatory support for some hours. The behavioral management of the agitation and violence that may be seen is best managed in a controlled environment with limited stimuli and very close supervision. Occasionally, oral or parenteral uses of sedating medications such as benzodiazepines will be required. In extreme cases, restraints may be required for protection of the patient and staff.

Following acute management, assessment of persistent mood and cognitive effects must be made prior to any treatment attempts. The persistence of psychotic symptoms may represent an underlying psychiatric disorder that may require medication treatment. There are no studies to guide the treatment of ketamine or PCP detoxification. The need to manage withdrawal symptoms from these drugs is unlikely, but if it should arise, benzodiazepines should be administered.

Other

Rohypnol is a benzodiazepine that is sold under trade names in Europe and Mexico as a sedative-hypnotic. Rohypnol is occasionally used as a club drug and at dance clubs. In the last decade it began to be smuggled into the United States and was commonly used among homeless youth involved in the sex industry. Rohypnol has a reputation as a "date rape" drug because it can produce powerful amnestic and hypnotic effects, as well as coma. For further details on benzodiazepines, see the benzodiazepine section regarding intoxication and potential withdrawal reactions.

Management of Polydrug Abuse: An Integrated Approach

One of the most significant changes in detoxification services in recent years has been the increase in the number of patients requiring detoxification from more than one substance.

In an evaluation of admissions to publicly funded detoxification programs in Massachusetts between 1984 and 1996, McCarty and colleagues (2000) found a steady increase in the number of patients using both alcohol and other substances in the month prior to admission. In 1988, 26 percent of admissions reported using two or more substances in the previous month; by 1996 that number had nearly doubled to 50 percent (McCarty et al. 2000). There is no reason to believe that this trend has not appeared elsewhere in this country. As Miller and colleagues (1990*a*) note, "For the contemporary drug addict, multiple drug use and addiction that includes alcohol is the rule" (p. 597).

One of the most significant changes in detoxification services in recent years has been the increase in the number of patients requiring detoxification from more than one substance.

In the Massachusetts evaluation, which did not include marijuana or nonopioid prescription medication use, the most commonly seen combination of substances was alcohol and cocaine. Thirty percent of patients admitted for detoxification in 1996 reported using this combination; 12 percent used alcohol, cocaine, and heroin together; 10 percent combined alcohol and cocaine; and 7 percent combined heroin and cocaine (McCarty et al. 2000). Other studies, evaluating patient populations at inpatient treatment centers, found that between 70 and 90 percent of patients who reported cocaine abuse also abused alcohol. Rates of alcohol dependence among methadone patients and patients dependent on heroin were between 50 and 75 percent,

An Example of Potential Problems: Detoxification for Polydrug Abuse

Mr. L is a 43-year-old male with a 25-year heroin dependence. He is well known to the detoxification center, having been through the program there (which consisted primarily of support and hydration) on many occasions over the years. Though he looked more gaunt and, not surprisingly, a bit more ill each time he arrived, his course usually was about the same: 2 or 3 days of serious stomach cramps, nausea, and diarrhea, then a few days of feeling poorly, and then a return to the community. This time, however, was different. He looked "sicker" than usual. Mr. L usually was a compliant patient; now he was hostile and belligerent. He seemed to be talking to himself and did not seem as alert as he should have been. The staff asked him several times if he had used anything else and each time he denied it. His drug of choice was always heroin—he drank alcohol once in a while, and occasionally smoked marijuana when he could not get anything else. On the third day of detoxification, Mr. L seemed acutely more ill. On his way to the bathroom he was observed staggering, and as he reached for the door he fell, striking his head, and suffered a grand mal seizure. At the local hospital, a toxicological screen showed the presence of PCP, high levels of barbiturates, opioids, and trace amounts of benzodiazepines

and 80 to 90 percent who were being treated for cannabis abuse also reported alcohol abuse (Miller et al. 1990*a*).

Clinicians need to be constantly aware that a patient may be abusing multiple substances. Even if a patient admits the abuse of one substance he may not admit to using others. Patients may not see that other substances are a problem, they may be worried about the legal consequences of use, or they sometimes may not even be aware of what substances they have been using. For these reasons, clinicians should not rely on patients' self-reports to determine which substances are being used. Interviews with family, friends, or others who know the patient may be helpful, but these also are insufficient. The consensus panel strongly recommends that all patients receive an immediate urine drug screening upon admission to a detoxification program to determine the types of substances being abused. It is not necessarily true that the person is drug free simply because a drug is not detected on a drug screen. It is possible that the toxicology is not able to detect the class or type of drug. Staff should be aware of what the program/detoxification center/hospital tests for, what is not tested for, what cannot be tested for or found, and the limitations of "dip" tests.

Prioritizing Substances of Abuse

While substances of abuse may have complex interactions, it is not always possible to determine how those interactions will affect withdrawal. Therefore, it is generally best practice to prioritize the substances an individual has been dependent on and treat them sequentially according to the severity of the withdrawal produced by the substance. The substances with the most serious withdrawal syndromes, those where the withdrawal syndrome can be fatal, are alcohol and the sedative-hypnotics. When detoxifying a patient who has been dependent upon multiple substances, the sedative-hypnotics must be addressed first.

Oral methadone, LAAM, or buprenorphine should be used to stabilize withdrawal from opioids while tapering the dose of the sedative-hypnotic or anxiolytic (anti-anxiety medication) by 10 percent each day. After the patient has been tapered off of the sedative-hypnotic or anxiolytic, withdrawal from the substitute opioid can begin (Wilkins et al. 1998). Some patients can successfully be detoxified from both sedative-hypnotics and opioids simultaneously, but this requires a great deal of medical and nursing attention. Most patients will benefit from opioid mainte-

nance for an extended period of time following the completion of sedative withdrawal.

If the patient has been abusing multiple sedative-hypnotic substances or a sedative-hypnotic and alcohol, withdrawal should be handled in the same way as withdrawal from one such substance. The patient should be administered a regularly decreasing dosage of sedative-hypnotic, usually a benzodiazepine that the clinician is comfortable with and accustomed to using. The dosage should be decreased according to the patient's physiologic response. Providers also may administer an anticonvulsant such as carbamazepine (Tegretol XR), even in the absence of epilepsy or withdrawal seizures, to help ensure patient safety (Wilkins et al. 1998). Phenobarbital also may be used for detoxifying patients who have been abusing both alcohol and benzodiazepines. When the dose of alcohol and sedative-hypnotics that a patient is taking is not known, tolerance testing as previously described can be helpful in determining the dose of phenobarbital.

When treating patients detoxifying from substances other than sedative-hypnotics, management of opioid detoxification should be the next priority. Generally, other substances of abuse, including stimulants, marijuana, hallucinogenics (LSD and similar drugs), and inhalants, will not require specific treatment in patients who are being detoxified from sedative-hypnotics and/or opioids.

Patients may abuse a wide range of substances in various combinations, and the clinician must be vigilant in assessing and treating withdrawal from multiple substances. The case study above illustrates some of the serious problems the clinician faces in evaluating and treating patients withdrawing from multiple substances.

In the private sector, where money for toxicological screening is readily available, the first question many would ask concerning the case of Mr. L. is, "Why wasn't the drug screen done sooner?" However, those working in public facilities will recognize that such screenings often are unavailable or available only after an extended turnaround time. Toxicological screening, even a hand-held screening, can be an expensive item for what often is a very limited budget. Besides, in this case, the patient was believed to be a known quantity—someone who only used heroin.

This scenario is not uncommon. It is likely that the patient himself was unaware of what was in his body. One of the more frightening facts concerning the purchase of illicit drugs is the lack of knowledge of what is in them. To make buyers believe that they are buying a higher-quality product than they are, drugs often are cut with adulterants (inferior ingredients) that can produce effects similar to the drug they think they are buying. In this case, Mr. L may have been buying barbiturates and benzodiazepines in his heroin for some time without knowing it, a fact that could have had deadly consequences. Both are sedating and could have given him some of the comfortable sedation and euphoria he was seeking from his drug of choice. Unfortunately, however, where opioid withdrawal is not life-threatening, withdrawal from barbiturates can be. Furthermore, he could have gotten PCP in the marijuana he occasionally used, again without knowing it.

Alternative Approaches

Alternative methods that have been studied scientifically do not claim to be stand-alone withdrawal methods, nor stand-alone treatment modalities. Alternative approaches are designed to be used in a comprehensive, integrated substance abuse treatment system that promotes health and well-being, provides palliative symptom relief, and improves treatment retention. Therefore, because isolation of any of these approaches as an independent variable in rigorous controlled studies is difficult, if not impossible, there are no conclusive data on the effectiveness of alternative methods (Trachtenberg 2000).

Auricular (ear) acupuncture has been used throughout the world, beginning in Hong Kong, as an adjunctive treatment during opioid

detoxification for about 30 years. Its use in the United States originated in California (Seymour and Smith 1987) and New York (Mitchell 1995) but has not been subjected to rigorous controlled research. One report (Washburn et al. 1993) noted that patients dependent on heroin with mild habits appeared to benefit more than those with severe withdrawal symptoms, which acupuncture did not alleviate. The 1997 National Institute of Health Consensus Statement on acupuncture stated that acupuncture treatment for addiction could be part of a comprehensive management program. The National Acupuncture Detoxification Association has developed acupuncture protocols involving ear acupuncture in group settings that originated at Lincoln Hospital in the Bronx and are used by over 400 drug treatment programs and 40 percent of drug courts. SAMHSA's National Survey of Substance Abuse Treatment Services (NSSATS) found that 5.4 percent of the 13,720 facilities polled in 2001 offered acupuncture as a service (Office of Applied Studies 2002*b*).

Acupuncture is one of the more widely used alternative therapies within the context of addictions treatment. It has been used as an adjunct to conventional treatment because it seems to reduce the craving for a variety of substances of abuse and appears to contribute to improved treatment retention rates. In particular, acupuncture has been viewed as an effective adjunct to treatment for alcohol and cocaine disorders, and it also has played an important role in opioid treatment (i.e., methadone maintenance). It is used as an adjunct during maintenance, such as when tapering methadone doses. The ritualistic aspect of the practice of acupuncture as part of a comprehensive treatment program provides a stable, comfortable, and consistent environment in which the client can actively participate. As a result, acupuncture enhances the client's sense of engagement in the treatment process. This may, in part, account for reported improvements in treatment retention (Boucher et al. 2003). A 1999 CSAT-funded study showed that patients choosing outpatient programs with acupuncture were less likely to relapse in the 6 months following discharge than were patients who had chosen residential programs (Shwartz et al. 1999).

Ear acupuncture detoxification, which was originally developed as an alternative treatment for opioid agonist pharmacotherapy, is now augmenting pharmacotherapy treatment for patients with coexisting cocaine problems (Avants et al. 2000). The advocates of acupuncture have joined with the advocates of opioid agonist pharmacotherapy to create a holistic synthesis. Each has contributed to the success of the other, both clinically and in public perception.

Care must be taken to ensure sterile acupuncture needles in the heroin-dependent population, given the high incidence of HIV infection, viral hepatitis, and other infections. Acupuncture is not recommended as a standalone treatment for opioid withdrawal.

Other alternative management approaches that are not supported by controlled studies include neuroelectric therapy (the administration of electric current through the skin) and herbal therapy. In fact, the former has been shown to be no better than placebo in a controlled study (Gariti et al. 1992). The use of herbs for healing purposes dates back to the dawn of civilization, while the use of herbs in the treatment of substance abuse has been documented since 1981 in methadone programs, free clinics, therapeutic communities, outpatient programs, and hospitals (Nebelkopf 1981). Herbal remedies are used in substance abuse detoxification and treatment in a number of cultures around the world. However, in no scientific studies have herbs been isolated as a discrete variable to test their efficacy. Much research is currently being conducted on the effectiveness of herbal medicine on a wide variety of physical conditions.

Considerations for Specific Populations

All individuals undergoing detoxification are especially vulnerable. Patients who experience negative attitudes from staff may experience further loss of self-esteem, may leave detoxification prematurely, or may experience other psychologically damaging feelings. Negative experiences can undermine the recovery process. It is important to recognize that individuals do not fit into just one population category. A person will be a member of several populations (e.g., a Latina woman who is pregnant, bisexual, and has psychiatric diagnoses of posttraumatic stress disorder and major depression) and may benefit from a number of the considerations discussed below. It also should be noted that the information in the specific populations sections should not be used to categorize individuals or leave the reader with the impression that the information below will fit all individuals who are members of a group.

Pregnant Women

While in detoxification, pregnant women should receive comprehensive medical care, especially since this may be the first time they have sought any type of care or treatment. Ideally, programs detoxifying pregnant women from alcohol and illicit drugs should include the following services:

- Detoxification on demand
- Woman-centered medical services
- Transportation services to and from detoxification (as well as to substance abuse treatment afterward)
- Childcare services
- Counseling and case management services
- Access to drug-free, safe, affordable housing
- Help with legal, nutritional, and other social service needs

While it is recognized that provision of all of these services is an ideal to be striven for, at a minimum detoxification programs must have strong linkages to agencies that provide the above-mentioned services and should set up systems to ensure that pregnant women can access the additional services they need.

Pregnant women who present for detoxification will benefit from a comprehensive medical examination that includes a careful obstetrical component. Since it is estimated that approximately 44 to 70 percent of women who abuse substances have a history of physical, emotional, and sexual abuse (Moylan et al. 2001; Stevens et al. 1997), care should be given to the comfort of the patients during the examination. One of the major internal barriers that prevents pregnant women from seeking treatment is the shame and stigma attached to substance use, especially during pregnancy. Any negative experience encountered during detoxification can lead these women to leave treatment and not return.

Pregnant women who present for detoxification will benefit from a comprehensive medical examination that includes a careful obstetrical component.

Detoxification during pregnancy poses a special risk in that care should be taken to ensure the health and safety of both the mother and fetus. From a clinical standpoint, before giving any medications to pregnant women it is of vital importance that they understand the risks and benefits of taking these medications and sign informed consent forms verifying that they have received and understand the information provided to them. Since pregnant women often present to treatment in mid- to late-second trimester and polydrug use is the norm rather than the exception (Jones et al. 1999), it is important first to

screen these women for dependence on the two classes of substances that can produce a life-threatening withdrawal: alcohol and sedative-hypnotics. Pregnant women should be made aware of all wraparound services that will assist them in dealing with newborn issues, including food, shelter, medical clinics for inoculations, as well as programs that will help with developmental or physical issues that the neonate (newborn baby) may experience as a result of substance exposure.

A National Institutes of Health consensus panel recommended methadone maintenance as the standard of care for pregnant women with opioid dependence.

Alcohol

When pregnant women are detoxified from alcohol, benzodiazepine tapers appear to be the current practice of choice. The current state of knowledge suggests that benzodiazepine therapy in general does not have as much of a teratogenic (producing a deformed baby) risk as do other anticonvulsants as long as they are given over a short time period. It appears that short-acting benzodiazepines, like the ones described to treat alcohol withdrawal above, can be used in low doses for acute uses such as detoxification, even in the first trimester (Robert et al. 2001). Long-acting benzodiazepines should be avoided—their use during the third trimester or near delivery can result in a withdrawal syndrome in the baby (Garbis and McElhatton 2001).

Although no teratogenic effects have been observed, little is known about the effects of naltrexone, naloxone, or nalmefene administration during pregnancy. Although propranolol (Inderal), labetalol (Trandate), and metoprolol (Lopressor) are the beta blockers of choice for treating hypertension (high blood pressure) during pregnancy (McElhatton 2001), the impact of using them for alcohol detoxification during pregnancy is unclear. The use of SSRIs, a class of antidepressant medication, is safer for the mother and fetus than are tricyclic antidepressants (Garbis and McElhatton 2001). Fluoxetine (Prozac) is the most studied SSRI in pregnancy and no increased incidence in malformations was noted, nor were there neurodevelopmental effects observed in preschool-age children (Garbis and McElhatton 2001). However, possible neonatal withdrawal signs have been observed. Given that the greatest amount of data are available for fluoxetine, this is the recommended SSRI for use during pregnancy (Garbis and McElhatton 2001).

The use of anticonvulsants, such as valproic acid, is associated with several disfiguring malformations. If this type of medication must be used during pregnancy, the woman must be told that there is substantial risk of malformations (Robert et al. 2001). Barbiturate use during pregnancy has been studied to some extent, and phenobarbital is used therapeutically during pregnancy, but the risk of any anticonvulsive medication should be discussed with the patient (Robert et al. 2001). There also are reports of a withdrawal syndrome in the neonate following prenatal exposure to phenobarbital (Kuhnz et al. 1988).

Opioids

While it is not recommended that pregnant women who are maintained on methadone undergo detoxification, if these women require detoxification, the safest time to detoxify them is during the second trimester. For further information, consult the forthcoming TIP *Substance Abuse Treatment: Addressing the Specific Needs of Women* (SAMHSA in development *e*) and TIP 43

Medication-Assisted Treatment for Opioid Addiction in Opioid Treatment Programs (CSAT 2005*d*). In contrast, it is possible to detoxify women dependent on heroin who are abusing illicit opioids by using a methadone taper.

Before starting a detoxification, women should weigh the risks and benefits of detoxification, since many women eventually relapse to drug use and thus place themselves and their fetuses at risk for adverse consequences (Jones et al. 2001*b*). During pregnancy, the protein binding of many drugs, including methadone and diazepam (a benzodiazepine), is decreased (e.g., Adams and Wacher 1968; Dean et al. 1980; Ganrot 1972) with the greatest decrease noted during the third trimester (Perucca and Crema 1982). This decreased binding may be due to the decreased levels of albumin reported during pregnancy (Yoshikawa et al. 1984). From a clinical standpoint, it may be that pregnant women could be at risk for developing greater toxicity and side effects, yet at the same time an increase in metabolism of the drug may result (such as found with methadone). This may result in reduced therapeutic effect from the drug, since many women require an increase in their dose of methadone during the last trimester (Pond et al. 1985).

Other medications used to treat the withdrawal signs and symptoms include clonidine. Clonidine is used as a second-line drug to treat hypertension (high blood pressure) during pregnancy and appears to lack teratogenic effects (McElhatton 2001). It has reportedly been abused by pregnant women. Some pregnant women take clonidine with their methadone because it is hard to detect in urine and it increases the high they get from methadone. However, little is known about its effects on the baby following therapeutic doses given in a detoxification context or doses taken in higher than therapeutic amounts (Anderson et al. 1997*a*). Buprenorphine has been examined in pregnancy and appears to lack teratogenic effects but may be associated with a withdrawal syndrome in the neonate (Jones and Johnson 2001).

A National Institutes of Health consensus panel recommended methadone maintenance as the standard of care for pregnant women with opioid dependence. Methadone currently is the only medication recommended for medication-assisted treatment for pregnant women. Clinical trials are being conducted to determine the efficacy and safety of buprenorphine with pregnant women but it has not yet been approved for use with this population. Two early studies on treatment of pregnant women with opioid dependence with buprenorphine showed promising results (Fischer et al. 2000; Johnson et al. 2001). Comer and Annitto (2004) conclude, from their review of the research literature, that buprenorphine should be used more aggressively to detoxify pregnant women who want to be opioid-free at delivery.

Because of the potential for premature labor and delivery and risks of morbidity and mortality to the fetus related to withdrawal from opioids, it is recommended that a pregnant woman who is dependent on opioids be maintained during pregnancy (Kaltenbach et al. 1998). Other reasons to stabilize a pregnant woman on methadone rather than attempt withdrawal are the risks of relapse, consequences associated with HIV and use of multiple needles, and the potential lack of prenatal care.

The Federal government mandates that prenatal care be available for pregnant women on methadone. It is the responsibility of treatment providers to arrange this care. More than ever, there is need for collaboration involving obstetric, pediatric, and substance abuse treatment caregivers. Comprehensive care for the pregnant woman who is opioid dependent must include a combination of methadone maintenance, prenatal care, and substance abuse treatment.

Pregnant women should be maintained on an adequate (i.e., therapeutic) methadone dose. An effective dose prevents the onset of withdrawal for 24 hours, reduces or eliminates drug craving, and blocks the euphoric effects of other narcotics. An effective dose usually is in the range of 50–150mg (Drozdick et al. 2002). Dosage must be individually determined, and some pregnant women may be able to be successfully maintained on less than 50mg while others may require much higher doses than 150mg. The dose often needs to be increased as a woman progresses through gestation, due to increases in blood volume and metabolic changes specific to pregnancy (Drozdick et al. 2002; Finnegan and Wapner 1988).

Generally, dosing of methadone is for a 24-hour period. However, because of metabolic changes during pregnancy it might not be possible to adequately manage a pregnant woman during a 24-hour period on a single dose. Split dosing, particularly during the third trimester of pregnancy, may stabilize the woman's blood methadone levels and effectively treat withdrawal symptoms and craving.

Breastfeeding is not contraindicated for women who are on methadone. Very little methadone comes through breast milk; the American Academy of Pediatrics (AAP) Committee on Drugs lists methadone as a "maternal medication usually compatible with breastfeeding" (AAP 2001, pp. 780–781).

Benzodiazepines

The principles of detoxification from benzodiazepines are the same for pregnant and nonpregnant patients. It is important to taper the dose of benzodiazepine slowly in order not to induce fetal withdrawal or other adverse consequences in the fetus or mother. Detoxification is most likely safest during the second trimester in order to avoid spontaneous abortion or premature labor. For more information, see the forthcoming TIP *Substance Abuse Treatment: Addressing the Specific Needs of Women* (SAMHSA in development *e*). There is a documented withdrawal syndrome in neonates who have been prenatally exposed to benzodiazepines (Sutton and Hinderliter 1990), and this syndrome may be delayed in onset more than that associated with other drugs.

Stimulants

The principles of detoxification from stimulants such as cocaine are the same for pregnant and nonpregnant women. Since there is no current pharmacotherapy to use in tapering individuals from stimulant use, the use of any medications to treat medical complications that might arise from the withdrawal should only be done after discussion with the patient of the risks and benefits of each medication.

Solvents

The principles of detoxification from solvents are the same for pregnant and nonpregnant women. It should be noted that based on a review of case reports, there is a complex array of characteristics that appear to be similar to fetal alcohol effects. Fetal Alcohol Syndrome (FAS) is characterized by growth deficiency (born small for gestational age; failure to grow at a normal rate), particular facial features (e.g., eyes are too close together, ears are set low on the head), and CNS dysfunctions (mental retardation, microencephaly [small brain size]) and brain malformations (Costa et al. 2002). Thus fetal development in pregnant women who have a history of solvent abuse should be evaluated and carefully monitored (Jones and Balster 1998).

Nicotine

There is extensive documentation that smoking during pregnancy causes numerous adverse fetal consequences (see Schaefer 2001). Cigarette smoking during pregnancy is the largest modifiable risk for pregnancy-related morbidity and mortality in the United States (Dempsey and Benowitz 2001). While women

are undergoing detoxification, they should be offered education about the risk of cigarette smoking during pregnancy and, ideally, prevented from smoking. This is especially important since cigarette smoking is strongly associated with decreased birth weight, which is a predictor of developmental problems in newborns (Ernst et al. 2002). If women are unable to stop smoking using behavioral interventions, nicotine replacement products may be used; however, the woman should fully understand the possible risks and benefits of these pharmacotherapies (Jones and Johnson 2001).

It also is important to point out to patients that there are data to suggest that women may derive less benefit from NRT than do men and that they may derive greater benefit from some non-NRT medications (e.g., bupropion), thus producing quit rates in women comparable with those in men (Perkins 2001). However, the data regarding the use of bupropion during pregnancy are limited.

Examinations of the acute effects of NRT in pregnant women reveal that nicotine has minimal impact on the maternal and fetal cardiovascular systems. NRT may well be viewed as the lesser of two evils, inasmuch as smoking cigarettes delivers, in addition to nicotine, thousands of chemicals. Among these are many that also are viewed as developmental toxins (e.g., carbon monoxide and lead). It is doubtful that the reproductive toxicity of cigarette smoking is primarily related to nicotine. Thus, if NRT is to be used during pregnancy, the dose of nicotine in NRT should be similar to the dose of nicotine that the pregnant woman received from her ad lib (whenever desired) smoking. Although intermittent-use formulations of NRT (e.g., chewing gum) have been recommended over continuous-use formulations (e.g., transdermal patch) due to reductions in the total dose of nicotine delivered to the fetus (Dempsey and Benowitz 2001), it is unknown what the impact of intermittent acute doses followed by withdrawal of nicotine has on the fetus.

Marijuana, anabolic steroids, and club drugs

The principles of detoxification from these drugs is the same for pregnant and nonpregnant women. The use of anabolic steroids during pregnancy is rare; however, these can be catastrophic to a pregnancy, and if use is found, a detailed ultrasound examination is recommended to determine the morphological (physical or structural) development of the fetus (Scialli 2001).

Although the class of club drugs is relatively new there have been a few reports (McElhatton et al. 1999) suggesting that there is an increased risk of congenital malformation in neonates prenatally exposed to ecstasy. Other club drugs such as flunitrazepam (Rohypnol) may have effects similar to those of some benzodiazepines; however, this is speculative. For comprehensive information on the treatment of this specific population, see the forthcoming TIP *Substance Abuse Treatment: Addressing the Specific Needs of Women* (SAMHSA in development *e*).

While women are undergoing detoxification, they should be offered education about the risk of cigarette smoking during pregnancy and, ideally, prevented from smoking.

Older Adults

It has been recommended that, when treating older adults, there should be a policy of using age-specific group treatment that is both supportive and nonconfrontational (Royer et al. 2000; West and Graham 1999). Older adults may be dealing with depression, loneliness,

and loss of career or a loved one. Thus, as a standard policy, older adults should be screened for depression and grief or loss-related issues. Similar to the situation with other specific populations, the detoxification setting should ideally have in place a policy that mandates, at a minimum, well-established linkage with general medical services and specialized services for the aging, because of their increased vulnerability to physical ailments. Establishing policies that create an environment that is positive and does not tolerate "ageism"—a general tendency to react negatively toward elderly adults—is important for the optimal treatment of older individuals.

Alcohol and other drug-related disorders in elderly individuals often are more severe than those of younger individuals and they are at increased risk for co-occurring medical disorders. It is the medical complications rather than age itself for which detoxification in a medical setting is needed. The elderly may have slower metabolism of medications making dosage adjustments necessary in some cases. The elderly also may be at greater risk for drug interactions, since they may be receiving medications to treat other problems. A complete and careful assessment with ongoing monitoring should be done to examine the existence of diseases such as, but not limited to, heart disease, respiratory disease, diabetes, and dementia. Potential for falls also should be evaluated in the context of prescribed medications. The previously presented protocols for detoxification from alcohol, opioids, benzodiazepines, stimulants, solvents, nicotine, marijuana, anabolic steroids, and club drugs (anabolic steroids and club drug abuse are rare in this population) appear to be applicable to the elderly population as long as sensitivity to the withdrawal medication is considered. TIP 26, *Substance Abuse Among Older Adults* (CSAT 1998*f*), provides comprehensive information on the treatment of this population.

People With Disabilities or Co-Occurring Conditions

In any patient population, the clinician should expect to encounter persons with disabilities including co-occurring medical or mental disorders. These patients often will require special assistance to overcome both physical and psychological barriers in undergoing detoxification and treatment, including their own psychological barriers that must be overcome, as well as those attitudinal and communication barriers that often prevent complete and clear understanding between patient and clinician or clinician and institution. Effective communication is essential for effective services. Accommodations must take into consideration the expressed preference of the individual with a disability. Substance abuse treatment programs need to be in compliance with two Federal laws regarding this matter: the 1992 Amendments to the Rehabilitation Act of 1973 and the Americans with Disabilities Act [ADA] of 1990. According to the ADA, programs must remove or compensate for physical or architectural barriers to existing facilities when accommodation is readily achievable, meaning "easily accomplishable and able to be carried out without much difficulty or expense" (P.L. 101-336 § 301). Providers should examine their programs and modify them to eliminate four fundamental groups of barriers to treatment for people with disabilities and/or co-occurring disorders: (1) attitudinal barriers; (2) discriminatory policies, practices, and procedures; (3) communications barriers; and (4) architectural barriers. Federal, State, and other sources of assistance might be available to fund ADA-related improvements. See TIP 29, *Substance Use Disorder Treatment for People With Physical and Cognitive Disabilities* (CSAT 1998*g*) for further information.

The following passage clarifies terms and addresses the basic issues presented by patients with disabilities and/or co-occurring disorders. Diseases, disorders, and injuries,

whether congenital or acquired, can have diverse effects on organs and body systems. Conditions (and *diseases*) such as multiple sclerosis, traumatic brain injury, spinal cord injury, diabetes, and cerebral palsy can lead to *impairments*, such as impaired cognitive ability, paralysis, blindness, or muscular dysfunction. These impairments in turn cause *disabilities*, which limit an individual's ability to function in various areas of life, such as learning, reading, and mobility. While diseases, impairments, and disabilities are distinct categories, they often are used interchangeably. These essential terms are defined in Figure 4-15.

The field of disability services has developed its own terminology to discuss physical, sensory, and cognitive disabilities (see definitions below), and many treatment providers of people with substance use disorders will not be familiar with these terms as the profession defines them. WHO has devised a method for the classification of impairments and disabilities (WHO 1980). This complex system has been simplified here into four main categories:

1. *Physical* impairments are caused by congenital or acquired diseases and disorders or by injury or trauma. For example, spinal cord injury is a disorder that can cause paralysis, an impairment.
2. *Sensory* impairments include blindness and deafness, which may be caused by congenital disorders, diseases such as encephalopathy or meningitis, or trauma to the sensory organs or the brain.
3. *Cognitive* impairments are disruptions of thinking skills, such as inattention, memory problems, perceptual problems, disruptions in communication, spatial disorientation, problems with sequencing (the ability to follow a set of steps in order to accomplish a task), misperception of time, and perseveration (constant repetition of meaningless or inappropriate words or phrases).

Figure 4-15
Some Definitions Regarding Disabilities

Disease: An interruption, cessation, or disorder of body functions, systems, or organs.

Impairment: Any loss or abnormality of psychological, physiological, or anatomical structure or functions.

Disability: Any restriction or lack (resulting from an impairment) of the ability to perform an activity in the manner or within the range considered normal for a human being. A disability is always perceived in the context of certain societal expectations, and it is only within that context that the disadvantages resulting from a disability can be properly evaluated.

Functional capacities: The degree of ability possessed by an individual to meet or perform the behaviors, tasks, and roles expected in a social environment.

Functional limitations: The inability to perform certain behaviors, fulfill certain tasks, or meet certain social roles as a consequence of a disability. Those limitations can be anatomical (e.g., amputation), physiological (e.g., diabetes), cognitive (e.g., traumatic brain injury), sensory (e.g., blindness, deafness), or affective (e.g., depression) in origin and nature. They represent substandard performance on the part of the individual in meeting life activities and reflect the interaction between the person and the environment. (A list of the areas of functional capacity and disabilities most often assessed is in Figure 4-16, p112.)

Sources: Livneh and Male 1993; Stedman 1990; World Health Organization (WHO) 1980.

Figure 4-16
Impairment and Disability Chart

Impairment Category	Common Disabilities
Physical	Spina bifida Spinal cord injury Amputation Diabetes Chronic fatigue syndrome Carpal tunnel Arthritis
Sensory	Blindness Hearing impairment Deafness Deaf-blindness Visual impairment
Cognitive	Learning disabilities Traumatic brain injury Mental retardation Attention deficit disorder
Affective	Depression Bipolar disorder Schizophrenia Eating disorder Anxiety disorder Posttraumatic stress disorder

Source: CSAT 1998*e*.

4. *Affective* impairments are disruptions in the way emotions are processed and expressed. For the purposes of this discussion, affective impairments are considered to include problems caused by both affective and mood disorders, such as major depression and mania. These impairments include the symptoms of mental disorders, such as disorganized speech and behavior, markedly depressed mood, and anhedonia (joylessness).

One of the most important practices that should be in place as a standard in any detoxification setting is routine screening for disabilities and co-occurring medical and/or psychiatric conditions. The failure to recognize these problems in patients can result in poor outcomes (Cook et al. 1992). Additionally, intoxicated individuals with co-occurring depressive disorders are at high risk for suicide attempts. Of course, an individual patient may present with two or more disabilities and/or co-occurring disorders. Clinicians treating people with co-occurring substance use and mental disorders should consult TIP 42, *Substance Abuse Treatment for Persons With Co-Occurring Disorders* (CSAT 2005*b*).

All programs should make a good faith effort to provide equal access in as comprehensive a manner as possible for all patients. Individual unique needs should be taken into account when providing services. For example, patients with physical, sensory, or cognitive disabilities may need help with self-care (e.g., eating, grooming), moving (e.g., using stairs, walking), communication (e.g., reading, speaking), learning, social skills, and executive functions (e.g., planning and organization, decisionmaking). Unresponsiveness to instructions, lack of participation in discussions and activities, forgetfulness, or confusion by an individual with cognitive disabilities should not be viewed as a lack of motivation, resistance, or denial. Programs may need to develop the expertise or engage an expert on cognitive disabilities to determine the limitations resulting from the substance abuse and those resulting from the disability. Both require patience in the response. Information presented to the person with a cognitive disability should include different and complementary media; for example, visual and tactile materials can reinforce the usual verbal interaction.

Programs also may need to alter their policies regarding the use of drugs prescribed for pain control, since most medications of this class are drugs with a high abuse potential. A number of patients with substance use disorders also live with chronic pain. Living in a drug-free state may not be desirable if it is associated with unrelieved pain, which can be quite disabling. The clinician should explore with patients what pain management options have been tried in the past, and which management medications are being used currently. Patients should be encouraged to discuss their feelings about pain and how it affects their daily life, and especially to what extent it curtails or prevents their participation in the activities of daily living.

There are a number of alternative treatments for chronic pain. Acupuncture is already in use in some treatment programs for detoxification to help relieve symptoms of withdrawal. Physical therapy and exercise, chiropractic care, biofeedback, hypnotism, and therapeutic heat or cold are some other approaches to caring for persons with physical problems. Most of these alternative treatments have limited or no research support of their efficacy; yet some clinicians believe they work. Thus, consultation with experts on their use is necessary before starting a person with chronic pain on these remedies.

An alternative model supports the idea that patients should be treated simultaneously in substance abuse treatment, mental/physical health, and detoxification settings, yet treatments may occur in separate facilities and be conducted by separate staff. The consequent task for all is to be supportive and knowledgeable about each other's interventions. The severity of the addiction and medical/psychiatric problems at the time of detoxification entry should determine which acute services the patient receives first. Naturally, a person's medical and psychiatric disabilities must be accounted for in the preparation of any treatment plan. In some cases, substance abuse treatment cannot begin until issues relating to medical and psychiatric disabilities are settled.

There are a number of resources for clinicians to employ, including experts in the field of disability services. Figure 4-17 (p. 114) discusses ways of locating expert help for treating patients with disabilities and/or co-occurring disorders.

Finally, integrated treatment combines substance abuse treatment, treatment for co-occurring disorders, and detoxification services into one program. For more complete information on the treatment of many of these disorders, see chapter 5.

African Americans

For African Americans, entrance into detoxification has been associated with enrolling in further treatment, reductions in HIV/AIDS risk behaviors, and linkages with social and health-

Figure 4-17
Locating Expert Assistance

"Experts" in disability services can be located in several ways, depending upon the nature of the patient's disability and the local resources available. Patients who understand their disability may in fact be the best "experts" on their condition and specific needs; however, it is not uncommon that persons requiring treatment for substance use disorders will not understand basic aspects of their situation or condition. In such cases, immediate family members or close friends may be important sources of information and guidance. The treatment team also should consider contacting other sources:

- A disability-specific service organization (e.g., United Cerebral Palsy, organizations for the blind or deaf such as the National Association of the Deaf and American Deafness and Rehabilitation Association, the Association for Retarded Citizens)
- Social workers
- Case managers
- Rehabilitation specialists
- Psychologists
- Nurses or physicians associated with a social service agency providing disability services for the individual patient in question (e.g., vocational rehabilitation, family services for people who are deaf and hard of hearing, the Department of Veterans Affairs' physical rehabilitation unit, community case management services)
- Other organizations recognized by the disability community (e.g., Centers for Independent Living, governors' committees for persons with disabilities, Paralyzed Veterans of America, local or State consumer coalitions for persons with disabilities)

Source: CSAT 1998*e*.

care services (Lundgren et al. 1999). African Americans are at greater risk than other populations for the co-occurrence of diabetes and hypertension (high blood pressure) that can predispose them to a risk of stroke. This should be taken into account when placing and monitoring them on withdrawal medications.

In treating African-American patients, treatment efficacy and therapist efficacy may be associated with the therapist's understanding of how race plays a role in recovery (Luborsky et al. 1988; Pena et al. 2000). In addition, when working with counselors from other cultures, African Americans may display mistrust and a reluctance to show any weakness. To overcome this mistrust and to build rapport, especially when the clinician is discussing the detoxification process, it is particularly important for the clinician to keep in mind the standard of respecting the client as an equal partner in treatment. For further information on this subject (as well as information on working with members of other cultural/ethnic groups), see the forthcoming TIP *Improving Cultural Competence in Substance Abuse Treatment* (SAMHSA in development *a*).

The previously discussed protocols for detoxification from all substance of abuse appear adequate for the detoxification of African Americans. However, there are a few further aspects to consider:

- If treating African Americans with beta blockers, propranolol is less effective in treating African Americans than Caucasians (Pi and Gray 1999).
- African Americans are more likely (15 to 25 percent) to have less of the enzyme activity

needed to eliminate diazepam than others, so it may have a longer half-life in African Americans than it does in other ethnic groups (Pi and Gray 1999).

- Since co-occurring disorders such as depression frequently are seen in people with substance use disorders, it is important to know that African Americans may require lower doses and may be at greater risk of developing toxic side effects when prescribed antidepressants, since they are likely to metabolize tricyclic antidepressants and SSRIs less efficiently than Caucasians (Pi and Gray 1999).
- Although the clearance of nicotine is similar for African Americans and Caucasians, the clearance of cotinine, a metabolite of nicotine, is slower in African Americans, which may cause different smoking patterns than found in Caucasians (Ahijevych 1998).

Asians and Pacific Islanders

This group is the most diverse in nations of origin and has widely differing languages, beliefs, practices, dress, and values. Often the only common thread among these people is their geographic origin (Chang 2000). Although this group appears to have lower rates of alcohol and illicit drug use, these problems should not be overlooked; members of this group may not seek treatment until the problems are quite severe. Successful treatment involves the family and important values include balance, harmony, wisdom, and modesty. Thus, it may be important to talk to the family about the process of detoxification and dispel their fears and concerns as well as the patient's.

Asians and Pacific Islanders tend to be concerned about the clinician's credibility and trustworthiness. Generally speaking, maleness, mature age, the projection of self-confidence, possession of sound cultural competence skills, good educational background, and level of experience are of importance. In addition, a concrete logical approach to the problem at hand is valued (Brems 1998). The previously discussed protocols for detoxification from all substances of abuse appear adequate for the detoxification of Asians and Pacific Islanders. During the detoxification process, there are a number of issues to consider:

- If possible and appropriate, incorporate traditional healing methods (e.g., meditation and religious exercises). These can help reduce stress and anxiety and promote recovery (Chang 2000). While there is a large immigrant population among many Asian-American groups, it is erroneous to assume that all are foreign born. Variation in practice of traditional healing methods is considerable and consistent with generational differences. When considering detoxification, recognize the importance of bicultural practices, values, and beliefs that might influence responsiveness to treatment.
- When discussing detoxification medications, discuss with patients their feelings about taking "Western" medications for detoxification. In some Southeast Asian cultures, Western medications are believed to be too strong for the Asian person. It is important to assess a person's feelings about these since the patient may not wish to disagree with the clinician yet may be noncompliant in taking the medications. Compliance with detoxification medication may be better achieved if doses are reduced or regimens shortened, yet this should only be attempted if it is in the best interest of the patient.
- Racial differences in alcohol sensitivity among Asians and Caucasians have long been recognized, with more than 80 percent of some Asians compared to 10 percent of Caucasians being sensitive to alcohol (i.e., having a flushing reaction) (Wolff 1972, 1973). This is the result of genetic differences in alcohol metabolizing enzymes. Approximately 50 percent of Asians lack the enzyme ALDH2, found in the liver, that helps the body get rid of alcohol (Hsu et al. 1985; Yoshida et al. 1985). One reason for lower drinking rates among Asians may be the flushing reaction in the face and body following alcohol ingestion and an increase in skin temperature. Other uncomfortable signs and symptoms associated with the negative reac-

tion to alcohol ingestion can include nausea, dizziness, headache, fast heartbeat, and anxiety (Caetano et al. 1998).

- Five studies have shown that the metabolism of codeine is slower in Chinese people than in Caucasians. Chinese patients seem to require lower doses of codeine, since the slower metabolism leads to a higher concentration of codeine in the blood (Smith and Lin 1996).
- If treated with beta blockers, Asians require much lower doses than Caucasians, since they are very sensitive to this medication's blood pressure and heart rate effects (Pi and Gray 1999).
- Asians as a group have a higher number of individuals than other ethnic groups who are poor metabolizers of diazepam. This may result in the need for lower doses, since they report greater sedative effects with a typical dose (Lesser et al. 1997). It also may be that a lower body fat, which is typical of Asian-American individuals, can lead to differences in the pharmacokinetics of lipophilic drugs (Lesser et al. 1997).
- In treatment for co-occurring depression and a substance use disorder, Asians appear to metabolize clomipramine more slowly than Caucasians (Pi and Gray 1999). In contrast, Asians may metabolize phenelzine faster, resulting in the need for a higher dose relative to that which would be appropriate for Caucasians (Pi and Gray 1999).
- Chinese Americans tend to metabolize nicotine 35 percent more slowly than Hispanics/Latinos and Caucasians. Thus, they may need to smoke less frequently and take in less nicotine to achieve the same nicotine levels as do Hispanics/Latinos and Caucasians. This may have implications for the dosing of NRTs (Benowitz et al. 2002).
- Smoking rates among male Asian Americans, especially immigrant males, are exceedingly high and masked by the lower rates among Asian-American females.

American Indians

There are currently more than 500 federally recognized American-Indian tribes, and there is among them great variability in appearance, dress, values, religious beliefs, practices, and traditions. More than 200 different languages are spoken by American-Indian tribes. Alcohol use varies widely among tribes (Mancall 1995). Of all ethnic and racial groups, American Indians have the greatest rates of alcohol and illicit drug use (Office of Applied Studies 2002*a*).

An early study of treatment utilization by American Indians found that there was a significant association between involvement in society and treatment outcomes. Those involved in either the traditional Indian society or both the traditional Indian society and Caucasian society had more than a 70 percent success rate, whereas those involved in neither society had a 23 percent success rate (Ferguson 1976). At a 10-year followup, those who had reported greater Indian culture affiliation and more severe liver dysfunction at baseline had better alcohol treatment outcomes (Westermeyer and Neider 1984).

When engaging an American Indian in the process of detoxification, moving through the process too quickly or abruptly can be perceived as showing a lack of caring and is considered contrary to trust building (Brems 1998). The pace of conversation is important; a slower pace is more agreeable than a rapid conversation. Moreover, a confrontational approach also is not advised with this population (Abbott 1998). American Indians may want a close and involved relationship with their therapists and often want the clinician to be a friend or relative (Brems 1998). The trust often is built by idle small talk to a level of shared understanding. Use of fables and illustrative stories to express ideas can be extremely helpful. According to the forthcoming TIP *Improving Cultural Competence in Substance Abuse Treatment* (SAMHSA in development *a*), avoidance of eye contact also is traditional. The Talking Circle is a native

tradition that can be helpful in the treatment process (Canino et al. 1987; Coyhis 2000). The previously discussed protocols for detoxification from all substances of abuse appear adequate for the detoxification of American Indians. The following are some issues to consider during detoxification.

- Fetal Alcohol Syndrome is 33 times higher in this population than the national average (SAMHSA in development *a*). This may be important for pregnant women coming to detoxification and also may be important if the adult has FAS.
- Indian women who drink have a six-fold increase in cirrhosis of the liver relative to Caucasian women (Heath 1989).
- Although some American Indians have reported a flushing response to alcohol, it appears that the flushing reaction in American Indians is milder and less adverse than that experienced by Asians (Gill et al. 1999).
- If Alcoholics Anonymous or other 12-Step programs are to be introduced, framing the steps in terms of a circle rather than a ladder may be better received, since the circle is important concept in Indian culture (SAMHSA in development *a*).
- If possible and appropriate, other traditional methods that can help recovery are sweat lodges, vision quests, smudging ceremonies, sacred dances, and four circles (Abbott 1998).
- Overall, detoxification for this population is the same as for other populations, but American Indians are likely to seek treatment later and have more medical complications and poorer nutrition (Abbott 1998).

Hispanics/Latinos

Hispanics/Latinos are now the largest ethnic minority group in America. Assessment of the patient's level of acculturation can be helpful in understanding substance abuse patterns. Language is one of the most difficult barriers to treatment entry and success for Hispanics/Latinos. However, simply knowing Spanish or Portuguese does not guarantee cultural sensitivity or competence. For instance, it is important that the treatment staff understand the role of the family. The functional family can be extended and should take into account people who have day-to-day contact with and a role in the family (Markarian and Franklin 1998). Hispanics/Latinos are likely to view drug dependency as moral failing or personal weakness. Traditional healing such as folk remedies and folk healers may provide benefit. The previously discussed protocols for detoxification from alcohol, opioids, benzodiazepines, stimulants, solvents, nicotine, marijuana, anabolic steroids, and club drugs appear adequate for the detoxification of Hispanics/Latinos.

Hispanics/Latinos are now the largest ethnic minority group in America. Assessment of the patient's level of acculturation can be helpful in understanding substance abuse patterns.

Gays and Lesbians

Approximately 5 to 33 percent of all lesbian and gay individuals are estimated to have a substance abuse problem (Cochran and Mays 2000; Hughes and Wilsnack 1997). A contributing factor may be the stress and anxiety associated with the social stigma attached to homosexuality. Further, alcohol and drugs may serve as an escape and ease social interactions at social settings such as bars. More information on this subject will be available in the forthcoming TIP *Improving Cultural Competence in Substance Abuse Treatment* (SAMHSA in development *a*). The previously discussed protocols for detoxifica-

tion appear adequate for gay and lesbian patients. Since numerous misconceptions and stereotypes exist concerning gay and lesbian individuals, it is important for the clinician to assess his beliefs and take care not to impose them on the patient.

There are a number of principles of care for treating gay and lesbian individuals, which are outlined in *A Provider's Introduction to Substance Abuse Treatment for Lesbian, Gay, Bisexual, and Transgender Individuals* (CSAT 2001). These principles include: (1) counselors' being able to monitor their own feelings about working with this population of patients in order to provide professional, ethical, and competent care; (2) helping patients heal from the negative experiences of homophobia and heterosexism; (3) helping patients understand their reactions to discrimination and prejudice; and (4) helping patients accept personal power over their own lives by helping them improve their self-images and build support networks.

Adolescents

The previously discussed protocols for detoxification from all substances of abuse appear adequate for the detoxification of adolescents; however, there are several additional aspects to consider:

- Physical dependence generally is not as severe, and response to detoxification is more rapid than in adults.
- Retention is a major problem in adolescent treatment (Thurman et al. 1995).
- Peer relationships play a large role in treatment. Among adolescents who do not use drugs, few of their friends reported use. In one study, among those who reported specific drug use, over 90 percent of their friends reported using the same drug (Dinges and Oetting 1993).
- It is estimated that 75 percent of those reporting steroid use are high school students, and most of them are male. Detoxification from steroids does not typically require specific pharmacological intervention unless there is liver toxicity or suicidal intent (Giannini et al. 1991). The use of club drugs is higher in this population than in others.

TIP 31, *Screening and Assessing Adolescents for Substance Use Disorders* (CSAT 1999*d*), and TIP 32, *Treatment of Adolescents With Substance Use Disorders* (CSAT 1999*f*), provide comprehensive information on the treatment of adolescents.

Incarcerated/Detained Persons

Substance use disorders are common among inmate populations. At the time of arrest and detention, it has been estimated that 70 to 80 percent of all inmates in local jails and State and Federal prisons had regular drug use or had committed a drug offense, and 34 to 52 percent of these inmates were intoxicated at the time of their arresting offense (Federal Bureau of Prisons 2000; Mumola 1999). Although women comprise a small proportion of the incarcerated population (12.3 percent in jails and 7.4 percent in State and Federal prisons) than men (Harrison et al. 2004), females have a greater prevalence of illicit drug use (i.e., 40 percent compared to 32 percent were under the influence of drugs at the time the crime was committed) than do males (Greenfeld and Snell 1999).

Persons who are incarcerated or detained in holding cells or other locked areas should be screened for physical dependence on alcohol, opioids, and benzodiazepines and provided with needed detoxification and treatment. Screening should occur over time, since the onset and intensity of withdrawal is dependent on the type of drug taken, when the person last took the drug, and how long the drug lasts in the person's body. The duration of detention will affect what detoxification services can be provided, and many facilities will not be able to provide detoxification or continuing care services. There are some special considerations for the detoxification of this population:

- Abrupt withdrawal from alcohol can be life-threatening.

- Abrupt withdrawal from opioids or benzodiazepines is not life-threatening but can cause severe withdrawal signs and symptoms and great distress.
- It should be determined whether dependence on either opioids or benzodiazepines is the result of illicit use and not the result of taking medications that have been prescribed to treat pain or anxiety disorders.
- If medically supervised withdrawal is indicated, the substitution of a long-acting drug from the same class of substances the patient is using (e.g., giving methadone to treat heroin dependence) and the gradual tapering of that substance (no faster than 10 to 20 percent per day) should be conducted under closely monitored settings.
- There are cases when individuals maintained on opioid agonist medications are detained or incarcerated. If the incarceration is 30 days or less, the individual should be maintained on her usual dosage. If the incarceration is longer, the individual may be appropriate for gradual dose tapering.
- Persons who transition from a state of opioid dependence to a drug- or medication-free state are at greater risk of overdose upon relapse to opioid use.
- Many correctional facilities have restrictions on the use of methadone or LAAM and special provisions for maintaining or tapering the individual may need to be made.
- If medications are provided to medically detoxify inmates, the Federal Bureau of Prisons' *Clinical Practice Guidelines for Detoxification of Chemically Dependent Inmates* (2000) suggest retaining strict control over access to these medications to prevent diversion or misuse (e.g., eating clonidine patches to obtain a state of euphoria).

TIP 44, *Substance Abuse Treatment for Adults in the Criminal Justice System* (CSAT 2005*b*), and TIP 30, *Continuity of Offender Treatment for Substance Use Disorders From Institution to Community* (CSAT 1998*b*), provide more detailed information about the treatment of this population. TIP 21, *Combining Alcohol and Other Drug Abuse Treatment With Diversion for Juveniles in the Justice System* (CSAT 1995*b*), also provides information about incarcerated youth.

5 Co-Occurring Medical and Psychiatric Conditions

In This Chapter...

Patients undergoing detoxification frequently present with medical and psychological conditions that can greatly affect their overall well-being and the process of detoxification. These may simply be pre-existing medical conditions not related to substance use or the direct outcome of the substance abuse. In either case, the detoxification process can negatively affect the co-occurring disorder or vice versa. Furthermore, people who abuse substances often present with medical conditions in advanced stages or in a medical crisis. Co-occurring mental disorders also are likely to be exacerbated by substance abuse. For more on treating patients with co-occurring psychiatric disorders, the reader should refer to TIP 42, *Substance Abuse Treatment for Persons With Co-Occurring Disorders* (Center for Substance Abuse Treatment [CSAT] 2005*c*).

This chapter is intended primarily for medical personnel treating patients in detoxification settings, though nonmedical staff may find it informative as well. This chapter is not meant to take the place of authoritative sources from internal medicine. Rather, it presents a cursory overview of special conditions, modifications in protocols, and the use of detoxification medications in patients with co-occurring conditions or disorders. Overall treatment of specific conditions is not addressed unless modification of such treatment is needed.

General Principles of Care for Patients With Co-Occurring Medical Conditions

Patients who use substances can present with any of the conditions or combinations of conditions that can be found in the general population. In most cases, the management of the medical condition in the patient with a substance use disorder diagnosis does not differ from that of any other patient. However, the medication used for detoxification and the actual detoxification protocol may need to be modified to minimize potentially harmful effects relevant to the co-occurring condition.

Detoxification staff providing support should be familiar with the signs and symptoms of common co-occurring medical disorders. Likewise, personnel at medical facilities (i.e., emergency rooms, physicians' offices) should be aware of the signs of withdrawal and how it affects the treatment of the presenting medical conditions.

The setting in which detoxification is carried out should be appropriate for the medical conditions present and should be adequate to provide the degree of monitoring needed to ensure safety (e.g., oximetry [a measurement of the amount of oxygen present in the blood], greater frequency of taking vital signs, etc.). Acute, life-threatening conditions need to be addressed concurrently with the withdrawal process and intensive care unit monitoring may be indicated.

Clinicians should keep in mind that consultation with specialists in infectious diseases, cardiology, pulmonary medicine, hematology, neurology, and surgery may be warranted. Whenever possible, consent should be sought to involve the patient's primary healthcare provider in the coordination of care. Attending medical staff should be aware that co-occurring medical conditions present an opportunity to engage patients. By focusing on the adverse effects of the substance abuse on the overall health of patients, staff members are in a position to help patients see the importance of engaging in treatment for their substance use disorders. Patients should have appointments for followup care made prior to detoxification discharge for all chronic medical conditions, conditions needing further evaluation, and substance abuse treatment.

This section highlights the conditions most frequently seen in individuals who abuse substances, though it is not inclusive. Disorders of the following systems will be covered: gastrointestinal (including the gastrointestinal [GI] tract, liver, and pancreas), cardiovascular system, hematologic (blood) abnormalities, pulmonary (lung) diseases, diseases of the central and peripheral nervous system, infectious diseases, and special miscellaneous disorders. Where special considerations are needed for a patient presenting with a given disorder in a detoxification setting they are listed following the heading "Special Considerations."

Gastrointestinal Disorders

Frequently, the use of substances can present a range of gastrointestinal problems. Cocaine use, for example, can result in various gastrointestinal complications, including gastric ulcerations, retroperitoneal fibrosis, visceral infarction, intestinal ischemia, and gastrointestinal tract perforations (Linder et al. 2000). Gastrointestinal disorders may affect many different organs and organ systems (e.g., liver, pancreas), making diagnosis difficult. Since symptoms can be vague and patients are not always able to articulate the specific problem, diagnosis can be difficult. For a simple rule of thumb, urgent attention is needed if the patient is diagnosed with any of the following:

- Appendicitis
- Abdominal aortic aneurysm
- Perforated peptic ulcer
- Boerhaave's Syndrome (spontaneous esophageal rupture)
- Obstructed or strangulated bowel

- Ischemic bowel disease (a condition that results from inadequate blood supply to the intestines)
- Abcess of the pancreas or liver
- Ruptured spleen or other trauma to the abdominal area

Other possible diagnoses of abdominal pain include:

- Hepatitis
- Peptic ulcer (nonperforating)
- Peritonitis
- Acute pancreatitis
- Pelvic inflammatory disease
- Endometriosis
- Nephrolithiasis (kidney stones)
- Inflammatory bowel disease
- Ovarian cysts

Clinicians should also be aware of some deceptive causes of abdominal pain:

- Myocardial infarction
- Pulmonary emboli
- Herpes zoster (shingles)
- Acute pylonephritis (kidney infection)

Specific co-occurring gastrointestinal disorders requiring special attention in patients undergoing detoxification are discussed below.

Reflux esophagitis

Reflux esophagitis can be a result of alcohol's effect on the lower esophageal sphincter (i.e., relaxation) and a decrease in peristalsis of the distal esophagus, allowing gastric contents to come into contact with the lower esophagus. Typical symptoms include burning in the epigastric or retrosternal area (commonly called "heartburn" or "indigestion"). Esophageal bleeding can result from reflux esophagitis and esophageal varices (resulting from portal hypertension).

Special considerations

Several drugs used in typical protocols, such as beta blockers and calcium channel blockers, may decrease lower esophageal sphincter pressure and aggravate reflux (Dell'Italia 1994).

Mallory–Weiss Syndrome

Mallory–Weiss Syndrome is caused by torn mucosa of the esophagus at the gastroesophageal junction due to protracted or violent vomiting. Mallory–Weiss Syndrome is the etiology of 5 to 15 percent of all upper GI bleeds (Schuylze-Delrieu and Summers 1994).

Boerhaave's syndrome

Boerhaave's syndrome is manifested by rupture of the esophagus. Patients presenting with this condition complain of acute epigastric pain (83 percent of patients), vomiting (79 percent), and shortness of breath (39 percent) as the predominant, nonspecific symptoms. This lack of specificity can delay making the correct diagnosis (Brauer et al. 1997). Tachycardia, cyanosis, and subcutaneous emphysema also can be seen. If this condition is left untreated, the prognosis is severe.

Co-occurring medical conditions present an opportunity to engage patients in treatment for their substance use disorders.

Gastritis

Gastritis is described as the disruption of the gastric mucus lining that allows gastric acid to contact the mucosa with resultant inflammation and possible bleeding. The patient presents with nausea, vomiting, and abdominal pain (Ivey 1981). Alcohol increases gastric acid secretion and reduces the mucosal cell barrier,

allowing back-diffusion of the gastric acid into the mucosa. This frequently causes an occurrence of erosive gastritis in the individual with an alcohol use disorder (Fenster 1982).

Special considerations

Aspirin and nonsteroidal medications should be avoided in the withdrawal protocols.

Detoxification staff providing support should be familiar with the signs and symptoms of common co-occurring medical conditions.

Pancreatitis

Pancreatitis can be caused by many factors, although studies suggest that alcohol may be a factor in anywhere from 5 to 90 percent of all cases (Apte et al. 1997), with some experts suggesting about 60 percent of all cases result from excessive alcohol consumption (Yakshe 2004). The acute condition presents with abdominal pain, which is described as sharp, burning, and constant and is located in the epigastric area of the abdomen with radiation to the back. Presenting symptoms and signs can include abdominal tenderness, decreased bowel sounds, low-grade fever, tachycardia, nausea, and vomiting. Pancreatitis can proceed to a chronic condition where pancreatic calcification, diabetes mellitus, malabsorption, and chronic abdominal pain occur.

Special considerations

There may be a need to forbid oral intake of food and medications, necessitating a change of route of administration of both food and medications to intravenous forms. In alcohol withdrawal protocols, Ativan might be considered as an appropriate agent, as it can be administered intravenously or intramuscularly. Opioids may have to be used to control pain.

Liver disorders

Liver disease can range from fairly benign *fatty liver*, which presents usually as an asymptomatic enlargement of the liver associated with mild elevation of the serum liver enzymes, to a broad spectrum of viral infections and the toxic consequences of alcohol and other drug use. The end point of liver disease is liver necrosis or failure. Midway in the progression of liver disease is *acute alcoholic hepatitis*. The presentation is one of liver tenderness, jaundice, fever, ascites, and an enlarged liver. The patient is quite sick and frequently has nausea and vomiting.

Special considerations

Alcoholic hepatitis usually needs acute medical treatment to prevent electrolyte imbalance and dehydration. Protocols may have to be adapted if the patient cannot take oral agents.

Portal hypertension

Portal hypertension is a frequent consequence of liver disease. If elevation of the portal pressure goes untreated, esophageal varices develop and hemorrhage can ensue. Treatment of acute hemorrhage includes endoscopic sclerotherapy or ligation. Initial therapy should include prompt and adequate intravascular volume replacement, correction of severe anemia and coagulopathies, and adequate airway management.

Special considerations

Propranolol or isosorbide therapy is effective in the prophylaxis of variceal bleeding (Trevillyan and Carroll 1997), though beta blockers can interfere with measuring the true heart rate that determines the content of many detoxification protocols. If bleeding is

present, changeover to intravenous medication protocols is recommended, as the patient will not be able to take oral medications.

Cirrhosis

Cirrhosis, or the formation of fibrous tissue in the liver, leads to a state of increased resistance in the hepatic venous circulation. The inability of blood to flow freely gives rise to portal hypertension with ensuing esophageal varices, splenomegaly, ascites, dilatation of superficial veins, peripheral edema, and hemorrhoids.

Liver necrosis can be seen in patients who use inhalants, particularly chronic use of benzene and carbon tetrachloride. African Americans and Hispanics/Latinos have higher mortality rates from cirrhosis of the liver resulting from alcohol abuse than do Caucasians and Asians and Pacific Islanders (Sutocky et al. 1993). Liver function test abnormality and jaundice can occur in individuals who use anabolic steroids, but this usually resolves on cessation of the drugs. Studies in the elderly show that 1-year mortality was 50 percent among patients over age 60 with cirrhosis, versus 7 percent for those under age 60 (Potter and James 1987). Great care needs to be used when giving diuretics to elderly patients with cirrhosis, since their total body water may already be decreased, making them more susceptible to fluid and electrolyte depletion (Scott 1989).

Alcohol-related hepatic injury is seen in a higher proportion of women due to a possible potentiation (strengthening) of this effect by estrogen (Brady and Randall 1999).

Special considerations

For the treatment of alcohol withdrawal, lorazepam (Ativan) is well tolerated in patients with severe liver disease (D'Onofrio et al. 1999) as is oxazepam (Serax), with its short half-life of 6 to 8 hours and simple metabolism with no metabolites.

Cardiovascular Disorders

The presentation of chest pain or discomfort remains one of the most difficult differential diagnoses to sort through, as disorders of several systems can cause this single complaint. Inability to correctly diagnose this symptom can be brought about by the patient's inability to be interviewed and give succinct symptoms (the intoxicated or severely withdrawing patient), a sociocultural or educational level that does not allow for the verbal nuances necessary to making a diagnosis, or fabrication of symptoms by a patient seeking to obtain pain medications or other drugs.

A normal resting electrocardiogram does not rule out the presence of organic heart disease and the presence of nonspecific changes does not necessarily mean that heart disease is present. Final diagnoses can range from reflux to myocardial infarction brought about by underlying ischemic heart disease or the use of cocaine. Frequently, lung diseases can have as their presenting symptom chest discomfort. The consensus panel believes that this condition should never be overlooked or minimized and it is imperative that an especially prompt diagnosis be made and treatment be undertaken to ensure patient safety.

Underlying cardiac illness could be worsened by the presence of autonomic arousal (elevated blood pressure, increased pulse and sweating) as seen in alcohol, sedative, and opioid withdrawal. Thus prompt attention to these findings and aggressive withdrawal treatment is indicated. Special considerations for the treatment of specific cardiac conditions are outlined below.

Hypertension

Hypertension frequently is seen in the detoxification patient. Evaluation should include a complete history to determine if the elevated blood pressure predated the present withdrawal status. Consideration should be given to include serum electrolytes, urinalysis, BUN/creatinine, and an EKG in the detoxifi-