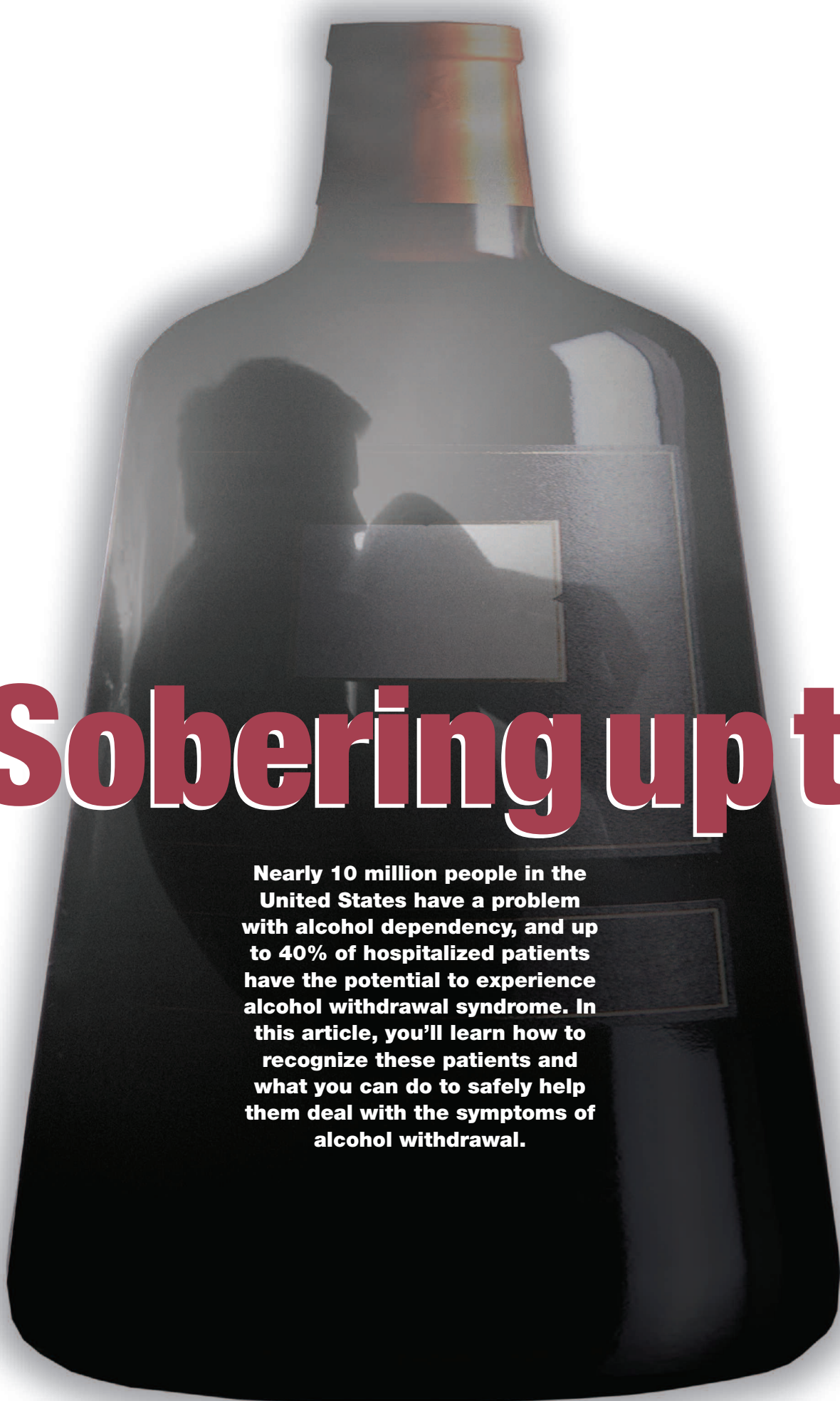

Sobering up to

Nearly 10 million people in the United States have a problem with alcohol dependency, and up to 40% of hospitalized patients have the potential to experience alcohol withdrawal syndrome. In this article, you'll learn how to recognize these patients and what you can do to safely help them deal with the symptoms of alcohol withdrawal.

alcohol withdrawal syndrome

2.0
CONTACT HOURS

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The author has disclosed that she has no significant relationship with or financial interest in any commercial companies that pertain to this educational activity.

"SOMEONE CALL SECURITY NOW!" a voice shouted from down the hall. As the nurse manager of the medical-surgical unit, I ran down the hallway to see what was happening. As I rounded the corner and entered the room, I found a certified nursing assistant (CNA) with her arm literally held behind her back by a patient. When security arrived, we negotiated with the patient to release his tight hold on her arm. The CNA was taken to the emergency department (ED) for evaluation of her severely sprained shoulder, and the patient was given appropriate medication.

No one realized that this patient was alcohol dependent or that he had the potential to develop alcohol withdrawal delirium until he became aggressive. What could've been done to identify this patient's condition earlier? In this article, I'll explain the pathophysiology of alcohol withdrawal syndrome and describe its signs and symptoms. Then I'll fill you in on how to screen for alcohol use disorders and how alcohol withdrawal syndrome is treated, with an emphasis on what you need to know about caring for patients with this condition.

Who's at risk?

Alcohol is one of the most abused substances in the United States. A survey by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) found that nearly one-third of all adults in the United States engage in at-risk drinking. For men, this is generally considered to be the consumption of more than five standard drinks (12 ounces of beer, 5 ounces of wine, or 1.5 ounces of 80-proof spirits) and for women, more than four standard drinks in 1 day.

One in four people classified as at-risk drinkers meet criteria for alcohol abuse or dependence. For this reason, you may come in contact with patients who are alcohol dependent without being aware of it when you first care for them. In fact, statistics show that up to 40% of patients admitted to the hospital may have some alcohol dependency. Because they've abruptly stopped drinking due to being hospitalized, these patients may experience alcohol withdrawal syndrome, a set of symptoms ranging from mild shakiness and sweating to the most severe symptom, alcohol withdrawal delirium (formerly called *delirium tremens* or the DTs). Mortality rates are as high as 10% to 20% in patients experiencing alcohol withdrawal syndrome.

Now, let's review the definitions of alcohol abuse, alcohol dependence, and alcohol withdrawal.

A closer look

Alcohol abuse is defined by the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition *(DSM-IV-TR)* as recurrent alcohol use that leads to significant and recurrent adverse consequences. This is marked by one or more of the following in a 12-month period:

- failure to fulfill major obligations, such as work or family responsibilities
- alcohol use in dangerous situations, such as while driving
- alcohol-related legal problems
- alcohol use despite social or interpersonal problems as a result of the continued use.

The *DSM-IV-TR* defines ***alcohol dependence*** as recurrent alcohol use despite significant life problems related to its use. This is marked by three or more of the following in a 12-month period:

- tolerance, the need for greatly increased amounts of alcohol to achieve the desired effect or a diminished effect when using the same amount of alcohol
- withdrawal, experiencing symptoms of alcohol withdrawal syndrome, or using alcohol to avoid withdrawal symptoms
- compulsive alcohol use
- inability to reduce alcohol use
- excess time spent obtaining and using alcohol and recovering from its effects
- impairment in social, work, or recreational activities
- continued alcohol use despite negative consequences.

Alcohol withdrawal symptoms occur as a result of brain hyperexcitability. After consumption, alcohol is absorbed by the stomach and small intestine. Some foods, such as milk or foods with a high fat content, can alter alcohol absorption, but generally what's consumed enters the bloodstream.

Alcohol affects the central nervous system, specifically the brainstem, and acts as a depressant. Alcohol also affects two neurotransmitters: the inhibitory transmitter gamma-aminobutyric acid (GABA) and *N*-methyl D-aspartic acid (NMDA), the transmitter that regulates neuron excitability. GABA and NMDA keep the effects of other neurotransmitters in check, and they have a calming, sedative effect on the brain. Alcohol enhances GABA receptors and

Key questions to ask

Ask your patient these four CAGE questions to assess his drinking patterns and determine if he may be alcohol dependent.

C: Have you ever felt you should **C**ut down on your drinking?

A: Have people **A**nnoyed you by criticizing your drinking?

G: Have you ever felt bad or **G**uilty about your drinking?

E: Have you ever had an **E**ye-opener, a drink first thing in the morning to steady your nerves or get rid of a hangover?

If your patient answers "yes" to two or more of these questions, the test is considered positive, indicating the need for further assessment.

Source: National Institute on Alcohol Abuse and Alcoholism, Screening for alcohol use and alcohol-related problems. **http://pubs.niaaa.nih.gov/publications/aa65/AA65.htm**. Accessed June 14, 2007.

inhibits NMDA receptors, which causes feelings of euphoria and decreased self-control; these initial responses are followed by sedation. When an alcohol-dependent patient abruptly stops drinking, the sudden withdrawal of alcohol causes a hyperexcitability reaction in the brain, resulting in the symptoms of alcohol withdrawal syndrome. This is due to the decrease in GABA and NMDA stimulation.

After repeated episodes of withdrawal, the neurons undergo long-term changes, causing subsequent episodes of withdrawal to progressively worsen (known as *kindling*). Other long-term effects of alcohol use include gastrointestinal (GI) disorders (such as ulcers, bleeding, and pancreatitis), hypertension, immunologic disorders, and skeletal muscle wasting.

Patients with alcohol dependence must be identified early so appropriate interventions can immediately become part of their individual care plans. How do you recognize alcohol dependence and the potential for alcohol withdrawal syndrome in your patients? Let's take a look at the signs and symptoms to watch for.

Screening patients for alcohol abuse or dependence

Alcohol abuse

Ask your patient these questions if you suspect alcohol abuse. If he answers "yes" to one or more of these questions, he may abuse alcohol.

- In the past 12 months, has your drinking interfered with your ability to care for your home or family or to perform your job or school responsibilities?
- In the past 12 months, have you driven a car or other vehicle more than once while drinking?
- In the past 12 months, have you had any legal problems as a result of drinking, such as being arrested or held at a police station?
- In the past 12 months, have you kept drinking even though you knew it was causing trouble with family or friends?

Alcohol dependence

Ask your patient these questions if you suspect alcohol dependence. If he answers "yes" to three or more questions, he may be alcohol dependent.

- In the past 12 months, have you had to drink much more than usual to get the desired effect?
- In the past 12 months, have you experienced any withdrawal symptoms, such as insomnia, nervousness, restlessness, sweating, shaking, nausea, increased heart rate, seizures, or hallucinations?
- In the past 12 months, have you wanted to stop or cut back drinking more than once? Have you tried to stop or cut back more than once but couldn't?
- In the past 12 months, have you drunk more than you meant to or for longer than you intended?
- In the past 12 months, have you given up or cut back on important or pleasurable activities in order to drink?
- In the past 12 months, have you had a period when you spent a lot of time drinking?
- In the past 12 months, have you kept drinking even though it was causing you health problems?

Source: National Institute on Alcohol Abuse and Alcoholism. Helping patients who drink too much: A clinician's guide, updated 2005 edition. **http://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/clinicians_guide.htm**.

When the party's over

Rarely will patients be admitted to the acute care setting with a strict diagnosis of alcohol abuse. Because alcohol abuse has many pathophysiologic effects, patients present differently depending on the admitting diagnosis. A patient can experience signs and symptoms of acute alcohol withdrawal even when his blood alcohol level is normal. (A blood alcohol level of 0.08 mmol/L or higher is considered legally intoxicated.)

A patient may develop minor withdrawal symptoms as soon as 6 to 12 hours after his last drink of alcohol. They include:

- insomnia
- mild anxiety
- headache
- tremors
- palpitations
- hypertension
- GI upset
- diaphoresis.

Within 12 to 24 hours, the patient may also experience alcohol hallucinosis, which can include auditory, visual, or tactile hallucinations.

More serious symptoms usually develop between 24 and 48 hours after the patient's last drink of alcohol. Withdrawal seizures (generalized tonic-clonic seizures) may occur. Seizures are the highest safety risk for patients in alcohol withdrawal because of the risk of aspiration, oxygen deprivation, and physical injury from thrashing. Patients who've had multiple episodes of alcohol detoxification across their lifetimes tend to have an increased risk of withdrawal seizures, so it's important to monitor these patients closely for any seizure activity. Benzodiazepines are used to treat these seizures; phenytoin injection isn't effective.

Within 48 to 72 hours, the patient may experience alcohol withdrawal delirium, one of the worst symptoms of alcohol withdrawal. It generally includes:

• visual hallucinations, such as seeing things on the walls or ceiling
• disorientation
• tachycardia
• hypertension
• low-grade fever
• agitation
• diaphoresis.

Auditory hallucinations aren't as common in alcohol withdrawal delirium, but they can be a problem. The sounds of a busy nursing unit can contribute to auditory hallucinations.

Challenging assessments

A thorough assessment is needed for any patient suspected of experiencing alcohol withdrawal syndrome. Because signs and symptoms vary with the patient's alcohol consumption and past history of withdrawal, you need to watch for subtle changes. Observing the patient over the course of your shift will help you notice changes in mental activity, pick up a subtle tremor that might otherwise be missed, or discover signs and symptoms that may not follow the customary timetable.

Your patient is at risk for alcohol withdrawal delirium if any of these factors are present:
• severe withdrawal symptoms
• history of daily heavy alcohol use (more than five standard drinks a day for men; more than four standard drinks a day for women)
• history of alcohol withdrawal delirium or withdrawal seizures
• abnormal liver function
• advanced age.

Alcohol withdrawal delirium can last as long as 5 to 6 days in some patients.

But what if your patient doesn't display signs and symptoms of alcohol withdrawal syndrome but you still suspect he's alcohol dependent? You can use several screening tools to help identify alcohol use disorders. Let's go over the most common ones.

Managing withdrawl with benzodiazepines

Benzodiazepine	Route	Onset	Peak	Duration
Lorazepam	P.O.	1 hour	2 hours	12 to 24 hours
	I.V.	5 min.	60 to 90 min.	6 to 8 hours
	I.M.	15 to 30 min.	60 to 90 min.	6 to 8 hours
Diazepam	P.O.	30 min.	2 hours	20 to 80 hours
	I.V.	1 to 5 min.	1 to 5 min.	15 to 60 min.
	I.M.	Unknown	2 hours	Unknown
	P.R.	Unknown	90 min.	Unknown
Oxazepam	P.O.	Unknown	3 hours	Unknown
Chlordiazepoxide	P.O.	Unknown	30 min. to 4 hours	Unknown
	I.V.	1 to 5 min.	Unknown	15 to 60 min.
	I.M.	Unknown	Unknown	Unknown

Source: *Nursing2007 Drug Handbook,* 27th edition. Philadelphia, Pa., Lippincott Williams & Wilkins, 2007.

Getting to the root of the problem

A simple assessment tool, CAGE is a series of questions about drinking patterns you can ask your patient. For the complete CAGE tool, see *Key questions to ask.*

The CAGE questionnaire may seem awkward at first, but it can be invaluable in helping you get an early read on patients who may be prone to alcohol withdrawal syndrome during their hospital stay. You can easily integrate CAGE questions into a routine health history, as many questions like these are already collected when the patient is admitted.

The NIAAA recommends using an even simpler screening tool that consists of one question about heavy drinking days. Ask your male patient, "How many times in the past year have you had five or more drinks in a day?" Ask your female patient, "How many times in the past year have you had four or more drinks in a day?" If your patient has one or more heavy drinking days, further assessment is needed. Determine the patient's drinking pattern by asking, "On average, how many days a week do you have a drink?" and then, "On a typical day that you do drink, how many drinks do you have?" If your patient is drinking more than is medically safe, you'll want to screen for alcohol abuse or dependence. To do so, you can ask questions based on the *DSM-IV-TR* definitions of abuse and dependence. For sample questions, see *Screening patients for alcohol abuse or dependence.*

Another option is to have your patient fill out a self-report. He can complete the Alcohol Use Disorder Identification Test (AUDIT) in about 5 minutes. The maximum possible score is 40. A score of 8 or more for men and 4 or more for women is considered a positive test. The complete AUDIT form is available at **http://pubs.niaaa.nih.gov/publications/aa65/AA65.htm**.

Besides these screening tools, standard tests, such as serum electrolytes, glucose, amylase and lipase, magnesium, and calcium levels and liver function tests can be helpful in identifying chronic alcohol abuse. Your patient will also need:

- a complete blood cell count (to determine your patient's blood cell and hydration status)
- gamma-glutamyl transferase level (may indicate alcohol-induced hepatic disease)
- aspartate transaminase level (may indicate cardiac disorders)
- alanine amino transferase level (may indicate hepatic disease)
- carbohydrate-deficient transferrin level, if available (may indicate recent heavy alcohol consumption).

Some of these tests may already have been ordered if your patient was admitted for a condition other than the withdrawal itself.

Now that you've determined whether your patient may experience alcohol withdrawal syndrome during his hospital stay, early treatment is essential to help him through withdrawal symptoms. Let's take a look at treatment options, including medications.

Helping patients cope

It's a good idea to use a standard order set—developed from evidence-based practice guidelines—for prevention and control of alcohol withdrawal syndrome. The order set can be initiated at the first quantifiable signs of alcohol withdrawal.

Mild symptoms of alcohol withdrawal can generally be managed with hydration, a quiet environment, frequent reorientation, and one-on-one contact with the patient. Sometimes, a patient with minor withdrawal can even get outpatient treatment.

The patient with more severe symptoms may need replacement fluids and electrolytes, usually given intravenously (I.V.). Some I.V. bags may contain potassium, vitamin B_{12}, and folate. A patient with chronic alcohol dependence commonly has thiamine deficiency related to malabsorption of vitamins and electrolytes in the GI tract, so he should receive a multivitamin with thiamine (vitamin B_1) for the duration of treatment. Thiamine should be given I.V. before administration of I.V. fluids containing dextrose to prevent severe thiamine deficiency that results in acute neurologic dysfunction (Wernicke encephalopathy).

If the patient's symptoms progress, pharmacologic support should be initiated. Medications used to treat alcohol withdrawal syndrome include benzodiazepines (the drugs of choice) and antihallucinogens. Benzodiazepines are also used to treat seizures and delirium. According to the American Society of Addiction Medicine guidelines, the choice of benzodiazepine is based on several considerations:

- rapid onset for quicker control of agitation
- longer duration of action to provide a smooth treatment course
- shorter duration of action for a lower risk of sedation
- cost.

The most commonly used drugs are lorazepam, diazepam, oxazepam, and chlordiazepoxide. Lorazepam can also help eliminate some of the nausea that the patient may experience. Use caution when giving chlordiazepoxide or diazepam to older patients or any patient with

The Riker Sedation-Agitation Scale

Score	Term	Descriptor
7	Dangerous agitation	Pulling at endotracheal (ET) tube, climbing over bed rail, striking at staff, thrashing side-to-side
6	Very agitated	Requiring restraint and frequent verbal reminding of limits, biting ET tube
5	Agitated	Anxious or physically agitated, calms to verbal instruction
4	Calm and cooperative	Calm, easily aroused, follows commands
3	Sedated	Difficult to arouse but awakens to verbal stimuli or gentle shaking, follows simple commands but drifts off again
2	Very sedated	Arouses to physical stimuli, but doesn't communicate or follow commands, may move spontaneously
1	Unarousable	Minimal or no response to noxious stimuli, doesn't communicate or follow commands

Source: Fraser GL, et al. Frequency, severity, and treatment of agitation in young versus elderly patients in the ICU. *Pharmacotherapy.* 29(1):75-82, January 2000.

Revised Clinical Institute Withdrawal Assessment—Alcohol (CIWA-Ar)

Patient: _____Date: _____Time: _____
Pulse or heart rate, taken for 1 minute: _____ Blood pressure: _____/_____

Nausea and vomiting. Ask "Do you feel sick to your stomach? Have you vomited?"
Observation:
0 No nausea and no vomiting
1 Mild nausea with no vomiting
2
3
4 Intermittent nausea with dry heaves
5
6
7 Constant nausea, frequent dry heaves, and vomiting

Tremor. Ask patient to extend arms and spread fingers apart.
Observation:
0 No tremor
1 Tremor not visible but can be felt, fingertip to fingertip
2
3
4 Moderate tremor with arms extended
5
6
7 Severe tremor, even with arms extended

Paroxysmal sweats
Observation:
0 No sweat visible
1 Barely perceptible sweating; palms moist
2
3
4 Beads of sweat obvious on forehead
5
6
7 Drenching sweats

Anxiety. Ask "Do you feel nervous?"
Observation:
0 No anxiety
1 Mildly anxious
2
3
4 Moderately anxious or guarded, so anxiety is inferred
5
6
7 Equivalent to acute panic states as occur in severe delirium or acute schizophrenic reactions

Agitation
Observation:
0 Normal activity
1 Somewhat more than normal activity
2
3
4 Moderately fidgety and restless
5
6
7 Paces back and forth during most of the interview or constantly thrashes about

Tactile disturbances. Ask "Do you have any itching, pins-and-needles sensations, burning, or numbness, or do you feel like bugs are crawling on or under your skin?"
Observation:
0 None
1 Very mild itching, pins-and-needles sensations, burning, or numbness
2 Mild itching, pins-and-needles sensations, burning, or numbness
3 Moderate itching, pins-and-needles sensations, burning, or numbness
4 Moderately severe hallucinations
5 Severe hallucinations
6 Extremely severe hallucinations
7 Continuous hallucinations

Auditory disturbances. Ask "Are you more aware of sounds around you? Are they harsh? Do they frighten you? Are you hearing anything that is disturbing to you? Are you hearing things you know are not there?"
Observation:
0 Not present
1 Very mild harshness or ability to frighten
2 Mild harshness or ability to frighten
3 Moderate harshness or ability to frighten
4 Moderately severe hallucinations
5 Severe hallucinations
6 Extremely severe hallucinations
7 Continuous hallucinations

Visual disturbances. Ask "Does the light appear to be too bright? Is its color different? Does it hurt your eyes? Are you seeing anything that is disturbing to you? Are you seeing things that you know are not there?"
Observation:
0 Not present
1 Very mild sensitivity
2 Mild sensitivity
3 Moderate sensitivity
4 Moderately severe hallucinations
5 Severe hallucinations
6 Extremely severe hallucinations
7 Continuous hallucinations

Headaches, fullness in head. Ask "Does your head feel different? Does it feel like there is a band around your head?" Do not rate for dizziness or lightheadedness; otherwise rate severity.
Observation:
0 Not present
1 Very mild
2 Mild
3 Moderate
4 Moderately severe
5 Severe
6 Very severe
7 Extremely severe

Orientation and clouding of sensorium. Ask "What day is this? Where are you? Who am I?"
Observation:
0 Orientated and can do serial additions
1 Cannot do serial additions or is uncertain about date
2 Date disorientation by no more than two calendar days
3 Date disorientation by more than two calendar days
4 Disoriented for place and/or person

Total score: _____ (maximum 67)

Rater's initials _____

Source: Revised Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) scale. Adapted from Sullivan JT, et al. Assessment of alcohol withdrawal: The revised Clinical Institute Withdrawal Assessment for Alcohol scale (CIWA-Ar). *British Journal of Addiction*. 84(11):1353-1357, November 1989. **http://images2.clinicaltools.com/images/pdf/ciwa-ar.pdf.** Accessed June 14, 2007.

liver dysfunction; these drugs tend to metabolize more slowly in these patients. See *Managing withdrawal with benzodiazepines* for more information.

Haloperidol, an antipsychotic agent, may be used to treat agitation; however, this drug can also lower the seizure threshold, so it should be used with caution. Clonidine is usually given to treat hypertension but can have a sedating effect when used in acute alcohol withdrawal.

A sliding scale tool, such as the revised Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) scale or the Riker Sedation-Agitation Scale, allows the health care provider to adjust medication doses up or down based on objective data (see *The Riker Sedation-Agitation Scale*).

With the CIWA-Ar scale, you can assess key physical and psychological symptoms and then rate these symptoms according to severity ("not present" to "extremely severe"), including:

- agitation
- anxiety
- auditory disturbances
- clouding of the senses
- headaches
- nausea and vomiting
- paroxysmal sweats
- tactile disturbances
- tremors
- visual disturbances.

Once the data are collected, a total score is obtained; the maximum score is 67. If your patient's score is 8 or less, he's experiencing mild withdrawal; a score of 9 to 15 indicates moderate withdrawal; a score of 15 or more indicates severe withdrawal and an increased risk of alcohol withdrawal delirium and seizures. The patient is usually assessed every 4 hours for the first 72 hours and then as needed.

Providing support

So what can you do to support a patient who's experiencing alcohol withdrawal syndrome? First, it's important to accept alcoholism as a disease. Nonjudgmental and unbiased attitudes among caregivers are imperative for the successful management of this type of patient. Nurses are often the first caregivers to initiate the discussion between the patient and his family about alcoholism.

The American Society of Addiction Medicine has established guidelines for proper treatment of acute alcohol withdrawal. These guidelines identify three major goals for health care providers caring for patients experiencing alcohol withdrawal syndrome:

- provide a safe withdrawal from the drug(s) of dependence and enable the patient to become drug free
- provide a withdrawal that's humane and protects the patient's dignity
- prepare the patient for ongoing treatment for the dependence.

Safety is always a primary concern for all staff involved with this patient. Staff should take extra precautions to keep themselves and the patient safe, and they should be trained to recognize the symptoms of alcohol withdrawal delirium. Implementation of a comprehensive alcohol program can substantially decrease injuries.

To safely approach a patient who's experiencing symptoms of alcohol withdrawal delirium, remember these rules:

Be aware. Always be aware of the potential for symptoms of alcohol withdrawal to develop. A one-on-one nurse can be used to help protect the patient and staff. This constant observation is critical in recognizing early safety issues.

Be alert. Always place yourself between the patient and the closest exit. The exit should be clear and accessible in case the patient becomes aggressive and you need to retreat or call for help.

Maintain a quiet environment. Sometimes a simple assessment or treatment can trigger agitation. Approach the patient quietly and give simple commands. A quiet and restful room may help decrease agitation.

Stand at a slight angle to the patient. Standing at an angle instead of standing face-to-face with the patient will allow you more room to move away if the patient becomes aggressive.

Don't wear anything the patient can grab. Badge holders, stethoscopes, or dangling jewelry shouldn't be worn around your neck when caring for an aggressive patient. These items can become a noose and an easy handle for the patient to grab or choke you. Also, look around the patient's room for any safety hazards or any items that the patient could use as a weapon.

Don't perform care alone. Don't attempt to give hygiene, medications, or perform interventions alone. It's safer to provide care as a team because, if the situation becomes violent, help will be immediately available. Also, don't try to de-escalate a patient's behavior alone.

It's a team effort

According to a report from Massachusetts General Hospital, 7.6 million visits of the 108 million annual ED visits are related to alcohol. For this reason, health care systems must develop a collaborative, multidisciplinary approach to caring for patients who are experiencing alcohol withdrawal syndrome. Above all, re-

membering that alcoholism is a disease, just like diabetes or heart failure, helps foster a culture of acceptance and health promotion. In this way, we can better care for these patients who need our help and support. **LPN**

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Centers for Disease Control and Prevention: Alcohol & Public Health:
http://www.cdc.gov/alcohol/index.htm
National Institute on Alcohol Abuse and Alcoholism:
http://www.niaaa.nih.gov
Substance Abuse and Mental Health Services Administration:
http://www.samhsa.gov

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Sobering up to alcohol withdrawl syndrome

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