# Critical Care (ICU and ED) Guidelines for the Management of Sedative-Hypnotic (including Ethanol) Withdrawal

## Goals

1. Treatment of sedative-withdrawal (ethanol, benzodiazepines, or similar medications) signs and symptoms including *delirium tremens*
2. Maintaining light sedation throughout withdrawal
3. Preventing severe withdrawal or development of *delirium tremens*
4. Preventing seizures
5. Preventing medical complications of ethanol or sedative-hypnotic withdrawal
6. Encouraging substance abuse counseling and treatment

## Included Patients

- Adult patients (≥ 14 years of age) presenting with severe ethanol withdrawal (CIWA-AD scales ≥ 13)
- Adult patients in a critical care unit for medical or surgical problems with history of chronic ethanol use and last drink within 72 hours, and/or
  - scoring positive on at least two CAGE criteria, or
  - scoring >8 on the Alcohol Use Disorders Identification Test (AUDIT) *Used only in trauma patients
- Adult patients with history of chronic benzodiazepine or other sedative-hypnotic use, dependency, or withdrawal
- History of prior *delirium tremens*

## Excluded Patients

- Confirmed allergy to benzodiazepines or barbiturates

## Treatment

NOTE: Utilize EMR PowerPlan found under the following names:

- Critical Care EtOH Withdrawal (ICU and ED) - Adult
- Critical Care Alcohol Withdrawal (ICU and ED) - Adult
- ICU EtOH/Sedative/Hypnotic Withdrawal - Adult

### Initial Labs

- Blood ethanol level
- Urine Drug Screen
- AST, ALT, Bili
- Electrolytes, BUN, Creatinine, Glucose
- Magnesium and Phosphorus
- CBC with differential
- Serum beta-hydroxybutyrate
- Lactic Acid
- Creatine Kinase
- Amylase and lipase
- HgbA1C

### Standing Orders

- Benzodiazepine - Symptom triggered dosing for withdrawal
- IV hydration (NS, $D_5$NS or $D_5$1/2NS or $D_5$LR) at 125-200 ml/hr after initial resuscitation
- Thiamine 100 mg IV daily x 3 days
- Folate 1 mg PO or IV daily x 3 days
- Adult multivitamin one dose PO or IV daily
- Nicotine patch for smokers

Approved: DMC Critical Care Committee and DMC Pharmacy and Therapeutics Committee March 2013;
Revised: May 2015

Special Populations:

- Elderly patients and patients in liver failure: These patients are at an increase risk for over sedation and respiratory failure.
    - Reduce dose by 50% until it is determined how the patient responds to benzodiazepines.
    - Patients must be evaluated on a case by case basis. Those remaining clinically agitated may need high doses of benzodiazepines regardless of their liver failure/age.

NOTES:

- No additional sleeping medication, including diphenhydramine
- Choose one agent for treatment; do not administer combinations of lorazepam, diazepam, midazolam, or chlordiazepoxide. Phenobarbital can be co-administered with benzodiazepines
- Ensure good diet and ethanol cessation counseling.

Monitoring

NOTE: Do not hold monitoring if patient is sleeping

- Richmond Agitation Sedation Scale (RASS)
    - For all patients, assess and document before and 15-30 minutes after each administration of benzodiazepine.
    - For intubated patients, use the RASS to guide benzodiazepine dosing
- Clinical Institute Withdrawal Assessment for Alcohol (CIWA-AD)
    - For non-intubated ICU patients only
    - Scoring and vital signs done on admission to unit
    - Assess and document score before each administration of benzodiazepine
    - Follow dosing guide for timing of post-dose assessments

| | |
|---|---|
| • Score 0 | No withdrawal |
| • Score 1-7 | Mild withdrawal |
| • Score 8-12 | Moderate withdrawal |
| • Score ≥13 | Severe withdrawal |

NOTE: Many patients may have underlying hypertension which should be treated separately.

Patients on beta blockers (labetalol, metoprolol, atenolol, carvedilol) for hypertension or cardiac disease, non-dihydropyridine calcium channel blockers (diltiazem, verapamil) and clonidine or guanfacine may not show tachycardia

Desired Treatment Outcomes

- Patient is comfortable with normal vital signs and mild to absent anxiety
- Patient is able to cooperate with verbal requests and is not agitated
- Patient may be sleeping but is easily aroused by gentle shaking or loud voice
- Elimination of nausea and vomiting (may require additional antiemetics)
- No hallucinations
- Significantly reduced or absent tremor

| CIWA-AD scale and drug dosing - For use in NON-intubated patients (adults and children >14 yo) | | | |
|---|---|---|---|
| **CIWA Score** | **Lorazepam dose (mg)** | **Diazepam dose (mg)** | **When to reassess and redose per scale** |
| 0 | 0 | 0 | Every 2 hrs x 3. If score remains 0, change to q4h x 2 then qshift |
| 1-7 | 1mg PO | 5mg PO | Every 60 minutes. If score remains ≤ 5 for 3 consecutive scores then change assessment and dosing to q4h x 2, then q6h x 2, then q8h |
| 8-12 | 2mg IVP | 10mg IVP | Every 30 minutes |
| 13-15 | 3mg IVP | 15mg IVP | Every 30 minutes |
| 16-20 | 4mg IVP | 20mg IVP | Every 15 minutes until score is < 15 |
| >20 | 5mg IVP | 25mg IVP | Every 10-15 minutes until score is < 15 |
| Discontinuation of withdrawal plan | | | Score ≤ 4 x 48 hours |

Do not hold assessment and dosing if patient is sleeping

| Intubated Patients: Use Richmond Agitation Sedation Scale (RASS) | | | | |
|---|---|---|---|---|
| **Target RASS** | **RASS Description** | **IVP Lorazepam dose (mg)** | **IVP Diazepam dose (mg)** | **Reevaluate and redose** |
| +4 | Combative, violent, danger to self and staff | 4 | 20 | Every 15 mins |
| +3 | Pulls or removes tube(s) or catheters, aggressive | 3 | 15 | Every 15 mins |
| +2 | Frequent nonpurposeful movement, fight ventilator | 2 | 10 | Every 15 mins |
| +1 | Anxious, apprehensive, but not aggressive | 1 | 5 | Every 15 mins |
| 0 | Alert and calm | 0 | 0 | Every 15 mins x2, then q30mins x2, then q60mins x2, then q4hrs |
| -1 | Awakens to voice (eye opening/contact) > 10 sec | 0 | 0 | |
| -2 | Light sedation, briefly awakens to voice | 0 | 0 | |
| -3 | Moderate sedation, movement or eye opening. No eye contact | 0 | 0 | |
| -4 | Deep sedation, no response to voice but movement or eye opening to physical stimulation | 0 | 0 | |
| -5 | Unarousable, no response to voice or physical stimulation | 0 | 0 | |
| Discontinuation of withdrawal plan | | Score ≤ 0 x 48 hours | | |

| **Benzodiazepine Resistant Delirium Tremens:** cumulative dose of 40 mg lorazepam or 200 mg diazepam in a 2 hour period and continued agitation within an hour of last dose | |
|---|---|
| **Administer escalating doses of IV phenobarbital in addition to benzodiazepine dose q30 mins** | |
| | 65 mg IVP over 1.5 min x2 |
| | 130 mg IVPB over 2.5 min |
| | 260 mg IVPB over 2.5 min |
| Failure to control patient's agitation after 520 mg of phenobarbital in addition to benzodiazepines suggests the need for intubation, higher phenobarbital dosing or propofol +/- fentanyl drips | |

**Elderly patients or those in liver failure are at risk for over-sedation and respiratory failure**
**Reduce dose by 50% until it is determined how the patient responds to benzodiazepines**
Patients must be evaluated on a case by case basis and may need high doses of benzodiazepines regardless of their liver failure/age if they remain clinically agitated

**Neuroleptic agents have led to increased mortality in ethanol and drug withdrawal**
Neuroleptic agents are not indicated unless patient has underlying psychosis with hallucinations and/or chronically taking a neuroleptic agent to treat his/her underlying psychiatric illness
Obtain ECG prior to administration. Do not administer neuroleptic without benzodiazepines
**If QTc ≥ 500 msec**, neuroleptic agents should be withheld

**Consult Toxicology as needed**

Approved: DMC Critical Care Committee March 2013
Revised: June 2015

**Ethanol Withdrawal Assessment: CIWA-AD**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | **Date** | | | | |
| | | | | **Time** | | | | |
| | | | | **BP** | | | | |
| | | | | **RR** | | | | |
| | | | | **% sat** | | | | |
| | | | | **Temp** | | | | |
| **Autonomic hyperactivity:** Pulse rate | | | | | | | | |
| 0 | <80 | 4 | 121-130 | | | | | |
| 1 | 81-100 | 5 | 131-140 | | | | | |
| 2 | 101-110 | 6 | 141-150 | | | | | |
| 3 | 111-120 | 7 | >150 | | | | | |
| **Autonomic hyperactivity:** Paroxysmal sweats: Observation | | | | | | | | |
| 0 | No sweat | 4 | Beads of sweat on forehead | | | | | |
| 1 | Barely perciptible, palms moist | 5 | | | | | | |
| 2 | | 6 | | | | | | |
| 3 | | 7 | Drenching sweats | | | | | |
| **Tremor:** Arms extended and fingers spread apart. Observation | | | | | | | | |
| 0 | No tremor | 4 | Moderate with patients arms extended | | | | | |
| 1 | Not visible, felt in fingertips | 5 | | | | | | |
| 2 | | 6 | | | | | | |
| 3 | | 7 | Severe even with arms not extended | | | | | |
| **Nausea and vomiting:** Do you feel sick to your stomach? Have you vomited? Observation | | | | | | | | |
| 0 | No nausea and no vomiting | 4 | Intermittent nausea with dry heaves | | | | | |
| 1 | Mild nausea with no vomiting | 5 | | | | | | |
| 2 | | 6 | | | | | | |
| 3 | | 7 | Constant nausea, frequent dry heaves | | | | | |
| **Agitation:** Observation | | | | | | | | |
| 0 | Normal activity | 4 | Moderately fidgety and restless | | | | | |
| 1 | Somewhat more than normal activity | 5 | | | | | | |
| 2 | | 6 | | | | | | |
| 3 | | 7 | Paces back and forth or constantly thrashes | | | | | |
| **Anxiety:** Do you feel nervous? Observation | | | | | | | | |
| 0 | No anxiety | 4 | Moderately anxious or guarded, so anxiety is inferred | | | | | |
| 1 | Mildly anxious | 5 | | | | | | |
| 2 | | 6 | | | | | | |
| 3 | | 7 | Severe, equivalent to acute panic states | | | | | |
| **Headache, fullness in head:** Does your head feel different? Does it feel like a band around your head? Do not rate for dizziness or lightheadedness | | | | | | | | |
| 0 | Not present | 4 | Moderately severe | | | | | |
| 1 | Very mild | 5 | Severe | | | | | |
| 2 | Mild | 6 | Very severe | | | | | |
| 3 | Moderate | 7 | Extremely severe | | | | | |
| **Transient tactile, auditory, or visual disturbances:** Have you any itching, pins and needles sensations, any burning, any numbness or do you feel bugs crawling on or under your skin? Are you more aware of sounds around you? Are they harsh? Are you hearing things you know are not there? Does the light appear to be too bright? Are you seeing anything that is disturbing to you? Are you seeing things you know are not there? Observation | | | | | | | | |
| 0 | Not present | 4 | Moderately severe hallucinations | | | | | |
| 1 | Very mild sensitivity | 5 | Severe hallucinations | | | | | |
| 2 | Mild sensitivity | 6 | Extremely severe hallucinations | | | | | |
| 3 | Moderate sensititivity | 7 | Continuous hallucinations | | | | | |
| **Medication:** | | | **Total score:** | | | | | |
| | | | **Dose administered:** | | | | | |

# CAGE Questionnaire

- ☐ Have you ever felt you should **C**ut down on your drinking?
- ☐ Have people **A**nnoyed you by criticizing your drinking?
- ☐ Have you ever felt bad or **G**uilty about your drinking?
- ☐ Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover (**E**ye opener)?

**Scoring:**
Item responses on the CAGE are scored 0 or 1, with a higher score an indication of alcohol problems. A total score of 2 or greater is considered clinically significant.

**……**
Developed by Dr. John Ewing, founding Director of the Bowles Center for Alcohol Studies, University of North Carolina at Cahpel Hill, CAGE is an internationally used assessment instrument for identifying alcoholics. It is particularly popular with primary care givers. CAGE has been translated into several languages.
The CAGE questions can be used in the clinical setting using informal phrasing. It has been demonstrated that they are most effective when used as part of a general health history and should NOT be preceded by questions about how much or how frequently the patient drinks (see "Alcoholism: The Keys to the CAGE" by DL Steinweg and H Worth; American Journal of Medicine 94: 520-523, May 1993.
The exact wording that can be used in research studies can be found in: JA Ewing "Detecting Alcoholism: The CAGE Questionnaire" JAMA 252: 1905-1907, 1984. Researchers and clinicians who are publishing studies using the CAGE Questionnaire should cite the above reference. No other permission is necessary unless it is used in any profit-making endeavor in which case this Center would require to negotiate a payment.
**……..**
012695 (02-2004)
***Source:*** *Dr. John Ewing, founding Director of the Bowles Center for Alcohol Studies, University of North Carolina at Chapel Hill*

http://www.integration.samhsa.gov/clinical-practice/sbirt/CAGE_questionaire.pdf

# Alcohol Use Disorders Identification Test (AUDIT)

(Available in EMR)

**Box 10**

**The Alcohol Use Disorders Identification Test: Self-Report Version**

PATIENT: Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential so please be honest.
Place an X in one box that best describes your answer to each question.

| Questions | 0 | 1 | 2 | 3 | 4 | |
|---|---|---|---|---|---|---|
| 1. How often do you have a drink containing alcohol? | Never | Monthly or less | 2-4 times a month | 2-3 times a week | 4 or more times a week | |
| 2. How many drinks containing alcohol do you have on a typical day when you are drinking? | 1 or 2 | 3 or 4 | 5 or 6 | 7 to 9 | 10 or more | |
| 3. How often do you have six or more drinks on one occasion? | Never | Less than monthly | Monthly | Weekly | Daily or almost daily | |
| 4. How often during the last year have you found that you were not able to stop drinking once you had started? | Never | Less than monthly | Monthly | Weekly | Daily or almost daily | |
| 5. How often during the last year have you failed to do what was normally expected of you because of drinking? | Never | Less than monthly | Monthly | Weekly | Daily or almost daily | |
| 6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session? | Never | Less than monthly | Monthly | Weekly | Daily or almost daily | |
| 7. How often during the last year have you had a feeling of guilt or remorse after drinking? | Never | Less than monthly | Monthly | Weekly | Daily or almost daily | |
| 8. How often during the last year have you been unable to remember what happened the night before because of your drinking? | Never | Less than monthly | Monthly | Weekly | Daily or almost daily | |
| 9. Have you or someone else been injured because of your drinking? | No | | Yes, but not in the last year | | Yes, during the last year | |
| 10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down? | No | | Yes, but not in the last year | | Yes, during the last year | |
| | | | | | Total | |

http://www.talkingalcohol.com/files/pdfs/WHO_audit.pdf

Approved: DMC Critical Care Committee and DMC Pharmacy and Therapeutics Committee March 2013; Revised: May 2015