Alcohol Withdrawal

Key Aspects of Care

- Alcohol withdrawal syndrome (AWS) is potentially life-threatening and is common among hospitalized patients.
- Patients with symptoms of alcohol withdrawal require non-pharmacological as well as pharmacological interventions.
- **This is considered a guidance document only.**
  - Clinical judgment is necessary to assess a patient’s degree of alcohol tolerance in the context of their symptoms, signs, and blood alcohol concentration.

Timeline Alcohol Withdrawal Signs and Symptoms

- Alcohol withdrawal syndrome can occur as early as 6 hours after alcohol cessation, usually peaks after 2-3 days, and can persist up to 7 days after alcohol cessation.
### Diagnostic and Statistical Manual of Mental Disorders (DSM)-V Criteria for Alcohol Withdrawal

<table>
<thead>
<tr>
<th>Alcohol Withdrawal</th>
<th>Alcohol Withdrawal Delirium (Delirium Tremens/DTs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Cessation of (or reduction in) alcohol use that has been heavy and prolonged.</td>
<td>A. A disturbance in attention (i.e., reduced ability to direct, focus, sustain, and shift attention) and awareness (reduced orientation to the environment).</td>
</tr>
<tr>
<td>B. Two (or more) of the following, developing within several hours to a few days after the cessation of (or reduction in) alcohol use described in Criterion A:</td>
<td>B. The disturbance develops over a short period of time (usually hours to a few days), represents a change from baseline attention and awareness, and tends to fluctuate in severity during the course of a day.</td>
</tr>
<tr>
<td>1. Autonomic hyperactivity (e.g., sweating or pulse rate greater than 100 bpm)</td>
<td>C. An additional disturbance in cognition (e.g., memory deficit, disorientation, language, visuospatial ability, or perception).</td>
</tr>
<tr>
<td>2. Increased hand tremor</td>
<td>D. The disturbances in Criteria A and C are not better explained by another preexisting, established, or evolving neurocognitive disorder and do not occur in the context of a severely reduced level of arousal, such as coma.</td>
</tr>
<tr>
<td>3. Insomnia</td>
<td>E. There is evidence from the history, physical examination, or laboratory findings that the disturbance is a direct physiological consequence of another medical condition, substance intoxication or withdrawal (i.e., due to a drug of abuse or to a medication), or exposure to a toxin, or is due to multiple etiologies.</td>
</tr>
<tr>
<td>4. Nausea or vomiting</td>
<td></td>
</tr>
<tr>
<td>5. Transient visual, tactile, or auditory hallucinations or illusions</td>
<td></td>
</tr>
<tr>
<td>6. Psychomotor agitation</td>
<td></td>
</tr>
<tr>
<td>7. Anxiety</td>
<td></td>
</tr>
<tr>
<td>8. Generalized tonic-clonic seizures</td>
<td></td>
</tr>
<tr>
<td>C. The signs or symptoms in Criterion B cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.</td>
<td></td>
</tr>
<tr>
<td>D. The signs or symptoms are not attributable to another medical condition and are not better explained by another mental disorder, including intoxication or withdrawal from another substance.</td>
<td></td>
</tr>
</tbody>
</table>

### Prediction of Alcohol Withdrawal Severity Score (PAWSS)

<table>
<thead>
<tr>
<th>Part A: Threshold Criterion</th>
<th>Score: 1 Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A) Have you consumed any amount of alcohol (i.e. been drinking) within the last 30 days?</td>
<td></td>
</tr>
<tr>
<td>1. B) Did the patient have a “+” BAL on admission?</td>
<td></td>
</tr>
<tr>
<td>If Yes to either question, continue to the next section</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part B: Patient Interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Have you been recently drunk (intoxicated) (within the past 30 days)?</td>
</tr>
<tr>
<td>3. Have you ever been treated for an alcohol use disorder (i.e. rehabilitation treatment/treatment for alcoholism)? This means in-patient or out-patient treatment programs or AA attendance.</td>
</tr>
<tr>
<td>4. Have you ever experienced any previous episodes of alcohol withdrawal, regardless of severity?</td>
</tr>
<tr>
<td>5. Have you ever experienced blackouts?</td>
</tr>
<tr>
<td>6. Have you ever experienced alcohol withdrawal seizures?</td>
</tr>
<tr>
<td>7. Have you ever experienced delirium tremens or DTs?</td>
</tr>
<tr>
<td>8. Have you combined alcohol or other “downers” like benzodiazepines or barbiturates, during the last 90 days?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part C: Based on Clinical Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Was the patient’s blood alcohol level (BAL) on presentation ≥200?</td>
</tr>
<tr>
<td>10. Is there evidence of increased autonomic activity? (e.g. HR&gt;120 bpm, tremor, sweating, agitation, nausea)</td>
</tr>
</tbody>
</table>

Total Score
Algorithm 1. Patient Risk Stratification for Alcohol Withdrawal

LOW RISK
(PAWSS Score \( \leq 3 \) and clinical judgment)
- Suspicion of alcohol withdrawal OR
- Visible signs of intoxication with BAL < 0.15% (no obvious tolerance to high BAL) OR
- Denies previous episodes or presence of any withdrawal symptoms

- Follow CIWAA treatment pathway in Appendix A.
- The CIWAA treatment pathway should meet the clinical needs of most patients presenting with alcohol withdrawal symptoms.

MODERATE–HIGH RISK
(PAWSS Score \( \geq 4 \))
- Clinical judgment OR
- Persistent CIWA score > 15 OR
- Continued objective signs of withdrawal despite patient being appropriately medicated per CIWA

History of poor response to benzodiazepines or refractory to benzodiazepines? OR
History of phenobarbital taper?

NO

MODERATE RISK
- Ensure appropriate dosing has been followed per CIWAA treatment pathway prior to using a fixed dose benzodiazepine taper as seen in Algorithm 2.

YES

HIGH RISK
- Follow Algorithm 2 or Algorithm 3.
- If using phenobarbital pathway in Algorithm 3, therapy must be initiated in ED, PCU, or ICU.

Algorithm 2. Fixed Dose Benzodiazepine Taper
Pick either diazepam (IV/PO) or chlordiazepoxide (PO only)

**Diazepam**

*Note: Although rarely used, 20mg dose is acceptable per guideline recommendations*

- 10-20mg IV/PO Q6H for 24 hours
- 10-20mg IV/PO Q8H for 24 hours
- 10-20mg IV/PO Q12H for 24 hours
- 10-20mg IV/PO daily for 24 hours

**Chlordiazepoxide**

*Note: Although rarely used, 100mg dose is acceptable per guideline recommendations*

- 50-100mg PO Q6H for 24 hours
- 50-100mg PO Q8H for 24 hours
- 50-100mg PO Q12H for 24 hours
- 50-100mg PO daily for 24 hours

**Notes:**
- For patients with cirrhosis or severe hepatic dysfunction, consult pharmacy for benzodiazepine dose adjustment.
- If patient chronically takes benzodiazepines, it may still be appropriate to use benzodiazepine taper, consider consulting psychiatry.
- In general, continue stable opioid home medications, discontinuation of which may exacerbate withdrawal symptoms.
- Daily dose should not be decreased by more than 20-30% (including factoring amount of PRNs required day before).
- Consult social work for further treatment options and to aid in connecting the patient with outpatient treatment programs.
- If NG/OG administration is required, please use diazepam.
- Patients on a fixed dose benzodiazepine taper should receive CIWAA dose benzodiazepines if indicated by a high CIWAA score.
Algorithm 3. Phenobarbital Pathway Based on Risk of Sedation and Respiratory Compromise

Increased risk of sedation and respiratory compromise

Patients that present with any of the risk factors for sedation or respiratory compromise as outlined in the table below.

6 mg/kg phenobarbital* separated into 3 IM doses on day 1 of withdrawal

(see table on following page for dosing instructions)

*Dosing is based on ideal body weight (IBW) unless actual body weight is less than IBW. While IM is the preferred route of administration, IV can be used in specialized patient populations.

Note: Attending physician must approve use of phenobarbital prior to initiation. Monitor vitals Q2 hours for the first 24-hours of phenobarbital administration. Patients should be on telemetry and pulse ox. Do not use phenobarbital in patients with fulminant liver failure. Exercise caution when administering phenobarbital to patients with liver disease and consider consult to pharmacy.

<table>
<thead>
<tr>
<th>Complication</th>
<th>Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of sedation</td>
<td>• &gt; 65 years of age</td>
</tr>
<tr>
<td></td>
<td>• Hepatic dysfunction or cirrhosis</td>
</tr>
<tr>
<td></td>
<td>• Concomitant or recent opioids, benzodiazepines, or other sedatives that may suppress respiratory drive</td>
</tr>
<tr>
<td></td>
<td>• Head injury</td>
</tr>
<tr>
<td>Respiratory compromise</td>
<td>• Pneumonia</td>
</tr>
<tr>
<td></td>
<td>• Coexisting pulmonary disease:</td>
</tr>
<tr>
<td></td>
<td>o Chronic obstructive pulmonary disease (COPD)</td>
</tr>
<tr>
<td></td>
<td>o Asthma</td>
</tr>
<tr>
<td></td>
<td>o Interstitial lung disease</td>
</tr>
<tr>
<td></td>
<td>o Pulmonary fibrosis</td>
</tr>
<tr>
<td></td>
<td>• Rib fractures</td>
</tr>
<tr>
<td></td>
<td>• Chest tube(s)</td>
</tr>
<tr>
<td></td>
<td>• Pulmonary contusion(s)</td>
</tr>
<tr>
<td></td>
<td>• C-collar/brace</td>
</tr>
</tbody>
</table>

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Phenobarbital Dosing by Withdrawal Day

<table>
<thead>
<tr>
<th>Loading Dose</th>
<th>Total dose divided as follows:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td></td>
</tr>
<tr>
<td>Dose 1</td>
<td>40% of total dose administered IM x 1 dose</td>
</tr>
<tr>
<td>Dose 2</td>
<td>30% of total dose administered IM 3 hours after dose 1</td>
</tr>
<tr>
<td>Dose 3</td>
<td>30% of total dose administered IM 3 hours after dose 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maintenance Dose</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 2</td>
<td>Phenobarbital 64.8 mg PO Q12H x 2 doses</td>
</tr>
<tr>
<td>Day 3</td>
<td>Phenobarbital 32.4 mg PO Q12H x 2 doses</td>
</tr>
<tr>
<td>Day 4</td>
<td>Phenobarbital 32.4 mg PO Q24H x 1 dose</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Breakthrough Dose</th>
<th>Phenobarbital 65mg IM or PO Q6H as needed if patient presents two or more of the symptoms listed below:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• SBP &gt;160 mmHg or DBP &gt;100 mmHg</td>
</tr>
<tr>
<td></td>
<td>• HR &gt;110 bpm</td>
</tr>
<tr>
<td></td>
<td>• Diaphoresis</td>
</tr>
<tr>
<td></td>
<td>• Tremors</td>
</tr>
<tr>
<td></td>
<td>• Hallucinations</td>
</tr>
<tr>
<td></td>
<td>• Significant agitation (RASS &gt; 2)</td>
</tr>
</tbody>
</table>

NOTES:

- If using phenobarbital algorithm, do not use CIWAA to determine need for breakthrough medication.
  - Minimize unnecessary sedating medications
  - If patient chronically takes benzodiazepines, it may still be appropriate to continue current therapy, consider consulting psychiatry.
  - In general, continue stable opioid home medications, discontinuation of which may exacerbate withdrawal symptoms.
- IM is preferred route for phenobarbital administration due to increased risk of respiratory depression when given IV.
  - If IV phenobarbital is needed, lower doses and close monitoring is required.
    - 60–180 mg x 1 dose loading dose
    - 30–90 mg Q8H maintenance dose
    - 15–60 mg IV Q8H PRN
- IM phenobarbital is not intended to be used to treat seizures.
- IM should not be used in patients with lower extremity burns, therapeutic anticoagulation, or platelet count < 50,000, INR > 2.
- Follow IM phenobarbital maximum volume dosing limits:
  - ≤ 2mL in deltoid
  - ≤ 3mL in vastus lateralis
- Phenobarbital serum level monitoring is recommended in the following high risk patient populations. If serum phenobarbital level >30 µg/mL, maintenance dose should be adjusted.
  - Severe liver disease/cirrhosis
  - Acute renal failure or ESRD
  - Combination of liver and renal disease
  - Signs and symptoms of barbiturate toxicity:
    - Hypotension
    - Bradycardia
    - Severe CNS depression
    - Respiratory depression (RR < 8 breaths per minute)
  - Significant drug interactions e.g. phenytoin

Based upon clinical evaluation or response to initial dosing, some patients may benefit from higher doses and/or longer tapering.

Adjunctive Medications

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose and Frequency</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Folic acid</td>
<td>1mg PO/IV daily.</td>
<td>• Folate deficient anemia associated with alcohol abuse.</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Treat IV/PO as needed to reach appropriate serum levels.</td>
<td></td>
</tr>
<tr>
<td>Multivitamin</td>
<td>1 dose daily PO/IV.</td>
<td>• Not needed if patient is receiving tube feeds.</td>
</tr>
<tr>
<td>Thiamine*</td>
<td>100mg PO/IV/IM Q8H/TID during acute alcohol withdrawal, then reduce dose 100 mg daily thereafter</td>
<td>• Administer before IV dextrose or glucose derivative to prevent Wernicke’s encephalopathy (see below for signs, symptoms, and treatment).</td>
</tr>
</tbody>
</table>

*If patient has altered mental status or is at high risk for delirium tremens (DTs), consider higher dose of thiamine (see treatment of Wernicke’s Encephalopathy next page).
Wernicke’s Encephalopathy (WE)

Patients at moderate or high risk for alcohol withdrawal should be considered at risk for Wernicke Encephalopathy. These patients should receive IV thiamine to assure high blood levels.

Signs and symptoms of WE:
- Anterograde amnesia
- Ataxia
- Ophthalmoplegia
- Nystagmus
- Unsteady gait

Treatment of WE:
- Thiamine 500mg IV every 8h x 3 days then 250mg IV/po every 24hr x 5 days then 100mg IV/po daily until symptom resolution.
- For patients unable to take PO, thiamine IV should be continued.
- For patients able to take PO/per feeding tube, IV thiamine should be discontinued after 3 doses and replaced with thiamine 100 mg PO/per feeding tube TID.
- On hospital discharge thiamine should be continued at 100 mg PO daily.

Laboratory Tests
- Alcohol, whole blood – acute admissions
- CBC with differential and platelet count
- Chem 7, Phos, Mg, Calcium
- Liver function panel
- PT (INR)
- Drug screen, urine – multiple

Additional Tests as Indicated
- Lipase
- Uric acid
- Ammonia
- Volatile panel:
  - Ethanol
  - Methanol
  - Isopropyl alcohol
  - Acetone
- Cardiac telemetry is recommended only for patients with underlying cardiac disease

Consults
- Social Work:
  - Further assessment of alcohol use
  - Additional resources
  - Referral to post-discharge abstinence programs
- Nicotine Dependency
- Psychiatry:
  - If patient has an untreated co-morbid psychiatric disorder.
  - There are concerns over psychiatric pharmacotherapy.
- Nutrition

References
Related Tools

OSUWMC Guidelines
- Delirium: Management of ICU Patients
- Delirium: Management of Non-ICU Patients

Protocols
- CIWA-AR Lorazepam Dosing

Order Sets
- OSU IP GEN: Alcohol Withdrawal- Low/Moderate Risk (Utilizing CIWA) [2175]
- OSU IP GEN: Alcohol Withdrawal- High Risk [4304]

Calculators and Tools
- CIWA-Ar for Alcohol Withdrawal
- Ideal Body Weight (IBW) Calculator
- Managing Alcohol Withdrawal in Acute Care-video
- DSM-5 Criteria

Quality Measures
- Hospital length of stay
- Percent of patients transferred to the ICU
  - ICU length of stay
- Percent of patients who are intubated
- Percent of patients who receive:
  - Benzodiazepine
  - Phenobarbital

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Guideline Approved


Disclaimer: Clinical practice guidelines and algorithms at The Ohio State University Wexner Medical Center (OSUWMC) are standards that are intended to provide general guidance to clinicians. Patient choice and clinician judgment must remain central to the selection of diagnostic tests and therapy. OSUWMC’s guidelines and algorithms are reviewed periodically for consistency with new evidence; however, new developments may not be represented.
Appendix A.
CIWAA Treatment Pathway

Assessment
- If patient is considered to be low risk (PAWSS score ≤ 3) then:
  
  **Nurse’s Role:**
  - Check vital signs, complete the **CIWA-Ar (Clinical Institute Withdrawal Assessment–Addiction research)**
    - CIWA-Ar is available in IHIS under “Doc Flowsheets” in the “Toxicity Assessment” section
  - Notify physician and obtain an order to initiate the alcohol withdrawal order set MED: Secondary DX-Alcohol Withdrawal
  - Consider moving patient closer to nursing station for observation
  - Evaluate risk of elopement; if patient at risk, then follow elopement policy

  **Physician’s Role:**
  - Determine if patient appropriate for discharge home with medication taper:
    - Librium 50mg po q6hrs, prn: anxiety, tremor, insomnia or agitation
  - Social work consult:
    - Outpatient referrals:
      - Local addiction & treatment centers
    - Follow-up appointments:
      - Primary Care Physician – within 7 days
    - Patient Education Handouts:
      - Community Resources for Recovery
      - Directory of Alcohol and Drug Addiction Services
  - If not discharging patient, sign order to initiate appropriate alcohol withdrawal order set (see Related Tools)
  - Consider initiating precautions for aspiration, seizures, or falls (physician or nurse)

<table>
<thead>
<tr>
<th>CIWA-Ar Assessment Parameters</th>
<th>CIWA-Ar Score</th>
<th>VS and CIWA-Ar Frequency</th>
<th>Medication (IVP / PO / NG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 8</td>
<td></td>
<td>Q4H x 6 – If CIWA-AR score &lt; 8, stop</td>
<td>None</td>
</tr>
<tr>
<td>8–14</td>
<td></td>
<td>Q2H</td>
<td>Lorazepam (Ativan) 1 mg</td>
</tr>
<tr>
<td>15–20*</td>
<td></td>
<td>Q1H</td>
<td>Lorazepam (Ativan) 2 mg</td>
</tr>
<tr>
<td>21–30*</td>
<td></td>
<td>Q1H</td>
<td>Lorazepam (Ativan) 3 mg</td>
</tr>
<tr>
<td>31–45*</td>
<td></td>
<td>Q1H</td>
<td>Lorazepam (Ativan) 4 mg</td>
</tr>
<tr>
<td>For breakthrough</td>
<td></td>
<td>Q30 Minutes</td>
<td>Lorazepam (Ativan) 1–2 mg</td>
</tr>
</tbody>
</table>

* For persistent CIWAA score > 15, patient is at moderate risk. Use fixed-dose benzodiazepine taper.

**Medications**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose / Frequency</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lorazepam (Ativan)***</td>
<td>1–4 mg</td>
<td>Based on CIWA-Ar score</td>
</tr>
<tr>
<td>Lorazepam (Ativan)***</td>
<td>1–2 mg Q30Min</td>
<td>PRN breakthrough symptoms</td>
</tr>
<tr>
<td>Thiamine (Vitamin B1)</td>
<td>100 mg PO/IVP STAT and then 100 mg PO/IVP QAM X 2 doses</td>
<td>Before IV dextrose to prevent Wernicke’s encephalopathy (give PO if feasible)</td>
</tr>
<tr>
<td>Magnesium oxide (Mag Ox)</td>
<td>As needed</td>
<td>For low serum magnesium</td>
</tr>
</tbody>
</table>

** Prescribing alcohol, intravenous or oral (e.g., beer, whiskey), is contraindicated because of toxicity to other organs including the liver, pancreas, heart, and brain.

***If unable to take lorazepam, use alternative benzodiazepine; or if unable, consider using clonidine.