Alcohol

- **Common names**: Booze, liquor, drinks, cocktails, nightcaps, moonshine
- **Trade names:** Ethyl alcohol, beer, gin, rum, vodka, bourbon, whiskey, liqueurs, wine, brandy, sherry, champagne[4]
- **Other sources can include**: Mouthwash, hand sanitizer, vanilla extract, Chinese cooking wine, cough syrup, perfumes/ colognes/ aftershave, spray odour neutralizers, disinfectants[11]

Characteristics (Depressant)

- Alcohol alters the function of several receptors and cellular functions, including $GABA_A$ receptors, Kir3/GIRK channels, adenosine reuptake, glycine receptor, NMDA receptor, and $5\text{-}HT_3$[9]
- Effects of alcohol have a close relationship with blood alcohol levels; impaired judgment and impulsivity can occur with levels of 4-6mmol/l (20-30mg/100ml); levels of 17mmol (80mg/100ml) are associated with slurred speech, incoordination, unsteady gait, and inattention. Higher levels can intensify cognitive deficits, aggressiveness, and cause blackouts[7]
- Elimination is about 10g of alcohol per hour (about 30ml/one oz. of whiskey, or one bottle of beer) [7]. Blood alcohol level declines by 3-7mmol/l per hour (approximately 15mg/100ml)[5]
- Men and Women metabolize alcohol at different rates. [12]
- Alcohol metabolism is proportional to body weight (and liver weight)[5]

Presentation during intoxication

Common signs and symptoms of intoxication can include[4,5]:

Relaxation	Loss of inhibitions	Slurred speech	Staggering gait
Drowsiness	Slurred speech	Flushed skin	Lack of concentration
Impaired attention	Slowed reflexes	Double or blurred vision	

Extreme intoxication signs and symptoms may include[4]:

Inability to stand	Vomiting	Stupor	Possible coma
Shallow respirations	Cold clammy skin	Weak and/or rapid pulse	

Monitoring and support during intoxication

Goal[13,14]:

- Prevent severe respiratory depression and aspiration of vomitus

Monitor[9,10,15]

- Assess level of disorientation and if possible time of last ingestion and amount consumed
- Monitor for falls risk
- Monitor vitals every 15 minutes initially and less frequently as acute symptoms subside
- Monitor glucose levels due to risk for hypoglycemia and alcohol ketoacidosis

Supportive Interventions[9,10,15]:

- Ensure a quiet private space
- Frequently orient client to reality and surroundings
- Promote fluid and food intake as tolerated
- Thiamine / Vitamin B1 may be prescribed to decrease the risk of Wernicke-Korsakoff syndrome

Withdrawal presentation (appears within 6-24 hours after stopping alcohol, are most severe after 36-72 hours and last for 2-10 days)[4]

Symptoms may include[1-5]:

Increased anxiety	Agitation	Hypertension	Diarrhea
Insomnia	Hallucinations	Tachycardia	Seizures*
Increased Irritability	Tremor and Psychomotor Agitation	Nausea and Vomiting	Delirium Tremens*

Delirium Tremens (DTs) Characteristics[8]:

Gross Tremor	Paranoid Ideation	Hyperthermia	Distractibility
Confusion/ Disorientation	Hallucinations	Extreme agitation or restlessness	Autonomic Instability (changes in HR/BP)

- A medical emergency that can lead to cardiovascular collapse
- Autonomic hyperactivity may develop 48-96 hours after last drink[2]

Monitoring and support during withdrawal	**Goal[1,2]:**
	• Short term:
	  ○ Preserve respiratory and cardiovascular function
	  ○ Reduce the risk of DTs
	• Long term[15]:
	  ○ Client will not experience injury
	Assessing for Withdrawal Severity[1,2]:
	• Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised (CIWA-Ar)
	Monitor[1,2]:
	• Mental Status (include risk of self-harm and suicide, presence of hallucinations including tactile, agitation, anxiety)
	• Physical status (including perspiration, headaches, vital signs, electrolytes)
	• Risk for falls
	• Hydration/Nutrition
	• Sleep patterns
	Supportive interventions
	• Encourage fluids and nutrition as tolerated
	• Provide a calm and quiet environment
	• Administer medications to treat acute symptoms of withdrawal and reduce the risk of DTs
	Medications Suggested Include[1,2]:
	• Benzodiazepines(i.e. diazepam, lorazepam, chlordiazepoxide) → taper dose down as CIWA-Ar score lowers[1,2]
	• For individuals with liver disease, accumulation of longer-acting benzodiazepines (i.e. chlordiazepoxide/Librium) may be problematic – therefore use of more shorter-acting benzodiazepines is recommended[15]
	• Thiamine / Vitamin B1 to decrease the risk of Wernicke-Korsakoff syndrome[1,3]
	• In cases of severe dehydration IV fluids with potassium and magnesium have been provided[4]

Potential Complications	**May include:**
	• **Korsakoff Syndrome/Wernicke Encephalopathy** (lack of thiamine/vitamin B1 as a result of alcohol use) [1,3]
	  ○ Wernicke encephalopathy: confusion, loss of muscle coordination
	  ○ Korsakoff syndrome: memory loss, confabulation, hallucinations
	• **Hallucinations**[1,2]
	  ○ Visual/auditory/tactile → 12-48 hours after last drink[2]
	• **Seizures**[1,2]
	  ○ Can occur 6-36 hours after last drink[2]
	• **Delirium Tremens (DTs)** [1,2] (see above)

Notable Drug Interactions[7]	**With Antidepressants[7]** • Alcohol may exacerbate the CNS effects (i.e drowsiness, confusion, gait disturbance, dizziness, and impaired motor coordination) of tricyclic antidepressants, and cause impairment in psychomotor performance • Alcohol may disrupt antidepressant metabolism • Alcohol and MAOIs increase the risk of a hypertensive crisis due to tyramine content. **With Antipsychotics[7]** • Alcohol may increase CNS effects of the antipsychotics used and worsen extrapyramidal effects. **With Benzodiazepines[7]** • CNS effects of benzodiazepines will be potentiated → Increased risk of respiratory depression **With Mood Stabilizers[7]** • With Lithium, increased tremors may occur with chronic alcohol use **With Opioids [7]** • Additional CNS effects • Caution with excessive doses to risk of respiratory depression • Speeds the release of some opioids into the bloodstream by dissolving the slow-release system **With Cannabis [10]** • Increased impairment of judgement • Additive effects **With Stimulants** • Additive effects of stimulant • Increased heart rate Variable effect on blood pressure **With GHB [7]** • Synergistic CNS depressant effects can occur, with high doses of GHB causing respiratory depression

Psychiatric effects	• Chronic use of alcohol induces depression and increases the risk of suicide due to alcohol-induced depression, impulsivity and lack of judgment associated with acute intoxication • Chronic use of alcohol can also induce or exacerbate anxiety disorders and psychosis [6] • Alcohol can induce memory blackouts, nightmares, insomnia, hallucinations, paranoia, intellectual impairment, dementia, and Wernicke-Korsakoff syndrome.[7] • Chronic alcohol use by clients with schizophrenia has been associated with more florid symptoms, more re-hospitalizations, poorer long term outcomes, and increased risk of tardive dyskinesia [7]

References

1. Elliott, D. Y., Geyer, C., Lionetti, T., & Doty, L. (2013). Managing alcohol withdrawal in hospitalized patients. *Nursing Critical Care*, *8*(3), 36-44.
2. Keys, V. A. (2011). Alcohol withdrawal during hospitalization: early recognition and consistent intervention are critical. *American Journal of Nursing,* 111(1), 40-44.
3. Medline Plus. (2015). Wernicke-Korsakoff syndrome. Retrieved on Feb 5, 2015, from http://www.nlm.nih.gov/medlineplus/ency/article/000771.htm
4. World Health Organization. (2009). *Clinical guidelines for withdrawal management and treatment of drug dependence in closed settings*. Retrieved on February 13, 2015, from http://www.wpro.who.int/publications/docs/ClinicalGuidelines_forweb.pdf?ua=1
5. Centre for Addictions and Mental Health. (2010). *Primary Care Addiction Toolkit*. Retrieved on Feb 13, 2015, from https://www.porticonetwork.ca/tools/toolkits/pcat
6. Herie, M., & Skinner, W.J. (2014). *Fundamental of Addiction: A practical Guide for Counsellors.* Toronto: Library and Archives Canada Cataloguing in Publication.
7. Bezchlibnyk-Butler, K., Jeffries, J., Procyshyn, R., Virani, A. (2014). Clinical Handbook of Psychotropic Drugs (20th ed). Toronto: Hogrefe Publishing
8. Queensland Health. (2012, August) Queensland Alcohol and Drug Withdrawal Clinical Practice Guidelines. Retrieved February 10, 2015 from http://www.dovetail.org.au/insight/modules/qh_detox_guide.pdf
9. Lüscher C (2012). Chapter 32. Drugs of Abuse. In Katzung B.G., Masters S.B., Trevor A.J. (Eds), *Basic & Clinical Pharmacology, 12e.* Retrieved February 2015 from http://accessmedicine.mhmedical.com/content.aspx?bookid=388&Sectionid=45764254.
10. U.S Department of Health & Human Services. (2014). *Ethanol*. Retrieved on February 10, 2015, from http://householdproducts.nlm.nih.gov/cgi-bin/household/brands?tbl=chem&id=25
11. White, J.M., Irvine, R.J. (2002). Mechanisms of fatal opioid overdose. Addiction. Volume 94. Issue. 7.
12. Dettling, A., Fischer, F., Böhler, S., Ulrichs, F., Skopp, G., Graw, M., & Haffner, H. T. (2007). Ethanol elimination rates in men and women in consideration of the calculated liver weight. *Alcohol*, *41*(6), 415-420.
13. Olson, K. R. (2012). *Poisoning & Drug Overdose.* United States of America: McGraw-Hill Companies Inc.
14. Katzung, B. G., Masters, S. B., & Trevor, A. J. (2012). *Basic & Clinical Pharmacology*. United States of America: McGraw-Hill Companies Inc.
15. Townsend, M.C. (2015). *Psychiatric Nursing: Assessment, Care Plans, and Medications.* Oklahoma: F.A. Davis Company*, and Medications.* Oklahoma: F.A. Davis Company.