

ALCOHOL MISUSE

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Companion PowerPoint Presentation

Adapted by Thomas Campbell
and Julie Chilton

INTERNATIONAL ASSOCIATION FOR CHILD AND ADOLESCENT PSYCHIATRY AND ALLIED PROFESSIONS • ASSOCIATION INTERNATIONALE DE PSYCHIATRIE DE L'ENFANT, DE L'ADOLESCENT, ET DES PROFESSIONS ASSOCIEES • ASOCIACIÓN INTERNACIONAL DE PSIQUIATRÍA DEL NIÑO Y EL ADOLESCENTE Y PROFESIONES AFINES • 国际儿童青少年精神医学及相关学科协会 • ASSOCIAÇÃO INTERNACIONAL DE PSIQUIATRIA DA INFÂNCIA E ADOLESCÊNCIA E PROFISSÕES AFINS •

JM Rey's IACAPAP e-Textbook of Child and Adolescent Mental Health



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The “IACAPAP Textbook of Child and Adolescent Mental Health” is available at the IACAPAP website <http://iacapap.org/iacapap-textbook-of-child-and-adolescent-mental-health>

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IACAPAP

**International Association for
Child and Adolescent Psychiatry
and Allied Professions**

...because every child matters

Alcohol Use Disorder

Outline

- Burden
- Epidemiology
- Pathophysiology
- Etiology
- Clinical Assessment
- Diagnosis
- Treatment
- Prevention
- References



The Triumph of Bacchus or The Drunks (c.1629).
Diego Velázquez, Museo del Prado, Madrid

Alcohol Use Disorder Background

- Ethanol (ethyl alcohol--EtOH)
- Fermentation of carbohydrates
- Began nearly 9000 years ago
- Not available in some countries
- Classification:
 - Fermented
 - Distilled
- Measured in ml of alcohol/100 ml of beverage
 - Alcohol by volume (ABV)
 - 6% Beer = 6 ml of EtOH/100ml

Per Head Consumption

- Worldwide consumption= 6L/person (2005)
- 29% not purchased legally
- Eastern Europe: highest drinking rates
- 1/5 deaths from harmful drinking in Commonwealth of Independent States
- Western Europe: lowest rates of intoxication
- High abstinence: Muslim, female populations



WHO's Global Status Report on Alcohol and Health 2011

https://www.who.int/substance_abuse/publications/global_alcohol_report/msbgsr_uprofiles.pdf

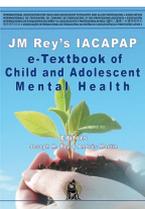




GUIDANCE ON THE CONSUMPTION OF ALCOHOL BY CHILDREN AND YOUNG PEOPLE

**From Sir Liam Donaldson
Chief Medical Officer for England**

December 2009



Alcohol Use Disorder

Burden Of Alcohol Use

- Risk factor for incident disability-adjusted life-years (DALYs)
- 7% of all DALYs in 10–24 year-olds
- 4% of deaths worldwide
- Higher rate of fatal injuries in the young
- Greater burden: males, poorer people, lower income countries
- Significant economic burden
 - >1%GDP
 - High income (USA: 2.7%)
 - Middle income (S Korea: 3.3%)

Causal/Component Factor of Disease and Injury

- Reduced school and work performance
- Accidents and injuries
- Family disharmony and violence
- Suicide, homicide, crime
- Teratogenicity
- Neurotoxicity
- Acquired brain damage in later years
- Cancer
- Cirrhosis of the liver

(WHO, 2011)

Alcohol Use Disorder

Alcohol and Suicide



<https://www.youtube.com/watch?v=UgK5QtV6QUc&feature=relmfu>

Alcohol Use Disorder

Wet and Dry Pattern

- **Wet:** small amounts frequently
 - Meals and family celebrations
 - Southern Europe
- **Dry:** irregular heavy drinking
 - Less family oriented occasions
 - Northern Europe

Epidemiology

- Varies between different countries and cultures
 - Rite of passage
 - Teen risk taking
- Worldwide increase in recent decades:
 - Industrialization of the developing world
 - Globalization
 - Growing wealth
 - Increased availability of high-alcohol pre-prepared drinks
 - Lower relative price of alcoholic beverages
 - Increased publicity and marketing

Alcohol Use Disorder

Monitoring the Future and ESPAD

- Monitoring the future (USA)
 - Survey 50,000 students/year
 - Substance use behavior and attitudes



<http://monitoringthefuture.org/>

- ESPAD
 - European School Survey Project on Alcohol and Other Drugs
 - 35 European countries
 - 100,000 age 16 students



<http://www.espad.org/>

Pathophysiology of Alcohol Use

- Rapid absorption and distribution
- Disinhibition, impaired memory and decision making, incoordination
- Nausea, vomiting, **hangover**, **blackouts**, and acute gastritis
- Stupor, coma, and death from respiratory depression

“I drank an ‘Irish car bomb’ and a beer and two shots of Smirnoff vodka. I was perfectly fine. Then it hit me all at once (I think I drank too fast). I was told the following day that I tried to kiss people at the party including a girl, her sister and another boy (I'm a girl by the way). I woke to thorns in my feet, dirt in my shoes, my cell phone was in the woods, my keys in another person's custody, and my car rearranged. I woke not having to pee, so I hope I didn't just decide to pee in front of everybody. Oh god, I think I would die of shame!” (Anonymous).

Alcohol Use Disorder

Pathophysiology of Alcohol Use

BAC range* (g/100 mL of blood) and [alcohol consumed – approximate standard drinks**]	Observable effects
0.01-0.05 [1-3]	Normal behavior, subjective feelings of relaxation, talkative, more confident
0.05-0.08 [3-5]	Euphoria: increased self-confidence, talkativeness, disinhibition, loss of concentration, impaired coordination.
0.09-0.15 [5-9]	Excitement: Slurring speech, unsteady balance, emotional instability, loss of judgement.
0.16-0.25 [9-16]	Confusion: disorientation, nausea, vomiting, memory impairment, staggering gait, apathy, incoordination
Above 0.25 [>16]	Stupor, coma:



Alcohol Use Disorder

Metabolism

- BAC increases 10-20 mg/100 ml per 10g EtOH
- EtOH breakdown at 7-10g/ hour
- Metabolized by liver
 - Alcohol dehydrogenase
 - Aldehyde dehydrogenase
- Onset before age 14 high risk for AUD
- Teratogenic

Alcohol and the Developing Brain: Use During Pregnancy

Fetal Alcohol Syndrome (FAS):

- Teratogenic effects of alcohol on the fetus
- 1% of all births in western countries have some deficits
- Full syndrome occurs with binge or repeated use
- Facial features from exposure during week 3

Alcohol and the Developing Brain: Use During Adolescence

- Earlier onset
 - especially before 14
 - increased likelihood of adverse outcomes: AUD, more rapid progression, longer duration, greater difficulty with abstinence
- Different effects on adolescent vs adult brain
 - more resistant to:
 - intoxicating effects
 - aversive effects
 - more sensitive to social facilitation effects

Alcohol and the Developing Brain: Risk Factors for Early Onset Drinking

- Conduct disorder
- Anxiety
- Shyness
- Depression
- ADHD
- Being abused
- Family conflict
- Poor parenting
- Inadequate monitoring
- Poverty
- Parental modeling of drinking
- Peer influences

Gary Reinbach, a 22 year old Englishman from Dagenham, Essex, died in hospital after he was refused a liver transplant because he could not prove he had not drunk alcohol for at least six months — one of the requirements for liver transplant in the UK. Mr Reinbach had been admitted to hospital 10 weeks earlier with cirrhosis of the liver. His family said he had started drinking at 11 years of age and drank heavily after the age of 13 (Rouse, 2009).



<https://www.youtube.com/watch?v=zXjANz9r5F0&feature=related>

Factors that Increase Risk of AUDs

- Genetic
 - Adoption, twin, family studies
- Individual
 - ADHD, conduct disorder, anxiety
- Family
 - Parent or sibling drinking habits
 - Permissive parenting
 - Poor supervision
- Social
 - Friends
 - Culture
 - Easy availability
 - Being an indigenous minority

Alcohol Use Disorder

Pathophysiology of Alcohol Use

NUMBER OF STANDARD DRINKS – BEER



Pathophysiology of Alcohol Use

NUMBER OF STANDARD DRINKS – WINE



1.5

150ml

Average
Restaurant Serving
of Red Wine
13% Alc. Vol



1

100ml

Standard Serve
of Red Wine
13% Alc. Vol



0.8

60ml

Standard Serve
of Port
17.5% Alc. Vol



1.4

150ml

Average
Restaurant Serving
of White Wine
11.5% Alc. Vol



0.9

100ml

Standard Serve
of White Wine
11.5% Alc. Vol



1.4

150ml

Average Restaurant
Serve of Champagne
12% Alc. Vol



7.1

750ml

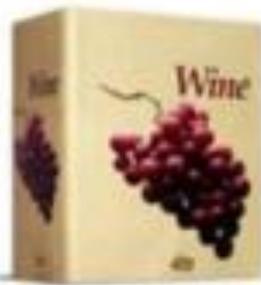
Bottle of Champagne
12% Alc. Vol



7.7

750ml

Bottle of Red Wine
13% Alc. Vol



41

4 Litres

Cask Red Wine
13% Alc. Vol



21

2 Litres

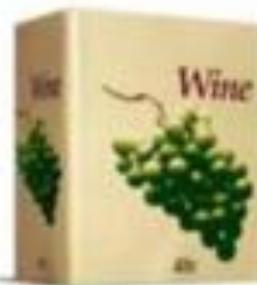
Cask Red Wine
13% Alc. Vol



6.8

750ml

Bottle of White Wine
11.5% Alc. Vol



36

4 Litres

Cask White Wine
11.5% Alc. Vol



18

2 Litres

Cask White Wine
11.5% Alc. Vol



28

2 Litres

Cask of Port
17.5% Alc. Vol

Pathophysiology of Alcohol Use

NUMBER OF STANDARD DRINKS – SPIRITS



Alcohol Use Disorder

Clinical Assessment

- Building rapport:
 - Non-judgmental
 - Motivational interviewing
- Confidentiality:
 - Discuss scope and limits
 - Improves disclosure
- Screening:
 - All adolescents
 - If positive -> gather details
 - From general to specific questions

Assessment Interview

- Adjust to developmental age and stage
- Screen psychiatric co-morbidities
- Information gathered about:
 - Predisposing factors
 - Triggers
 - Perpetuating factors
 - Family/friends use
 - Protective factors

Clinical Assessment: Important Questions

Age at initiation	The age at which more than a sip of alcohol was consumed
Frequency of consumption	<ul style="list-style-type: none">• Daily, weekly, or irregularly?
Amount and type	<ul style="list-style-type: none">• Describe last drinking occasion• Number of each type of drink consumed?
Pattern	<ul style="list-style-type: none">• Describe recent drinking• Describe heaviest drinking period
Context	<ul style="list-style-type: none">• Triggers for use: boredom or anxiety• Drinking alone, with friends or both?• What benefits do you get out of drinking?• How do you pay for it?

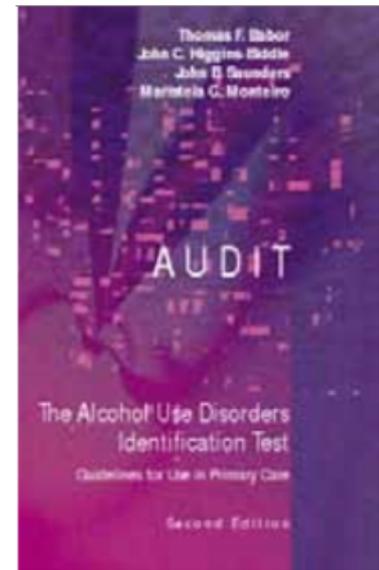
Clinical Assessment: Clarify Consequences

Intoxication	<ul style="list-style-type: none">• Have you ever been drunk?• How many times?• Ever had blackouts?
Hangover	<ul style="list-style-type: none">• Ever had a hangover?• Does it often when you drink?
Accidents	<ul style="list-style-type: none">• Involved in a car accident after drinking?
Risk Taking	<ul style="list-style-type: none">• Unprotected sex after drinking?• Driven a car while intoxicated?
Impairment	<ul style="list-style-type: none">• Alcohol caused impairment in other areas of functioning?

Alcohol Use Disorders Identification Test (AUDIT)

AUDIT Score: Risk Stratification

- < 8: Low risk drinking or abstinence
- 8-15: Alcohol use > low-risk recommendations
- 16-19: Harmful or hazardous drinking
- > 19: High risk or dependence



https://www.who.int/substance_abuse/publications/audit/en/

Two-Question Screen

- In the past year, have you sometimes been under the influence of alcohol in situations where you could have caused an accident or gotten hurt?
- Have there often been times when you had a lot more to drink than you intended to have?

1 Yes = 8 x risk of AUD

(Newton and colleagues, 2011)

Biomarkers

- Acute:
 - Blood alcohol Content (BAC)
- Chronic:
 - Aspartate aminotransferase (AST)
 - Alanine aminotransferase (ALT)
 - Mean corpuscular volume (MCV)
 - Gamma glutamyltransferase (GGT)

Diagnosis: Intoxication

Intoxication:

- Most common EtOH issue in adolescents
- Severe = *EtOH poisoning*
- 1st, exclude other causes
- 2nd, impaired functioning?
- 3rd, at least one of:
 - slurred speech, incoordination, unsteady gait, nystagmus, attention or memory impairment, stupor, coma

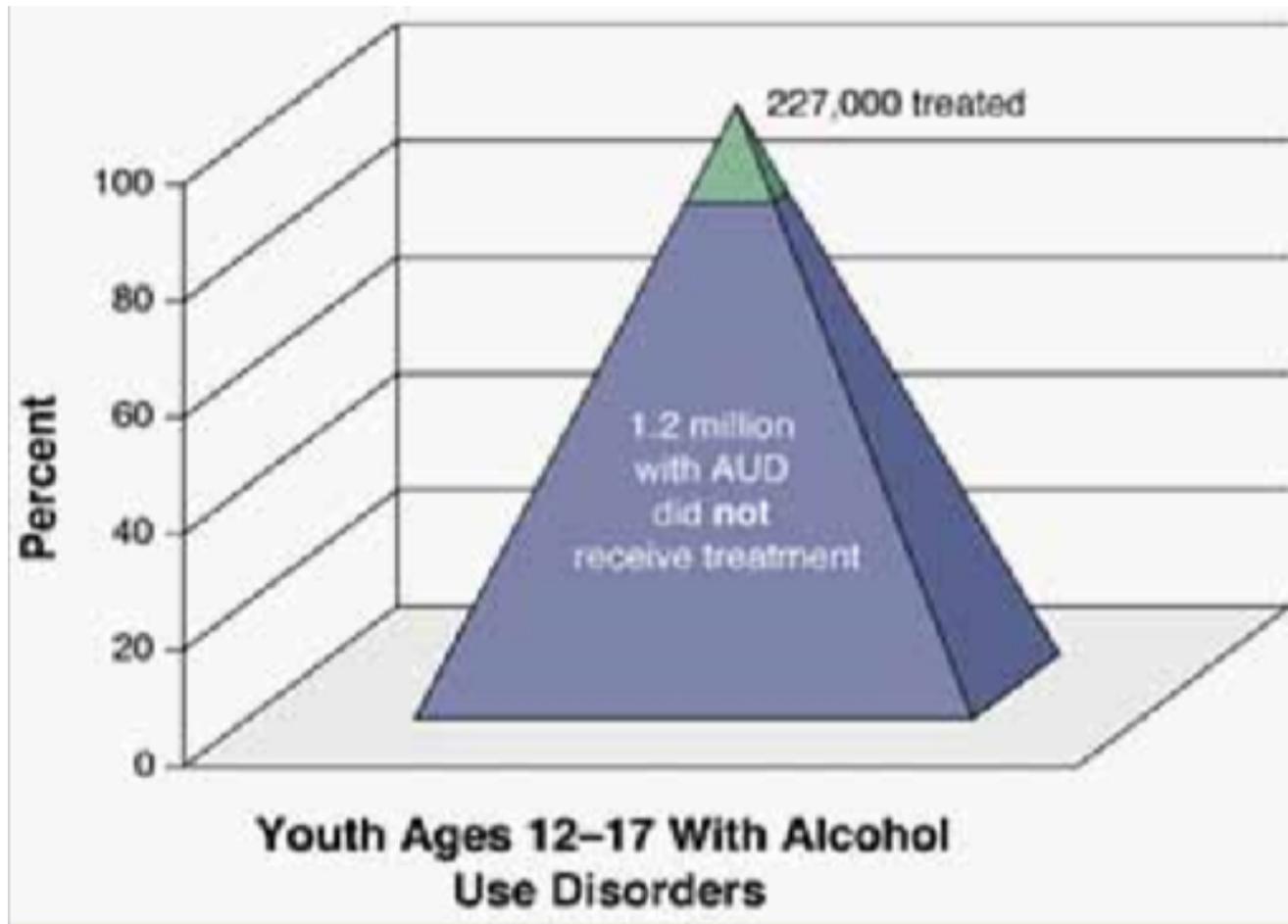
Diagnosing AUD and Withdrawal

Alcohol use disorder	Alcohol withdrawal
<ul style="list-style-type: none">• Continued use of alcohol in spite of it causing:<ul style="list-style-type: none">• impairment of functioning• risk to themselves or others (e.g., driving under the influence)• social or interpersonal problems• physical health problems• Tolerance• Withdrawal symptoms• Craving• Desire or unsuccessful efforts to reduce alcohol use• Spending much time in activities to obtain, consume or recover from the effects of alcohol	<ul style="list-style-type: none">• Autonomic hyperactivity (e.g., sweating, pulse rate greater than 100)• Increased hand tremor• Insomnia• Nausea or vomiting• Transient visual, tactile, or auditory hallucinations• Psychomotor agitation• Anxiety• Grand mal seizures

Diagnosis = two or more present

A 17-year-old German man was taken to emergency because of vomiting and dizziness after having run two 100 m races at school. He was hyperventilating, slightly tachycardic and tired but could be awakened. He subsequently revealed having drunk 3 L of an energy drink and 1 L of vodka (equivalent to 4600 mg of taurine, 780 mg of caffeine and 380 g of alcohol). Combining energy drinks with alcohol is becoming increasingly popular among youth. The combination, particularly in large amounts, poses considerable risk. (Schöffl et al, 2011).

Alcohol Use Disorder Treatment



Source: National Institute on Alcohol Abuse and Alcoholism (NIAAA)

Treatment: Intoxication

- Common in adolescents
- Severe intoxication= *alcohol poisoning*
 - Requires immediate attention
 - Hypothermia, arrhythmias, compromised heart function and breathing
 - No gag or cough reflex → acute respiratory obstruction with vomit
 - Aggressive respiratory and cardiovascular supportive care
 - Exclude traumatic injuries and comorbid ingestions
 - Follow up with intervention or treatment

Treatment: Withdrawal

Withdrawal:

- Majority treated as outpatient
- Try to involve family
- Reassurance, encouragement without criticism
- Fluids, nutrition, thiamine, multivitamins
- Severe cases: benzodiazepines to reduce seizure risk
 - Fixed schedule
 - Symptom-triggered regime
- Severe agitation or hallucinations: add haloperidol

General Treatment

- Often mandated (by parents, school or court)
- Build rapport
- Gain insight
- Motivation for change: *Motivational Interviewing*
- At home breathalysers
- Abstinence vs. harm reduction
 - Specific needs, personality, and beliefs

Alcohol Use Disorder

Stages of Change

- Pre-contemplation
- Contemplation
- Preparation/determination
- Action
- Maintenance
- Relapse

Treatment

- Psychosocial Treatments:
 - Brief interventions, popular
 - Opportunistic interventions
 - Individualized feedback from e-treatments
 - Contingency management therapy
 - Alcoholics Anonymous
- Pharmacologic Treatments:
 - Disulfiram, naltrexone, and acamprosate.
 - Medications + psychosocial treatments = better outcomes
- Breathalyzers

Psychosocial Treatments

- Motivational enhancement therapy
- Brief interventions
- Internet & cellular phone based interventions
- Family therapy
- Multi-systemic therapy
- Contingency management therapy
- Cognitive behavior therapy (CBT)
- Alcoholics Anonymous (AA)
- Multi-modal treatments

Alcohol Use Disorder
Youth and AA



<https://aa.org.au/>

Contingency Management

- Assessment of problem
- Formal agreement
- Schedule of rewards
- Breathalyzer test 2/week
- Example: 1st negative test: \$2; 2nd negative test: \$4; 3rd negative test: \$6; 4th test positive: \$0, reward schedule is reset

Stanger et al (2009)

Pharmacology and AUD

Medications (Dose*)	Comments
Disulfiram (Start 125mg/day -> 500mg/day)	-Alcohol sensitizing -Unpleasant reaction
Naltrexone (Start 25mg/day -> 50mg/day)	-Helps prevent relapse -Long-acting available -Monitor LFTs
Acamprosate (666 mg TID)	-Improve abstinence -Side effects: nausea, insomnia, diarrhea
Other	-Baclofen, SSRIs, Ondansetron, and Topiramate

*These are the recommended doses for adults

Alcohol Use Disorder

Is Naltrexone Effective for Alcoholism?

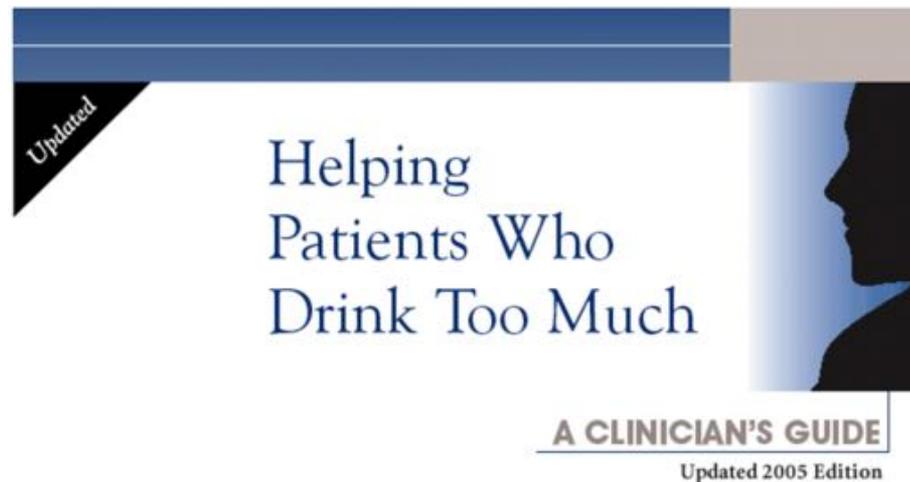


<https://www.youtube.com/watch?v=vQ8SVFjm05w>

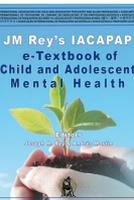
Alcohol Use Disorder

Resources:

National Institute on Alcohol Abuse and Alcoholism
*Helping Patients Who Drink Too Much: A Clinician's Guide and Related
Professional Support Resources*



https://pubs.niaaa.nih.gov/publications/Practitioner/CliniciansGuide2005/clinicians_guide.htm



Alcohol Use Disorder Prevention



A car crash on Jagtvej in Copenhagen, Denmark. Source: Wikimedia Commons

Prevention

- Universal vs. targeted interventions
- Legislative Measures:
 - Regulating minimum drinking age
 - Drinking and driving laws
 - Advertising
 - Minimum pricing
 - Availability

Prevention

- Prevention Programs:
 - Increase knowledge about harm
 - Explore attitudes and perceptions
 - Develop decision making, assertiveness, and coping skills
 - Increase awareness of influences on alcohol use
 - Personalized feedback
 - Longer term benefits with psychosocial approaches
 - Unplugged program and Good Behaviour Game
- <http://www.state.ky.us/agencies/behave/misc/DBWHandouts/BI12/Diana%20Session%201%20Ho%20-%20Good%20Behavior%20Game.pdf>

Parenting Programs
Thank You!

