

Massachusetts Medical Society  
Effects of Alcohol on Women  
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## Effective treatment interventions across the lifespan

### for women with alcohol use disorders

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## How to screen, intervene, and get them clean!

### Age matters

- Girls and young adults
- Adults
- Older adults

### Screening

- The toolkit
- How to use it
- Do-it-yourself options

### Intervention

- FRAMES/brief interventions
- Psychopharmacology
- The right reinforcers

### Referral

- Levels of care
- BSAS online treatment locator
- Self-help

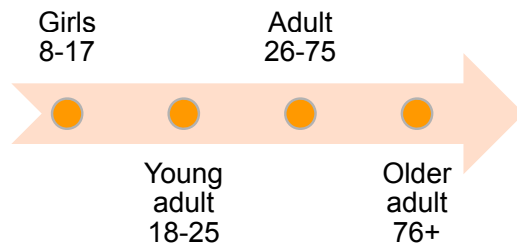
**NO DISCLOSURES**

**NO CONFLICTS OF INTEREST**



## Age Matters: what changes over time?

- Biological vulnerabilities
- Psychological vulnerabilities
- What is personally rewarding
- What acts as a behavioral reinforcer



## Biological Vulnerabilities

### 1. Brain development : youth

- Very active in girls and young adults
- Drinking at age 14 or younger increases risk 6-fold for alcohol abuse or dependence compared to delayed (21 or later) drinking
- Rates of drinking by age:

*2009 National Survey on Drug Use and Health*

21-25 75%

18-20 50%

16-17 26%

14-15 13%

12-13 3.5%

## Biological Vulnerabilities

### 1. Brain development : adults

- **Brain exposure to alcohol per standard drink is greater for women than men due to:**
  - » Body fat:water ratio for women is greater so blood alcohol concentrations are less dilute
  - » alcohol dehydrogenase and aldehyde dehydrogenase less active in women
  - » “telescoping course” of health effects include cognitive decline with cerebral atrophy
- **With age, metabolism slows further**
- **Increased prescription medication with age**
  - » Harmful drug-drug effects on brain and cognition

## Biological Vulnerabilities

### 2. Other alcohol-related risks over life cycle

#### Youth – Adult – Older

<b>MVA</b> Injuries/drowning Suicide /violence Sexual abuse and STDs Unintended pregnancy Alcohol poisoning Initiation of illicit drug use	Domestic violence Anemia Hypertension Anxiety/depression Fetal alcohol spectrum DO Peptic ulcer Liver disease Pancreatitis	Osteoporosis Falls/injuries Insomnia Malnutrition Delirium Dementia Seizure Breast cancer Accidental overdose MVA
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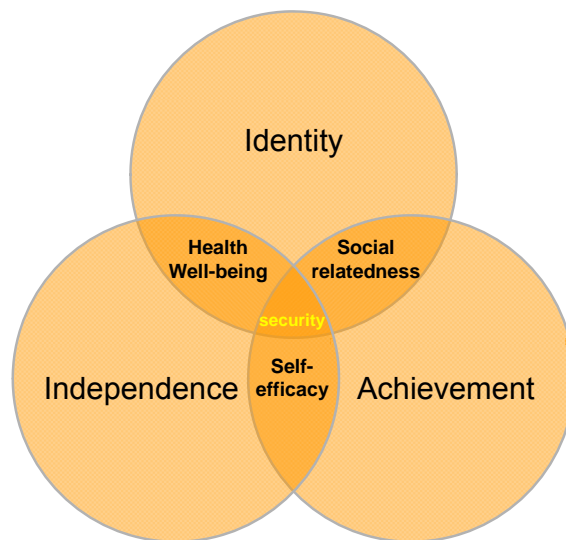
## Biological Vulnerabilities

### 3. IS moderate drinking protective??

- No clear causal relationship
- Methodological heterogeneity/definitions
- Women who drink 1 drink/day also have healthier diet and exercise patterns
- In a recent study of post-menopausal women, moderate drinkers no more healthy than non-drinkers or heavy drinkers; more obesity among non-drinkers

*Tivis & Tivis: Alcohol Clin Exp Res. 2008 Sep;32(9):1670-80.*

## Psychological Vulnerabilities



Consider age-specific goals and tasks

### YOUTH:

- Identity
- Peers, family, school
- Fun, new experiences

### ADULTS:

- Marriage/children
- Career
- Finances

### OLDER:

- Health/activity
- Independence
- Personal losses

## What is personally rewarding?

- Drinking rewards relate to natural personal rewards, which change with age

➤ **Age-related vulnerabilities can increase drinking risks**

- **YOUTH:** fitting in, being experimental, novelty, sexuality  
*peer pressure, inexperience, poor judgment, impulsivity*

- **ADULT:** stress relief, entertaining, sexuality, networking, financial success or status

*competing duties, fatigue, social/financial pressures, fear of aging*

- **OLDER:** more relaxed lifestyle, entertaining, preserving activity/sexuality, financial success/independence, last chance discoveries

*lack of structure/meaning in retirement, insomnia, sadness over losses, illness and reduced mobility, isolation, financial insecurity*

## What is a behavioral reinforcer?

- Based on the original work of psychologist B.F. Skinner, a reinforcer is anything that follows a behavior that increases the probability of that behavior occurring again
- **POSITIVE** reinforcement is the most powerful tool to shape behavior
  - Praise, recognition
  - Tangible rewards, incentives
- **Punishment** is an aversive response to a behavior
  - Anger, insult
  - Privileges taken away
  - Natural negative consequences (i.e., injury)

## What's the point?

- Understanding age-appropriate natural rewards helps you to counsel patients to reduce drinking rewards by substituting a competing natural reward or positive reinforcer of reduced drinking
- **Examples:**
  - **YOUTH:** after-school programs, sports, sober leisure programs
  - **YOUNG ADULT:** leadership opportunities, academic success, occupational/financial opportunities
  - **ADULT:** family rewards, career/financial rewards, travel
  - **OLDER ADULT:** family connection, structured activity, good health

## What's the point?

- Understanding common reinforcers at different ages helps you to counsel patients with individualized feedback effectively
- **Examples:**
  - YOUTH: conflict with parents/teachers vs. praise and reward for academic and social achievement
  - YOUNG ADULT: loss of driving privileges vs. achieving independence
  - ADULT: loss of job, partner or child custody vs. achieving social and career success
  - OLDER ADULT: ill health and injury vs. admiration by others for maintaining health and independence

## What's the point?

- For girls and women, rewards and reinforcers tend to be socially- and interpersonally-related
  - Being valued by loved ones and peers/coworkers
  - Being able to care for others effectively
- Girls and women often need ongoing encouragement to care for themselves as a priority over caring for others
  - Permission to attend evening AA rather than take care of children
  - Supporting self-respect over desire to please others

The toolkit:

## ALCOHOL SCREENING IN GIRLS AND WOMEN

### ALCOHOL SCREENING 101

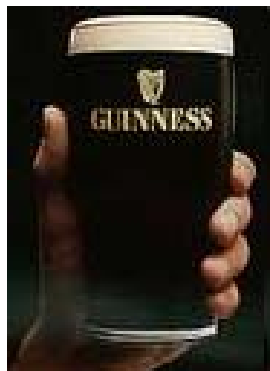
- **ASK** *“Do you ever drink beer, wine, liquor, mixed drinks?”*
- **Hazardous drinking often missed**
  - **CAGE** – good for alcohol dependence, not sensitive for other risky drinking
  - **Adolescents** – they don’t tell
  - **“Functional” alcohol use disorders** – they NEVER tell
  - **Injuries/trauma** – liability concerns
  - **Medically ill** – afraid you’ll stop treating them
  - **Mentally ill** – complex rationalization
  - **Transportation and physical labor accidents** – back to liability
  - **Domestic violence** – avoid jail/avoid revenge abuse
- **Opportunity for earlier intervention and prevention**



## What's a standard drink?


- 12 oz. regular beer
- 5 oz. table wine
- 1.5 oz. liquor

CONTAIN EQUIVALENT  
AMOUNTS OF ALCOHOL



## NIAAA epidemiologic normative data for adults

Over age 65 norms are same as adult women norms

Low-risk drinking limits		MEN	WOMEN
	On any single DAY	No more than <b>4</b> ■■■ drinks on any day	No more than <b>3</b> ■■ drinks on any day
	Per WEEK	No more than <b>14</b> ■■■■■■ drinks per week	No more than <b>7</b> ■■■■■ drinks per week
To stay low risk, keep within BOTH the single-day AND weekly limits.			

**EXCEPTIONS:** driving, operating machinery, pregnant, medications, co-occurring illness, underage

GENETIC LOADING FOR ALCOHOL DEPENDENCE

## Screening women across the life cycle: the toolkit

- AUDIT Alcohol Use Disorders Identification Test
  - AUDIT – C
  - Gold standard for adults
  - Less utility in adolescents or older adults, but still used
- T-ACE, TWEAK
  - Pregnancy
- CRAFFT
  - Adolescents

*When positive, also screen women for domestic violence, mental illness, STDs, cigarette smoking and illicit drug use*

## Alcohol Use Disorders Identification Test (AUDIT)

- GOLD STANDARD
- Available at [www.who.org](http://www.who.org) or NIAAA
- Widely validated in multiple treatment settings, ethnic groups, cutoffs gender-specific
- Can be interview, self-report, or computerized
- 10 questions:
  - 1-3 frequency and volume of recent use
  - 4-6 screens for symptoms of alcohol dependence
  - 7-10 recent and lifetime problems associated with alcohol use
- Typical cut point of 8 or higher, in adolescents cut point of 2 optimal for identifying any problem drinking *Knight et al. 2003*  
*Alcohol Clin Exp Res. Jan;27(1):67-73.* in elderly cut point of 5 or higher  
*Aalto et al. 2010 Int J Geriatr Psychiatry. Jul 26. [Epub ahead of print]*

## Alcohol Use Disorders Identification Test –C (consumption) MEN 4+ WOMEN 3+

**1. How often do you have a drink containing alcohol?**

Never (0), Monthly or less (1), 2-4 times a month (2), 2-3 times a week (3), 4 or more times a week (4)

**2. How many drinks containing alcohol do you have on a typical day when you are drinking?**

1 or 2 (0), 3 or 4 (1), 5 or 6 (2), 7 to 9 (3), 10 or more (4)

**3. How often do you have six or more drinks on one occasion?**

Never (0), Less than monthly (1), Monthly (2), Weekly (3), Daily or almost daily (4)

Bradley et al., AUDIT-C as a brief screen for alcohol misuse in primary care.  
Alcohol Clin Exp Res. 2007 Jul;31(7):1208-17.

## Alcohol Use Disorders Identification Test –C (consumption) WOMEN 3+

A Veteran's Health Administration study of over 9,000 women showed that those with an AUDIT-C score of 9-12 had a **7-fold higher risk of death** compared to those scoring 1-4

Harris et al. 2010 Associations between AUDIT-C and mortality vary by age and sex. Popul Health Manag. Oct;13(5):263-8.

## Pregnancy screening

- Important for preventing fetal alcohol spectrum disorder
- 15% of pregnant women in US report alcohol use during pregnancy and 1 in 1,000 live births are FASD
- Most were drinkers before pregnancy so screening history is important
- Review of screening development, specificity and sensitivity, and item content in *Burns et al 2010 Addiction, 105, 601–614*
- TWEAK
  - Tolerance, Worried, Eye-opener, Amnesia, Kut down
- T-ACE
  - Tolerance, Annoyed, Cut down, Eye-opener

## Pregnancy screening

### • TWEAK

- How many drinks does it take you to get high? (>2 is positive for tolerance)
- Have close friends/relatives worried or complained about your drinking in the last year?
- Do you sometimes take a drink in the morning?
- Has a friend or family ever told you something you said or did that you didn't remember?
- Have you ever felt the need to cut down your drinking?
- Score 2 pts for first 2 items and 1 pt for other, max score 7, cut point is 2 or more

### • T-ACE

- How many drinks does it take you to get high? (>2 is positive for tolerance)
- Have close friends/relatives ever been annoyed with you because of your drinking?
- Have you ever felt the need to cut down your drinking?
- Do you sometimes take a drink in the morning?
- Score 2 pts for T and 1 pt other, max score is 5, cut point is 2 or more

## CRAFFT for adolescents

1. Have you ever ridden in a **CAR** driven by someone (including yourself) who was high or had been using alcohol or drugs?
2. Do you ever use alcohol or drugs to **RELAX**, feel better about yourself, or fit in?
3. Do you ever use alcohol or drugs while you are by yourself, **ALONE**?
4. Do you ever **FORGET** things you did while using alcohol or drugs?
5. Do your family or **FRIENDS** ever tell you that you should cut down on your drinking or drug use?
6. Have you ever gotten into **TROUBLE** while you were using alcohol or drugs?

*Knight et al. (2002) Arch Pediatr Adolesc Med. 2002 Jun;156(6):607-14*

## CRAFFT

- Score of 2 or more “yes” is positive and highly correlated with having a substance-related problem needing substance abuse treatment.
- Cut point score of 1 correlates with problem use
- Adolescents prefer paper self-report or computer to clinician interview in medical settings (Knight et al 2007)
- 15% screen + for at least problematic use
- Monitoring the Future Survey: 1 in 10 8th graders and 1 in 5 10th graders had binge drinking in past 2 wks; not gender specific; having friends who get drunk was strongest predictor, also other substance use highly correlated (Patrick and Schulenberg 2010)

## BIOMARKERS

- CdT Carbohydrate deficient transferrin GGT gamma-glutamyl transpeptidase AST aspartate aminotransferase ALT alanine aminotransferase MCV mean corpuscular volume
- Many false positives and false negatives
- Not sensitive to episodic binge drinking
- Not sensitive in young, healthy adults
- AUDIT sensitive, biomarkers lack utility in n= 1233 trauma patients in German ER (Neumann et al. 2009)
- Good for providing feedback to those with AUD
- Good for monitoring progress in AUD
- Good for those with under-reporting bias (legal)
- Good for discerning if alcohol contributing to treatment-refractory medical illness

## Alcohol Abuse

- Maladaptive use → impairment/distress  $\geq 1$  within 12 months:
  - Impaired roles
  - Use in hazardous situations
  - Legal problems
  - Continued use despite problems
- Dependence criteria never met

DSM-IV-TR 2004

## Alcohol Dependence

- Maladaptive use → impairment/distress  $\geq 3$  within a year:
  - Tolerance
  - Withdrawal
  - Larger amounts or period than intended
  - Unable to ↓ use
  - Excessive time spent
  - ↓ Important activities
  - Use despite problems

DSM-IV-TR 2004

## TRIAGE DECISIONS

- No hazardous drinking
  - encourage norms
- Hazardous drinking
  - Discuss norms and advise reduction
  - NIAAA online “Rethinking Drinking”
  - consider referrals
- Alcohol abuse
  - brief intervention
  - give referrals (AA/SMART, therapy)
  - consider medication
- Alcohol dependence
  - assess withdrawal and need for detoxification
  - refer to substance abuse specialist
  - offer medications if appropriate

## CIWA

< 8      **MILD**

8-15      **MODERATE**

**Treat autonomic  
arousal**

➤ 15      **SEVERE**

**Predicts  
seizure/delirium**

**Appendix. Clinical Institute Withdrawal Assessment for Alcohol.\***

Category	Range of Scores	Examples
Agitation	0-7	0=normal activity 7=constantly thrashes about
Anxiety	0-7	0=no anxiety, at ease 7=acute panic states
Auditory disturbances	0-7	0=not present 7=continuous hallucinations
Clouding of sensorium	0-4	0=oriented, can do serial additions 4=disoriented as to place, person, or both
Headache	0-7	0=not present 7=extremely severe
Nausea or vomiting	0-7	0=no nausea, no vomiting 7=constant nausea, frequent dry heaves and vomiting
Paroxysmal sweats	0-7	0=no sweat visible 7=drenching sweats
Tactile disturbances	0-7	0=none 7=continuous hallucinations
Tremor	0-7	0=no tremor 7=severe, even with arms not extended
Visual disturbances	0-7	0=not present 7=continuous hallucinations

Doing it right:

## BRIEF INTERVENTIONS TO REDUCE DRINKING



## Brief interventions are easy!

BE EMPATHIC  
CLEAR ADVICE AND FEEDBACK  
MENU OF OPTIONS FOR CHANGE  
PATIENT MUST CHOOSE  
ALWAYS FOLLOW UP

## FRAMES acronym

- **Feedback:** labs or individualized evidence of problem
- **Responsibility and Advice:**
  - “The safest thing for your health would be for you to stop drinking altogether, but it’s up to you. Have you ever considered quitting drinking?”
- **Menu of options:**
  - Drinking calendar, reasons to reduce drinking
  - See a specialist
  - Attend a Beginner’s AA or Women’s AA meeting or SMART Recovery meeting
  - Take a medication to help reduce drinking
- **Empathy and Self-efficacy/support follow up:**
  - “Changing your drinking patterns can be difficult to do, especially at the beginning. Let’s talk about some ways to make it easier...”

## Remember this?

- For girls and women, rewards and reinforcers tend to be socially- and interpersonally-related
  - Being valued by loved ones and peers/coworkers
  - Being able to care for others effectively
- Girls and women often need ongoing encouragement to care for themselves as a priority over caring for others
  - Permission to attend evening AA rather than take care of children
  - Supporting self-respect over desire to please others

### FAMILY OR PARTNER SUPPORT



“Many people who want to drink less find that it is hard to do this alone. Family, partners, and close friends can provide the support you may need to get started with this. If they know that you want to drink less, they can encourage you to do this, support the plan you come up with, and maybe even drink less themselves. Do you have someone close to you who could support you if you decided to drink less? *Would you be willing to discuss your drinking with that person?*”

## NIAAA Resources

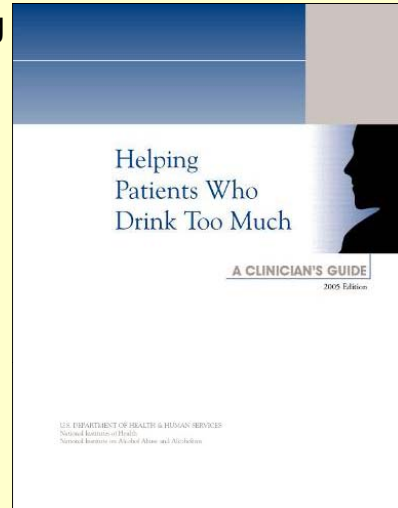
- How to cut down on your drinking

Available on NIAAA website:  
"Rethinking Drinking"

<http://rethinkingdrinking.niaaa.nih.gov/>

Interactive online program for patients to  
assess their drinking and develop  
strategies to cut back if indicated

"Helping Patients Who Drink Too Much"



[http://www.niaaa.nih.gov/Publications/EducationTrainingMaterials/Pages/CME\\_CE.aspx](http://www.niaaa.nih.gov/Publications/EducationTrainingMaterials/Pages/CME_CE.aspx)

Set drinking goals and consider using

**MEDICATIONS TO TREAT  
ALCOHOL DEPENDENCE**

## MEDICATIONS FOR ALCOHOL DEPENDENCE

- Medical management (MM) without specialist counseling is effective
- 2 large, national, multi-site trials confirm this:
- COMBINE showed naltrexone + MM highly effective
  - Anton et al, JAMA. 2006 May 3;295(17):2003-17.
- Likewise topiramate + MM
  - Johnson et al, JAMA. 2007 Oct 10;298(14):1641-51.

MEDICATION ADHERENCE IS ESSENTIAL TO EFFICACY  
PATIENT MUST ACTIVELY WORK ON REDUCING DRINKING

Support development of meaningful rewards/reinforcers for reducing drinking

## CHOOSING AN ALCOHOL MEDICATION

- Efficacy
- Side effects
- Risks/benefits
- Patient health (organ functioning)
- Patient preference
- Other medications (e.g., opioids)
- Goal of medication:
  - Reduce heavy drinking (NTX, topiramate)
  - Abstinence maintenance (acamprosate, disulfiram)

## Reducing drinking

**MM: adherence to daily dosing plus written drinking goals**

### Naltrexone (po or IM)

- Mu opioid receptor antagonist; reduces reinforcing properties of alcohol in brain reward circuitry
- First-line treatment if LFTs healthy, not pain patient
- 50-100 mg daily po; 380 mg IM every 4 wks
- HA, nausea, dizziness most common side effect

Minozzi S et al. (2006) Cochrane Database Syst Rev. (1):CD001333

### Topiramate

- Increases GABAergic inhibition and reduces glutamatergic excitatory input to accumbens reducing dopamine release
- Not FDA-indicated
- 150-300 mg po daily
- Contraindicated if renal calculi or glaucoma risk
- Many side effects

Johnson BA (2004) Alcohol Clin Exp Res. 28(8):1137-1144

## Abstinence maintenance (also NTX)

### Acamprosate

- Weak NMDA antagonist and also neuromodulator that alters subunit expression of NMDA receptors Rammes et al. (2002) Neuropharmacology 40(6):749-60
- May reduce early abstinence syndrome/hyperexcitability
- Not better than placebo in COMBINE study Anton RF et al. (2006) JAMA 295(17):2003-17
- TID dosing sobriety ritual
- Diarrhea; 333mg TID x 7 then 666 mg TID

### Disulfiram

- Inhibits aldehyde dehydrogenase, which allows final metabolic step of alcohol conversion to water
- If a person drinks, acetaldehyde toxicity occurs: HA, nausea, sweating, flushing, HTN
- Start at 125 mg x 3 days, then increase 250 mg
- LFTs must be monitored and 1:50,000 idiopathic fulminant hepatitis risk Barth & Malcolm(2010) CNS Neurol Disord Drug Targets 9(1):5-12

Tips on

## **REFERRAL FOR TREATMENT OF ALCOHOL USE DISORDERS**

### Referral options: summary

- MA Bureau of Substance Abuse Services has an easy-to-use, 4 step treatment locator for patients:
  - <http://www.helpline-online.com/HelplineSearch.aspx>
  - Generates a quick print-out of places to contact
- Using Alcoholics Anonymous and SMART Recovery self – help
  - Online websites for meeting locators
  - Favor Young Person's, Women's AA and start with Beginner's meetings
  - Active participation matters more than attendance
- Determining American Society of Addiction Medicine (ASAM) levels of care

## ASAM Patient Placement Criteria

- Please refer to handout on MMS website for details
- Inpatient detoxification: medically unsafe as outpatient due to withdrawal-related medical risks and/or immediate safety concerns
- Residential: environment conflicts with recovery
- Partial hospital/day treatment: loss of day structure, need for psychiatric stabilization
- Intensive outpatient: for those who need help but are able to attend work/school/childcare, evening hour group programs, no psychiatry services
- Outpatient: motivated for help, safe to be at home

Thank you!

[www.mcleanhospital.org](http://www.mcleanhospital.org)

