Identification of Substance Use Disorders: SBIRT / DSM-V / Screening Instruments / Biochemical Testing

AOAAM Essentials in Addiction Medicine
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Disclosures

• None
Objectives

• Understand the principles of screening for substance use disorders.
• Review some of the commonly used screening tools.
• Review the DSM V and how it differs from the DSM IV.
• Review the principles of urine drug screening.
• Review the common pitfalls of urine drug screening.
Harms Related to Hazardous Alcohol and Substance Use

Increases the risk for:

- Adverse interactions with prescribed medication
- Illness/injury/trauma/poisoning
- Criminal justice involvement
- Social problems (job loss, homelessness)
- Mental health consequences (e.g., anxiety, depression)
- Increased absenteeism and injuries in the workplace
Substance Use Disorders Are Similar to Other Chronic Illnesses

• Less than 30 percent of patients adhere to prescribed medications and diet or behavioral changes.

• There is a 50 percent recurrence rate.

• Substance abuse should be insured, monitored, treated, and evaluated like other chronic diseases.
Screening, Brief Intervention, and Referral to Treatment

SBIRT
Why Is SBIRT Important?

- Unhealthy and unsafe alcohol and drug use are major preventable public health problems resulting in more than 100,000 deaths each year.
- The cost to society is more than $600 billion annually.
- The effects of unhealthy and unsafe alcohol and drug use have far-reaching implications for the individual, family, workplace, community, and health care system.
Making a Measurable Difference

• Since 2003, SAMHSA has supported SBIRT programs with good evidence that screening in primary care identifies patients with at-risk drinking patterns.

• Outcome data confirm a 40 percent reduction in harmful use of alcohol by those drinking at risky levels and a 55 percent reduction in negative social consequences.

• Outcome data also demonstrate positive benefits for reduced illicit substance use.
Illicit Drugs and Prescription Medication

• Limited but promising

• Cocaine and heroin
  • More likely to be abstinent (both drugs)
  • Significant reductions in hair sample drug levels (cocaine only)

• Marijuana in youth and young adults
  • More likely to be abstinent for past 30 days (12-month results)
  • Greater reduction in days used
  • Less likely to have been high
SBIRT: The Three Components

- **Screening**: Screen patients for high-risk or dependent drinking and drug use.

- **Brief Intervention**: Have a conversation to motivate patients who screen positive to consider healthier decisions (e.g., cutting back, quitting, or seeking further assessment).

- **Referral to Treatment**: Link patients to resources when appropriate.
SBIRT Defined

• Screening, Brief Intervention, and Referral to Treatment (SBIRT) is a comprehensive, integrated, public health approach to the delivery of early intervention and treatment services.

• Primary care centers, hospitals, and other community settings provide excellent opportunities for early intervention with patients who are at risk for substance use and to identify patients with substance use disorders.
Rationale for Universal Screening

- Drinking and drug use are common.
- Drinking and drug use can increase the risk for health problems, safety risks, and a host of other issues.
- Drinking and drug use often go undetected.
- People are more open to change than you might expect.
Rankings of Preventive Services
National Commission on Prevention Priorities

25 USPSTF-recommended services ranked by:

• **Clinically preventable burden (CPB)** - How much disease, injury, and death would be prevented if services were delivered to all targeted individuals?

• **Cost-effectiveness (CE)** - return on investment - How many dollars would be saved for each dollar spent?

## Rankings of Preventive Services

<table>
<thead>
<tr>
<th>#</th>
<th>Service</th>
<th>CPB</th>
<th>CE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aspirin - Men - 40+, Women - 50+</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Childhood immunizations</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Smoking cessation</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Alcohol screening &amp; intervention</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Colorectal cancer screening</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Hypertension screening &amp; treatment</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Influenza immunization</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>Vision screening - 65+</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

*1 = lowest; 5 = highest

Begin with:

- Do you sometimes drink beer, wine, or other alcoholic beverages?
  - No  (“Why not?”)
  - Yes
Screening for harmful alcohol use:

- Single question screen
  (www.niaaa.nih.gov/guide)

- AUDIT (Alcohol Use Disorders Identification Test)
  (www.who.org)
Single Question Screen for Harmful Alcohol Use

- During the last year, how many times have you had ___ or more drinks:
  - 5 for men
  - 4 for women
  - 4 if > 65

Positive screen is 1 or more times.

- 82% Sensitivity
- 79% Specificity (unhealthy use)

Smith, PC, et.al., J Gen Int Med, 2010

(www.niaaa.nih.gov/guide)
NIAAA Guidelines

- **Men**
  - Not more than 14 drinks in a week
  - Not more than 4 drinks at a single setting
- **Women**
  - Not more than 7 drinks in a week
  - Not more than 3 drinks at a single setting
- **A standard drink is 14 grams of alcohol**
  - 12 oz beer
  - 5 oz wine
  - 1.5 oz liquor
What’s a Standard Drink?

• In the U.S., a standard drink is any drink that contains about 14 grams of pure alcohol (about 0.6 fluid ounces or 1.2 tablespoons).
Exceptions: Decrease or Abstain

- Meds that interact with alcohol
- Health conditions made worse by alcohol
- Pregnancy (advise abstinence)
U.S. Adult Drinking Patterns and Their Significance

- Never exceed daily or weekly limits:
  - 2/3 of this group either abstain or drink < 12 drinks/yr
  - Prevalence of alcohol use disorder: < 1 in 100
  - 72%

- Exceed only daily limit:
  - >8/10 less than once/week
  - Prevalence of alcohol use disorder: 1 in 5
  - 16%

- Exceed both daily and weekly limits:
  - 8/10 exceed the daily limit at least once/wk
  - Prevalence of alcohol use disorder: 1 in 2
  - 10%

NIAAA, 2005
AUDIT – Alcohol Use Disorders Identification Test

- Developed by the WHO
- 10 Questions
- Valid across cultures, Sens/spec varies w/population.
- Takes 5 minutes

- Positive score: >7 for men up to 60 yo
  - >4 for women, adolescents, men > 60.

www.niaaa.nih.gov/guide
ALCOHOL USE DISORDERS IDENTIFICATION TEST (AUDIT)

1. How often do you have a drink containing alcohol? 1
2. How many drinks containing alcohol do you have on a typical day when you are drinking? 1
3. How often do you have six or more drinks on one occasion? 2,3
4. How often during the last year have you found that you were not able to stop drinking once you had started?
5. How often during the last year have you failed to do what was normally expected from you because of drinking?
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?
7. How often during the last year have you had a feeling of guilt or remorse after drinking?
8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?
9. Have you or someone else been injured as a result of your drinking?
10. Has a relative or friend, or a doctor or other health worker been concerned about your drinking or suggested you cut down?
ONE Question Screen for Drug Abuse in Primary Care

- How many times in the past year have you used an illegal drug or used a prescription medication for a non-medical reason?
  - A response of $\geq 1$ is considered positive.
  - 100% sensitive, 74% specific for a drug use disorder
  - Similar sensitivity and specificity to DAST-10

Smith, PC, et.al., Arch Int Med, 170:1155-1160, 2010
Alcohol, Smoking and Substance Involvement Screening Test (ASSIST)

- In your life, which of the following substances have you ever used?
- In the past three months, how often have you used the substances you mentioned?
- During the past three months, how often have you had a strong desire or urge to use?
- During the past three months, how often has your use of led to health, social, legal or financial problems?
- During the past three months, how often have you failed to do what was normally expected of you because of your use of?
- Has a friend or relative or anyone else ever expressed concern about your use of? Have you ever tried and failed to control, cut down or stop using?
- Have you ever used any drug by injection?

http://www.who.int/substance_abuse/activities/assist_v3_english.pdf?ua=1
Summary: Screening for Harmful Alcohol and Drug Use

1. Screen everyone at risk.
2. Use validated screening tools.
3. Provide nonjudgmental feedback with their results.
4. For positive screens: Proceed to Brief Intervention
Selected References

  (excellent video cases and written materials)

- For patients: [Rethinking Drinking.niaaa.nih.gov](http://www.niaaa.nih.gov/guide)  
  - [www.alcoholscreening.org](http://www.alcoholscreening.org)  
  - [www.dugscreening.org](http://www.dugscreening.org)
BI as a Response Option

Severity

Abstainers and Low-Risk Users (70%)
Primary Prevention

Moderate to Higher Risk (25%)
Brief Intervention

Severe and Dependent (5%)
Treatment
Patients Are Open to Discussing Their Substance Use to Help Their Health

- Ninety percent of surveyed patients said they would give an honest answer if asked about their drinking.
- Over 90 percent of surveyed patients reported that their primary care physician should ask about their drinking and advise cutting down if it is affecting their health.
- Eighty-six percent of patients disagreed that they would be embarrassed if asked to discuss their drinking patterns.
- Seventy-eight percent of patients disagreed that they would be annoyed if asked about their drinking.
Brief Interventions

• 3 minutes or more
• Aimed to motivate behavior change
• Designed to:
  • provide personal feedback
  • enhance motivation
  • promote self-efficacy
  • promote behavior change
• Effective in decreasing unhealthy alcohol use in primary care
Brief Intervention Pathways

• No substance use disorder: conduct brief intervention, provide follow-up and ongoing care.

• Patients with possible substance use disorder: conduct brief intervention, offer menu of additional support options, & negotiate a plan that may include referral.
Steps of the Brief Interventions:

1. Raise the Question
2. Provide Feedback
3. Enhance Motivation
4. Negotiate a Plan

D`Onofrio, et al., 2005
Steps of the Brief Intervention

Raise the Question

- Universal Screening
- Screening forms as conversation starters
- Asking permission
Steps of the Brief Intervention

**Provide Feedback**

- State level of risk
- Address or ask about possible connection to health issues
- State low risk limits
- Give recommendation
Steps of the brief Intervention

Enhance Motivation

- Use the 0 – 10 readiness scale
- “Why not a lower number?”
- Explore pros and cons
Steps of the Brief Intervention

Negotiate a Plan

- If pt. is ready: “What would that look like for you?”
- Encourage a specific plan/goal to reduce use, abstain and/or seek referral
- Re-state recommendation
- Schedule follow-up
Readiness Ruler: front
Case Studies, Pages 28 (Female) and 60 (Male)

Low-risk drinking limits

<table>
<thead>
<tr>
<th></th>
<th>Drinks Per week</th>
<th>Drinks Per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>Women</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>All age &gt;65</td>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>

Categories of drinking

I
Low risk or Abstain: 78%

II
Risky: 9%

III
Harmful: 8%

IV
Dependent: 5%

SBIRT www.sbirtoregon.org

Not at all 0 1 2 3 4 5 6 7 8 9 10 Very

AOAAM The American Osteopathic Academy of Addiction Medicine
Readiness Ruler: back
Case Studies, Pages 28 (Female) and 60 (Male)

<table>
<thead>
<tr>
<th>Zone of use:</th>
<th>II - Risky</th>
<th>III - Harmful</th>
<th>IV - Dependent</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAST score:</td>
<td>1-2</td>
<td>3-5</td>
<td>6+</td>
</tr>
</tbody>
</table>

- **Raise the subject**
  - “If it’s okay with you, let’s take a minute to talk about the annual screening form you’ve filled out today.”

- **Provide feedback**
  - “As your doctor, I can tell you that drinking (drug use) at this level can be harmful to your health and possibly responsible for the health problem you came in for today.”

- **Enhance motivation**
  - “On a scale of 0-10, how ready are you to cut back your use?”
    - If >0: “Why that number and not a ____ (lower one)?”
    - If 0: “Have you ever done anything while drinking (using drugs) that you later regretted?”

- **Negotiate plan**
  - “What steps can you take to cut back your use?”
  - “How would your drinking (drug use) have to impact your life in order for you to start thinking about cutting back?”

Oregon alcohol & drug referral helpline: 1-800-923-4357
Encouraging abstinence (drug use)

- No known low risk zone for drug use
- Casual marijuana use still carries consequences
- Medical marijuana possible exception
- Several recent clinical trials suggest less effect of BI for drugs vs. alcohol
Other factors behind recommending abstention

- Prior history of alcohol or substance dependence
- Pregnancy
- Medications
- Serious mental illness, medical condition
Offer a Menu of Options: Ask Permission

• “Many patients at your risk level find they do better with more support. Could I share with you some of the things that have helped some of my other patients?”
Menu of Options

- Medication: (naltrexone, acamprosate, or disulfiram for alcohol; buprenorphine or methadone for opioids)

- Self-help/support group (e.g., AA/NA, Celebrate Recovery, Smart Recovery, etc.)

- Individual counseling (brief treatment)

- Formal substance use treatment programs
MI Principles for Making Treatment Referral

• Respect patient’s autonomy— “Any decision you make is entirely up to you”

• Make every effort to help patients make contact with treatment providers while they are still in your office (“warm handoff”)
Prescription for change

“Those are great ideas! Is it okay for me to write down your plan, your own prescription for change?”

“Please help me summarize the steps you will take to change your [X] use.”

“I’ve written down your plan, a prescription for change, for you to keep with you as a reminder.”
Changes to DSM 5

Replace “abuse” and “dependence” with moderate and severe substance use disorder – now mild, moderate, & severe

Combine 11 criteria into a single continuum of criteria

Drop legal problems related to use as a criterion

Add craving/compulsion to use as a new criterion
Formulation has three categories: mild (2-3), moderate (4-5), and severe (6+ positive criteria)

For Alcohol
Males: 23% of old severe now moderate
Females: 16% of old severe now moderate
DSM-IV vs. DSM-5 Alcohol Diagnoses for 6,871 Males

![Bar chart showing comparisons between DSM-IV and Proposed DSM-5 diagnoses]

- **No Dx** (DSM-IV-TR Diagnoses)
  - Proposed DSM-5:
    - Severe: [Blue bar]
    - Moderate: [Yellow bar]
    - Mild: [Green bar]
    - No Dx: [Pink bar]

- **Abuse** (DSM-IV-TR Diagnoses)
  - Proposed DSM-5:
    - Severe: [Blue bar]
    - Moderate: [Yellow bar]
    - Mild: [Green bar]
    - No Dx: [Pink bar]

- **Dependence**
  - Proposed DSM-5:
    - Severe: [Blue bar]
    - Moderate: [Yellow bar]
    - Mild: [Green bar]
    - No Dx: [Pink bar]
Comparison of DSM IV to 5

• Few of those who had no diagnosis received a DSM-5.0 diagnosis due to diagnostic orphans with two positive criteria (or one plus the new compulsion criterion)

• Abuse cases divided among all three new diagnostic categories

• Vast majority of dependent cases fall into the new severe designation
Alcohol Criteria Predominately in Severe Group

- Withdrawal symptoms
- Rule setting to limit use
- Sacrifice activities to use
- Failure at role fulfillment due to use
- Compulsion to use
- Preoccupation with use (consistent with craving concept?)
Urine Drug Testing

Review the science and practice of UDT

Review the value of UDT

Review the clinical implications
Urine Drug Testing

A **drug test** is a technical analysis of a biological specimen—for example urine, hair, blood, breath, sweat, or oral fluid/saliva—to determine the presence or absence of specified parent drugs or their metabolites.
Urine Drug Testing

Most employers request a standard **drug screen**, which **tests for** the five most common street **drugs**. The five-panel **test screens** for signs of marijuana, cocaine, phencyclidine, amphetamines and opiates. Amphetamines include illegal **drugs** such as methamphetamines, speed, crank and ecstasy.
## Drug Testing

<table>
<thead>
<tr>
<th>Drug</th>
<th>Alcohol</th>
<th>Ethyl glucuronide</th>
<th>6-14 hrs up to 80 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>Ethyl glucuronide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opiates</td>
<td>Morphine</td>
<td></td>
<td>2-4 days</td>
</tr>
<tr>
<td>Cocaine</td>
<td>benzoylecgonine</td>
<td></td>
<td>2-5 days</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>oxazepam</td>
<td></td>
<td>7 days, chronic 4-6 weeks</td>
</tr>
<tr>
<td>Amphetamine</td>
<td></td>
<td></td>
<td>1-3 weeks</td>
</tr>
<tr>
<td>Cannabis</td>
<td>25 ng/dl</td>
<td></td>
<td>Infrequent 7-10 days Heavy use up to 30 days</td>
</tr>
</tbody>
</table>
Figure 2. Metabolism of codeine, heroin, & morphine

Benzodiazepine Metabolism

Common limitations exist for screening benzodiazepines when using traditional immunoassay (IA) tests. IA testing is limited to the original drug or a single active metabolite, as well as the presence of closely related compounds that can be misidentified. Two examples include clonazepam and oxazepam.

Clomazepam and oxazepam have similar structures to diazepam, but differ in the number of nitrogens and carbons in their molecule.

- Clomazepam: 8-nitrogen, 7-carbon
- Oxazepam: 5-nitrogen, 5-carbon

Therefore, the presence of clomazepam or oxazepam will not be detected in diazepam IA screens. The availability of authentic standards for these compounds is currently limited.

Testing for the presence of these metabolites can be done by tandem mass spectrometry (MS-MS) with the use of stable isotope-labeled internal standards.
**BENZODIAZEPINES ASSAY**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Approximate cut-off for benzodiazepines assay (ng/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alprazolam*</td>
<td>108</td>
</tr>
<tr>
<td>Chlordiazepoxide</td>
<td>146</td>
</tr>
<tr>
<td>Clonazepam*</td>
<td>148</td>
</tr>
<tr>
<td>Clorazepate</td>
<td>124</td>
</tr>
<tr>
<td>Demoxepam</td>
<td>92</td>
</tr>
<tr>
<td>Diazepam</td>
<td>106</td>
</tr>
<tr>
<td>Flurazepam</td>
<td>165</td>
</tr>
<tr>
<td>Lorazepam*</td>
<td>163</td>
</tr>
<tr>
<td>Midazolam</td>
<td>168</td>
</tr>
<tr>
<td>Oxazepam</td>
<td>122</td>
</tr>
<tr>
<td>Temazepam</td>
<td>145</td>
</tr>
<tr>
<td>Triazolam</td>
<td>115</td>
</tr>
</tbody>
</table>

*In patients taking typical therapeutic doses of these benzodiazepines for medical purposes, the benzodiazepines screen can often be negative due to the low concentrations of these drugs and their metabolites excreted in urine relative to the cut-offs.*
### Amphetamines

<table>
<thead>
<tr>
<th>DRUG</th>
<th>Cut-Off Level ng/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>d-Amphetamine</td>
<td>981</td>
</tr>
<tr>
<td>d-Methamphetamine</td>
<td>1000</td>
</tr>
<tr>
<td>d-Pseudoephedrine</td>
<td>261,000</td>
</tr>
<tr>
<td>Ephedrine</td>
<td>308,000</td>
</tr>
<tr>
<td>MBDB (eden)</td>
<td>1,175</td>
</tr>
<tr>
<td>MDMA (ecstasy)</td>
<td>509</td>
</tr>
<tr>
<td>MDA</td>
<td>771</td>
</tr>
</tbody>
</table>
Preliminary vs. Definitive Testing

Preliminary
• Presumptive
• Immunoassay
• Qualitative
• Point of care
• Screening
• Semi-quantitative
• Simple Cup/Strip/Dip
• Class of drug

Definitive
• Confirmatory
• Chromatography/Mass Spec
• Quantitative
• Lab based
• Confirmation
• Absolute level, creatinine corrected
• Complex test
• Specific drug identification
Drug Testing for Diagnosis

Testing for Substance Use

Select substance based on history, community, and sentinel events

First consult DEFINITIVE

Follow up 1 time per year DEFINITIVE
Active Treatment

Testing for Substance Use

Consecutive Days of Negative Results

Select substance based on community and events

<table>
<thead>
<tr>
<th>Duration</th>
<th>Frequency</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Days</td>
<td>1-3/wk</td>
<td>Preliminary + Definitive when clinically indicated</td>
</tr>
<tr>
<td>31-90 days</td>
<td>1-3/wk</td>
<td>1-3 times/month</td>
</tr>
<tr>
<td>91 days – 2yrs</td>
<td>1-3/mo.</td>
<td>Preliminary + Definitive when clinically indicated</td>
</tr>
<tr>
<td></td>
<td>1-3 times/3months</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1-3/wk</td>
<td>1-3/wk</td>
</tr>
</tbody>
</table>
Medication-Assisted Treatment

Testing for Substance Use
Medication Assisted Treatment

Select substance based on community and events

<table>
<thead>
<tr>
<th>Consecutive Days of Negative Results</th>
<th>30 Days</th>
<th>31-90 days</th>
<th>91 days – 2yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-3/wk</td>
<td>1-3 times/mo.</td>
<td>1-3 times/ 3 mo.</td>
</tr>
<tr>
<td>Definitive</td>
<td>Definitive</td>
<td>Definitive</td>
<td></td>
</tr>
</tbody>
</table>
Chronic Care Management

Testing for Substance Use

Chronic Care Management

Select substance based on community and events

Consecutive Years of Negative Results

- >2 but <10
  - 1 time / year
  - Definitive
- >10
  - Based on Clinical Judgement
  - Definitive
References


