Behavioral Health is Essential To Health

Prevention Works

Treatment is Effective

People Recover
NIAAA Recommended Drinking Limits and SBIRT:
A Review of the Scientific Evidence
The purpose of this presentation is to inform participants about NIAAA’s drinking guidelines and to briefly illustrate the usefulness of SBIRT. This presentation consists of 7 sections:

1. The Basis for the NIAAA Guidelines
2. The Recommended Drinking Limits in NIAAA Guidelines
3. Medical Consequences of Risky Alcohol Use
4. NIAAA and SBIRT
5. SBIRT and Efficacy
6. Incorporating SBIRT into Practice
7. References
The Basis for the NIAAA Guidelines
Evidence Behind the Numbers*

• Studies demonstrate that the 5+/4+ limits accurately reflect the amount of alcohol consumed at which psychomotor and cognitive impairment is notably increased in both men and women.

• Epidemiologic risk curve analyses reveal significant and rapid increases in the risks of:
  – Unintentional injuries
  – Deaths resulting from external causes
  – Being a target of aggression or taking part in an aggression-related event
  – Alcohol use disorders
  – Unfavorable medical, work-related, legal, and social consequences related to drinking

• As the frequency of exceeding NIAAA’S guidelines increases, the likelihood of developing these problems increases.

*Full references provided at the end of the presentation: 4, 5, 7-10, 13, 19, 20, 21, 24, 34, 36-38, 56
Men and women over 65 are generally advised to have no more than 3 drinks on any day and 7 per week.

Heavy drinking during pregnancy can cause brain damage and other serious problems in the baby. Because it is not yet known whether any amount of alcohol is safe for a developing baby, women who are pregnant or may become pregnant should not drink.
Significance of the Numbers

Studies have consistently shown that when individuals exceed NIAAA’s daily or weekly drinking guidelines, their risk for alcohol-related problems increases significantly.
Background on the Recommended Limits*

• The measurement of 5 or more drinks to determine alcohol risks has been used for decades, predating NIAAA.

• In the 1960s, studies conducted by Virginia Technical College and later by the University of North Carolina Highway Research Center/National Transportation Safety Board assessed the impact of alcohol use and safety.

• At blood alcohol levels (BAL) of .06 to .09 (approximately 5 drinks for a male), there is measurable impairment in reasoning, depth perception, peripheral vision, and nighttime glare recovery, as well as increased risks for accident and injury.

*Full references provided at the end of the presentation: 2, 12, 35, 56
NIAAA conducted extensive, nationally representative, epidemiologic surveys including:
- National Longitudinal Alcohol Epidemiologic Survey—NLAES (1992)
- NESARC 3-year followup (2004–2005)

The surveys included questions regarding the frequency with which people drank more than 5 drinks in a given day.

Findings indicated that exceeding these drinking limits can significantly increase alcohol-related health problems.

*Full references provided at the end of the presentation: 9, 15, 28, 29
Based on consensus recommendations from a task force chaired by NIAAA Associate Director Dr. Mark Goldman in 2004, the NIAAA National Advisory Council approved the following definition for binge drinking:

**MEN**

5 or more drinks in 2 hours or less

**WOMEN**

4 or more drinks in 2 hours or less

*Full references provided at the end of the presentation: 30*
The Recommended Drinking Limits in NIAAA Guidelines
How Much is Too Much?*

• For healthy adults age 65 and under:

<table>
<thead>
<tr>
<th>Low-risk drinking limits</th>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>On any single DAY</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>drinks on any day</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AND</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per WEEK</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>No more than</td>
<td></td>
<td></td>
</tr>
<tr>
<td>drinks per week</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To stay low risk, keep within BOTH the single-day AND weekly limits.

• For people over 65, exceeding 3 drinks a day or 7 drinks a week is not recommended.

• Women who are pregnant or may become pregnant should not drink.

*Full references provided at the end of the presentation: 32
How Much is 1 Drink?*

0.6 fluid ounces or 14 grams of "pure" alcohol is the standard measurement used to define a typical drink.

*Full references provided at the end of the presentation: 31
Medical Consequences of Risky Alcohol Use
Excessive alcohol use is associated with many negative health and societal-related outcomes, including:

- Certain types of cancer, including breast cancer
- Obesity
- High blood pressure
- Stroke
- Injury
- Type 2 diabetes
- Accident and death resulting from drunk driving
- Violence, including homicide and sexual assault
- Suicide
- Cirrhosis of the liver

*Full references provided at the end of the presentation: 14,18,22,23,27,33,41,42,45,47,50,52
Physiological Consequences of Risky Drinking

Drinking too much

- Too fast → Intoxication → Acute effects
- Too often → Cell injury → Chronic effects

Acute effects:
- Intoxication
- Falls
- Drowning
- Motor vehicle crashes
- Pedestrian injuries
- Alcohol poisoning
- Assaults
- Intimate partner violence
- Child abuse
- Property crimes
- Suicide
- Homicide

Chronic effects:
- Cancer
- Liver cirrhosis
- Pancreatitis
- Gastroenteritis
- Addiction
- Hypertension
- Cardiovascular disease
- Fetal alcohol syndrome
- Neurologic damage
## Progressive Effects of Alcohol Based on Blood Alcohol Concentration

<table>
<thead>
<tr>
<th>Blood Alcohol Concentration</th>
<th>Changes in Feelings and Personality</th>
<th>Physical and Mental Impairments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.01 — 0.06</td>
<td>Relaxation</td>
<td>Thought</td>
</tr>
<tr>
<td></td>
<td>Sense of Well-being</td>
<td>Judgment</td>
</tr>
<tr>
<td></td>
<td>Loss of Inhibition</td>
<td>Coordination</td>
</tr>
<tr>
<td></td>
<td>Lowered Alertness</td>
<td>Concentration</td>
</tr>
<tr>
<td></td>
<td>Joyous</td>
<td></td>
</tr>
<tr>
<td>0.06 — 0.10</td>
<td>Blunted Feelings</td>
<td>Reflexes Impaired</td>
</tr>
<tr>
<td></td>
<td>Disinhibition</td>
<td>Reasoning</td>
</tr>
<tr>
<td></td>
<td>Extroversion</td>
<td>Depth Perception</td>
</tr>
<tr>
<td></td>
<td>Impaired Sexual Pleasure</td>
<td>Distance Acuity</td>
</tr>
<tr>
<td>0.11 — 0.20</td>
<td>Over-Expression</td>
<td>Periperal Vision</td>
</tr>
<tr>
<td></td>
<td>Emotional Swings</td>
<td>Glare Recovery</td>
</tr>
<tr>
<td></td>
<td>Angry or Sad</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boisterous</td>
<td></td>
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<tr>
<td>0.21 — 0.29</td>
<td>Stupor</td>
<td>Severe Motor Impairment</td>
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<tr>
<td></td>
<td>Lose Understanding</td>
<td>Loss of Consciousness</td>
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<tr>
<td></td>
<td>Impaired Sensations</td>
<td>Memory Blackout</td>
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<tr>
<td>0.30 — 0.39</td>
<td>Severe Depression</td>
<td>Bladder Function</td>
</tr>
<tr>
<td></td>
<td>Unconsciousness</td>
<td>Breathing</td>
</tr>
<tr>
<td></td>
<td>Death Possible</td>
<td>Heart Rate</td>
</tr>
<tr>
<td>=&gt; 0.40</td>
<td>Unconsciousness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Death</td>
<td></td>
</tr>
</tbody>
</table>

Full references provided at the end of the presentation: 51
Incidence of Alcohol Use Disorders Increases in Relationship to Exceeding NIAAA Guidelines*

Data analyzed extensively from NIAAA’s 2001 and 2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC)

- When daily drinking limits were exceeded:
  - Prevalence of possessing either alcohol abuse or dependence rose linearly as the frequency of exceeding the limits increased.
  - Exceeding weekly limits, in addition to daily limits, increased the incidence of having both disorders.

*Full references provided at the end of the presentation: 9
Weekly Alcohol Consumption Limits: USDA and NIAAA Consistency

U.S. Department of Agriculture (USDA) definition of moderate drinking:

<table>
<thead>
<tr>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 2 drinks per day</td>
<td>Up to 1 drink per day</td>
</tr>
<tr>
<td>Up to 14 drinks per week</td>
<td>Up to 7 drinks per week</td>
</tr>
</tbody>
</table>

NIAAA definition of heavy drinking:

<table>
<thead>
<tr>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 5 drinks per day</td>
<td>More than 4 drinks per day</td>
</tr>
<tr>
<td>More than 14 drinks per week</td>
<td>More than 7 drinks per week</td>
</tr>
</tbody>
</table>

Full references provided at the end of the presentation: 11, 25, 45, 46
NIAAA and SBIRT
What is SBIRT?

An intervention that includes the following:

- **Screening**: Universal screening for quickly assessing use and severity of alcohol, illicit drugs, and prescription drug abuse.

- **Brief Intervention**: A brief motivational and awareness-raising intervention given to risky or problematic substance users.

- **Referral to Treatment**: Referrals to specialty care for patients with substance use disorders.

- Treatment can be brief treatment or specialty AOD treatment.
NIAAA and SBIRT

- The essential approach to alcohol screening and intervention remains unchanged.
- In the 2005 NIAAA Clinician Guidelines, new directions for alcohol screening included a simplified, single-question screening question.
- This guide recommends that this validated single-question screener be used in conjunction with the AUDIT.

Full references provided at the end of the presentation: 47
NIAAA Single Question Alcohol Screen

• **Men**: How many times in the past year have you had 5 or more drinks in a day?

• **Women**: How many times in the past year have you had 4 or more drinks in a day?

(a response of ≥ 1 is considered positive)
Impact of SBIRT on Public Health

- SBIRT provides an opportunity for primary care, emergency service providers, and other community health providers to take proactive measures for patients who may be engaged in risky use of substances, but are not currently seeking treatment and are not in need of specialty treatment.

- SBIRT demonstrates that a rapid and simple set of procedures has the potential for impacting the public health burden of substance abuse.
The consensus is that NIAAA’s daily and weekly limits are considered the best option for balancing both sensitivity and specificity in predicting alcohol-related outcomes.
SBIRT and Efficacy
Over 200 Published Studies Demonstrating Effectiveness
SBIRT Benefits: Primary Care Settings*

Measurable Reductions

- Arrests
- Hospitalizations
- Nonfatal Injuries
- ER Visits
- Binge Drinking
- Drinks Per Week

*Full references provided at the end of the presentation: 3
SBIRT Impact on Individuals and Communities*

At the 6-month GPRA† followup, people who received SBIRT services reported:

• 41% reduction in alcohol use
• 68% reduction in illicit drug use
• Fewer arrests, more stable housing, improved employment status, fewer emotional problems, and improved overall health

† Government Performance Results Act of 1993 (GPRA) findings are based on self reported data and do not include a control group.
*Full references provided at the end of the presentation: 43
Changes in Substance Use and Other Outcomes*

State Cohorts I-IV

<table>
<thead>
<tr>
<th>Measure type</th>
<th># Valid Cases</th>
<th>% at Intake</th>
<th>% at 6-Month Followup</th>
<th>Rate of Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment/Education: Were currently employed or attending school</td>
<td>5,758</td>
<td>33.7</td>
<td>39.5</td>
<td>17.0</td>
</tr>
<tr>
<td>Stability in Housing: Had a permanent place to live in the community</td>
<td>5,899</td>
<td>49.7</td>
<td>52.5</td>
<td>5.7</td>
</tr>
<tr>
<td>Crime and Criminal Justice: Had no past 30 day arrests</td>
<td>5,527</td>
<td>88.4</td>
<td>94.8</td>
<td>7.3</td>
</tr>
<tr>
<td>No Social Consequences</td>
<td>5,625</td>
<td>50.4</td>
<td>84.4</td>
<td>67.4</td>
</tr>
<tr>
<td>Abstinence: Did not use alcohol or illegal drugs</td>
<td>20,747</td>
<td>16.1</td>
<td>41.1</td>
<td>155.3</td>
</tr>
<tr>
<td>Social Connectedness: Were socially connected</td>
<td>4,612</td>
<td>74.6</td>
<td>73.2</td>
<td>-1.8</td>
</tr>
</tbody>
</table>

Count of Intakes: 1,474,659
Count of Matched Six Month Follow-up: 21,035

*Full references provided at the end of the presentation: 45
# Mental Health Related Outcomes*

## State Cohorts I–IV

<table>
<thead>
<tr>
<th>Measure type</th>
<th># Valid Cases</th>
<th>% at Intake</th>
<th>% at 6-Month Followup</th>
<th>Rate of Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>5,516</td>
<td>47.3</td>
<td>37.3</td>
<td>-21.0</td>
</tr>
<tr>
<td>Anxiety</td>
<td>5,525</td>
<td>46.7</td>
<td>40.5</td>
<td>-13.2</td>
</tr>
<tr>
<td>Hallucination</td>
<td>5,575</td>
<td>8.3</td>
<td>5.6</td>
<td>-32.8</td>
</tr>
<tr>
<td>Trouble understanding, concentrating, or remembering</td>
<td>5,514</td>
<td>31.6</td>
<td>29.9</td>
<td>-5.5</td>
</tr>
<tr>
<td>Trouble controlling violent behavior</td>
<td>5,607</td>
<td>11.7</td>
<td>8.5</td>
<td>-27.3</td>
</tr>
<tr>
<td>Attempted suicide</td>
<td>5,625</td>
<td>4.5</td>
<td>1.5</td>
<td>-66.9</td>
</tr>
<tr>
<td>Been prescribed medication for psychological or emotional problems</td>
<td>5,597</td>
<td>17.9</td>
<td>19.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

**Count of Intakes:** 1,474,659  
**Count of Matched Six Month Follow-up:** 21,035

*Full references provided at the end of the presentation: 45*
Studies have repeatedly demonstrated SBIRT’s value, especially pertaining to alcohol problems (see reference section for full citation)

- Washington State Department of Social and Health Services, Research and Data Analysis Division. (2007). Medicaid costs declined among emergency department patients who received brief interventions for substance use disorders through WASBIRT.
SBIRT: Consensus Among Medicine and Government

Organizations recommending SBIRT:

- NIAAA
- SAMHSA
- American College of Surgeons Committee on Trauma (ACS-COT)
- American Medical Association
- American Public Health Association
- American Society of Addiction Medicine (ASAM)
- Centers for Medicaid and Medicare Services (CMS)
- American Academy of Family Medicine
- Centers for Disease Control and Prevention
ACS-COT mandates that Level I and II trauma centers have SBIRT capabilities and recommends the integration of SBIRT into all trauma centers.

*Full references provided at the end of the presentation: 49, 50
A Closer Look at SBIRT’s Generation of Cost Savings*

Findings in a 2010 study of Washington State’s SBIRT program:

The program reduced monthly Medicaid costs by approximately $366 per member (compared with those who did not receive brief interventions).

*Full references provided at the end of the presentation: 17
Incorporating SBIRT Into Practice
Rationale for Universal Screening

• Drinking and drug use are common.
• Drinking and drug use can increase 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.
Benefits of Universal Screening

• Provides an opportunity for education, early intervention
• Alerts provider to risks for interactions with medications or other aspects of treatment
• Offers an opportunity to engage the patient further
• Has proved beneficial in reducing high-risk activities for people who are not dependent
What is Screening?

• A range of evaluation procedures and techniques to capture indicators of risk
• A *preliminary assessment* that indicates probability that a specific condition is present
• A single event that informs subsequent diagnosis and treatment
Screening Tools Currently Used in Practice*

- The National Institute on Alcohol Abuse and Alcoholism (NIAAA) validated single-question screener
- The Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)
- The Alcohol Use Disorder Identification Test (AUDIT and AUDIT-C)
- The Car, Relax, Alone, Forget, Friends, Trouble (CRAFFT)
- The Comprehensive Adolescent Severity Inventory (CASI)
- The Cut down, Annoyed, Guilty, and Eye Opener (CAGE) test or the CAGE-AID, which includes questions about alcohol and illicit drugs

*Information obtained from the SBIRT Medical Residency and State Aggregate Report FY 2011
Key Points for Screening

• Screen everyone.
• Screen for both alcohol and drug use, including Rx abuse and tobacco.
• Explore each substance; many patients use more than one.
• Follow up positives or "red flags" by assessing details and consequences of use.
• Show nonjudgmental, empathic verbal and non-verbal behaviors during screening.
Use a brief yet valid screening question:

The NIAAA Single-Question Screener

**NEGATIVE**

Based on previous experiences with SBIRT, screening will yield 75% negative responses.

**POSITIVE**

If you get a positive screen, you may ask further assessment questions.
Prescreening

Do you sometimes drink beer, wine, or other alcoholic beverages?

NO

YES

How many times in the past year have you had 5 (men) or 4 (women or patients over age 65) drinks or more in a day?

If one or more affirmative answers, move on to full screen.

Sensitivity/Specificity: 82%/79%

*Full references provided at the end of the presentation: 42
Drinking Limits

Recommended Low-Risk Limits
Men = 4 per day / 14 per week
Women/anyone 65+ = 3 per day / 7 per week
A Positive Alcohol Screen = At-Risk Drinker

Binge drink
≥5 drinks for men or ≥4 drinks for women/anyone 65+
on one occasion during the previous 2 weeks

Does patient exceed low-risk limits?
Men: 4 drinks per day or 14 drinks per week
Women/anyone 65+: 3 drinks per day or 7 drinks per week

NO
Patient is not at risk. Move to drug screen

YES
Patient is at risk. Screen for maladaptive pattern of use and clinically significant alcohol impairment using AUDIT

*Full references provided at the end of the presentation: 55
AUDIT
Alcohol Use Disorders Identification Test

What is It?

- Ten questions, self-administered or through an interview, address recent alcohol use, alcohol dependence symptoms, and alcohol-related problems.
- Developed by the World Health Organization (WHO).

What are the strengths?

- Public domain—the test and manual are free.
- Validated in multiple settings, including primary care.
- Test is brief and flexible.
- Focuses on recent alcohol use.
- Consistent with ICD-10 and DSM IV definitions of alcohol dependence, abuse, and harmful alcohol use.

Limitations?

- Does not screen for drug use or abuse, only alcohol.
AUDIT Questionnaire

1. How often do you have a drink containing alcohol (Score)
   - Never (0)
   - Monthly or less (1)
   - Two to four times a month (2)
   - Two to three times a week (3)
   - Four 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)

4. How often during the last year have you found that you were not able to stop drinking once you had started?
   - Never (0)
   - Less than monthly (1)
   - Monthly (2)
   - Weekly (3)
   - Daily or almost daily (4)

5. How often during the last year have you failed to do what was normally expected from you because of drinking?
   - Never (0)
   - Less than monthly (1)
   - Monthly (2)
   - Weekly (3)
   - Daily or almost daily (4)

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

7. How often during the last year have you had a feeling of guilt or remorse after drinking?
   - Never (0)
   - Less than monthly (1)
   - Monthly (2)
   - Weekly (3)
   - Daily or almost daily (4)

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?
   - Never (0)
   - Less than monthly (1)
   - Monthly (2)
   - Weekly (3)
   - Daily or almost daily (4)

9. Have you or someone else been injured as a result of your drinking?
   - No (0)
   - Yes, but not in the last year (2)
   - Yes, during the last year (4)

10. Has a relative or friend, or a doctor or other health worker been concerned about your drinking, or suggested you cut down?
    - No (0)
    - Yes, but not in the last year (2)
    - Yes, during the last year (4)
## Domains and Item Content of the AUDIT

<table>
<thead>
<tr>
<th>Domains</th>
<th>Question Number</th>
<th>Item Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Alcohol Use</td>
<td>1</td>
<td>Frequency of drinking</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Typical quantity</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Frequency of heavy drinking</td>
</tr>
<tr>
<td>Dependence Symptoms</td>
<td>4</td>
<td>Impaired control over drinking</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Increased salience of drinking</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Morning drinking</td>
</tr>
<tr>
<td>Harmful Alcohol Use</td>
<td>7</td>
<td>Guilt after drinking</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Blackouts</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Alcohol-related injuries</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Others concerned about drinking</td>
</tr>
</tbody>
</table>
Scoring the AUDIT

Dependent Use (20+) 5%
Harmful Use (16-19) 20%
At-Risk Use (8-15) 35%
Low Risk Use (0-7) 40%
Conclusion
In Conclusion

• NIAAA Guidelines were informed by years of research.
• Exceeding the recommended drinking limits can increase the likelihood of negative health consequences.
• SBIRT can assist with identifying drinking behaviors that may be risky or harmful to patients.
• Screening questions have proven valid for identifying persons at risk.
• Multiple screening tools are available that have been tested for sensitivity and specificity.
References
Recommended Web-sites

NIAAAA: Professional Education Materials
http://www.niaaa.nih.gov/Publications/EducationTrainingMaterials/Pages/default.aspx

NIAAA: Rethinking Your Drinking. Low Risk Drinking

NIAAA: Surveillance Reports and Epidemiologic Manuals
http://www.niaaa.nih.gov/Publications/EpidemiologicManuals/Pages/default.aspx

SBIRT Colorado
http://www.improvinghealthcolorado.org/

SBIRT Effectiveness Data (from SAMHSA’s newsletter)

SBIRT Research (from Boston University)
http://www.bu.edu/bniart/sbirt-resources/sbirt-evidence-research/


References


References

References

    http://www.alcohol.vt.edu/students/alchoholeffects/index.htm


54. Washington State Department of Social and Health Services, Research and Data Analysis Division. Estee, S., He, L., Mancuso, D., & Felver, B. (2007). *Medicaid costs declined among emergency department patients who received brief interventions for substance use disorders through WASBIRT.*

