Alcohol Use and Trauma Patients: Opportunities to Change Lives

Julie A. Kmiec, DO
Assistant Professor of Psychiatry
University of Pittsburgh School of Medicine

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I have no conflicts of interest to disclose.
Objectives

- Understand the spectrum of alcohol use
- Learn different types of screening tools for alcohol
- Understand importance of screening, brief intervention, referral to treatment (SBIRT) in trauma setting
- Define brief intervention and goals, role of provider in a brief intervention
Spectrum of Alcohol Use

- Alcohol Use Disorder, Alcohol Dependence, Alcoholism
- Heavy Drinking
- Binge Drinking
- Low Risk or Moderate or “Social” Drinking
- Abstinence
Alcohol Use Disorder (DSM-5)

Two of the following in a 12 month period

- EtOH taken in larger amounts or for longer period of time than originally intended
- Persistent desire or unsuccessful efforts to cut down or control use
- Great deal of time spent to obtain, use, or recover from effects
- Cravings or strong desire to use
- Failure to fulfill major role obligations due to EtOH
Alcohol Use Disorder (DSM-5)

- Continued use despite social or interpersonal problems caused/exacerbated by EtOH
- Important activities are given up or reduced because of EtOH
- Recurrent use where it is physically hazardous
- Continued use despite having physical or psychological problem that was likely caused or exacerbated by EtOH
- Tolerance
- Withdrawal
Severity of Alcohol Use Disorder

- **Mild:** 2-3 symptoms
- **Moderate:** 4-5 symptoms
- **Severe:** 6 or more symptoms
Binge Drinking

- NIAAA defines as pattern of drinking that brings BAC to 0.08 within 2 hours (typically 4 drinks for women, 5 drinks for men)
- SAMHSA defines as drinking >5 drinks for men or >4 drinks for women, on same occasion
- Binge drinking is most common pattern of excessive alcohol use in the US
  - >1 in 6 adults binge drink (38 million; Kanny et al., 2015)
  - Typically 4 times per month
  - More than 50% of the alcohol adults drink is while binge drinking
  - More than 90% of the alcohol minors drink is while binge drinking

CDC, 2015
**STANDARD DRINKS EQUIVALENT AND APPROXIMATE NUMBER OF STANDARD DRINKS**

**12 oz of Beer**
5% Alcohol
- 12 oz = 1 drink
- 16 oz = 1.3 drinks
- 22 oz = 2 drinks
- 40 oz = 3.3 drinks

**Malt Liquor**
7% Alcohol
- 12 oz = 1.5 drinks
- 16 oz = 2 drinks
- 22 oz = 2.5 drinks
- 40 oz = 4.5 drinks

**5 oz glass of Table Wine**
12% Alcohol
- 5 oz glass = 1 drink
- A 25 oz bottle = 5 drinks

**1.5 oz of Hard Liquor** (whiskey, gin, rum, vodka, tequila)
40% Alcohol
- 1.5 oz = 1 drink
- A pint (16 oz) = 11 drinks
- A fifth (25 oz) = 17 drinks
- 1.75 Litter (59 oz) = 39 drinks
MY DOCTOR SAID 'ONLY 1 GLASS OF ALCOHOL A DAY'
Binge Drinking

- 9 out of 10 adults who binge drink aren’t alcohol dependent
- Typically binge is 8 drinks
- More common among
  - Men
  - Caucasians
  - 18-34 year olds

CDC 2015; CDC, 2010
# Binge Drinking by Income

<table>
<thead>
<tr>
<th></th>
<th>Income less than $25,000</th>
<th>Income more than $75,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of US adults who binge drink</td>
<td>16.2%</td>
<td>20.2%</td>
</tr>
<tr>
<td>Average number of monthly binges</td>
<td>5.0</td>
<td>3.7</td>
</tr>
<tr>
<td>Average largest number of drinks consumed per binge</td>
<td>8.5</td>
<td>7.2</td>
</tr>
</tbody>
</table>

*Source: 2010 Behavioral Risk Factor Surveillance System Combined Landline and Cell Phone Developmental Dataset, adults aged 18 and older, US*
Percent of adults who binge drink

Binge drinking varies from state to state, and estimates of adults who binge drink range from 10.9% in Utah to 25.6% in Wisconsin. Binge drinking is most common in the Midwest, New England, the District of Columbia, Alaska, and Hawaii.

The average largest number of drinks within a short period of time among binge drinkers ranged from 6 drinks in the District of Columbia to 9 drinks in Wisconsin. The largest number of drinks consumed by binge drinkers is highest in the Midwest and southern Mountain states (Arizona, Nevada, New Mexico, and Utah), and some states such as Louisiana, Mississippi, and South Carolina where binge drinking is less common.

The average largest number of drinks consumed by binge drinkers on an occasion

SOURCE: 2010 Behavioral Risk Factor Surveillance System Combined Landline and Cell Phone Developmental Dataset, Adults Aged 18 and Older, US
Alcohol Morbidity & Mortality

- 88,000 deaths related to excessive alcohol use annually (not necessarily trauma-related deaths)
- Alcohol is responsible for about half of trauma related deaths and injuries in the US
- 8 million alcohol related ED visits annually
- People who die from alcohol-related causes die 30 years earlier on average
- Trauma: MVC, violence (firearms, stabbings, assaults), falls
- ~50% of trauma admissions are related to alcohol

CDC, 2015
Alcohol & MVC

- In 2014, 9,967 Americans were killed in alcohol-impaired driving crashes (CDC, 2014)
- Average of 1 alcohol-impaired driving fatality every 53 minutes
- This accounted for 31% of all motor vehicle traffic fatalities in 2014
- 209 were children under 14 years of age
Alcohol & MVC

- About 5% of alcohol-related traffic fatalities involve alcohol use by pedestrians rather than drivers (Blincoe et al., 2010)

- Approximately 20% of teen drivers involved in a traffic fatality had alcohol in their system (CDC, 2014)
  - 81% had alcohol levels >0.08

- Total value of societal harm from alcohol-impaired driving crashes is $201.1 billion (NCSA, 2015)
Fig. 1. Rates of alcohol-attributable death from motor-vehicle traffic crashes, suicide and homicide by all means, and firearm suicide and homicide, 2006–2010 average. Footnote to figure: These data underestimate alcohol-attributable homicide relative to alcohol-attributable motor-vehicle crash deaths. Homicide is classified as alcohol-attributable if the perpetrator is intoxicated; deaths in which the perpetrator is not intoxicated, but the victim is, are not included. Motor-vehicle crash deaths are classified as alcohol-attributable if any driver is intoxicated. Data on alcohol-attributable deaths and alcohol-attributable fraction of deaths by cause (for motor vehicle deaths, homicide, and suicide) available at http://apps.nccd.cdc.gov/DACHARDI/Default/Default.aspx. Data on firearm homicide and suicide available at http://www.cdc.gov/injury/wisqars/index.html. To prepare the figure, the alcohol-attributable fractions for homicide and suicide were applied to firearm homicide and suicide.
Suicide

- Suicide is more likely to be violent, involve firearms (Kaplan et al., 2013) and/or hanging when alcohol is involved (Conner et al., 2014)

- One-third of decedents who died from suicide in a study of the National Violent Death Reporting System 2003-2009 were intoxicated at time of death (Kaplan et al., 2013)
### Table 1
Patient demographics and injury characteristics by BAC group (mg/dL).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Total (n=44492)</th>
<th>Ordered BAC</th>
<th></th>
<th></th>
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<th></th>
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<th></th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0 (n=31957)</td>
<td>1-99</td>
<td>100-199</td>
<td>200-299</td>
<td>300-399</td>
<td>≥400</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>(n=3518)</td>
<td>(n=4260)</td>
<td>(n=3658)</td>
<td>(n=952)</td>
<td>(n=147)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age in year (IQR)</td>
<td>35 (23-49)</td>
<td>36 (23-52)</td>
<td>31 (22-45)</td>
<td>30 (23-43)</td>
<td>34 (25-46)</td>
<td>41 (29-50)</td>
<td>44 (36-49)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Male sex (%)</td>
<td>31120 (70.0)</td>
<td>21082 (66.0)</td>
<td>2725 (77.5)</td>
<td>3397 (79.7)</td>
<td>2993 (81.8)</td>
<td>806 (84.7)</td>
<td>117 (79.6)</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>White race (%)</td>
<td>26108 (58.7)</td>
<td>19242 (60.2)</td>
<td>1652 (47.0)</td>
<td>2428 (57.0)</td>
<td>2171 (59.4)</td>
<td>533 (56.0)</td>
<td>82 (55.8)</td>
<td>&lt;0.001</td>
<td></td>
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</tr>
<tr>
<td>Injury mechanism</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Blunt (%)</td>
<td>37658 (84.6)</td>
<td>27566 (86.3)</td>
<td>2553 (72.6)</td>
<td>3388 (79.5)</td>
<td>3155 (86.3)</td>
<td>862 (90.6)</td>
<td>134 (91.1)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penetrating (%)</td>
<td>6099 (13.7)</td>
<td>3803 (11.9)</td>
<td>916 (26.0)</td>
<td>829 (19.5)</td>
<td>466 (12.7)</td>
<td>78 (8.2)</td>
<td>7 (4.8)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (%)</td>
<td>735 (1.7)</td>
<td>588 (1.8)</td>
<td>49 (1.4)</td>
<td>43 (1.0)</td>
<td>37 (1.0)</td>
<td>12 (1.2)</td>
<td>6 (4.1)</td>
<td></td>
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<tr>
<td>Injury type (blunt)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>MVC (%)</td>
<td>23701 (62.9)</td>
<td>17410 (63.2)</td>
<td>1698 (66.5)</td>
<td>2293 (67.7)</td>
<td>1918 (60.8)</td>
<td>348 (40.4)</td>
<td>34 (25.4)</td>
<td></td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Falls (%)</td>
<td>7972 (21.2)</td>
<td>6138 (22.3)</td>
<td>395 (15.5)</td>
<td>452 (13.3)</td>
<td>611 (19.4)</td>
<td>305 (35.4)</td>
<td>71 (53.0)</td>
<td></td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Assaults (%)</td>
<td>2917 (7.7)</td>
<td>1372 (5.0)</td>
<td>326 (12.8)</td>
<td>514 (15.2)</td>
<td>521 (16.5)</td>
<td>164 (19.0)</td>
<td>20 (14.9)</td>
<td></td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Other (%)</td>
<td>3068 (8.1)</td>
<td>2646 (9.6)</td>
<td>134 (5.2)</td>
<td>129 (3.8)</td>
<td>105 (3.3)</td>
<td>45 (5.2)</td>
<td>9 (6.7)</td>
<td></td>
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</tr>
<tr>
<td>Severe injury (%) (n=43237)</td>
<td>10790 (24.3)</td>
<td>7456 (24.1)</td>
<td>962 (28.0)</td>
<td>1185 (28.2)</td>
<td>925 (25.7)</td>
<td>233 (24.8)</td>
<td>29 (19.9)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admission GCS ≤8 (%)</td>
<td>3127 (7.0)</td>
<td>1854 (5.8)</td>
<td>334 (9.5)</td>
<td>410 (9.6)</td>
<td>393 (10.7)</td>
<td>111 (11.7)</td>
<td>25 (17.0)</td>
<td>&lt;0.001</td>
<td></td>
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</tr>
<tr>
<td>Serious brain injury (%)</td>
<td>5781 (13.0)</td>
<td>3892 (12.2)</td>
<td>483 (13.7)</td>
<td>625 (14.7)</td>
<td>592 (16.2)</td>
<td>167 (17.5)</td>
<td>22 (15.0)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of stay (days)</td>
<td>0.6 (0.2-3.2)</td>
<td>0.5 (0.2-3.2)</td>
<td>0.7 (0.3-3.6)</td>
<td>0.6 (0.3-2.9)</td>
<td>0.6 (0.4-2.5)</td>
<td>0.7 (0.5-2)</td>
<td></td>
<td>&lt;0.001</td>
<td></td>
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<tr>
<td>Disposition (%)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Home</td>
<td>35313 (79.4)</td>
<td>25077 (78.5)</td>
<td>2764 (78.6)</td>
<td>3479 (81.7)</td>
<td>3071 (84.0)</td>
<td>798 (83.8)</td>
<td>124 (84.4)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute care</td>
<td>7039 (15.8)</td>
<td>5301 (16.6)</td>
<td>535 (15.2)</td>
<td>597 (14.0)</td>
<td>473 (12.9)</td>
<td>115 (12.1)</td>
<td>18 (12.2)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic carea</td>
<td>110 (0.2)</td>
<td>104 (0.3)</td>
<td>4 (0.1)</td>
<td>2 (0.1)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>144 (0.3)</td>
<td>111 (0.3)</td>
<td>9 (0.3)</td>
<td>10 (0.2)</td>
<td>14 (0.4)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-hospital death</td>
<td>1886 (4.2)</td>
<td>1365 (4.3)</td>
<td>206 (5.9)</td>
<td>172 (4.0)</td>
<td>100 (2.7)</td>
<td>38 (4.0)</td>
<td>5 (3.4)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

GCS = Glasgow coma score; ISS = injury severity score; BP = blood pressure; MVC = motor vehicle collision. Continuous values are presented as medians with interquartile ranges, and categorical values are presented as numbers with percentages. Severe injury defined as injury severity score ≥16. Serious brain injury is brain abbreviated injury score ≥3.

*a Chronic care: skilled nursing facility/long-term acute care.
Injury by BAC

Afshar et al., 2016
Trauma and Subsequent Mortality

- Study of trauma patients admitted from 1983 to 1995, administered toxicology tests upon admission
- N=27,399 patients (15,836 tox neg; 11,563 tox pos)
- Obtained death certificates, up to 1997
- 1631 deaths overall (6%)
  - 22.7% of deaths were due to injury (6.4% of deaths in US were due to injury at that time)
  - 34.7% of deaths in tox pos patients were injury related

Dischinger et al., 2001
Cumulative Survival Rates by Tox Status & Age

Dischinger et al., 2001
What are current data?
Low Risk Drinking Limits

<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>No more than 4 drinks on any day</td>
<td>No more than 3 drinks on any day</td>
</tr>
<tr>
<td><strong>AND</strong></td>
<td><strong>AND</strong></td>
<td></td>
</tr>
<tr>
<td>Per WEEK</td>
<td>No more than 14 drinks per week</td>
<td>No more than 7 drinks per week</td>
</tr>
</tbody>
</table>

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

Men aged 66 and older should follow guidelines for women.

US Dietary Guidelines: up to 1 drink/ day for women, 2 drinks/ day for men; Don’t start drinking for health reasons.
### Drinking patterns in U.S. adults

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
<th>Risk Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>9%</td>
<td>drink more than <em>both</em> the single-day limits and the weekly limits</td>
<td>Highest risk</td>
</tr>
<tr>
<td>19%</td>
<td>drink more than <em>either</em> the single-day limits or the weekly limits</td>
<td>Increased risk</td>
</tr>
<tr>
<td>37%</td>
<td><em>always</em> drink <em>within</em> low-risk limits</td>
<td>Low risk</td>
</tr>
<tr>
<td>35%</td>
<td><em>never</em> drink alcohol</td>
<td>—</td>
</tr>
</tbody>
</table>
Adolescents Aged 12–17 in Michigan and the United States Who Perceived No Great Risk from Having Five or More Drinks Once or Twice a Week (2010–2011 to 2013–2014)\textsuperscript{1,3}

In Michigan, about 2 in 3 (64.6\%) adolescents aged 12–17 in 2013–2014 perceived no great risk from having five or more drinks once or twice a week—a percentage higher than the national percentage.

The percentage of adolescents aged 12–17 in Michigan who perceived no great risk from having five or more drinks once or twice a week did not change significantly from 2010–2011 to 2013–2014.

Past Year Alcohol Dependence or Abuse Among Individuals Aged 12 or Older in Michigan and the United States (2010–2011 to 2013–2014)

Michigan’s percentage of alcohol dependence or abuse among individuals aged 12 or older was similar to the national percentage in 2013–2014.

In Michigan, about 510,000 individuals aged 12 or older (6.1% of all individuals in this age group) per year in 2013–2014 were dependent on or abused alcohol within the year prior to being surveyed. The percentage decreased from 2010–2011 to 2013–2014.
Past Year Treatment for Alcohol Use Among Individuals Aged 12 or Older with Alcohol Dependence or Abuse in Michigan (Annual Average, 2010–2014)²

Michigan's annual average of treatment for alcohol use among individuals aged 12 or older with alcohol dependence or abuse was similar to the annual average for the nation (7.3%) from 2010 to 2014.

In Michigan, among individuals aged 12 or older with alcohol dependence or abuse, about 47,000 individuals (8.2%) per year from 2010 to 2014 received treatment for their alcohol use within the year prior to being surveyed.
ACS COT Requirement

- Resources for Optimal Care of the Injured Patient: 2006

- “Alcohol is such a significant associated factor and contributor to injury that it is vital that trauma centers have a mechanism to identify patients who are problem drinkers. Such mechanisms are essential in Level I and II trauma centers.”

- “In addition, Level I centers must have the capability to provide an intervention for patients identified as problem drinkers.”
ACS COT Requirement

- Resources for Optimal Care of the Injured Patient: 2014

- “Universal screening for alcohol use must be performed for all injured patients and must be documented.”

- “At Level I and II trauma centers, all patients who have screened positive must receive an intervention by appropriately trained staff, and this intervention must be documented.”
Impact of the Requirement

- 2006, this was first nationwide mandate for alcohol SBI in a general medical setting
- Must meet ACS criteria to get trauma center designation
- Government funding for trauma center may be dependent on being verified by ACS
Screening

- Helps rule out low/no risk users
- Identifies person’s level of risk
- Does not diagnose alcohol use disorder
- Provides springboard for discussion of alcohol use
- Identifies which patients may benefit from BI
- Identifies which patients may need referral to treatment
Pre-ACS Mandate

- Survey of Level I trauma centers about pre-ACS requirement SBI for alcohol (n=204)
- Responses from June 14, 2006 - November 6, 2007, >95% were before spring 2007
- 148 responded (73%)
  - 70% used lab screening (e.g., serum ethanol)
  - 39% asked screening questions
  - 34% used lab + screening questions
  - 21% used neither

Terrell et al., 2008
## Pre-ACS Mandate

<table>
<thead>
<tr>
<th>Tests performed</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood serum</td>
<td>103</td>
<td>71.0</td>
</tr>
<tr>
<td>Urine</td>
<td>47</td>
<td>32.4</td>
</tr>
<tr>
<td>Breathalyzer</td>
<td>7</td>
<td>4.8</td>
</tr>
<tr>
<td>Other test performed</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>Institution routinely asks screening questions</td>
<td>57</td>
<td>39.3</td>
</tr>
<tr>
<td>Percent of injured patients receiving screening questions (mean ± SD)</td>
<td>41 ± 41.0</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Screening questions asked</th>
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<tbody>
<tr>
<td>CAGE</td>
<td>36</td>
<td>24.8</td>
</tr>
<tr>
<td>Other</td>
<td>14</td>
<td>9.7</td>
</tr>
<tr>
<td>AUDIT</td>
<td>11</td>
<td>7.6</td>
</tr>
<tr>
<td>MAST</td>
<td>4</td>
<td>2.8</td>
</tr>
<tr>
<td>Single item</td>
<td>3</td>
<td>2.1</td>
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</tbody>
</table>

### Activities when patient positive for alcohol use

<table>
<thead>
<tr>
<th>Activities when patient positive for alcohol use</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal discussion</td>
<td>40</td>
<td>27.6</td>
</tr>
<tr>
<td>Formal consult</td>
<td>38</td>
<td>26.2</td>
</tr>
<tr>
<td>Other unspecified routine activity</td>
<td>79</td>
<td>54.5</td>
</tr>
<tr>
<td>Nothing</td>
<td>8</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Terrell et al., 2008
Why use screening tools?
Use of Clinical Suspicion

- Study of 462 trauma patients
- Asked RNs and physicians if
  - patient was acutely intoxicated (>100 mg/dL)
  - patient had alcohol abuse or dependence
- Then
  - obtained serum ethanol
  - conducted CAGE and SMAST screenings

Gentilello et al., 1999
Use of Clinical Suspicion

- 23% of acutely intoxicated patients were not identified by physicians
- Patients with negative BAC were more likely to be suspected of intoxication if
  - young
  - male
  - disheveled
  - uninsured
  - low income
- 26% were falsely identified as having an alcohol problem
- Staff identified 38% who screened positive on CAGE and 47% who screened positive on SMAST as having chronic alcohol problem

Gentilello et al., 1999
Screenings

- CAGE
- Alcohol Use Disorders Identification Test (AUDIT)
- Short Michigan Alcoholism Screening Test (SMAST)
- CRAFFT
Important Screening Tips

- State purpose of screening is for health
- Person doing screening is nonjudgmental and nonthreatening
- Patients should be assured their responses are confidential
- Patient is not intoxicated
- Patient does not need emergency care
- Show what is considered a typical drink
Standard Drink Sizes

12 fl oz of regular beer = 8–9 fl oz of malt liquor (shown in a 12 oz glass) = 5 fl oz of table wine = 1.5 fl oz shot of 80-proof distilled spirits (gin, rum, tequila, vodka, whiskey, etc.)

about 5% alcohol = about 7% alcohol = about 12% alcohol = 40% alcohol

The percent of “pure” alcohol, expressed here as alcohol by volume (alc/vol), varies by beverage.
CAGE

- Have you ever felt you ought to **cut down** on your drinking?
- Have people **annoyed** you by criticizing your drinking?
- Have you ever felt bad or **guilty** about your drinking?
- Have you ever had a drink (**eye-opener**) first thing in the morning to steady your nerves or get rid of a hangover?

*Score of two or greater is clinically significant*

Ewing, 1984
AUDIT

- Alcohol Use Disorder Identification Test
  - 10 items
    - Self-report
    - Interview version
  - Developed by WHO in 1982 in 6 countries
  - Cut-off score of 8 is considered positive
    - Sensitivity 0.9
    - Specificity 0.8

Babor et al, 2001
# The Alcohol Use Disorders Identification Test: Self-Report Version

PATIENT: Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential so please be honest. Place an X in one box that best describes your answer to each question.

<table>
<thead>
<tr>
<th>Questions</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How often do you have a drink containing alcohol?</td>
<td>Never</td>
<td>Monthly or less</td>
<td>2-4 times a month</td>
<td>2-3 times a week</td>
<td>4 or more times a week</td>
</tr>
<tr>
<td>2. How many drinks containing alcohol do you have on a typical day when you are drinking?</td>
<td>1 or 2</td>
<td>3 or 4</td>
<td>5 or 6</td>
<td>7 to 9</td>
<td>10 or more</td>
</tr>
<tr>
<td>3. How often do you have six or more drinks on one occasion?</td>
<td>Never</td>
<td>Less than monthly</td>
<td>Monthly</td>
<td>Weekly</td>
<td>Daily or almost daily</td>
</tr>
<tr>
<td>4. How often during the last year have you found that you were not able to stop drinking once you had started?</td>
<td>Never</td>
<td>Less than monthly</td>
<td>Monthly</td>
<td>Weekly</td>
<td>Daily or almost daily</td>
</tr>
<tr>
<td>5. How often during the last year have you failed to do what was normally expected of you because of drinking?</td>
<td>Never</td>
<td>Less than monthly</td>
<td>Monthly</td>
<td>Weekly</td>
<td>Daily or almost daily</td>
</tr>
<tr>
<td>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?</td>
<td>Never</td>
<td>Less than monthly</td>
<td>Monthly</td>
<td>Weekly</td>
<td>Daily or almost daily</td>
</tr>
<tr>
<td>7. How often during the last year have you had a feeling of guilt or remorse after drinking?</td>
<td>Never</td>
<td>Less than monthly</td>
<td>Monthly</td>
<td>Weekly</td>
<td>Daily or almost daily</td>
</tr>
<tr>
<td>8. How often during the last year have you been unable to remember what happened the night before because of your drinking?</td>
<td>Never</td>
<td>Less than monthly</td>
<td>Monthly</td>
<td>Weekly</td>
<td>Daily or almost daily</td>
</tr>
<tr>
<td>9. Have you or someone else been injured because of your drinking?</td>
<td>No</td>
<td>Yes, but not in the last year</td>
<td>Yes, during the last year</td>
<td>Yes, during the last year</td>
<td></td>
</tr>
<tr>
<td>10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?</td>
<td>No</td>
<td>Yes, but not in the last year</td>
<td>Yes, during the last year</td>
<td>Yes, during the last year</td>
<td></td>
</tr>
</tbody>
</table>

**Total**
Something to think about:
25% of the population will score an 8 or above on the AUDIT. That means 1 in 4 people are probably high-risk or dependent drinkers.
Michigan Alcoholism Screening Test – Short Version

These questions refer to the past 12 months only.

1. Do you feel that you are a normal drinker? (by normal we mean do you drink less than or as much as most other people.)

2. Does your wife, husband, a parent, or other near relative ever worry or complain about your drinking?

3. Do you ever feel guilty about your drinking?

4. Do friends or relatives think you are a normal drinker?

5. Are you able to stop drinking when you want to?

6. Have you ever attended a meeting of Alcoholic Anonymous (AA)?

7. Has your drinking ever created problems between you and your wife, husband, a parent or other near relative?

8. Have you ever gotten into trouble at work because of your drinking?

9. Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking?

10. Have you ever gone to anyone for help about your drinking?

11. Have you ever been in a hospital because of drinking?

12. Have you ever been arrested for drunken driving, driving while intoxicated, or driving under the influence of alcoholic beverages?

13. Have you ever been arrested, even for a few hours, because of other drunken behaviors?

* SMAST Score

* See scoring instructions for correct scoring procedures.
The SMAST is self-administered. All questions are to be answered with “YES” or “NO” answers only.

Scoring: Each “YES” answer equals one (1) point.

Interpretations: A score of 1 or 2 indicates that there is no alcohol problem and no further action is needed at this time. A score of 3 indicates a borderline alcohol problem and further investigation is necessary. A score of 4 or more indicates that there may be an alcohol problem and that a full assessment is needed.

<table>
<thead>
<tr>
<th>SMAST Score</th>
<th>Degree of Problem Alcohol Involvement</th>
<th>Suggested Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>No problems reported</td>
<td>None at this time.</td>
</tr>
<tr>
<td>3</td>
<td>Borderline alcohol problem reported</td>
<td>Further investigation is required.</td>
</tr>
<tr>
<td>4 or more</td>
<td>Potential Alcohol Abuse reported</td>
<td>A full assessment is required.</td>
</tr>
</tbody>
</table>

Selzer et al., 1975
The CRAFTT Screening Questions

Please answer all questions honestly; your answers will be kept confidential.

Part A
During the PAST 12 MONTHS, did you:

1. Drink any alcohol (more than a few sips)?
   - No
   - Yes

2. Smoke any marijuana or hashish?
   - No
   - Yes

3. Use anything else to get high?
   - "anything else" includes illegal drugs, over the counter and prescription drugs, and things that you sniff or “huff”
   - No
   - Yes

If you answered NO to ALL (A1, A2, A3) answer only B1 below, then STOP.

If you answered YES to ANY (A1 to A3), answer B1 to B6 below.

Part B

1. Have you ever ridden in a CAR driven by someone (including yourself) who was “high” or had been using alcohol or drugs?
   - No
   - Yes

2. Do you ever use alcohol or drugs to RELAX, feel better about yourself, or fit in?
   - No
   - Yes

3. Do you ever use alcohol or drugs while you are by yourself, or ALONE?
   - No
   - Yes

4. Do you ever FORGET things you did while using alcohol or drugs?
   - No
   - Yes

5. Do your FAMILY or FRIENDS ever tell you that you should cut down on your drinking or drug use?
   - No
   - Yes

6. Have you ever gotten into TROUBLE while you were using alcohol or drugs?
   - No
   - Yes

For adolescents

Knight et al., 1999
CRAFFT Scoring

- Adolescents with no use of alcohol or drugs and score of 0
  - praise and encouragement

- Use of alcohol and drugs and score 0 or 1
  - encourage to stop and receive brief advice on adverse effects of substance use

- Score of 2 or more is positive screen and indicates adolescent is high risk for having alcohol or drug disorder
  - requires further assessment

Knight et al., 1999
Why bother with an intervention?
People don’t really want to change or quit drinking.
Readiness to Change Alcohol Use after Trauma

84% thinking about or ready to make a change

Fig. 1. Percentage of patients assigned to each proposed stage of change.

Apodaca & Schermer, 2003
Brief Intervention (1)

- Teachable moment following a trauma
- Provided to those who screen positive (~25%)
- Takes about 10-30 mins
- Designed for patients who still have control over their drinking; they can cut down or quit without professional help
- Brief intervention can help to motivate patients with alcohol use disorder to go to treatment
Brief Intervention (2)

- Empathic
- Nonjudgmental
- Nonauthoritarian
- Reflective statements
- Enhance patient’s self-efficacy
Brief Intervention (3)

- Establish rapport
- Raise subject of alcohol use
- Review patient’s drinking amounts and patterns
- Compare patient’s drinking level to low risk drinking
- Make connection between drinking and trauma
Brief Intervention (4)

- Assess readiness to change
- Develop discrepancy between patient’s drinking and problems related to alcohol (explore pros and cons)
- Negotiate goal
- Ask permission to give advice
- Provide hand-outs
- Suggest primary care follow-up
FRAMES

- give personalized Feedback
- emphasize patient’s Responsibility for change
- offer Advice
- Menu of options
- demonstrate Empathy
- enhance patient's Self-efficacy
Advise Patients Not to Drink Alcohol

- When pregnant or trying to get pregnant
- When driving or operating machinery
- If taking medications that interact with alcohol (sedatives, opioids, psychiatric, some antihypertensives)
- If they have health conditions exacerbated by alcohol
- If they can’t control the amount they drink
Effects of High-Risk Drinking

- Aggressive, irrational behaviour.
- Arguments, Violence.
- Depression, Nervousness.
- Alcohol dependence, Memory loss.
- Premature aging. Drinker’s nose.
- Cancer of throat and mouth.
- Frequent colds. Reduced resistance to infection.
- Increased risk of pneumonia.
- Weakness of heart muscle.
- Heart failure, Anemia.
- Impaired blood clotting.
- Breast cancer.
- Liver damage.
- Vitamin deficiency. Bleeding.
- Severe inflammation of the stomach. Vomiting.
- Diarrhea, Malnutrition.
- Inflammation of the pancreas.
- Ulcer.
- Impaired sensation leading to falls.
- In men: Impaired sexual performance.
- In women: Risk of giving birth to deformed, retarded babies or low birth weight babies.
- Numb, tingling toes.
- Painful nerves.

High-risk drinking may lead to social, legal, medical, domestic, job and financial problems. It may also cut your lifespan and lead to accidents and death from drunken driving.
THINKING ABOUT A CHANGE?

It’s up to you

It’s up to you as to whether and when to change your drinking. Other people may be able to help, but in the end it’s your decision. Weighing your pros and cons can help.

Pros: What are some reasons why you might want to make a change?

☐ to improve my health  ☐ to lose weight or get fit
☐ to improve my relationships ☐ to save money
☐ to avoid hangovers ☐ to avoid more serious problems
☐ to do better at work or school ☐ to meet my own personal standards

☐ ____________________________________________________

Cons: What are some possible reasons why you might not want to change?

☐ ____________________________________________________

☐ ____________________________________________________

Compare your pros and cons. Put extra check marks by the most important one(s).
Is there a difference between where you are and where you want to be?

Ready... or not?

Are you ready to change your drinking? If so, see the next sections for support. But don’t be surprised if you continue to have mixed feelings. You may need to re-make your decision several times before becoming comfortable with it.

If you’re not ready to change yet, consider these suggestions in the meantime:

- Keep track of how often and how much you’re drinking.
- Notice how drinking affects you.
- Make or re-make a list of pros and cons about changing.
- Deal with other priorities that may be in the way of changing.
- Ask for support from your doctor, a friend, or someone else you trust.

Don’t wait for a crisis or to “hit bottom.”

When someone is drinking too much, making a change earlier is likely to be more successful and less destructive to individuals and their families.
Evidence of Effectiveness of BI in Trauma Centers
BI at Trauma Center to Reduce Injury Recurrence

- 2,524 patients screened from a population of 3,358 eligible trauma patients in the trauma center

- 1,153 screened positive for alcohol problems (BAC > 100 mg/dL or SMAST > 3; or combination of BAC 1-99, SMAST 1-2, elevated GGT)

- 762 of these patients were randomized to control or intervention group

- 300 of the 366 patients in the intervention group completed the intervention which was 30 min motivational interview/BI

- Outcomes: trauma recurrence after discharge; DUI and other citations; change in alcohol use at 6 and 12 months; treatment service review at 6 and 12 months

Gentilello et al., 1999
Figure 2. Risk of repeat injury requiring treatment in the Harborview Medical Center Emergency Department or admission to the trauma center. The analysis is for King County residents at 1 year follow-up and controls for gender, SMAST score, age, injury intent, and injury severity score (hazard ratio 0.53, 95% CI 0.26-1.07).

47% reduction in new injuries requiring ED or readmission in intervention group at 1 yr
Figure 3. Risk of injury resulting in hospital readmission in Washington State. Follow-up duration was up to three years. Analysis controls for gender, SMAX score, age, injury intent, and injury severity score (hazard ratio 0.52, 95% confidence interval 0.21 to 1.29).

48% reduction in new injuries requiring ED or readmission in intervention group at 3 yrs
Figure 4. Changes in alcohol intake in mean number of standard drinks per week during follow-up in patients with a SMAST score of 3 to 8 ($p < 0.01$).

SMAST 3-8 = mild to moderate alcohol problems
Figure 5. Odds ratio and 95% confidence interval for other outcomes at 1 year of follow-up for intervention group patients compared with controls, adjusted for SMAST, age, gender, injury severity, injury intent, and number of violations or arrests in the 6 months before injury.
Brief Intervention Decreases Subsequent DUI Arrests

- Prospective trial, randomly assigned patients to standard care or brief intervention after MVC
- Outcome measure: DUI arrest within 3 years of hospital discharge
- n=126

Schermer et al. 2006
## Table 1  Enrollment Characteristics of Subjects by Treatment Allocation

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Brief Intervention (n = 62)</th>
<th>Standard Care (n = 64)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age mean (SD)</td>
<td>32.5 (11.6)</td>
<td>33.4 (11.9)</td>
<td>0.68</td>
</tr>
<tr>
<td>Males (%)</td>
<td>40 (64.5)</td>
<td>47 (73.4)</td>
<td>0.28</td>
</tr>
<tr>
<td>Drivers (%)</td>
<td>43 (48.3)</td>
<td>46 (51.7)</td>
<td>0.76</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White non-Hispanic (%)</td>
<td>13 (21.0)</td>
<td>13 (20.3)</td>
<td>0.93</td>
</tr>
<tr>
<td>Hispanic</td>
<td>31 (50.0)</td>
<td>34 (53.1)</td>
<td></td>
</tr>
<tr>
<td>Native American</td>
<td>16 (25.8)</td>
<td>16 (21.0)</td>
<td></td>
</tr>
<tr>
<td>BAC mg/dL, mean (SD)</td>
<td>141.2 (102.4)</td>
<td>165.8 (97.2)</td>
<td>0.19</td>
</tr>
<tr>
<td>AUDIT score, mean (SD)</td>
<td>15.7 (8.64)</td>
<td>14.9 (7.7)</td>
<td>0.61</td>
</tr>
<tr>
<td>Number of prior DUI arrests</td>
<td>0.87 (1.37)</td>
<td>0.98 (1.62)</td>
<td>0.67</td>
</tr>
<tr>
<td>Any prior DUI citation (%)</td>
<td>27 (43.5)</td>
<td>28 (43.8)</td>
<td>1.00</td>
</tr>
<tr>
<td>Citation for current admission</td>
<td>15 (35.9)</td>
<td>21 (45.7)</td>
<td>0.30</td>
</tr>
</tbody>
</table>

Schermer et al. 2006
BI & DUI Results

- Within 3 years of discharge, 21 patients were arrested for at least 1 DUI
  - 14 of 64 (21%) of standard care
  - 7 of 62 (11.3%) of brief intervention (BI)
- 9.4 patients need to receive BI to prevent 1 DUI based on absolute risk reduction
- BI was strongest protective factor against DUI (OR=0.32, CI 0.11-0.96)

Schermer et al. 2006
Reimbursement/ Billing
## Reimbursement for SBIRT

<table>
<thead>
<tr>
<th>Payer</th>
<th>Code</th>
<th>Description</th>
<th>Fee Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Commercial Insurance</strong></td>
<td>CPT 99408</td>
<td>Alcohol and/or substance abuse structured screening and brief intervention services; 15 to 30 minutes</td>
<td>$33.41</td>
</tr>
<tr>
<td></td>
<td>CPT 99409</td>
<td>Alcohol and/or substance abuse structured screening and brief intervention services; greater than 30 minutes</td>
<td>$65.51</td>
</tr>
<tr>
<td><strong>Medicare</strong></td>
<td>G0396</td>
<td>Alcohol and/or substance abuse structured screening and brief intervention services; 15 to 30 minutes</td>
<td>$29.42</td>
</tr>
<tr>
<td></td>
<td>G0397</td>
<td>Alcohol and/or substance abuse structured screening and brief intervention services; greater than 30 minutes</td>
<td>$57.69</td>
</tr>
<tr>
<td><strong>Medicaid</strong></td>
<td>H0049</td>
<td>Alcohol and/or drug screening</td>
<td>$24.00</td>
</tr>
<tr>
<td></td>
<td>H0050</td>
<td>Alcohol and/or drug screening, brief intervention, per 15 minutes</td>
<td>$48.00</td>
</tr>
</tbody>
</table>

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**Important Medicare Information**

SAMHSA is working with the [Centers for Medicare and Medicaid Services](http://www.samhsa.gov/sbirt/coding-reimbursement) to educate practitioners about the importance of SBIRT coverage and the Medicare billing rules around these services. SBIRT services are defined as alcohol and/or substance (other than tobacco) abuse **structured assessment** (for example, Alcohol Use Disorders Identification Test, Drug Abuse Screening Test) and brief intervention. Medicare may not pay for screening services unless specifically required by statute.
With 10-30 minutes you can change a life!

Thank You for Your Attention

Comments? Questions?


