Screening, Brief Intervention and Referral to Treatment “SBIRT” in Adolescent Primary Care

Sharon Levy, MD, MPH
Director, Adolescent Substance Abuse Program
Boston Children’s Hospital

Assistant Professor of Pediatrics
Harvard Medical School

© Boston Children's Hospital 2014. All Rights Reserved. For permissions contact ASAP project manager at (857)-218-4317
• Trevor is a healthy 17 year old boy
• B+ student
• 2 sport varsity athlete.
• He reports “occasional drinking” with friends on weekends but denies ever using illicit drugs.
His PCP assesses him as “low risk” since his drinking is occasional and social and he is doing well in school and sports.
• One week after the appointment, Trevor attends a party with friends and has “a couple of beers”
• While driving home his car slams head on into a tree.
• Trevor is pronounced dead at the scene.
• His blood alcohol concentration at autopsy is 0.24.
• There is no safe level of drinking for adolescents

• Drinking by older teens is common and you cannot stop all of it, but failing to give clear health advice **not to drink** is a missed opportunity in primary care.

• The case vignette did not provide enough information to accurately assess Trevor’s risk.
The AAP recommends abstinence as the best health advice for teens and advises parents to set a clear “no use” policy around alcohol, tobacco and other drug use.

Committee on Substance Abuse, 2010
At all levels of blood alcohol concentration (BAC), the risk of involvement in a motor vehicle crash is greater for teens than for older drivers.
% College Students Involved in Date Rape that Reported Alcohol Involvement

Females 55%

Males 70%

Date Rape Drugs. Brown Univ. Heal. Educ. 2014. Available at: http://www.brown.edu/Student_Services/Health_Services/Health_Education/alcohol,_tobacco,_&_other_drugs/date_rape_drugs.php.
Age at First Use and Later Risk of SUD

**Alcohol**

<table>
<thead>
<tr>
<th>Age at First Drink</th>
<th>% with Alcohol Disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=13</td>
<td>47</td>
</tr>
<tr>
<td>14</td>
<td>45</td>
</tr>
<tr>
<td>15</td>
<td>38</td>
</tr>
<tr>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td>17</td>
<td>28</td>
</tr>
<tr>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>20</td>
<td>11</td>
</tr>
<tr>
<td>&gt;=21</td>
<td>9</td>
</tr>
</tbody>
</table>

**Marijuana**

<table>
<thead>
<tr>
<th>Age at First Use</th>
<th>% with Marijuana Disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>17</td>
<td>11</td>
</tr>
<tr>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>21+</td>
<td>4</td>
</tr>
</tbody>
</table>


© Boston Children's Hospital 2014. All Rights Reserved. For permissions contact ASAP project manager at (857)-218-4317
The developing adolescent brain is particularly vulnerable to the toxic effects of alcohol and other drug use.
Do you screen adolescents for alcohol use?

- **1997 AAP National:** 45%
- **2007-MA DPH:** 86%
- **2013 AAP:** 88%

What tool do you use to screen adolescents for alcohol use?

<table>
<thead>
<tr>
<th>% of physicians using validated tool</th>
<th>2007-MA DPH</th>
<th>2014 AAP unpublished</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>34%</td>
<td>23%</td>
</tr>
</tbody>
</table>

“There hasn’t been agreement among the physicians in my practice about the need for a screening tool on adolescent drug and alcohol use.”
## Provider Impressions vs. Diagnostic Interview

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Any use</strong></td>
<td>.63 (.58, .69 CI)</td>
<td>.81 (.76, .85 CI)</td>
</tr>
<tr>
<td><strong>Any problem</strong></td>
<td>.14 (.10, .20 CI)</td>
<td>1.0 (.99, 1.0 CI)</td>
</tr>
<tr>
<td><strong>Any disorder</strong></td>
<td>.10 (.04, .17 CI)</td>
<td>1.0 (.99, 1.0 CI)</td>
</tr>
<tr>
<td><strong>Dependence</strong></td>
<td>0.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>


© Boston Children's Hospital 2014. All Rights Reserved. For permissions contact ASAP project manager at (857)-218-4317
Practicing physician
“It’s a very small city...I wouldn't think that the kids are really using drugs and alcohol”
Practicing physician

“if [patients] are drinking, it's like stupid high school kids who go out and have a couple beers on a weekend here and there…it's not like chronic alcohol problems”.
The image shows a pyramid diagram with the following categories and percentages:

- **Severe Substance Use Disorder (SUD)**: 1%
- **Mild/Moderate SUD**: 7%
- **No Substance Use Disorder (SUD)**: 24%
- **No Substance Use**: 68%
The Screen-Machine

Insert Screening Questions

Risk level identified!

Boston Children's Hospital
Until every child is well™
Methods
Prototype Model

Actionable Categories for drugs and alcohol

1. No use of substances
2. “Limited” use, without problems
3. Use with problems or abuse (mild-moderate)
4. Substance dependence (severe)
<table>
<thead>
<tr>
<th>S2BI</th>
<th>In the past year, how many times have you used</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tobacco?</td>
</tr>
<tr>
<td></td>
<td>Alcohol?</td>
</tr>
<tr>
<td></td>
<td>Marijuana?</td>
</tr>
<tr>
<td></td>
<td>( options: Never, Once or twice, Monthly, Weekly )</td>
</tr>
<tr>
<td>S2BI</td>
<td>In the past year, how many times have you used</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Tobacco?</td>
</tr>
<tr>
<td></td>
<td>Alcohol?</td>
</tr>
<tr>
<td></td>
<td>Marijuana?</td>
</tr>
</tbody>
</table>

- Never
- Once or twice
- Monthly
- Weekly

- No substance use
- No substance use disorder (SUD)
- Mild/moderate SUD
- Severe SUD
## Sensitivity/Specificity of S2BI

CIDI-SAM interview vs screen frequency item for detecting a substance use disorder.

<table>
<thead>
<tr>
<th>Criterion Standard Dx</th>
<th>Screen Frequency</th>
<th>Prevalence N (%)</th>
<th>Sensitivity (95% CI)</th>
<th>Specificity (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Use</td>
<td>&gt; 1 Past year Use</td>
<td>90 (42.3)</td>
<td>1 [Reference]</td>
<td>84 (76-89)</td>
</tr>
<tr>
<td>Mild/Moderate SUD</td>
<td>&gt; Monthly use</td>
<td>41 (19.2)</td>
<td>90 (77, 96)</td>
<td>94 (89, 96)</td>
</tr>
<tr>
<td>Severe SUD</td>
<td>&gt; Weekly use</td>
<td>19 (8.9)</td>
<td>100 (na)</td>
<td>94 (90, 96)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOOL</th>
<th>USE</th>
</tr>
</thead>
</table>
| S2BI                 | • Frequency screen  
                      • Screens for tobacco, alcohol, marijuana and other illicit drug use  
                      • Discriminates between no use, no substance use disorder (SUD), moderate SUD, and severe SUD, based on DSM-5  |
| NIAAA Youth Alcohol Screen | • Two question screen  
                      • Screens for friends’ use and own use  
                      • Not a diagnostic tool  |
| CRAFFT               | Car, Relax, Alone, Friends/Family, Forget, Trouble  
                      • The CRAFFT is a good tool for quickly identifying problems associated with substance use and framing brief intervention discussions  
                      • Not a diagnostic tool  |
| BSTAD                | Brief Screener for Tobacco, Alcohol and Other Drugs  
                      • Identifies problematic tobacco, alcohol and marijuana use in pediatric settings  |
| GAINSS               | Global Appraisal of Individual Needs  
                      • Assesses for both substance use and mental health disorders  |
| AUDIT                | Alcohol Use Disorders Identification Test  
                      • Assesses risky drinking  
                      • Not a diagnostic tool  |
S2BI is the only screening tool you need for substance use and has a number of advantages:

• S2BI is quick and practical for short visits
• S2BI includes questions on tobacco in addition to alcohol and marijuana
• Research has found that the S2BI response choices correspond very well with DSM-5 diagnoses. Although S2BI does not provide formal diagnosis, clinicians can use the results to select the appropriate level of care
  – Kids who report “once or twice” in the past year are very unlikely to have a substance use disorder
  – Those who report “monthly” use will generally meet criteria for a mild or moderate substance use disorder
  – Those reporting “weekly” use will most likely meet criteria for a severe substance use disorder (Levy et al, 2014)
• S2BI is a brief screening tool that can identify adolescents with a severe substance use disorder. This helps to quickly identify the kids most likely to benefit from a referral
• S2BI is compatible with most electronic medical records
IN THE PAST YEAR, HOW MANY TIMES HAVE YOU USED:

Tobacco?
- Never
- Once or twice
- Monthly
- Weekly or more

Alcohol?
- Never
- Once or twice
- Monthly
- Weekly or more

Marijuana?
- Never
- Once or twice
- Monthly
- Weekly or more

STOP if answers to all previous questions are “never.” Otherwise, continue with questions on the right.

Prescription drugs that were not prescribed for you (such as pain medication or Adderall)?
- Never
- Once or twice
- Monthly
- Weekly or more

Illegal drugs (such as cocaine or Ecstasy)?
- Never
- Once or twice
- Monthly
- Weekly or more

Inhalants (such as nitrous oxide)?
- Never
- Once or twice
- Monthly
- Weekly or more

Herbs or synthetic drugs (such as salvia, “K2”, or bath salts)?
- Never
- Once or twice
- Monthly
- Weekly or more
**How many times in the past year have you used:**
1) **Tobacco? Alcohol? Marijuana?**
2) **Prescription drugs? Inhalants? Illegal Drugs?**

- **No Use**
  - Positive Reinforcement

- **Once or Twice**
  - Ask Follow-Up S2BI Questions
  - Brief Advice

- **Monthly Use**
  - Ask Follow-Up S2BI Questions

- **Weekly Use**
  - Motivational Intervention: Assess for problems, advise to quit, make a plan
  - Reduce use & Risky Behaviors
  - Referral to treatment

Page 14 in workbook
BRIEF INTERVENTIONS
No Use: Positive Reinforcement

• Give prevention message

• Frame as a decision if appropriate

• For younger kids include “norms correction”
Of course most kids your age don't drink.
Choosing not to drink is a smart decision!
Anticipatory guidance for parents: preventing substance use before it starts

Anticipatory guidance to prevent substance use is a powerful part of routine pediatric health care. Encourage parents to discuss healthy, substance-free means to express or resolve feelings such as elation, stress, disappointment, or pain.
Once or Twice: Brief Advice

- Give cessation advice
- Talk about health consequences
- Use a strengths based approach
Marcus

- 16 year old boy
- Marijuana use “once or twice” in the past year
Sample Scenario 1

Carolyn is a 16-year-old high school sophomore who reports tobacco use “once or twice” in the past year. She denies use of other substances.

During her physical, her primary care doctor reviews her screen and gives her brief advice to quit. “I see that you have used tobacco on occasion. As your doctor, it probably will not surprise you that I recommend that you quit, and now is the best time. You likely have heard that tobacco causes heart disease and cancer in addition to lots of other medical problems. The good news is that if you quit right now, it will probably be easy for you. If you decide to wait until later it may be more challenging since tobacco is one of the most addictive substances there is, and once you become addicted quitting becomes much harder.”
<table>
<thead>
<tr>
<th>Monthly: Brief Motivational Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ask questions to identify common problems</td>
</tr>
<tr>
<td>• Use problems as a pivot point in the conversation</td>
</tr>
<tr>
<td>• Give clear medical advice to stop, while acknowledging agency</td>
</tr>
<tr>
<td>• <strong>Make a behavior change plan; target highest risk behaviors</strong></td>
</tr>
<tr>
<td>• Ask permission to include parents in the discussion</td>
</tr>
<tr>
<td>• Invite back for follow up</td>
</tr>
</tbody>
</table>

© Boston Children's Hospital 2014. All Rights Reserved. For permissions contact ASAP project manager at (857)-218-4317
Katie

• 17-year-old girl
• “Monthly” alcohol use and “once or twice” marijuana use.
She has “forgotten” things that have happened on a couple of occasions.

She was suspended for 2 weeks because she was drunk at the homecoming game and threw up in the bathroom.
How do you think you can better protect yourself in the future?
Maybe that was too much…
In regards to your health, quitting would be best. Cutting down is a good idea.
Katie’s change plan
December 1, 2015

### S2BI Screen Result:

<table>
<thead>
<tr>
<th>Substance</th>
<th>None</th>
<th>1-2X</th>
<th>Monthly</th>
<th>Weekly</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Marijuana</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tobacco</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**Plan:** My doctor recommends that I stop, but for now I will:

- Limit to two drinks a night.
- Never drive after drinking or ride with an impaired driver.
- I am not interested in an alcohol counseling session at this time.

**Follow Up:** In one month
Sample Scenario 2

Hunter is a 16-year-old boy who reports monthly alcohol use without other substances on S2BI screening. He responds “yes” to the CRAFFT FORGET and FRIENDS questions.

The clinician asks for more detail, and Hunter talks about not remembering everything that happens at parties. When asked to describe further, Hunter admits that he finds the loss of control frightening. He also says that his girlfriend thinks he drinks too much. The clinician summarizes, gives Hunter brief advice, and challenges him to make a change, “It sounds as if drinking at parties is something you enjoy and you also have had some scary situations — and your girlfriend is concerned about you. As your doctor, I recommend that you don’t drink alcohol at all, at least until you are older. When you have a black out, you have temporarily poisoned the brain cells that lay down new memory. As you are saying, kids often make decisions they regret and get into trouble when they use alcohol. How can you protect yourself better in the future?” Hunter says that he is not willing to quit but agrees to cut down. He agrees to come in for a follow-up visit.
REFERRAL TO TREATMENT
Weekly: Referral to Treatment

- Ask questions to identify common problems
- Use problems as a pivot point in the conversation
- Give clear medical advice to stop
- Make an action plan
- **Refer to the appropriate level of care**
- Include parents to assist coordination
- Invite back for follow up
Alex

- 15-year-old boy
- “Weekly” marijuana use.
He uses marijuana when he feels “stressed”

He often smokes alone

His mother is “constantly on his case.”

He was brought home by the police. His grades have dropped
Tell me more about school.
Why is your mom so concerned about your marijuana use?
Why is your mom so concerned about your marijuana use?
For your health, I recommend that you quit.
I could never quit. TOO MUCH STRESS
A counselor could help with your stress and marijuana use.
Can we bring your mom in?
I could tell your mom that you’ve agreed to meet with a counselor.
Is the youth at risk for withdrawal and/or in need of inpatient detox or stabilization?

- NO
- YES → Willing to engage in services?
  - NO
  - YES → Is youth over 18?
    - NO
    - YES → Contact the Helpline 800-327-5050 helpline-online.com and/or call insurance carrier regarding detox services

Willing to engage in services?

- NO
- YES → Refer to local outpatient provider, insurance carrier, or Youth Central Intake

Willing to reduce substance use?

- NO
- YES → If under 18, discuss with parent option of filing Children Requiring Assistance (CRA)* to obtain supervision from the court system and services by calling local police station

- Options:
  - Monitor and follow up with youth
  - Refer family to Youth Central Intake
  - Suggest self-help groups for caregiver and for youth

*MA legal options for mandated substance abuse treatment
Sample Scenario 3

William is a 17-year-old boy who comes in for follow up after an emergency department visit for “alcohol poisoning” three days ago. He says he has been doing fine at home but his parents insisted that he keep this appointment. He reports weekly or more use of alcohol and marijuana, and monthly use of prescription medications and cocaine. He answers yes to RELAX, ALONE, and FORGET on the CRAFFT.
Adolescent SBIRT

Toolkit for Providers

• http://massclearinghouse.ehs.state.ma.us/BSAS_SBIRTPROG/SA1099.html
Acknowledgements

Co-principal investigator: Elissa Weitzman, ScD, Msc
Program Manager: Julie Lunstead, MPH

Clinicians
- Diana Deister, MD, MS
- Leslie Green, MSW
- Scott Hadland, MD, MPH
- Julie Hansen, MSW
- Shannon Mountain-Ray, MSW
- Miriam Schizer, MD, MPH
- Patricia Schram, MD

Research Assistants
- Dylan Kaye, BA
- Lily Rabinow, MS
- Parissa Salimian, BA
- Meghana Vijaysimha, MPH

Research Collaborators
- Elizabeth Harstad, MD, MPH
- Sion Kim Harris, PhD
- Lydia Shrier, MD, MPH
- Lauren Wisk, PhD

Data Manager
- Qian Huang, MPH

Teaching Collaborators
- Pamela Burke, PhD, RN
- Linda Malone, DNP, RN
- Sarah Pitts, MD
- Marianne Pugatch, MSW
- Jennifer Putney, PhD

Clinic Collaborators
- Fatma Dedeoglu, MD
- Katharine Garvey, MD, MPH
- Paul Rufo, MD, MMSc
- Paul Hammerness, MD
- Andrew MacGinnitie, MD, PhD
- Jonathan Gaffin, MD