**eSBIRT Prescreen Changes**

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**Overview**

Implementing screening, brief interventions, and referral to treatment (SBIRT) programs for risky alcohol and drug use in medical settings is an important but challenging endeavor. To limit the time needed to implement, it is best to assess only those individuals who may need services. The eSBIRT system uses a prescreen to do this. The initial prescreen was studied and found to be poor at making the needed discriminations. A new prescreen, based on the World Health Organization’s AUDIT-C, was implemented and tested. The new prescreen is significantly better than its predecessor resulting in a 72% to 80% reduction in cost and 76% to 84% reduction in time needed to implement the program in outpatient settings.

**Prescreening**

The Missouri SBIRT program uses a very brief (5 question) prescreen to determine which patients need more in-depth screening. Questions included one for tobacco, one for prescription or other drug misuse, and three related to alcohol use.

The alcohol items in the initial eSBIRT prescreen were:

- When was the last time you had 4/5 standard drinks in a day or night? Was that within the last 3 months? (female/male)
- In the last twelve months, did you ever find yourself drinking more than you meant to?
- In the last twelve months, did you ever think that maybe you should cut down on your drinking?

A positive on any item would be considered a positive prescreen and the patient would receive a full screening with the ASSIST. These items were included because previous research had shown them to discriminate between those who did and did not have risky alcohol use.

Analysis of the initial prescreen showed, however, that, in the Missouri implementation of SBIRT, it was not effective with a sensitivity of 43.5% (the ability to identify those at risk) and a specificity of 12.0% (the ability to identify those not at risk). This translates into an 88% false positive rate and a 56% false negative rate. The practical outcome of this was that the staff had to do many unnecessary ASSIST assessments.

Pilot analyses suggested that the World Health Organizations AUDIT-C might provide a more effective prescreen and a test of an AUDIT-C based prescreen was conducted in a variety of sites. Analysis of the 4,259 patients included in that study demonstrated that, using a cut point of >= 4, the AUDIT-C had significantly better sensitivity and specificity for both men (93.3%, 88.4%) and women (90.6%, 96.3%)

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1 Note that because individuals with negative prescreens were not assessed with the ASSIST the false negative rate is likely to be an underestimate.
than the original prescreen (see Table 1). The corresponding likelihood ratios, which describe the change in odds with the use of the prescreen are also significantly improved. This translates into a 12% false positive rate and a 7% false negative rate for men and a 4% false positive rate and a 9% false negative rate for women.

Table 1. Prediction capabilities for original and AUDIT-C pretests

<table>
<thead>
<tr>
<th>Pretest Gender</th>
<th>Cut Point</th>
<th>Sensitivity (95% CI)</th>
<th>Specificity (95% CI)</th>
<th>Positive LR (95% CI)</th>
<th>Negative LR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Origional</td>
<td>Both 1</td>
<td>43.5% (39.9%, 47.2%)</td>
<td>12.0% (10.7%, 13.3%)</td>
<td>0.49 (0.45, 0.54)</td>
<td>4.70 (4.14, 5.35)</td>
</tr>
<tr>
<td>New Men</td>
<td>4</td>
<td>93.3% (87.7%, 99%)</td>
<td>88.4% (87%, 89.8%)</td>
<td>8.04 (7.01, 9.22)</td>
<td>0.08 (0.03, 0.18)</td>
</tr>
<tr>
<td>Women</td>
<td>4</td>
<td>90.6% (80.5%, 100%)</td>
<td>96.3% (95.5%, 97%)</td>
<td>24.23 (19.08, 30.76)</td>
<td>0.10 (0.03, 0.29)</td>
</tr>
</tbody>
</table>

Cost and time savings

While the increases in sensitivity and specificity are impressive, it is useful to consider the improvements in economic terms. That is, the amount of staff time needed to implement screening and the costs associated with those screens. Time and cost data in these calculations are from a federally funded cross site evaluation\(^2\) of a national sample of outpatient centers providing SBIRT services.

Table 2 shows the costs for prescreening and screening 100 outpatients. If no prescreen were used the screening cost of the ASSIST would be $406 and take staff 960 minutes (16 hours) to complete. With the initial prescreen the costs and time are slightly higher than using no prescreen because of the added prescreening costs. The new prescreen, on the other hand, is significantly less expensive for men (72%) and women 80% and requires 12 to 13 fewer staff hours\(^3\). Remember that these cost and time estimates are per 100 patients. Sites with more patients will see correspondingly larger impacts.

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\(^2\) RTI economic evaluation, *How long do SBIRT services take to deliver and what do they cost?* (SBIRT Webinar November 20, 2013)

\(^3\) Note that these analyses focus only on the reduced false positive rates. The face that the false negative rate has also been dramatically reduced means that more individuals in need of intervention would receive one.
Table 2. Cost and time changes from no prescreen per 100 patients

<table>
<thead>
<tr>
<th>Prescreen</th>
<th>Gender</th>
<th>Full Screens</th>
<th>Cost</th>
<th>Minutes</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Both</td>
<td>100</td>
<td>-</td>
<td>$406</td>
<td>960</td>
</tr>
<tr>
<td>Origional</td>
<td>Both</td>
<td>88</td>
<td>$69</td>
<td>$357</td>
<td>120</td>
</tr>
<tr>
<td>AUDIT-C</td>
<td>Men</td>
<td>12</td>
<td>$69</td>
<td>$49</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>4</td>
<td>$69</td>
<td>$16</td>
<td>120</td>
</tr>
</tbody>
</table>

Implications and Recommendations

It is clear that the new prescreen is a significant improvement and should be implemented. As a result it will be added to future versions of eSBIRT, Missouri’s SBIRT performance support system.

With this change at least one issue needs to be addressed. Many sites have incorporated the old prescreen into their EMRs and that prescreen is often administered by the staff person rooming a patient and not an individual trained in SBIRT. Changing the prescreen in the EMRs would be most helpful because only the text and responses for three of the questions have changed (no questions have been added). This should not be a major task.

In the interim, eSBIRT has been modified to support both old and new prescreens. With the new prescreen in eSBIRT, a check box has been added indicating a positive prescreen from the old prescreen. Marking this option gets the staff directly into the full screening without requiring any other responses. However, given the large cost and time savings from the new prescreen it would be to the provider’s benefit to always use this new screen in eSBIRT.