Updates in Diabetes Screening
April 9th, 2016
Raema Mir, MD
Objectives

• Identify changes from previous diabetes recommendations
• Comprehend the evidence supporting the new recommendations
• Implement these changes into the clinical setting
<table>
<thead>
<tr>
<th>Grade</th>
<th>Definition</th>
<th>Suggestions for Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>The USPSTF recommends the service. There is high certainty that the net benefit is substantial.</td>
<td>Offer or provide this service.</td>
</tr>
<tr>
<td>B</td>
<td>The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.</td>
<td>Offer or provide this service.</td>
</tr>
<tr>
<td>C</td>
<td>The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small.</td>
<td>Offer or provide this service for selected patients depending on individual circumstances.</td>
</tr>
<tr>
<td>D</td>
<td>The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.</td>
<td>Discourage the use of this service.</td>
</tr>
<tr>
<td>I</td>
<td>The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.</td>
<td>Read the clinical considerations section of USPSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.</td>
</tr>
</tbody>
</table>

**Statement**
<table>
<thead>
<tr>
<th>Level of Certainty*</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High</strong></td>
<td>The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.</td>
</tr>
</tbody>
</table>
| **Moderate**       | The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by such factors as:  
  - The number, size, or quality of individual studies.  
  - Inconsistency of findings across individual studies.  
  - Limited generalizability of findings to routine primary care practice.  
  - Lack of coherence in the chain of evidence.  
As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion. |
| **Low**            | The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of:  
  - The limited number or size of studies.  
  - Important flaws in study design or methods.  
  - Inconsistency of findings across individual studies.  
  - Gaps in the chain of evidence.  
  - Findings not generalizable to routine primary care practice.  
  - Lack of information on important health outcomes.  
More information may allow estimation of effects on health outcomes. |
Updated Recommendation

Screening for abnormal blood glucose as part of cardiovascular risk assessment in adults aged 40 to 70 years who are overweight or obese. Clinicians should offer or refer patients with abnormal blood glucose to intensive behavioral counseling interventions to promote a healthful diet and physical activity. (B recommendation)
What’s Changed?

• Asymptomatic adults with sustained blood pressure (either treated or untreated) greater than 135/80 mm Hg. (B recommendation) (2008)
Evaluation of Mortality Benefit of Screening

- Two studies in Europe
- Neither study had follow-up beyond ten years or measured nonfatal cardiovascular events
  - ADDITION-Cambridge (2012)
  - Followup of Ely Cohort (2011)
- Inadequate direct evidence that screening leads to improvements in mortality or cardiovascular morbidity
Benefits of Behavioral Intervention

- Previously USPSTF found adequate evidence that intensive behavioral counseling interventions for persons at increased risk for CVD have moderate benefits in lowering CVD risk
- Meta-analysis of ten studies shows lifestyle interventions prevent or delay progression to Type 2 diabetes
- Has greater effect on reducing progression to diabetes than medications
- Three studies showed association with better quality of life
Pharmacologic Intervention

- Eight studies published since the prior review show: Metformin, thiazolidinediones, and alpha-glucosidase inhibitors all effective in preventing or delaying progression to diabetes.
- Meta-analysis of five trials did not show reduction in cardiovascular mortality.
### Table. Test Values for Normal Glucose Metabolism, IFG or IGT, and Type 2 Diabetes*

<table>
<thead>
<tr>
<th>Test</th>
<th>Normal</th>
<th>IFG or IGT</th>
<th>Type 2 Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin A1c level, %</td>
<td>&lt;5.7</td>
<td>5.7-6.4</td>
<td>≥6.5</td>
</tr>
<tr>
<td>Fasting plasma glucose level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mmol/L</td>
<td>&lt;5.6</td>
<td>5.6-6.9</td>
<td>≥7.0</td>
</tr>
<tr>
<td>mg/dL</td>
<td>&lt;100</td>
<td>100-125</td>
<td>≥126</td>
</tr>
<tr>
<td>OGGT results†</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mmol/L</td>
<td>7.8</td>
<td>7.8-11.0</td>
<td>≥11.1</td>
</tr>
<tr>
<td>mg/dL</td>
<td>&lt;140</td>
<td>140-199</td>
<td>≥200</td>
</tr>
</tbody>
</table>

IFG = impaired fasting glucose; IGT = impaired glucose tolerance; OGGT = oral glucose tolerance test.
* From reference 46. All positive test results should be confirmed with repeated testing.
† After 2 h.
Qualities of Effective Programs

• Setting a weight loss goal
• Individual or group sessions
• Meetings with a trained diet or exercise counselor or individually tailored diet or exercise plans.
• More information at: www.thecommunityguide.org/diabetes/combineddietandp a.html
Harms

- Measuring blood glucose is associated with short-term anxiety but not long-term psychological harms.
- Lifestyle interventions: small to none.
- Drug therapy: small to moderate, depending on the drug and dosage used.
When to Consider Earlier Screening?

- Family history of diabetes
- History of gestational diabetes
- Polycystic ovarian syndrome
- Members of certain racial/ethnic groups

Consider screening earlier in persons with 1 or more of these characteristics.
Clinical Considerations

- Persons with higher glucose levels may be more likely to benefit and avoid a diabetes diagnosis than those whose glucose levels are closer to normal.
Confirm Your Diagnosis

- Repeated testing with the same test on a different day is the preferred method of confirmation
Summary

- Screen adults aged 40 to 70 years old who are overweight and obese
- Offer behavioral counseling interventions to those with abnormal results
- Inadequate evidence regarding mortality and cardiovascular morbidity benefits directly related to screening
- Life-style interventions show a moderate benefit in reducing progression to diabetes
- Take individual patient into account when screening and treating


“Diabetes Prevention and Control: Combined Diet and Physical Activity Promotion Programs to Prevent Type 2 Diabetes Among People at Increased Risk” <www.thecommunityguide.org/diabetes/combineddietandpa.html>