Prediabetes Prevalence and Risk Factors in Alabama, 2013

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CSTE
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Background

- **Prediabetes:**
  - Blood sugar (glucose) above normal levels
  - Below level for diagnosis of diabetes

- **86 million U.S. adults estimated to have prediabetes**
  - 37% of U.S. adults
  - Only 11% are **aware** of having prediabetes

Consequences

- Prediabetes increases risk for diabetes
  - Increases risk for heart disease and stroke

- Diabetes: 7th leading cause of death
  - Causes heart disease, stroke, blindness, kidney failure, and lower leg amputations

Risk Reduction

Early detection and treatment of prediabetes:

- **Lifestyle interventions prevent or delay progression to diabetes**
  - Overall 58% reduction in diabetes over 3 years
  - 71% reduction among persons aged ≥60 years
- **Reduces health complications**

Question

- What is the prevalence of prediabetes in Alabama?
- What are the characteristics related to having prediabetes?
Data Source

- Behavioral Risk Factor Surveillance Survey (BRFSS)
  - Nationwide annual telephone survey (cell phone and landline)
  - Collects self-reported health and health risk data
  - >100,000 U.S. participants
    - 6,500 in Alabama
  - Provides state-level estimates of disease conditions and health behaviors

* Sponsored by Centers for Disease Control and Prevention, other federal agencies and participating states
2013 BRFSS Questionnaire

Prediabetes-related awareness:

“Has a doctor, nurse or other health professional EVER told you that you have diabetes?”

- **NO**
- **YES**

“Have you ever been told by a doctor or other health professional that you have prediabetes or borderline diabetes?”

- **NO**
- **YES**

No diabetes or prediabetes

“Was this only when you were pregnant?”

- **NO**
- **YES**

PREDIABETES

Gestational only
Methods

- Prediabetes analysis (n=5,060) excluded persons reporting:
  - Known diabetes (1,209) or gestational diabetes (n=73)
  - Unknown or missing prediabetes status (n=161)
- SAS 9.2 weighted analysis accounting for sampling design
- Calculated prevalence ratios for respondent characteristics
- Performed multivariable logistic regression for prediabetes risk factors
Results

- An estimated **8.5%** Alabama adults **report** having prediabetes
  - Approximately 316,000 Alabama adults **aware** of having prediabetes
- **Underestimate**: most people with prediabetes don’t know it to report it
  - 1.3 – 2.9 million Alabama adults actually **have** prediabetes
## Prediabetes Prevalence Ratio by Risk Factor

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>% Prediabetes</th>
<th>PR</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall</strong></td>
<td>8.5</td>
<td></td>
<td>7.5–9.6</td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥55</td>
<td>12.0</td>
<td>2.81</td>
<td>1.72–4.59</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>35–54</td>
<td>9.0</td>
<td>2.11</td>
<td>1.26–3.53</td>
<td>0.003</td>
</tr>
<tr>
<td>18–34</td>
<td>4.3</td>
<td></td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>9.3</td>
<td>1.21</td>
<td>0.94–1.57</td>
<td>0.14</td>
</tr>
<tr>
<td>Male</td>
<td>7.7</td>
<td></td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>8.8</td>
<td>1.06</td>
<td>0.81–1.39</td>
<td>0.68</td>
</tr>
<tr>
<td>White</td>
<td>8.3</td>
<td></td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>Body mass index</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥25</td>
<td>10.8</td>
<td>2.51</td>
<td>1.84–3.42</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>&lt;25</td>
<td>4.3</td>
<td></td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>Physical activity guidelines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOT met</td>
<td>9.1</td>
<td>1.79</td>
<td>1.24–2.59</td>
<td>0.001</td>
</tr>
<tr>
<td>Met</td>
<td>5.1</td>
<td></td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;$25,000</td>
<td>10.8</td>
<td>1.38</td>
<td>1.04–1.83</td>
<td>0.03</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; High school</td>
<td>10.4</td>
<td>1.28</td>
<td>0.88–1.86</td>
<td>0.19</td>
</tr>
</tbody>
</table>
## Multivariable Logistic Regression Model of Prediabetes by Risk Factors–Alabama, 2013

<table>
<thead>
<tr>
<th>Factor</th>
<th>Adjusted Odds</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥55 years</td>
<td>3.4</td>
<td>2.01—5.87</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Female</td>
<td>1.3</td>
<td>0.96—1.68</td>
<td>0.097</td>
</tr>
<tr>
<td>Body mass index (BMI) ≥25</td>
<td>2.4</td>
<td>1.70—3.27</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Physical activity guidelines NOT met</td>
<td>1.5</td>
<td>1.02—2.30</td>
<td>0.038</td>
</tr>
</tbody>
</table>

•Income and education level p>0.20 in multivariable model (p=0.24 and 0.69, respectively), and <15% change in estimate, therefore dropped from final model.
Modifiable Risk Factors for Prediabetes

- **Cannot** control your age
- **Can** reduce your weight
- **Can** improve your exercise habits

If you have prediabetes, losing weight by: 5%–7% can cut your risk of getting type 2 diabetes in half.
Reducing Diabetes Risk

- Even modest reduction in weight decreases diabetes risk
  - 5%-7% weight loss
  - 10-14 pounds (for 200 lb person)

- Recommended physical activity:
  - 150 minutes per week of moderate to vigorous aerobic activity
  - Plus, muscle strengthening exercise twice per week

- As little as 5-15 minutes per day has shown benefit
How to Get There

- USPSTF and Community Guide recommend lifestyle modification courses
- Multicomponent services: dietician, nutritionist, exercise trainer, behavioral counselor, health educator, trained layperson
- Particularly successful if regular contact with a health mentor
National Diabetes Prevention Program

- Collaborative effort hosted at CDC
- Standard curriculum
  - Based on behavior change principles
- Cost effective intervention
- Covered by some healthcare insurers or employers
- Lifestyle Coach training available
- Recognition program to certify organizations

More information:
www.cdc.gov/diabetes/prevention
Summary

- Many Alabama adults not aware of prediabetes status
- Risk factors for prediabetes include being overweight and lack of physical activity
- Progression to diabetes reduced with lifestyle changes
  - Modest weight loss and physical activity are key
  - Lifestyle change programs (such as NDPP) proven effective and should be encouraged for persons with prediabetes
Thank you!

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For more information please contact

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