Obesity and Diabetes in Alabama: Risk Factors and Interventions

Alabama Department of Public Health
Bureau of Health Promotion and Chronic Disease

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Obesity in the U.S.

- **Obesity**: Body Mass Index (BMI) ≥ 30 kg/m²
  - Overweight: BMI 25–29
- **More than one-third U.S. adults (34.9%) are obese**
  - Estimated 78.6 million obese persons
- **2 in 3 U.S. adults are at least overweight (68.5%)**
- **During 1998–2006, obesity rates increased 37%**
- **No state has obesity rate at goal of <15%**


Prevalence of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2014

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.*
Obesity Costs

- $147 billion in U.S. medical care costs
  - 9% of all medical spending
- Medical costs $1,429 higher for obese person
  - 42% higher than normal weight person
- $79–$132 per obese person in costs of lost productivity from absenteeism
  - Totals $3.4–$6.4 billion nationally


Health Effects of Obesity

- High blood pressure
- High cholesterol
- Type 2 diabetes
- Coronary heart disease
- Stroke
- Some cancers
  - Endometrial, breast, colon, kidney, gallbladder, liver
- Gallbladder disease
- Arthritis
- Sleep apnea
- Depression
- Reduced quality of life and physical functioning

http://www.cdc.gov/healthyweight/effects/index.html
Obesity in Alabama

- What is the prevalence of obesity in Alabama?
- What are the characteristics related to having obesity?
- What other chronic conditions are associated with obesity?
Data Source

- Behavioral Risk Factor Surveillance Survey (BRFSS)
  - Nationwide annual telephone survey
  - Collects self-reported health and health risk data
  - >100,000 U.S. participants
    - >6,000 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
Chronic Disease Prevalence, Alabama, 2013

2013

% Adults Reporting Chronic Condition

HTN: 40.3
Obesity: 32.4
Diabetes: 13.8
Prediabetes: 8.4

Source: CDC Behavioral Risk Factor Surveillance Survey, 2013

Considered Obese (BMI ≥30)

Alabama

Nationwide median

Source: CDC Behavioral Risk Factor Surveillance Survey, 2011-2013
### Obesity Prevalence by Characteristics—Alabama, 2013

<table>
<thead>
<tr>
<th>Category</th>
<th>Overall</th>
<th>18-44</th>
<th>45-64</th>
<th>65+</th>
<th>Male</th>
<th>Female</th>
<th>White</th>
<th>Black</th>
<th>Education</th>
<th>Income</th>
<th>Physical Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Alabama Adults Considered Obese (BMI ≥30)</td>
<td>32.4%</td>
<td>29.5%</td>
<td>30.9%</td>
<td>34.0%</td>
<td>29.6%</td>
<td>41.3%</td>
<td>33.8%</td>
<td>32.1%</td>
<td>36.8%</td>
<td>31.1%</td>
<td>34.9%</td>
</tr>
</tbody>
</table>

- **Age**: 18-44, 45-64, 65+ years
- **Gender**: Male, Female
- **Race**: White, Black
- **Education**: <HS, ≥HS
- **Income**: <$25,000, ≥$25,000
- **Physical Activity**: Met, Not met

Overall obesity prevalence in Alabama was 32.4%.
Obesity Prevalence by Social Factors—Alabama, 2013

- Overall: 32.4%
- Rent stress: 41.0%
- Food stress: 43.2%
- Employment: 39.4%
- Working: 30.6%
- Relationship: 33.8%
- Other: 30.9%

32.4% overall
Multivariable Logistic Regression Model for Obesity 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>African American</td>
<td>1.9</td>
<td>1.5–2.3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Physical activity guidelines NOT met</td>
<td>1.8</td>
<td>1.4–2.3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Age 45–64 years</td>
<td>1.4</td>
<td>1.1–1.7</td>
<td>0.0017</td>
</tr>
<tr>
<td>Rent stress</td>
<td>1.3</td>
<td>1.1–1.7</td>
<td>0.0129</td>
</tr>
<tr>
<td>Food stress</td>
<td>1.3</td>
<td>1.0–1.7</td>
<td>0.0219</td>
</tr>
<tr>
<td>Unemployed/unable to work</td>
<td>1.2</td>
<td>1.0–1.5</td>
<td>0.0850</td>
</tr>
<tr>
<td>No relationship</td>
<td>1.3</td>
<td>1.0–1.5</td>
<td>0.0149</td>
</tr>
</tbody>
</table>

- Model adjusted for sex and smoking status
- Income p>0.20 in multivariable model (p=0.63), and <15% change in estimate, therefore dropped from final model
## Chronic Conditions Associated with Obesity–Alabama, 2013

<table>
<thead>
<tr>
<th>Condition</th>
<th>Prevalence Ratio</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>2.5</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Prediabetes</td>
<td>2.2</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Coronary artery disease</td>
<td>1.4</td>
<td>0.0075</td>
</tr>
<tr>
<td>Heart attack</td>
<td>1.3</td>
<td>0.0268</td>
</tr>
<tr>
<td>Elevated cholesterol</td>
<td>1.3</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Depression</td>
<td>1.4</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>
Modifiable Risk Factors for Obesity

- Cannot control your age
- Cannot change your genetics
- Can improve your diet and exercise habits
- Can potentially improve social stressors with community support
2013 Guidelines

2013 Guidelines for Managing Overweight and Obesity in Adults from NIH recommend:

- Intensive, multicomponent behavioral intervention for
  - BMI $\geq 30$
  - BMI $\geq 25$ with at least one risk factor
    - Risk factors include elevation of:
      - blood pressure
      - glucose
      - triglycerides
      - cholesterol

Lifestyle Change

- **Comprehensive lifestyle intervention**
  - Lower calorie diet
  - Increased physical activity
  - Behavior modification

- **Intensive**
  - $\geq 14$ session in first 6 months, and $\geq$ one year treatment duration

- **Provided by clinician or registered dietician**

Lifestyle Change Goals

- **Goal: weight loss 5%–10% body weight**
  - NOT necessary to achieve BMI<25 for health benefits
  - Average weight loss 8.6% at one year

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

- Loss of even 3%–5% body weight reduces:
  - Triglycerides
  - Blood glucose and A1C
  - Risk of developing type 2 diabetes

- With greater weight loss, additional “dose effect” benefits:
  - Reduced blood pressure
  - Improved cholesterol
  - Further improvement in blood glucose and triglycerides
  - Improved sleep apnea
  - Lower incidence depression
Diabetes Prevention Trials

- Diabetes prevention trials randomized to lifestyle changes
- Reduced new diabetes cases overall by 58% over 3 years
  - 71% reduction for people aged >60 years
- 10 year follow-up:
  - 34% reduction in diabetes
  - Delayed onset of diabetes by 4 years
- Additional benefits:
  - Reduced blood pressure
  - Improved lipids

National Diabetes Prevention Program

- Collaborative, evidence-based effort coordinated by CDC
- Standard curriculum
  - Based on behavior change principles
- Empowers patients at risk for diabetes to take charge of their health and well-being
- Cost effective intervention
- Covered by some healthcare insurers
- Lifestyle Coach training available
- Recognition program to certify organizations

More information:
www.cdc.gov/diabetes/prevention
Recognized Diabetes Prevention Programs in Alabama

- **Examples of currently recognized programs***
  - YMCA of Greater Birmingham
    - 2101 4th Avenue North
    - Birmingham, AL 35203
    - (205) 801-7224
  - Family Medical Services Pharmacy
    - 1817 13\(^{th}\) Ave North
    - Bessemer, AL 35020
    - (205) 424-3194
  - Providence Hospital Diabetes Center
    - 6801 Airport Blvd
    - Mobile, AL 36685
    - (251) 633-1987

*Partial list of recognized programs listed in Alabama as of 17 Nov 15 in registry of recognized diabetes prevention programs: https://nccd.cdc.gov/DDT_DPRP/Registry.aspx
Recommended Actions for Individuals

- Eat more fruits, vegetables and foods low in fat and sugar
- Drink more water instead of sugary drinks
- Limit TV watching to <2 hrs/day
- Go for a 10-minute brisk walk, 3 times a day, 5 days a week
Recommended Actions for Communities

- Create and maintain safe neighborhoods for physical activity and improve access to parks and playgrounds
- Advocate for quality physical education in schools and childcare facilities
- Adopt policies that promote bicycling and public transportation
- Encourage local fruits, vegetables, and healthy foods in farmer’s markets, groceries, schools, and worksites
- Provide livable wages and employment opportunities
- Encourage community engagement to reduce social isolation
Diabetes Review and Update
Background

- **29 million Americans have diabetes**
  - 12.3% of U.S. adult population
  - One in 4 remain undiagnosed

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


Achieving Goals for Diabetes Care

- National survey data 1999–2010
- 33%–49% did not meet targets for diabetes control measures (glycemic control, blood pressure, LDL)
- 20% use some form of tobacco
- Only 14% met all 3 targets and did not use tobacco

Costs

- Diabetes accounts for >1 in 5 U.S. health care dollars
- Total economic cost of diabetes in 2012 was $245 billion
  - $176 billion in direct medical costs
  - $69 billion in lost productivity
- Largest cost was hospital inpatient care (43% total cost)
- Health care expenses are 2.3 times higher for people with diabetes
- Average $13,700 medical expenses per year for each person with diabetes
  - $7,900 attributed to diabetes


% Alabama Adults Reporting Diabetes

- 2011: 11.8%
- 2012: 12.2%
- 2013: 13.8%

Nationwide median:
- 2011: 9.5%
- 2012: 9.7%
- 2013: 9.7%
Diabetes Trend in Alabama by Race, 2011–2014

% Alabama Adults Reporting Diabetes

- White
- Black/AA

Year | White | Black/AA
--- | --- | ---
2011 | 11.4 | 16.2
2012 | 11.4 | 12.8
2013 | 13.8 | 18.1
2014 | 12.5 | 15.8
Diabetes Prevalence by County per Insurance Claims Data, 2013

Diabetes Type 2 Prevalence Among Adults

- Missing data
- <8.8%
- 8.8–10.9%
- 11.0–12.4%
- ≥12.5%

*Combined claims data from Medicare, Medicaid and Blue Cross Blue Shield of Alabama*
ADA Diabetes Screening Recommendations

- American Diabetes Association (ADA) recommends screening:
  - Age ≥45
  - Overweight or obese (BMI ≥25) with one other risk factor

- Additional risk factors:
  - Racial/ethnic minority
  - Hypertension
  - Low HDL (<35) or high TG (>250)
  - History of cardiovascular disease
  - First degree relative with diabetes
  - Physical inactivity
  - A1C≥5.7%, or impaired glucose tolerance or impaired fasting glucose on previous testing
  - Women with:
    - history of gestational diabetes
    - delivery of baby >9 lb.
    - polycystic ovarian syndrome (PCO)

http://care.diabetesjournals.org/content/suppl/2014/12/23/38.Supplement_1.DC1/January_Supplement_Combined_Final.6-99.pdf
USPSTF Diabetes Screening Recommendations

- New USPSTF recommendation for diabetes screening:
  - Age 40–70 who are overweight or obese
  - Risk factors:
    - Overweight or obese
    - Physical inactivity
    - Smoking
    - Other cardiovascular risk factors: hyperlipidemia and hypertension

- Consider screening earlier or lower BMI if:
  - Racial/ethnic minority, family diabetes, gestational diabetes, PCO

- Screen every 3 years (or yearly if prediabetes)

- Recommend lifestyle modification and behavioral counseling for abnormal glucose

Diabetes Self-Management Training/Education (DSMT/E)

- Patient training for diabetes knowledge, skills and self-care
- Guided by evidence-based standards
- Standardized courses by nationally certified programs
  - ADA or AADE certified
- Self-care behaviors, understanding medication, problem solving and active collaboration with health care team
- Improves health status and outcomes
- Training by CDE, dietician, pharmacist, or nurse
- For anyone with diabetes (even before medication or insulin required)

ADA= American Diabetes Association; AADE= American Association of Diabetes Educators; CDE= Certified Diabetes Educator
Medicare DSMT/E Coverage

- Initial training up to 10 hours in one calendar year
  - May be done in any combination of 30 minute increments
  - Includes one hour individual training and 9 hours group training
- Annual follow-up training up to 2 hours
  - Individual or group setting
- Must be referred by treating physician or practitioner
- Must document diagnosis of diabetes in medical record

Source: Medicare Benefits Policy Manual, Chapter 15, Rev 202, 12-131-14
Alabama Certified DSMT/E Programs by County

39 programs in 19 counties

DSME programs

None
In county

As of Oct 2015
DSMT/E Providers

- Alabama currently has 39 certified programs across state
  - [http://www.adph.org/diabetes](http://www.adph.org/diabetes) for interactive map
- ADA recognized programs:
  - [http://professional.diabetes.org/erp_list.aspx](http://professional.diabetes.org/erp_list.aspx)
  - Search by zip code or by state
- AADE accredited programs:
  - [http://www.diabeteseducator.org/ProfessionalResources/accred/Programs.html#Alabama](http://www.diabeteseducator.org/ProfessionalResources/accred/Programs.html#Alabama)
Summary

- Alabama leads nation in diabetes; ranked 8\textsuperscript{th} for obesity
- Obesity risk factors: African American race, middle age, physical inactivity and social stressors
- Obesity increases prediabetes and diabetes risk
- Screen for diabetes or prediabetes among people who are overweight, obese or have other diabetes risks
- Refer people who are overweight, or have prediabetes to intensive lifestyle change programs
- Train people with diabetes in self-management skills
  - Medicare covered benefit
  - Certified programs available across state and more seeking certification
Resources

- National Diabetes Education Program
  http://www.ndep.nih.gov/
- CDC Diabetes Prevention Program
  http://www.cdc.gov/diabetes/prevention
- Alabama Department of Public Health Diabetes Program
  http://adph.org/diabetes/
- American Diabetes Association
  http://professional.diabetes.org/
- American Association of Diabetes Educators
  http://www.diabeteseducator.org/
- USPSTF Recommendation on Diabetes Screening
- Community Guide Recommendation on Diet/Physical Activity
  http://www.thecommunityguide.org/diabetes/combineddietandpa.html
Thank you!

For more information please contact

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.