

Prediabetes Prevalence and Risk Factors in Alabama, 2013

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CSTE

June 15, 2015



Alabama Department of Public Health

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Background

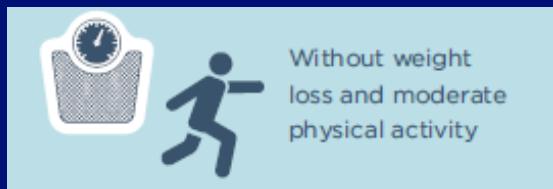
- **Prediabetes:**
 - Blood sugar (glucose) above normal levels
 - Below level for diagnosis of diabetes
- **86 million U.S. adults estimated to have prediabetes**
 - 37% of U.S. adults
 - Only 11% are **aware** of having prediabetes



* Centers for Disease Control and Prevention. National Diabetes Statistics Report: Estimates of Diabetes and Its Burden in the United States, 2014. Atlanta, GA: U.S. Department of Health and Human Services; 2014.

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



* Centers for Disease Control and Prevention. National Diabetes Statistics Report: Estimates of Diabetes and Its Burden in the United States, 2014. Atlanta, GA: U.S. Department of Health and Human Services; 2014.

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**



*1-2. Knowler WC, Barrett-Connor E, Fowler SE, et al. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Engl J Med.* 2002;346(6):393–403; and Knowler WC, Fowler SE, Hamman RF, et al. 10-year follow-up of diabetes incidence and weight loss in the Diabetes Prevention Program Outcomes Study. *Lancet.* 2009;374(9702):1677–86.

3. Lindstrom J, Louheranta A, Mannelin M, et al. The Finnish Diabetes Prevention Study (DPS): lifestyle intervention and 3-year results on diet and physical activity. *Diabetes Care.* 2003;26(12):3230–6.

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

DIABETES

“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

Risk Factor		% Prediabetes	PR	95% CI	P-value
Overall		8.5		7.5–9.6	
Age (years)	≥55	12.0	2.81	1.72—4.59	<0.001
	35–54	9.0	2.11	1.26—3.53	0.003
	18–34	4.3	Reference		
Sex	Female	9.3	1.21	0.94—1.57	0.14
	Male	7.7	Reference		
Race	Black	8.8	1.06	0.81—1.39	0.68
	White	8.3	Reference		
Body mass index	≥25	10.8	2.51	1.84—3.42	<0.001
	<25	4.3	Reference		
Physical activity guidelines	NOT met	9.1	1.79	1.24—2.59	0.001
	Met	5.1	Reference		
Income	<\$25,000	10.8	1.38	1.04—1.83	0.03
Education level	< High school	10.4	1.28	0.88—1.86	0.19

Multivariable Logistic Regression Model of Prediabetes by Risk Factors—Alabama, 2013

Factor	Adjusted Odds	95% CI	P-value
Age \geq 55 years	3.4	2.01—5.87	<0.001
Female	1.3	0.96—1.68	0.097
Body mass index (BMI) \geq 25	2.4	1.70—3.27	<0.001
Physical activity guidelines NOT met	1.5	1.02—2.30	0.038

- 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%**

EATING HEALTHY & **BEING MORE ACTIVE**

can cut your risk of getting type 2 diabetes in **HALF**

A graphic shows a silhouette of a person standing next to a horizontal bar. The bar is divided into two segments: a larger white segment and a smaller blue segment. The text '5%-7%' is placed over the blue segment. To the right, there are icons of a healthy meal (apple and bowl) and a shoe, with the text 'EATING HEALTHY' and '&' above 'BEING MORE ACTIVE'. A pair of scissors is shown cutting a dashed line through the word 'HALF', which is written in large, bold, blue capital letters.

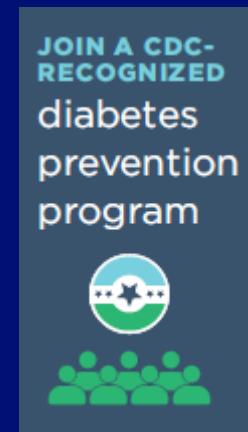
Reducing Diabetes Risk

- **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!

Acknowledgements:

Crystal Franklin, ADPH
Sondra Reese, ADPH
Geraldine Perry, CDC

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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.



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