

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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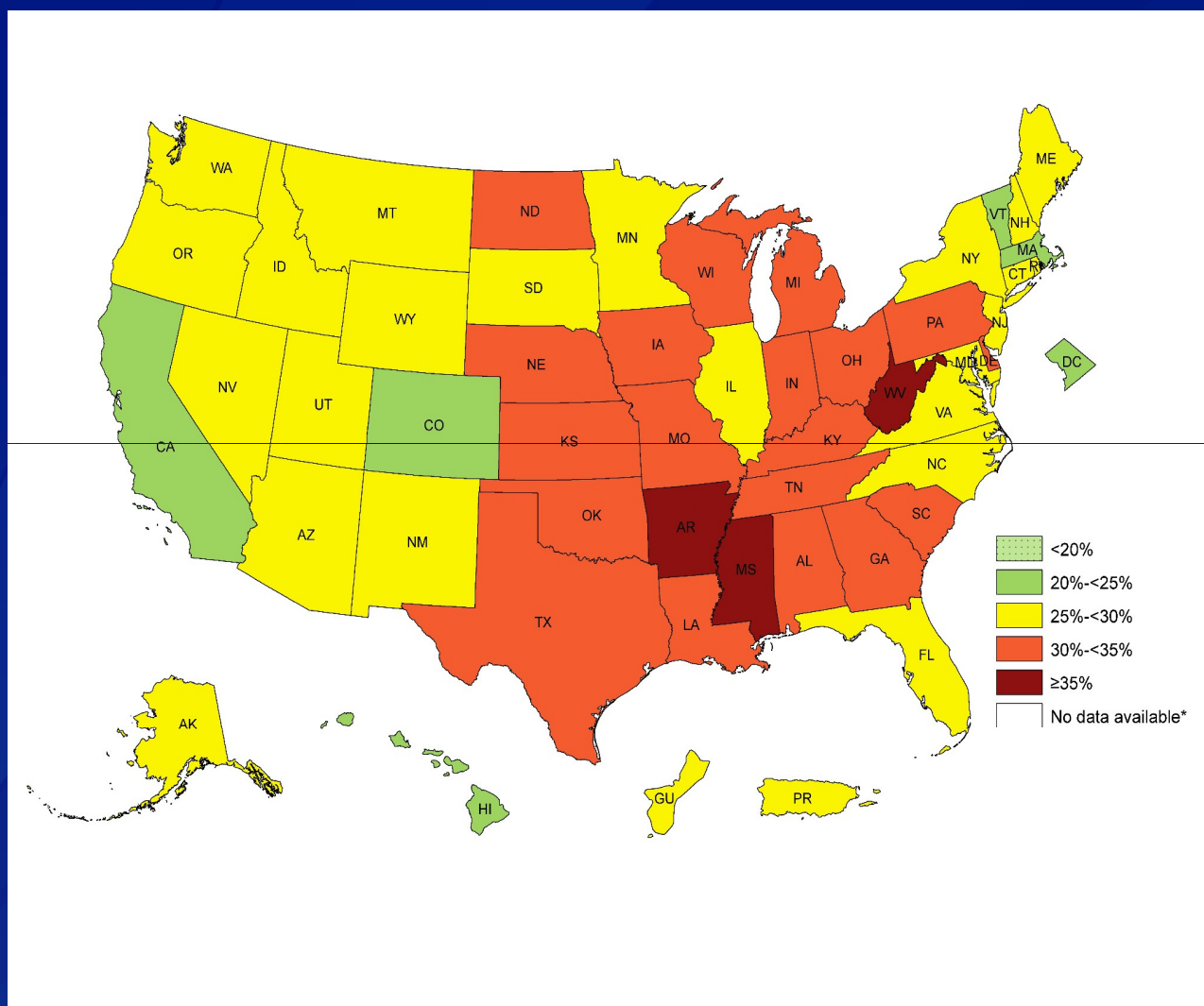
Obesity in the U.S.

- **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%**

Ogden CL, Carroll MD, Kit BK and Flegal KM. Prevalence of Childhood and Adult Obesity in the United States, 2011-2012. JAMA. 2014;311(8):806-814.

Finkelstein EA1, Trogon JG, Cohen JW, Dietz W. Annual medical spending attributable to obesity: payer-and service-specific estimates. Health Aff (Millwood). 2009 Sep-Oct;28(5):w822-31. doi: 10.1377/hlthaff.28.5.w822.

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

Finkelstein EA1, Trogon JG, Cohen JW, Dietz W. Annual medical spending attributable to obesity: payer-and service-specific estimates. *Health Aff (Millwood)*. 2009 Sep-Oct;28(5):w822-31. doi: 10.1377/hlthaff.28.5.w822.

Trogon JG, Finkelstein EA, Hylands T, Dellea PS, Kamal-Bahl. Indirect costs of obesity: a review of the current literature. *Obes Rev*. 2008;9(5):489–500.

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

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

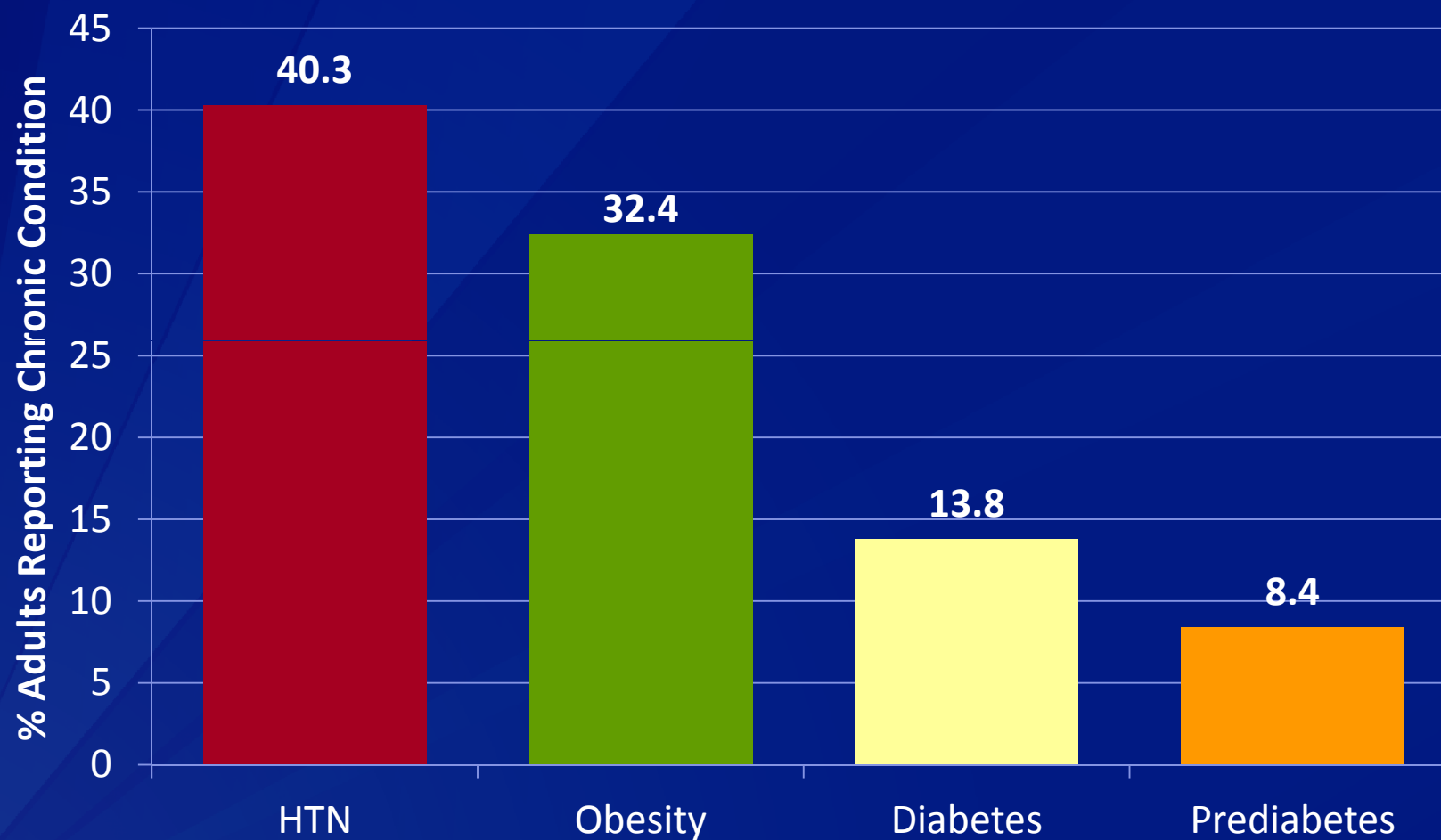
- **Behavioral Risk Factor Surveillance Survey (BRFSS)**
 - Nationwide annual telephone survey
 - Collects self-reported health and health risk data
 - >100,000 U.S. participants
 - >6,000 in Alabama
 - Provides state-level estimates of disease conditions and health behaviors



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

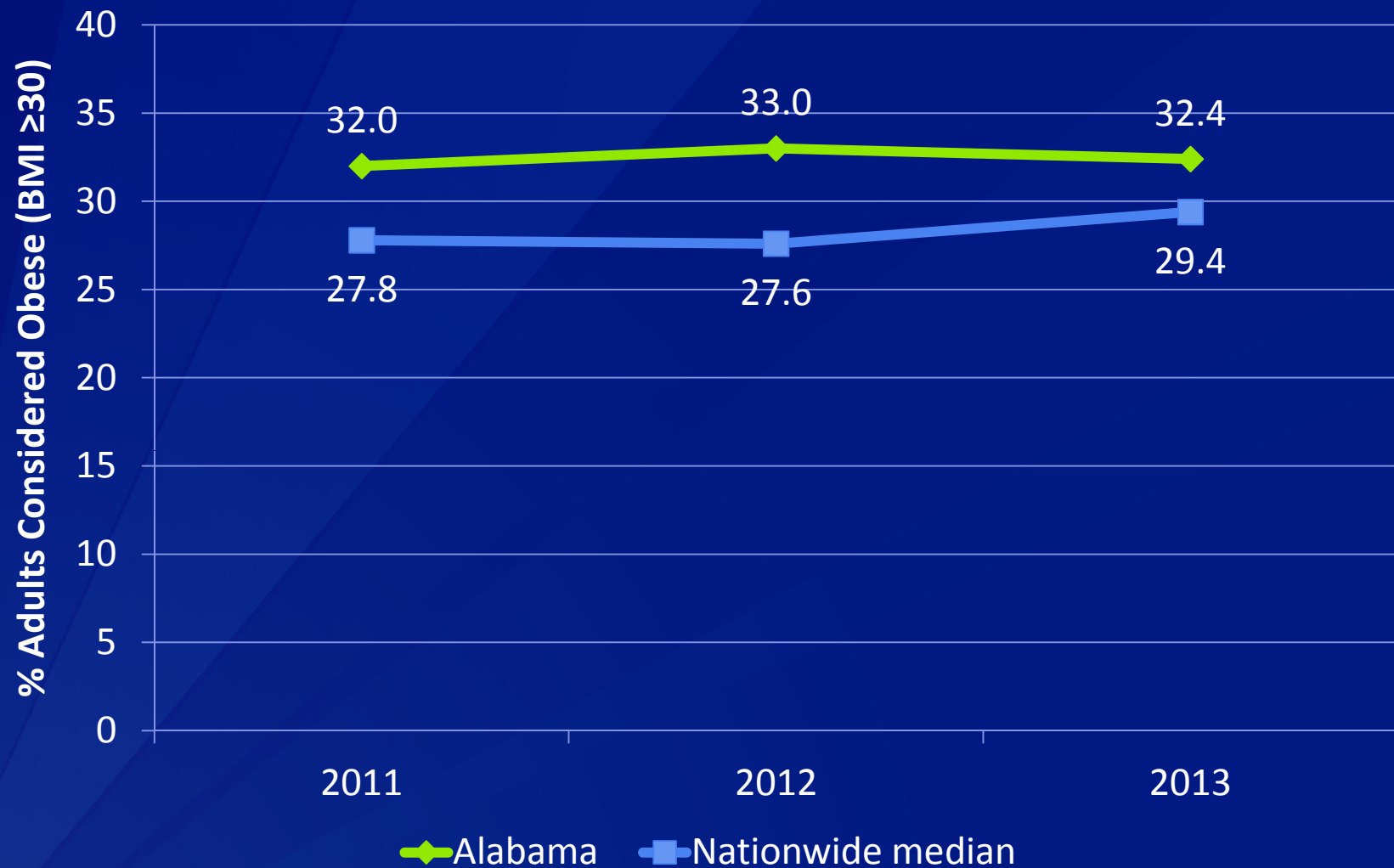
Chronic Disease Prevalence, Alabama, 2013

2013



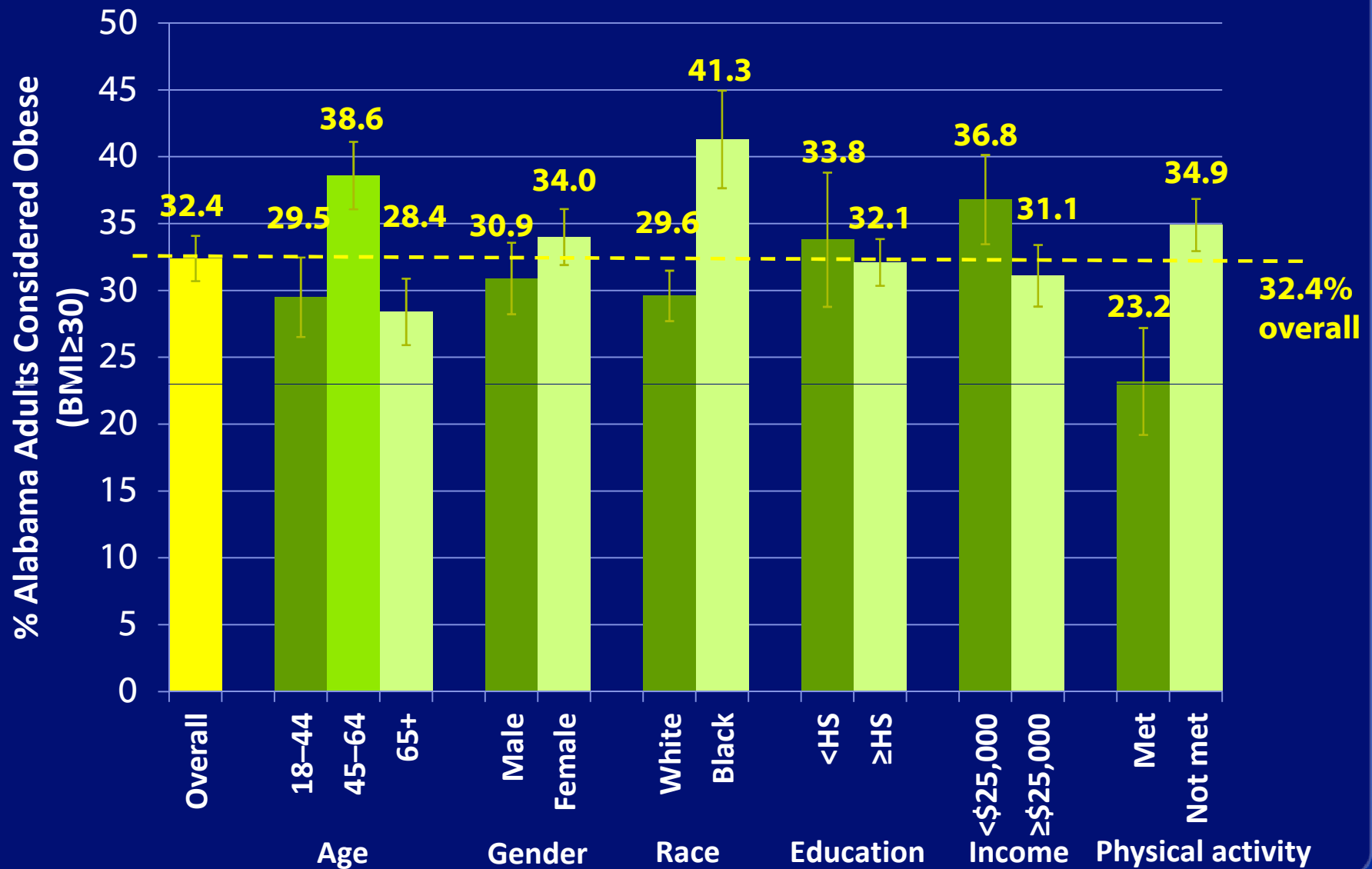
Source: CDC Behavioral Risk Factor Surveillance Survey, 2013

Obesity Trends, Alabama vs. U.S., 2011–2013

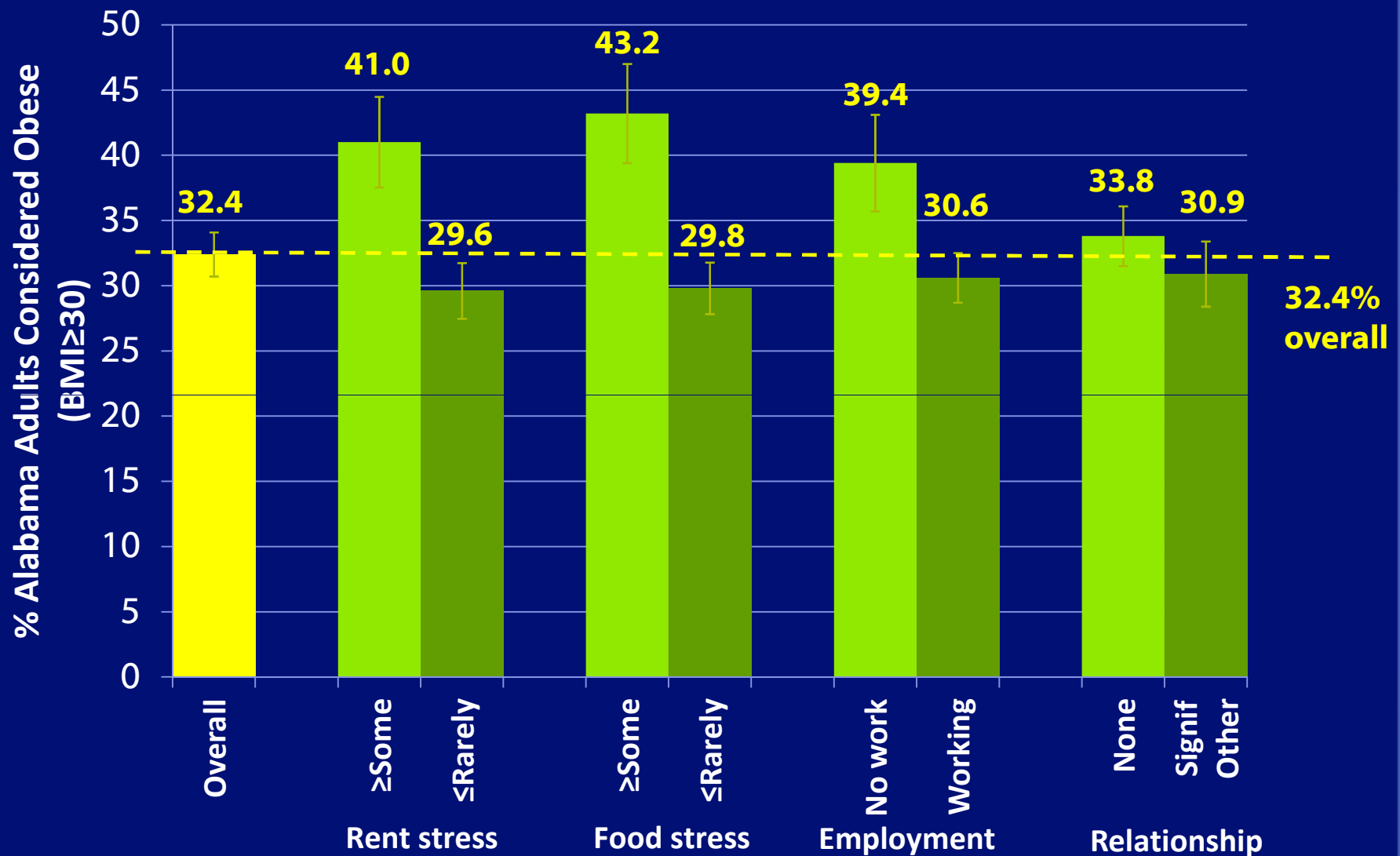


Source: CDC Behavioral Risk Factor Surveillance Survey, 2011-2013

Obesity Prevalence by Characteristics—Alabama, 2013



Obesity Prevalence by Social Factors—Alabama, 2013



Multivariable Logistic Regression Model for Obesity by Risk Factors—Alabama, 2013

| Factor | Adjusted Odds | 95% CI | P-value |
|--------------------------------------|---------------|---------|---------|
| African American | 1.9 | 1.5–2.3 | <0.001 |
| Physical activity guidelines NOT met | 1.8 | 1.4–2.3 | <0.001 |
| Age 45–64 years | 1.4 | 1.1–1.7 | 0.0017 |
| Rent stress | 1.3 | 1.1–1.7 | 0.0129 |
| Food stress | 1.3 | 1.0–1.7 | 0.0219 |
| Unemployed/unable to work | 1.2 | 1.0–1.5 | 0.0850 |
| No relationship | 1.3 | 1.0–1.5 | 0.0149 |

•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

| Condition | Prevalence Ratio | P-value |
|-------------------------|---------------------|---------|
| Diabetes | 2.5 | <0.0001 |
| Prediabetes | 2.2 | <0.0001 |
| Coronary artery disease | 1.4 | 0.0075 |
| Heart attack | 1.3 | 0.0268 |
| Elevated cholesterol | 1.3 | <0.0001 |
| Depression | 1.4 | <0.0001 |

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

Executive summary: Guidelines (2013) for the management of overweight and obesity in adults: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and the Obesity Society published by the Obesity Society and American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Based on a systematic review from the The Obesity Expert Panel, 2013. Obesity (Silver Spring). 2014 Jul;22 Suppl 2:S5-39

Lifestyle Change

- **Comprehensive lifestyle intervention**
 - Lower calorie diet
 - Increased physical activity
 - Behavior modification
- **Intensive**
 - ≥ 14 session in first 6 months, and \geq one year treatment duration
- **Provided by clinician or registered dietitian**

Lifestyle Change Goals

- **Goal: weight loss 5%–10% body weight**
 - NOT necessary to achieve $\text{BMI} < 25$ 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

*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.

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 13th 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



* 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.
Centers for Disease Control and Prevention (CDC). (2013, March 22). Awareness of Prediabetes - United States, 2005-2010. MMWR. Morbidity and Mortality Weekly Reports.

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



*Ali MK, Bullard KM, Saaddine JB, Cowie CC, Imperatore G, Gregg EW. Achievement of goals in U.S. diabetes care, 1999–2010. N Engl J Med. 2013;368(17):1613–24.



Costs



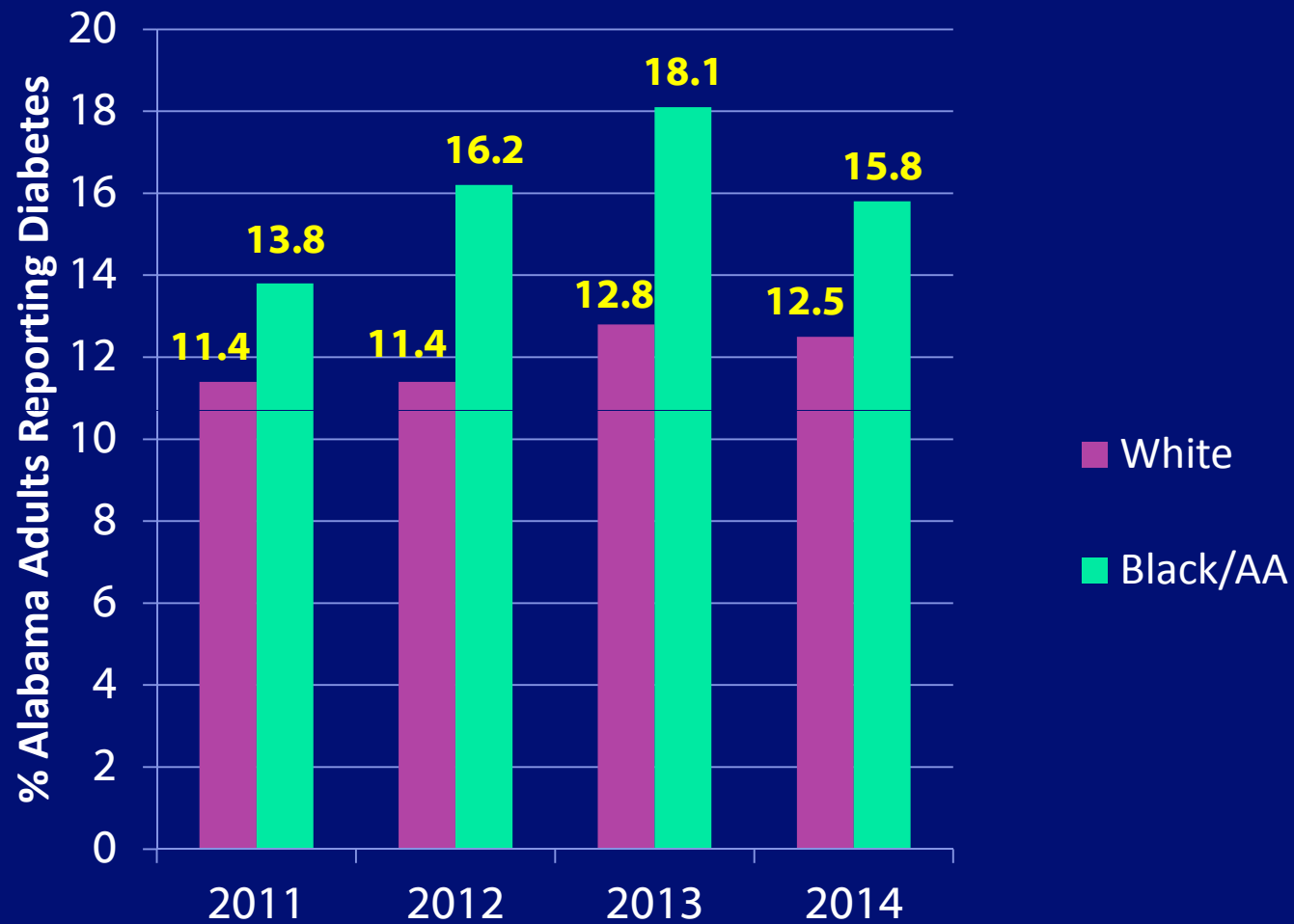
- **Diabetes accounts for >1 in 5 U.S. health care dollars**
- **Total economic cost of diabetes in 2012 was \$245 billion**
 - \$176 billion in direct medical costs
 - \$69 billion in lost productivity
- **Largest cost was hospital inpatient care (43% total cost)**
- **Health care expenses are 2.3 times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

*American Diabetes Association. Economic costs of diabetes in the U. S. in 2012. *Diabetes Care*; 2013;36(4):11033–046

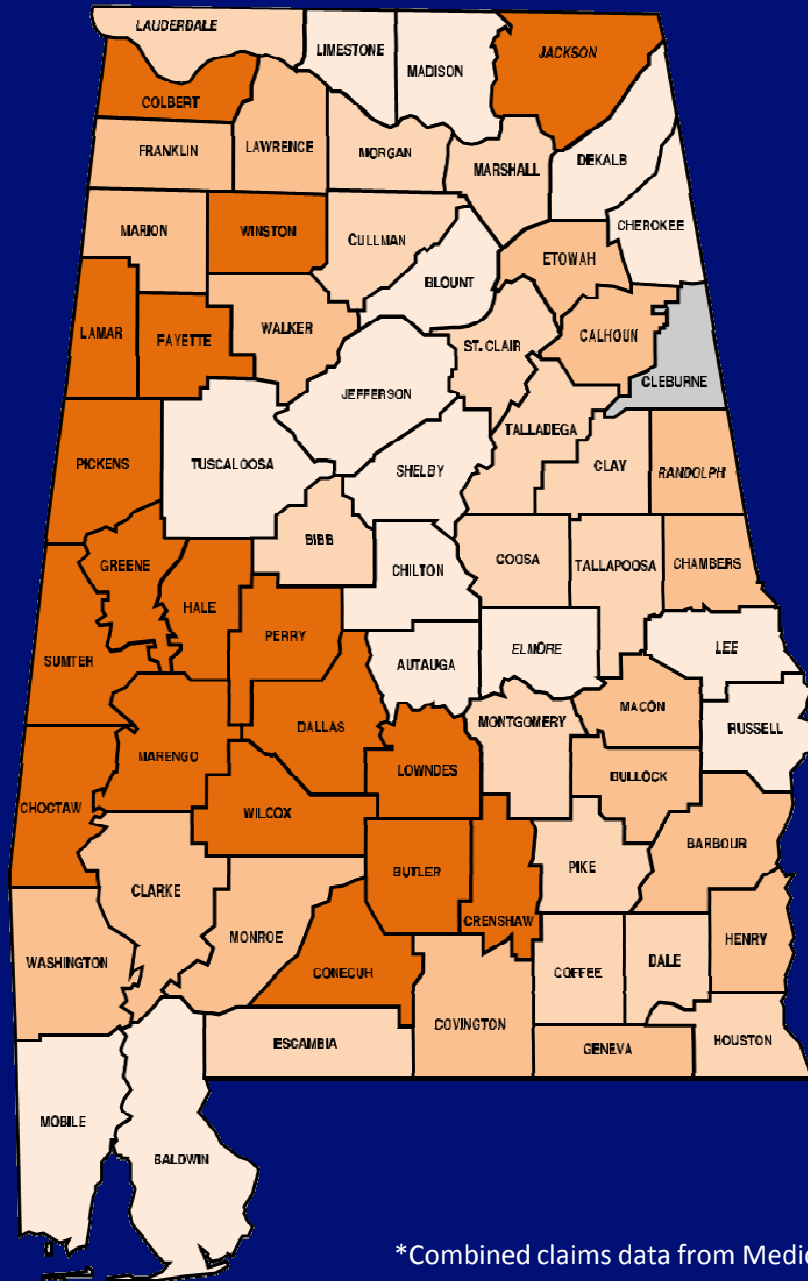
Diabetes Trend in Alabama and U.S., 2011–2013



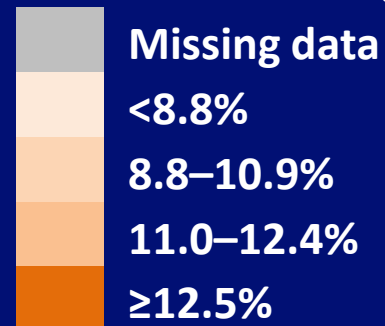
Diabetes Trend in Alabama by Race, 2011–2014



Diabetes Prevalence by County per Insurance Claims Data, 2013

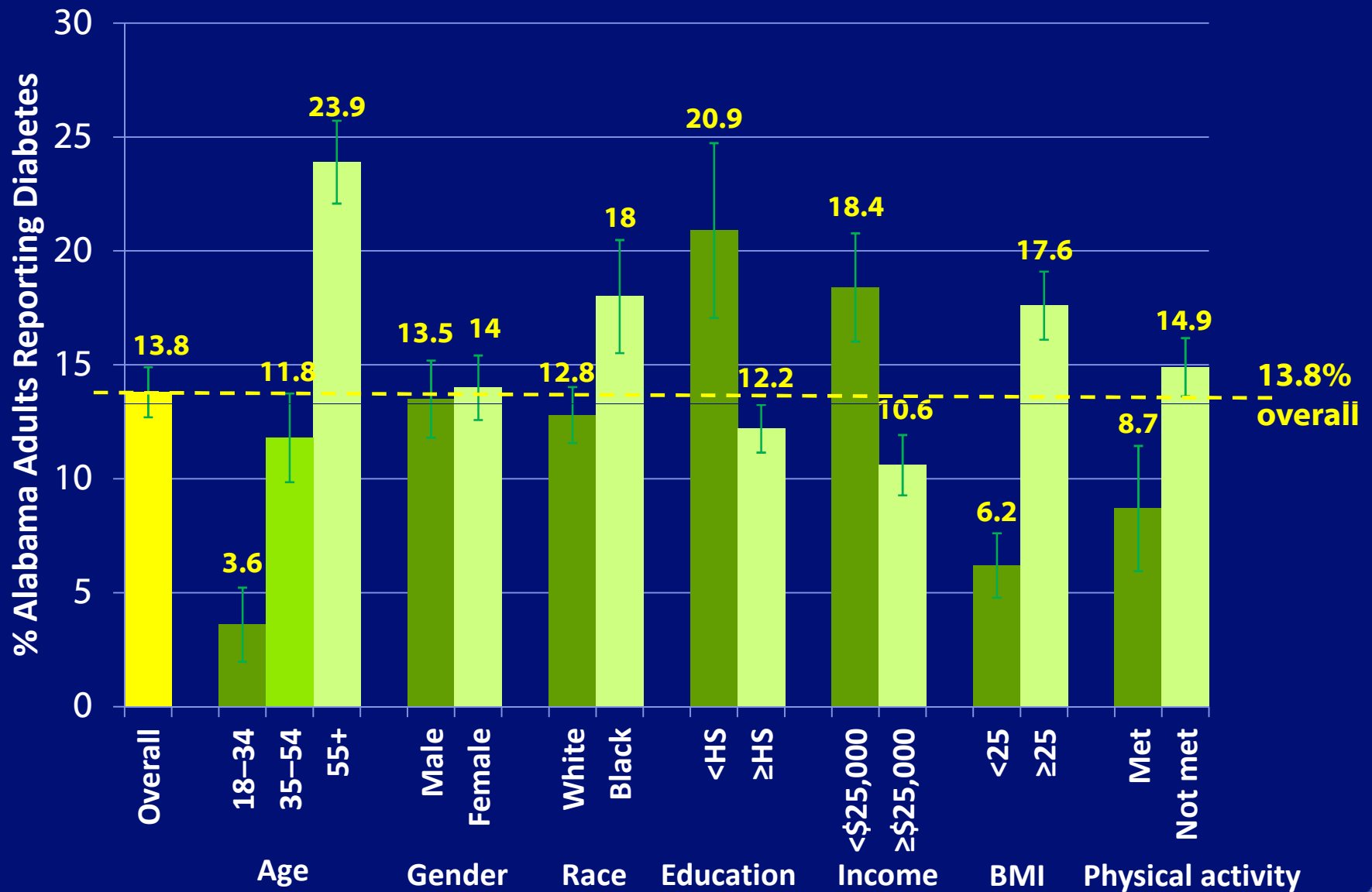


Diabetes Type 2 Prevalence Among Adults



*Combined claims data from Medicare, Medicaid and Blue Cross Blue Shield of Alabama

Diabetes Prevalence by Characteristics—Alabama, 2013



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 $\geq 5.7\%$, 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)

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, dietitian, 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

<http://cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/bp102c15.pdf>

Alabama Certified DSMT/E Programs by County



39 programs
in 19 counties

DSME programs



As of Oct 2015

DSMT/E Providers

- **Alabama currently has 39 certified programs across state**
 - <http://www.adph.org/diabetes> for interactive map
- **ADA recognized programs:**
 - 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>



Summary

- **Alabama leads nation in diabetes; ranked 8th 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**
[http://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/screening-for-abnormal-blood-glucose-and-type-2-diabetes?ds=1&s=diabetes screening](http://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/screening-for-abnormal-blood-glucose-and-type-2-diabetes?ds=1&s=diabetes%20screening)
- **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.

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