Fat Chance for Obesity Medicine Education in Medical Schools

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Objectives

- Recognize Obesity Bias and Stigma in Health Professions
- Discuss current and future obesity trends in the US
- Identify current state of obesity education in US
- Discuss obesity education in US Medical schools
- Discuss future opportunities for obesity education

"Persons who are naturally fat are more apt to die earlier than those who are slender"

- Hippocrates

Weight Bias in Health Care

- Perceptions of Patients Affected by Obesity
  - 69% of patients experienced weight stigma from doctors
  - BMI > 55: 68% report delayed seeking health care because of their weight due to disrespectful treatment, embarrassment, inadequate gowns, equipment and chairs.

Puhl R. Obesity. 2006. Amy NK. Int J Obes. 2006.

Weight Bias in Health Care

- How do Health Care Providers feel?
  - > 50% of physicians view patients with obesity as "awkward, unattractive, ugly, non-compliant."
  - 60% state that "lack of motivation" is the cause of obesity.
  - Physicians feel "eating too much" is the most important risk factor, ranked above genetics and environment.

Foster GD. *Obes Res.* 2003. Bocquier A. *Obes Res*. 2005.
Fogelman Y. *Int J Obes*. 2002.

Weight Bias – Students in Health Professions

- Witnessed derogatory humor regarding patients with obesity
  - 63% by peers
  - 65% by healthcare providers
  - 40% by instructors

-Puhl 2014

Weight Bias – Students in Health Professions

- Evaluation of weight bias in 3rd year students
- Weight Implicit Association Test
  - 33% explicit bias
  - 39% implicit bias
  - 67% were unaware of their negative attitudes

-Miller 2013

Weight Bias – Students in Health Professions

- Student Perceptions of Patients with Obesity
  - 33% lack motivation for change
  - 36% non-compliant with treatment
  - 36% of students felt frustrated by these perceptions
  - Students with higher weight bias expressed greater frustration

-Puhl 2014

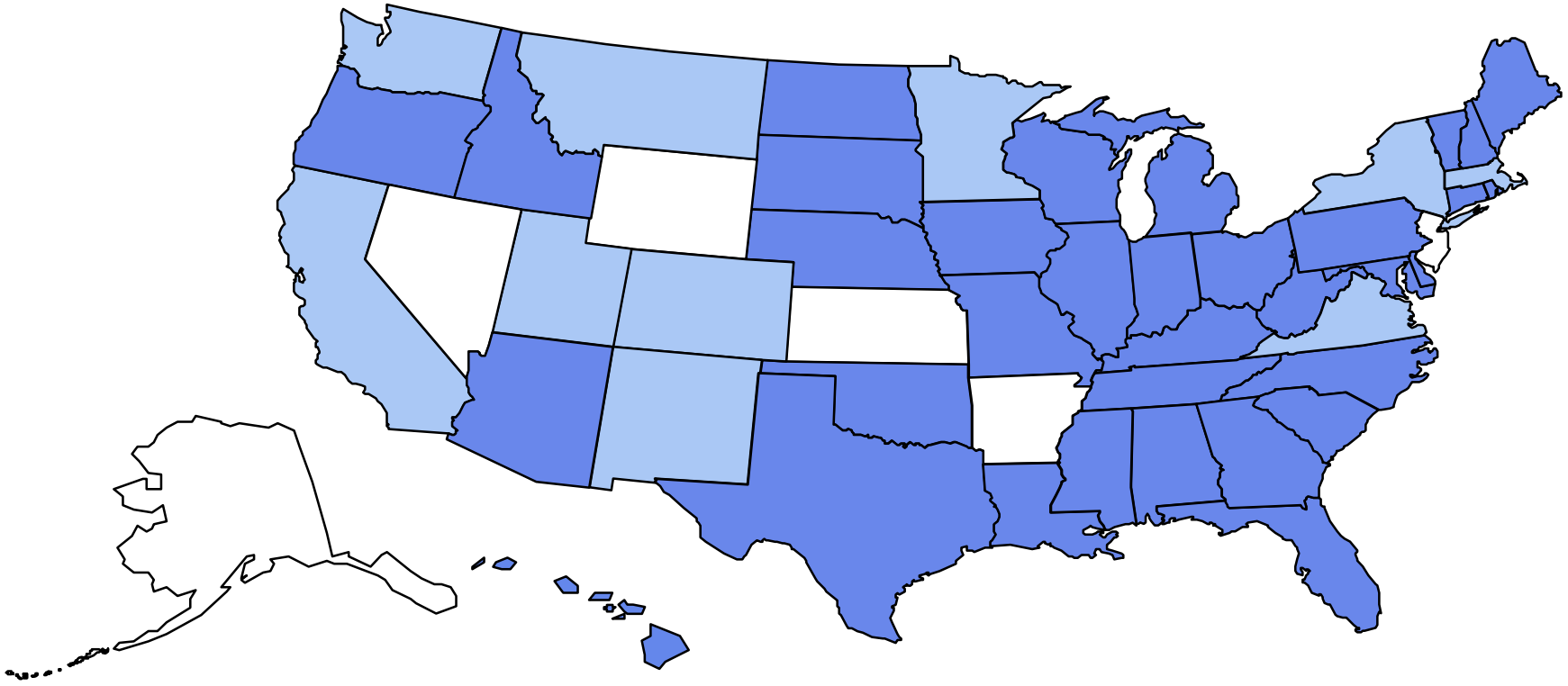
Weight Bias – Students in Health Professions

- Effects of Obesity Education on Student Bias
  - Touro University College of Osteopathic Medicine - CA
    - Initiated obesity content in curriculum in 2011
    - Evaluated student bias toward obesity during all 4 years
    - Compared students enrolled before obesity curriculum was initiated to students who completed the curriculum
    - 1st-year students who received obesity education had a significant reduction in bias
    - Reduction was sustained over all 4 years

-Gayer 2018

Obesity Trends* Among U.S. Adults 1990

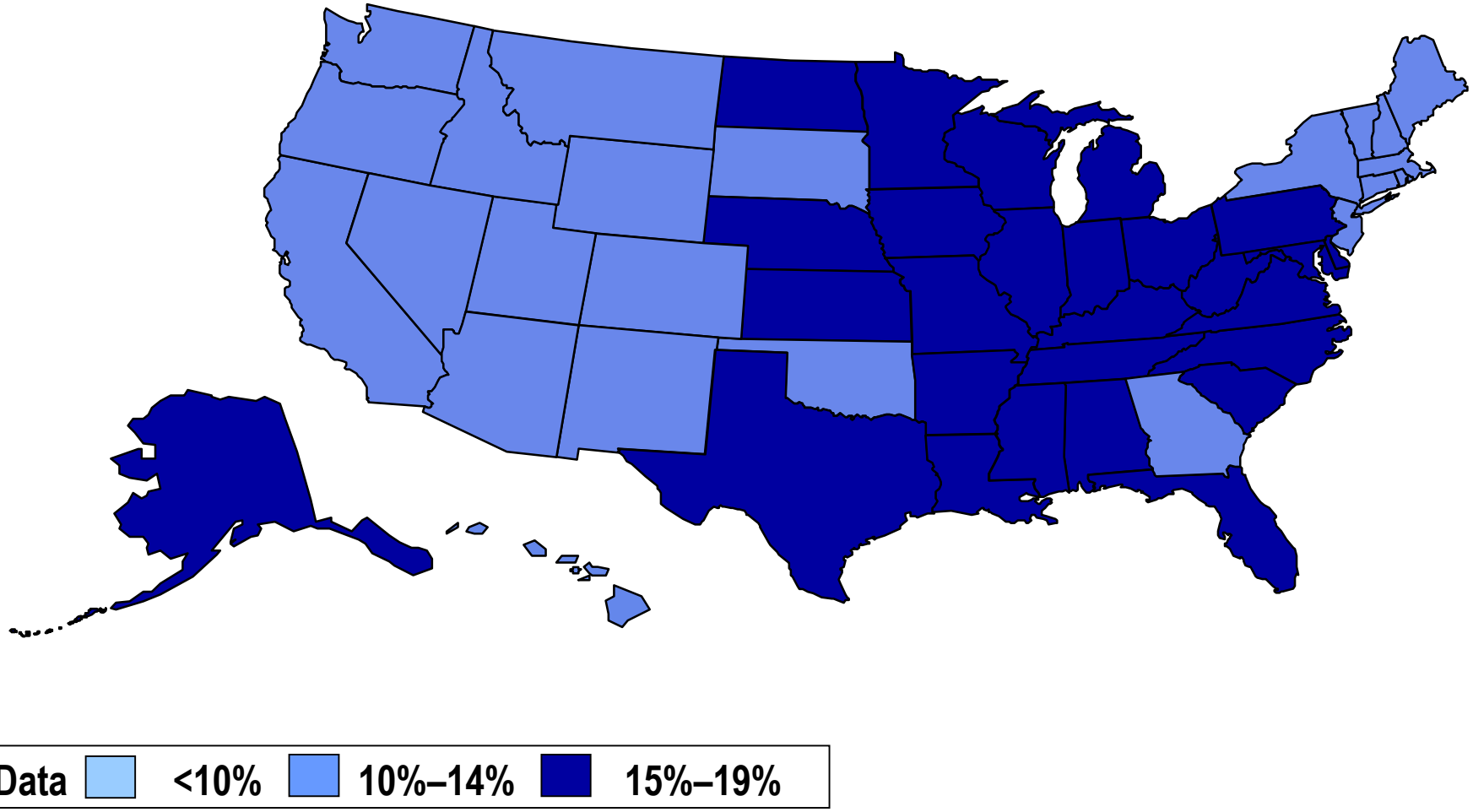
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)



No Data <10% 10%–14%

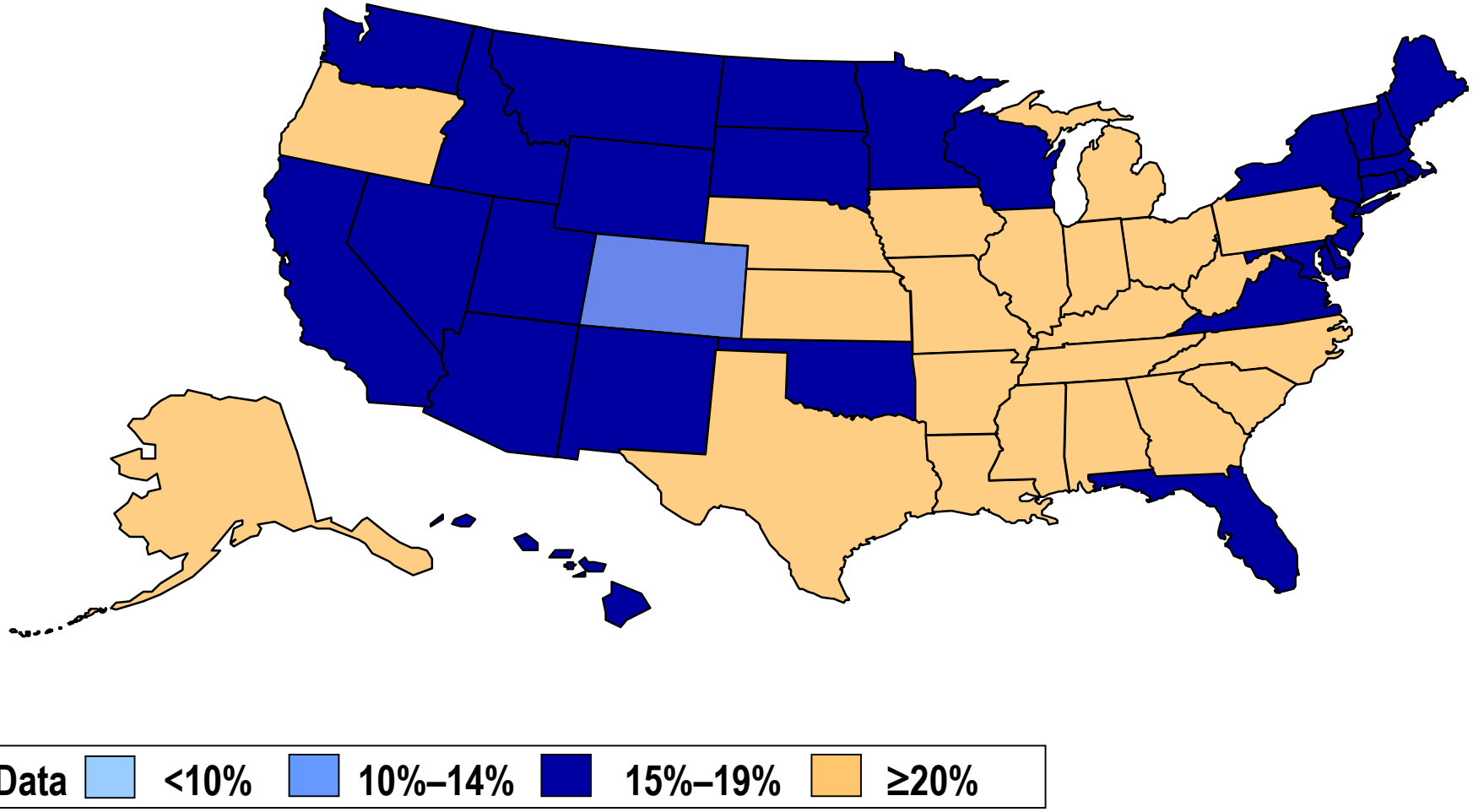
Obesity Trends* Among U.S. Adults 1995

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)



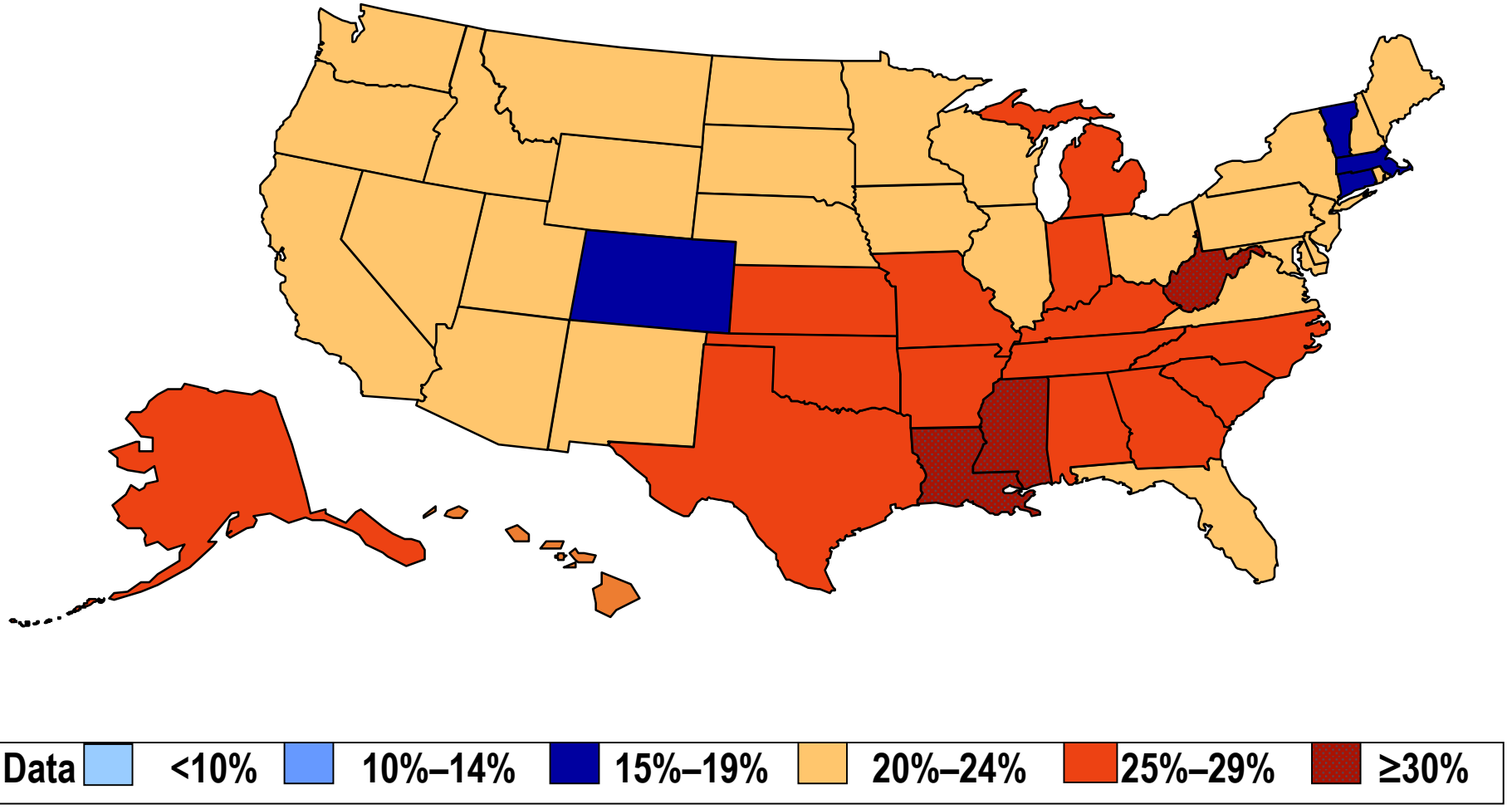
Obesity Trends* Among U.S. Adults 2000

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)



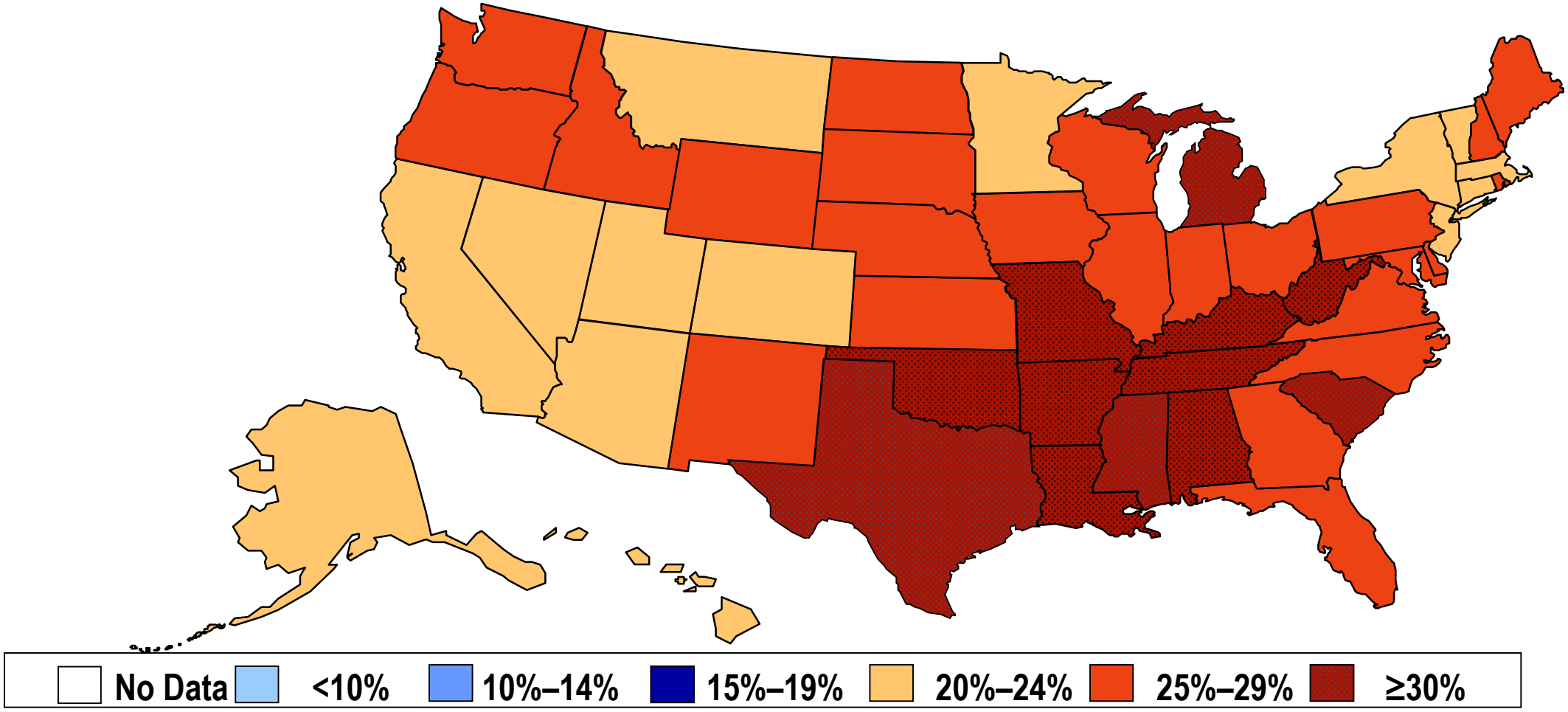
Obesity Trends* Among U.S. Adults 2005

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

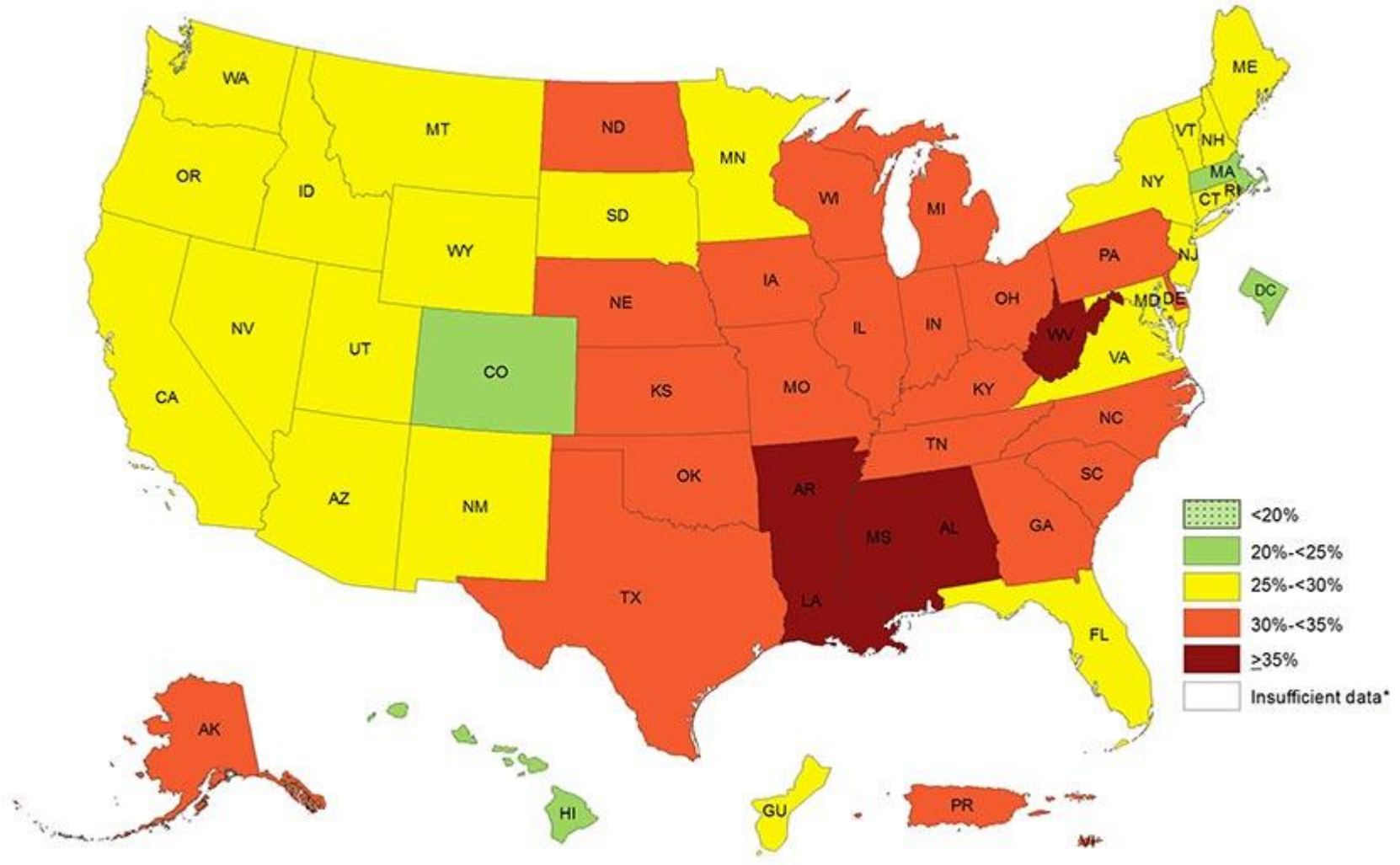


Obesity Trends* Among U.S. Adults 2010

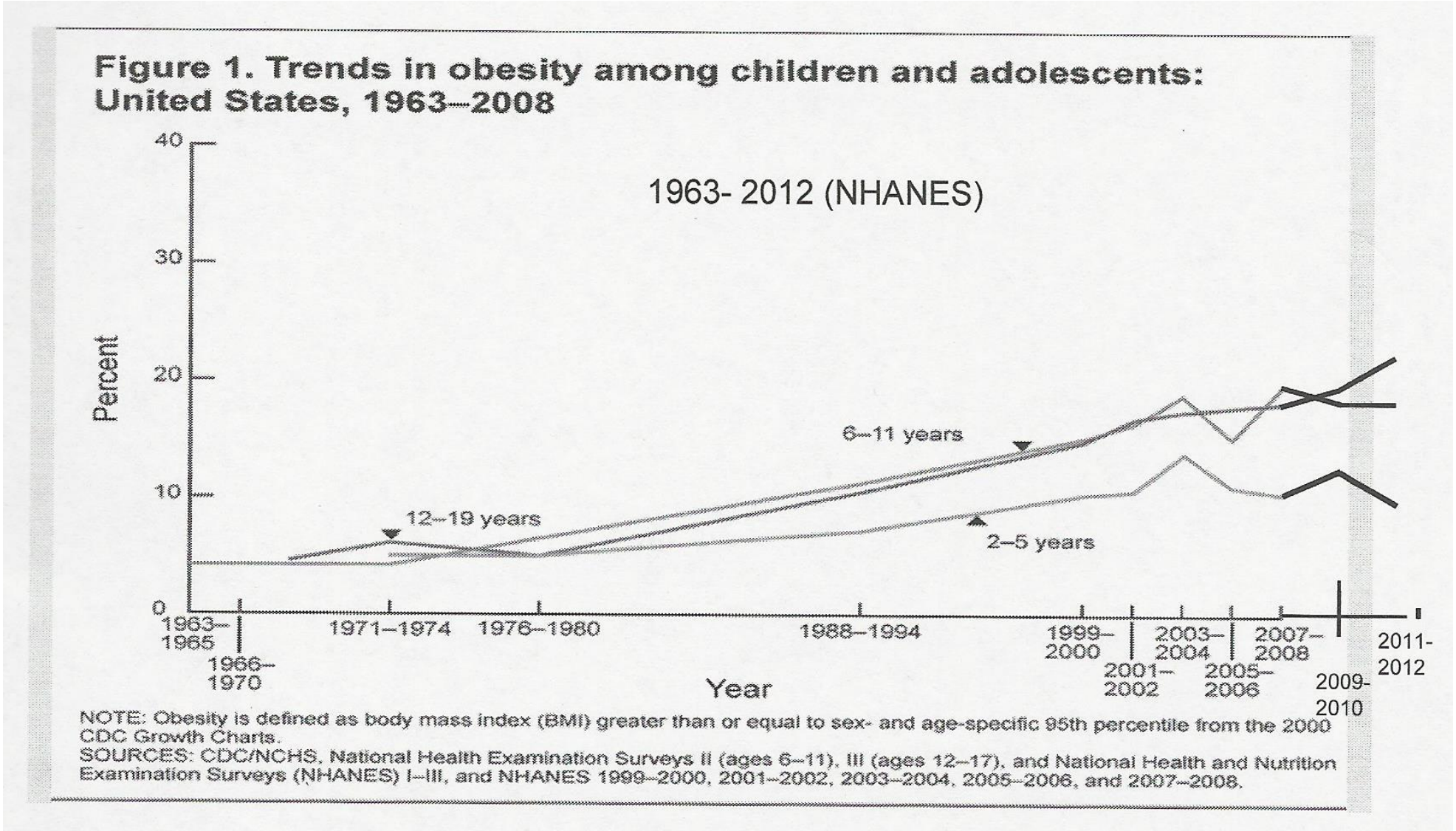
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)



Obesity Trends* Among U.S. Adults 2016



Pediatric Obesity Rates



Pediatric Obesity Rates - Trends

Age	1963-1970	1988-1994	2003-2004	2013-2014
2-5 years	< 5%	7.2%	13.9%	9.4%
6-11years	4.2%	11.3%	19.6%	17.4%*
12-19 years	4.6%	10.5%	18.8%	20.6%*
2-19 years	< 5%	10%	17.1%	17.2%*

*Difference from 2003-04 to 2013-14 not statistically significant

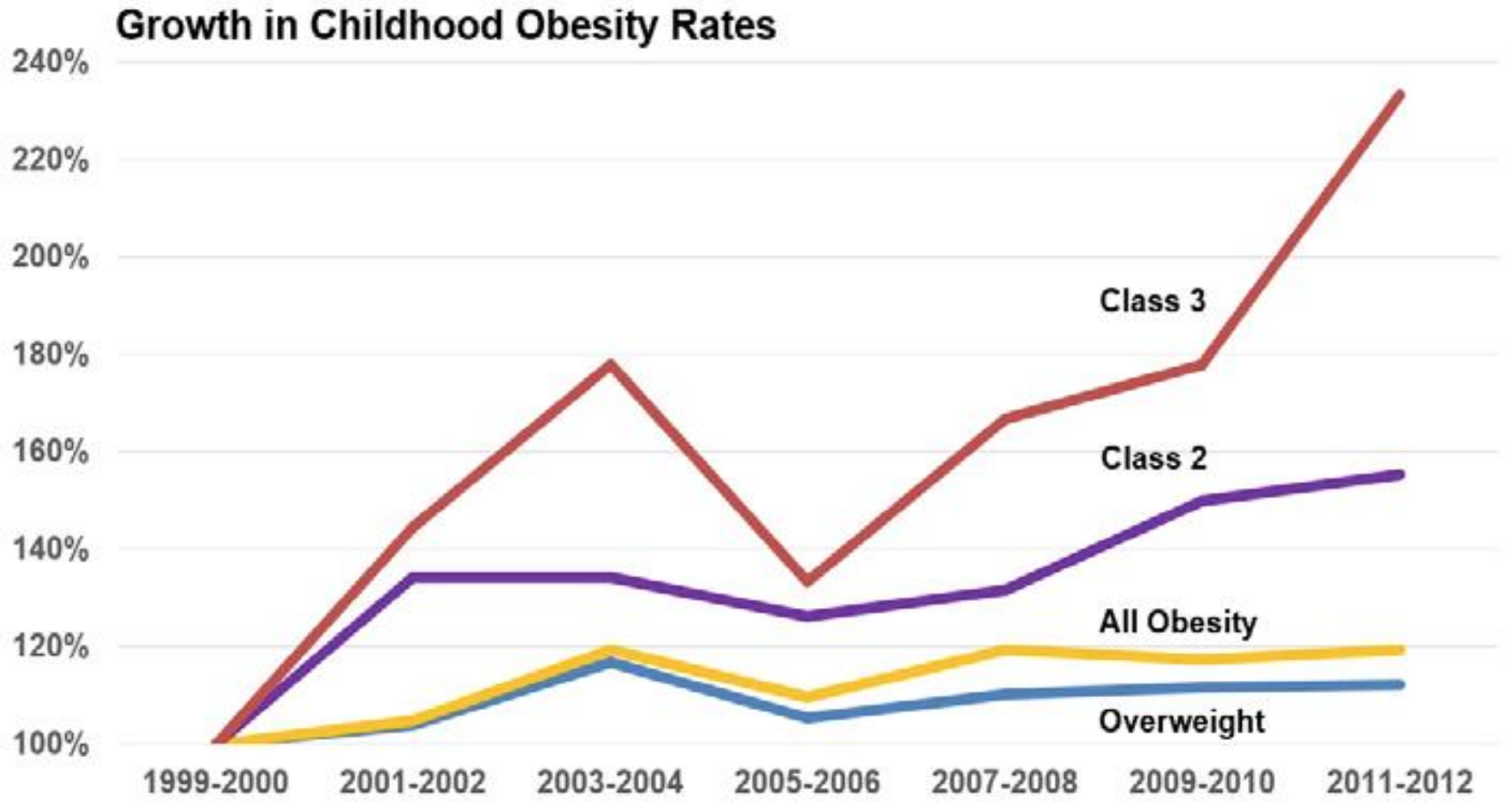
Ogden, JAMA 2016

Pediatric Obesity Rates - Race

Age	NHW	NHB	Hispanics
2-5 years	5.2%	10.4%	15.6%
6-11years	13.6%	21.4%	25.0%
12-19 years	19.6%	22.6%	22.8%
2-19 years	14.7%	19.5%	21.9%

Ogden, JAMA 2016

Obesity and Extreme Obesity



JAMA Pediatrics 2014; 168 (6) June

ORIGINAL ARTICLE

Simulation of Growth Trajectories of Childhood Obesity into Adulthood

Zachary J. Ward, M.P.H., Michael W. Long, Sc.D., Stephen C. Resch, Ph.D.,
Catherine M. Giles, M.P.H., Angie L. Cradock, Sc.D.,
and Steven L. Gortmaker, Ph.D.

- 57% of children today are projected to have obesity at age 35

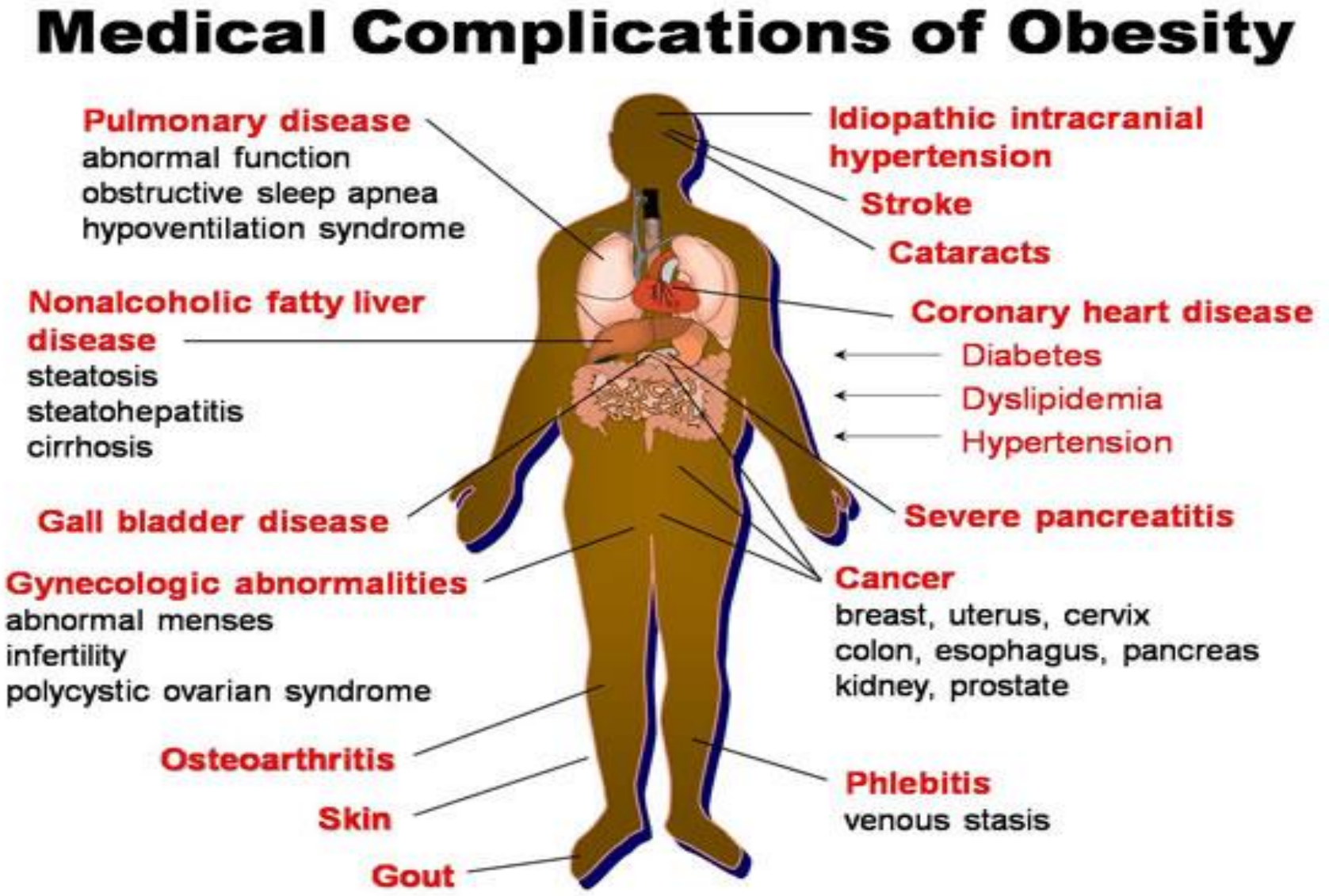
- NEJM 2017

Financial Impact

- Cost of Obesity
  - 2003 $75 billion
  - 2008 $144 Billion
  - 2013 $342 Billion
  - 2025 WHO predicts worldwide cost $1.2 Trillion

Thorpe, K. 2009, Miller 2018

Obesity Related Health Conditions



Obesity Education

- AAMC Report VIII: Contemporary Issues in Medicine: The Prevention and Treatment of Overweight and Obesity
  - Published in 2007
  - Last comprehensive review of obesity education

AAMC Report

- Guiding Principles
  - *The **universal importance of weight management**, including the prevention of overweight and obesity, **should be emphasized in the medical school curriculum***
  - *Medical education **should not contribute** to the **stigmatization** of overweight and obese patients*

AAMC Report

- Guiding Principles
  - *The current **uncertainties** regarding some aspects **of preventing and treating** overweight and obesity **should not prevent** future physicians from **learning** about overweight and obesity*
  - *The ideal setting to treat patients who are overweight or obese includes **social support and behavioral treatment with a multidisciplinary team***

AAMC Report

- Guiding Principles
  - *Physicians must better **appreciate** and support **population-based efforts** to prevent and control overweight and obesity*

AAMC Report

- Basic Sciences
  - Metabolic, genetic and environmental effects on obesity
  - Energy balance including physiologic aspects of energy consumption & expenditure
  - Nutrition basics – calorie content of macronutrients
  - Benefits of physical activity
  - Consequences of physical inactivity

AAMC Report

- Basic Sciences
  - Components of Total Energy Expenditure – RMR, TEF, PA
  - Role of neuro-endocrine system on obesity
  - Metabolic and immunologic consequences of obesity
  - Pharmacologic approaches to treating overweight and obesity
  - Mechanisms for weight loss including surgical treatments for obesity

AAMC Report

- Clinical Sciences
  - "Coherent" clinical curriculum that reinforces knowledge, skills, and attitudes longitudinally
  - Perform a history and physical specific to patient w/ OW/obesity
  - Develop social, family and cultural sensitivity

AAMC Report

- Clinical Sciences
  - Assess and make recommendations related to:
    - Nutrition
    - Physical activity
    - Behavioral interventions
    - Surgery
  - Referral and follow-up

AAMC Report

- Recommendations
  - *Overweight and obesity-related learning objectives should be **integrated vertically and horizontally in all four years** of medical school*
  - *A **combination of didactic and interactive** instructional methods should be employed*
  - *Because the prevention and treatment of overweight and obesity continue to be evolving fields, a commitment to critical appraisal and **lifelong learning** should be fostered*

Integrating Obesity Education into Curriculum

- Northwestern University – Feinberg School of Medicine
  - Include nutrition and obesity education into medical school curriculum
  - Weaved throughout the curriculum
  - More to come in June

Integrating Obesity Education into Curriculum

- Oklahoma State University - College of Osteopathic Medicine
- Incorporated into all 4 years
  - Basic sciences and clinical didactics
  - Focused sessions on obesity including behavioral health
  - Clinical rotation opportunities with community based partners
  - Broad, integrated exposure to obesity education

Integrating Obesity Education into Curriculum

- Campbell University School of Osteopathic Medicine
  - 4-year program
  - 2-years didactics
    - First semester basic sciences
    - Three semesters systems-based education
  - 2-years clinical rotations

Integrating Obesity Education - CUSOM

- Biochemistry
  - Macronutrient metabolism
    - Glucose, fructose, and lipids
- Physiology
  - Metabolism – RMR, calories, physical activity
  - Neuro-hormonal pathways

Integrating Obesity Education - CUSOM

- Pharmacology
  - Anti-obesity Medications
- Pathology
  - Disease consequences of nutrient imbalance
  - Macronutrients
  - Micronutrients
  - Genetic disorders

Integrating Obesity Education - CUSOM

- Musculoskeletal System
  - Physical activity
  - Nutritional needs
  - Metabolic and biomechanical impact

Integrating Obesity Education - CUSOM

- Cardiopulmonary System
  - Metabolic effects
  - Biomechanical effects
  - Role of diet and weight

Integrating Obesity Education - CUSOM

- Endocrine
  - Insulin resistance
  - Type 2 diabetes (T2DM)
  - Role of weight loss
  - Diabetes medications

Integrating Obesity Education - CUSOM

- Gastrointestinal System
  - Non-alcoholic fatty liver disease
  - Gallbladder disease
  - Gut microbiome
  - Vagus nerve

Integrating Obesity Education - CUSOM

- Other
  - Bias and Stigma
  - 50 Studies Every Doctor Should Know
    - Comparison of Different Diet Strategies
    - Swedish Obesity Study

Integrating Obesity Education - CUSOM

- Other
  - Behavioral Health
    - Motivational Interviewing
  - Neurology
    - Cognitive function
  - Reproductive Health
    - Fertility
    - PCOS

Integrating Obesity Education - CUSOM

- Obesity Specific Lectures
  - Introduction to Obesity Medicine
    - Epidemiology
    - Definitions and stages of obesity
    - Health consequences of obesity
  - Appetite Regulation
    - Neuro-hormonal influences on obesity
    - Entero-hormonal influences on obesity
    - Adipocyte role in appetite regulation

Integrating Obesity Education - CUSOM

- Principles of Dietary Regulation
  - Macronutrients
  - Dietary interventions
  - Adaptive thermogenesis
- Evaluation and Treatment of the Patient with Obesity
  - Obesity focused history and physical exam
  - Anti-obesity medication
  - Types, indications and complications of bariatric surgery

Future Directions

- Obesity Medicine Education Collaboration
  - Joint project of the Obesity Medicine Association, The Obesity Society and the American Society of Metabolic and Bariatric Surgeons
  - OMEC engaged working groups consisting of 40 obesity and education experts from 13 different medical societies

Future Directions

- Obesity Medicine Education Collaboration
  - Goal to develop **obesity focused competencies** evaluation benchmarks for medical educators at the UME, GME and fellowship levels
  - Currently developed following **6 AGME Competency Domains** with respective **benchmarks** which traverse all **3 levels** of education

Future Directions

- Obesity Medicine Education Collaboration
  - **32 obesity focused competencies** were developed in the following domains
    1. Interpersonal and Communication Skills
    2. Medical Knowledge
    3. Patient Care
    4. Practice-base Learning and Improvement
    5. Systems Base Practice
    6. Professionalism

Future Directions

- Obesity Medicine Education Collaboration
  - Currently undergoing **external review** - 16 medical societies to date
  - Obesity based competencies are intended to facilitate incorporation of obesity education at all levels of medical education.

Resources

- Obesity Medicine Association
  - Organization of clinical obesity specialists
  - Obesity Academy
    - Online repository for obesity related lecture as well as a resource for obesity education for clinicians-in-training
    - Obesity Algorithm – a free comprehensive resource for the evaluation and treatment of the patient with obesity
    - www.obesitymedicine.org

Resources

- The Obesity Society
  - Organization of obesity researchers and specialists
    - www.obesity.org
- American Society of Metabolic and Bariatric Surgeons
  - Organization of surgical specialists in the treatment of the patient with obesity
  - www.asmbs.org

Resources

- Obesity Action Coalition
  - National non-profit organization dedicated to giving a voice to the individual affected by the disease of obesity

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