


Reducing Obesity & Chronic Disease Risk in Youth:  
Current Research & Future Directions

Pat Crawford, DrPH, RD  
Nutrition Policy Institute  
Nutrition Specialist  
Adjunct Professor  
University of California



---

---

---

---


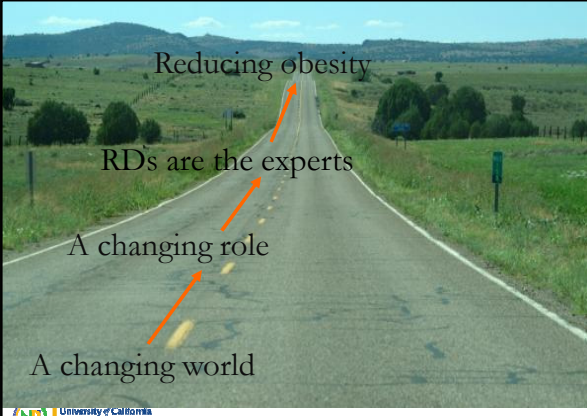
---

---

---

---

Reducing obesity  
RDs are the experts  
A changing role  
A changing world



---

---

---

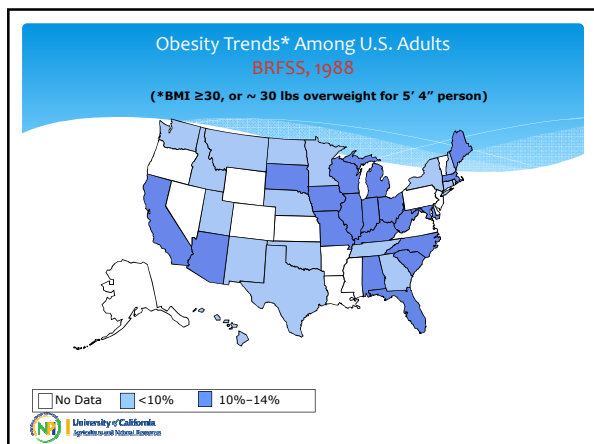
---

---

---

---

---



---

---

---

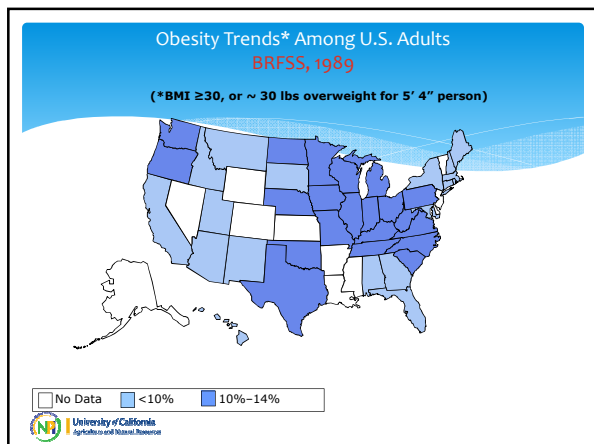
---

---

---

---

---



---

---

---

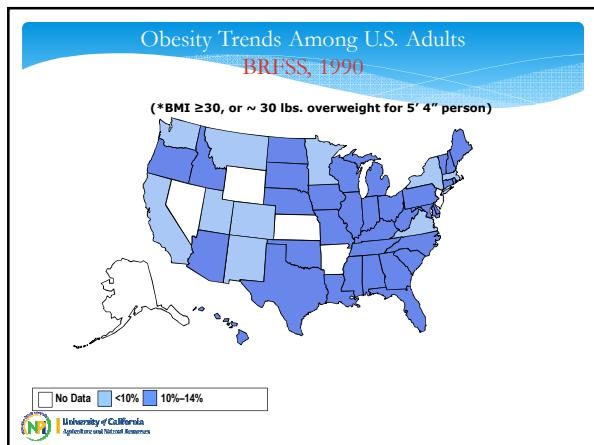
---

---

---

---

---



---

---

---

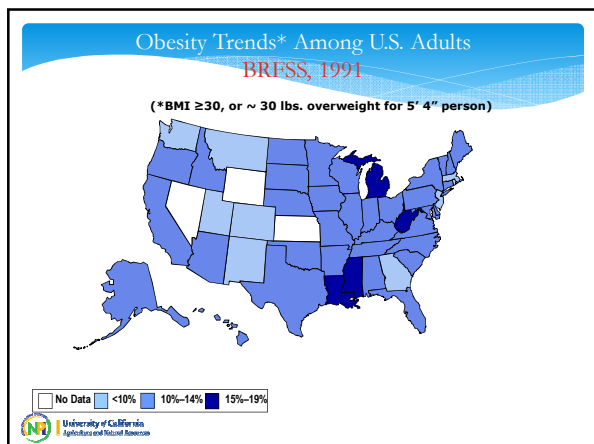
---

---

---

---

---



---

---

---

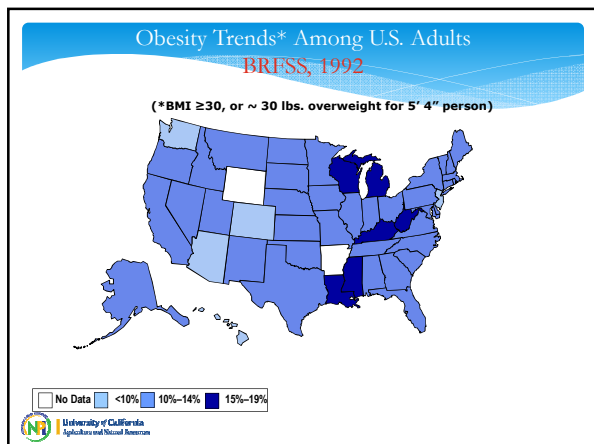
---

---

---

---

---



---

---

---

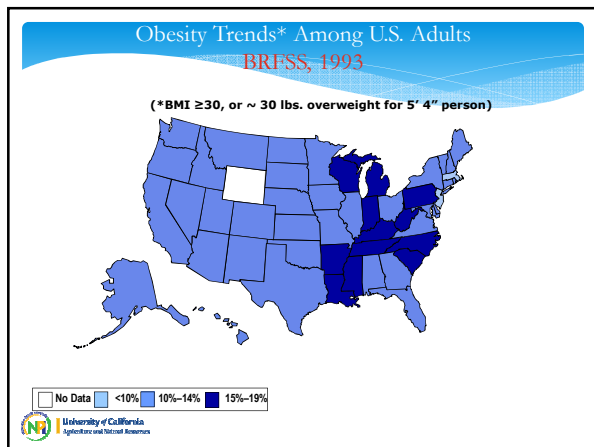
---

---

---

---

---



---

---

---

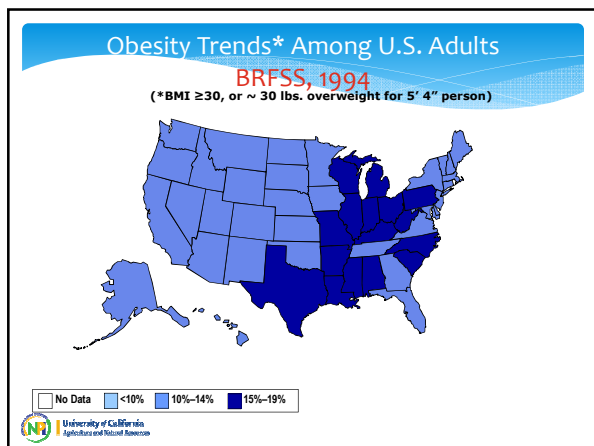
---

---

---

---

---



---

---

---

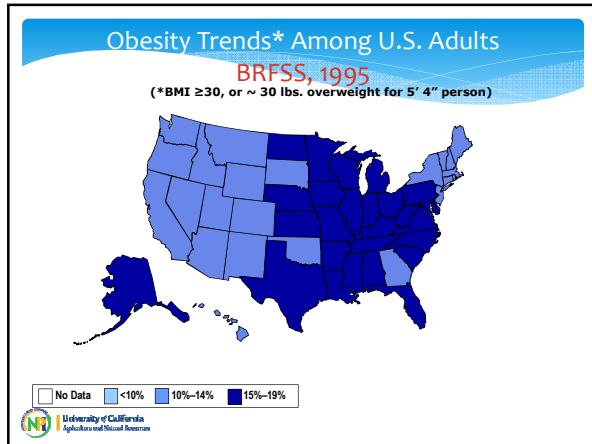
---

---

---

---

---



---

---

---

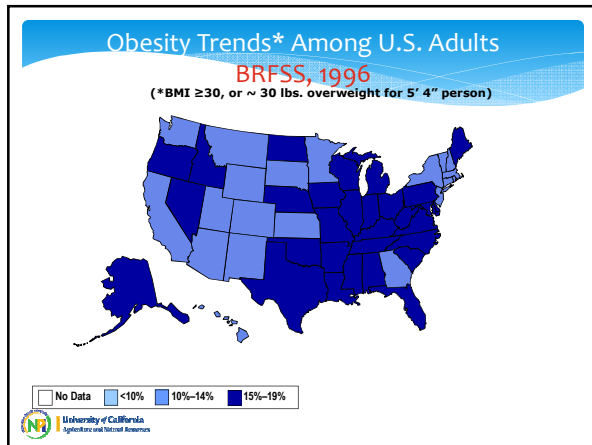
---

---

---

---

---



---

---

---

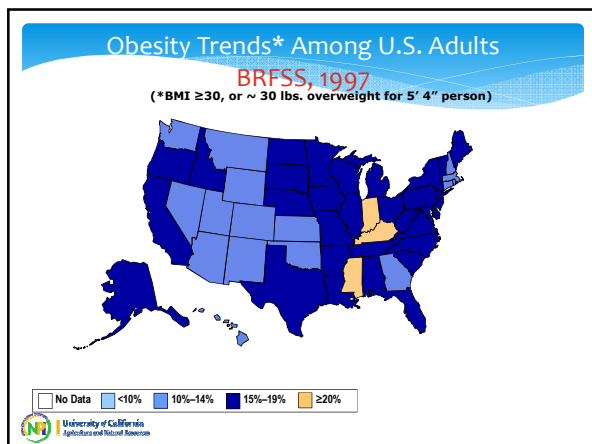
---

---

---

---

---



---

---

---

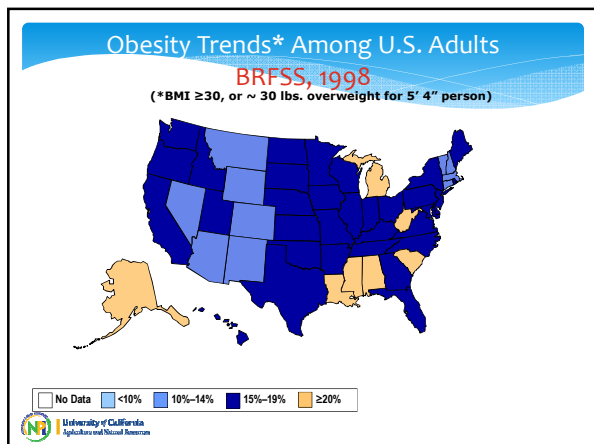
---

---

---

---

---



---

---

---

---

---

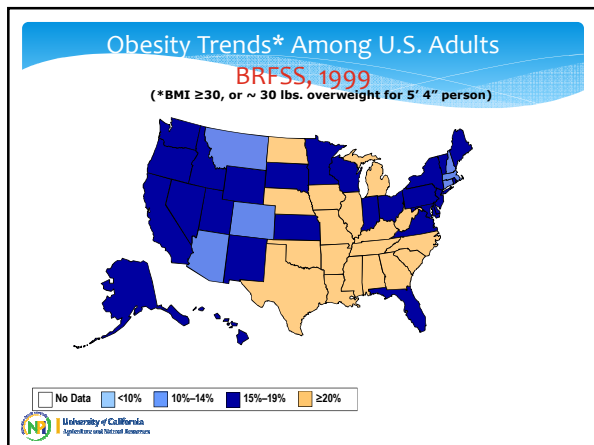
---

---

---

---

---



---

---

---

---

---

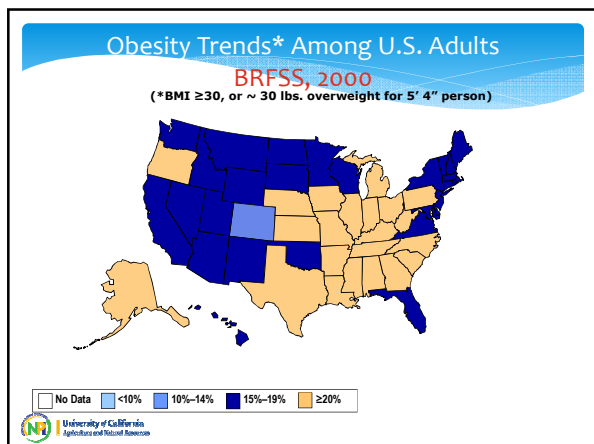
---

---

---

---

---



---

---

---

---

---

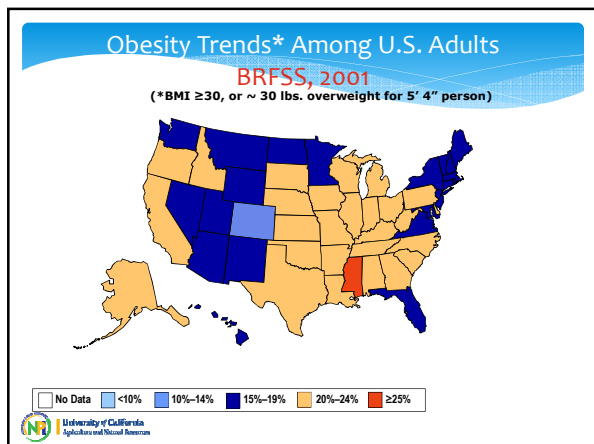
---

---

---

---

---



---

---

---

---

---

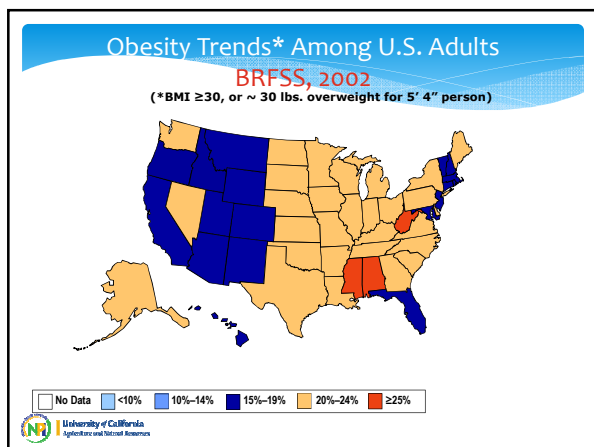
---

---

---

---

---



---

---

---

---

---

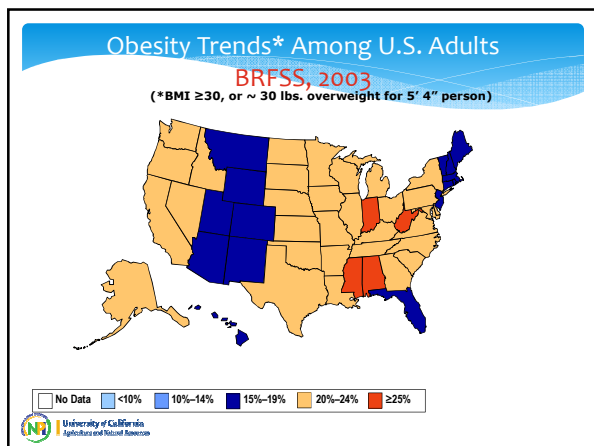
---

---

---

---

---



---

---

---

---

---

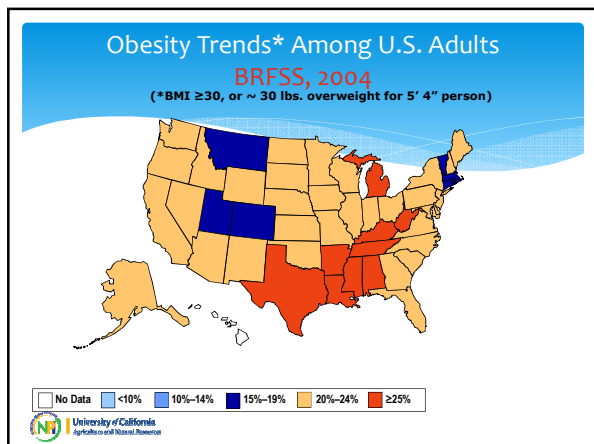
---

---

---

---

---



---

---

---

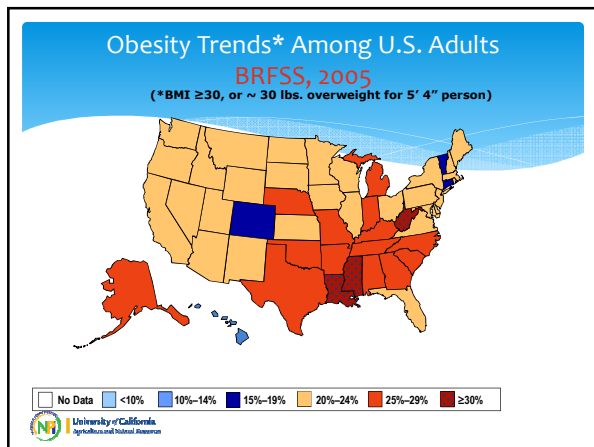
---

---

---

---

---



---

---

---

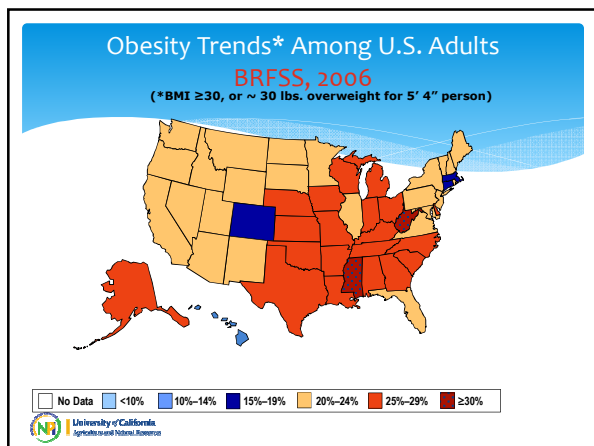
---

---

---

---

---



---

---

---

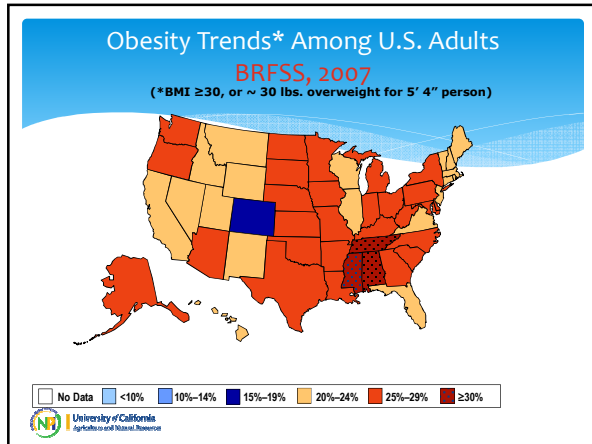
---

---

---

---

---



---

---

---

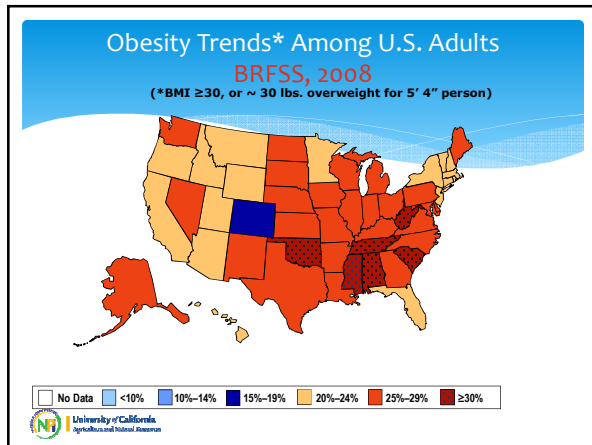
---

---

---

---

---



---

---

---

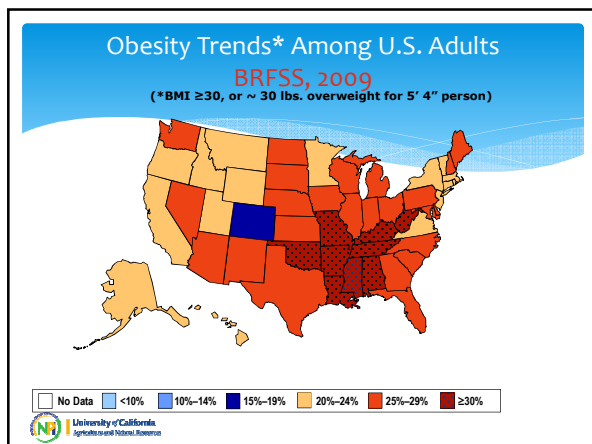
---

---

---

---

---



---

---

---

---

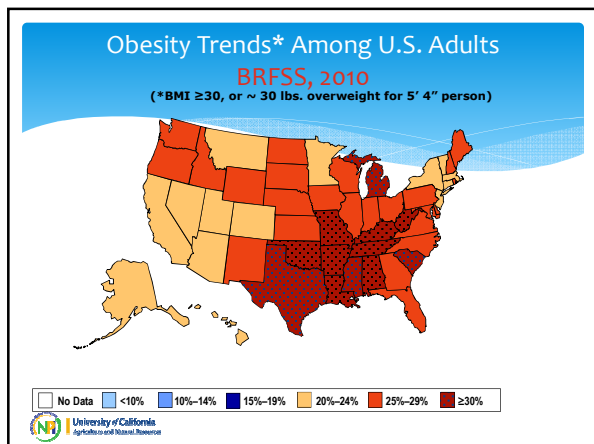
---

---

---

---





---

---

---

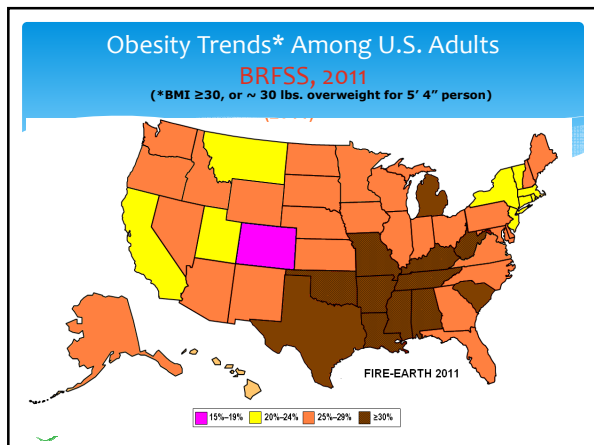
---

---

---

---

---



---

---

---

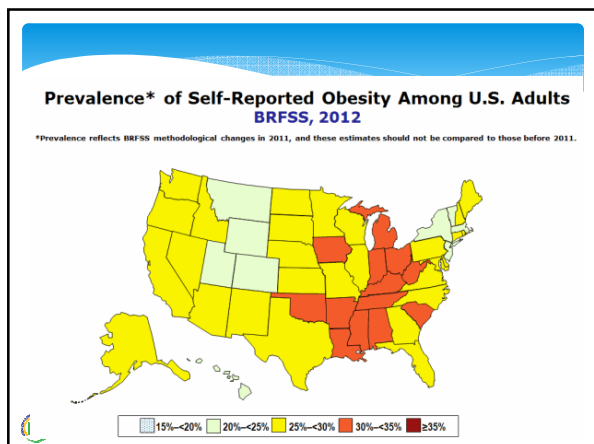
---

---

---

---

---



---

---

---

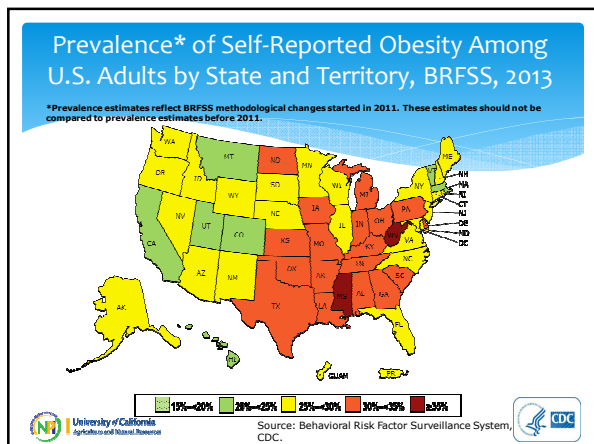
---

---

---

---

---




---

---

---

---

---

---

---

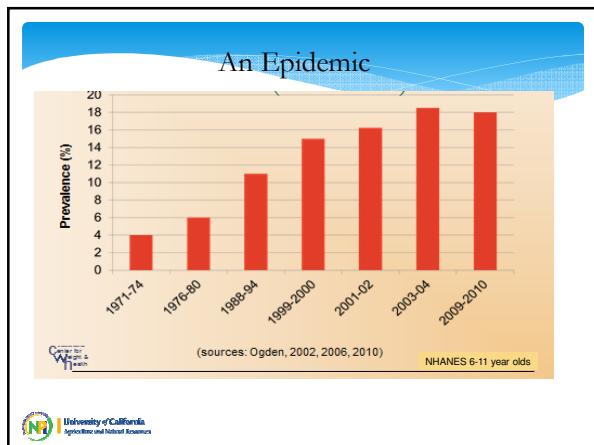
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---

---

---

### How does Hawaii compare with the rest of the US? Prevalence of Overweight (BMI 25-30) in 2013

BRFSS-CDC

	Hawaii (Mean %)	US (Median %)
Overall	33.6	35.4
Male	39.9	41.4
Female	27.0	29.8
Age (years)		
18-24	24.5	26.1
25-34	34.1	33.7
35-44	37.0	36.4
45-54	35.7	36.9
55-64	34.7	37.8
≥65	32.9	39.8

---

---

---

---

---

---

---

---

---


---

---

---

**How does Hawaii compare with the rest of the US?**  
**Prevalence of Overweight (BMI >30) in 2013**  
BRFSS-CDC

	Hawaii (Mean %)	US (Median %)
Overall	21.8	29.4
Male	24.7	29.1
Female	18.7	28.0
Age (years)		
18-24	15.0	15.6
25-34	25.8	27.5
35-44	24.2	32.7
45-54	27.0	34.1
55-64	21.9	34.6
≥65	16.1	26.7



---

---

---

---

---

---

---

---

---


---

---

---

**Prevalence of Overweight and Obesity in Youth Aged 10-17 Years 2011-2012**  
(National Survey of children's Health) BRFSS-CDC

	Hawaii (%)	US (%)
Overweight (85 <sup>th</sup> – 94 <sup>th</sup> percentile)	15.9	15.6
Obese (≥95 <sup>th</sup> percentile)	11.5	15.7



---

---

---

---

---

---

---

---

---


---

---

---

**Prevalence of Adult Diabetes and Coronary Heart Disease in Hawaii vs the US**  
BRFSS-CDC 2013

	Hawaii (%)	US (%)
Diabetes	8.4	9.7
Gestational Diabetes	1.2	0.9
Pre-diabetes	4.6	1.2
Total Diabetes and Pre-diabetes	14.2	11.8
Coronary Heart Disease	2.7	4.1



---

---

---

---

---

---

---

---

---

---


---

---

A Changing World

23% of adolescents have Type 2 Diabetes or are pre-diabetic...  
up from 9% in less than a decade!

May AL, et. Al. Prevalence of cardiovascular Disease Risk Factors Among Adolescents, 1999-2008  
Pediatrics 2012;129:1035-1041



---

---

---

---

---

---

---


---

A Changing Role In Our Profession

Tertiary Prevention

Secondary Prevention

Primary Prevention



---

---

---

---



---

---

---

---

Question: Can you change the prevalence of obesity without one person losing weight?



---

---

---

---

---

---


---

---

Answer: Yes, if you change the incidence of obesity.

How?

**Prevention**



---

---

---

---

---

---

---

---

How ?



---

---

---

---

---


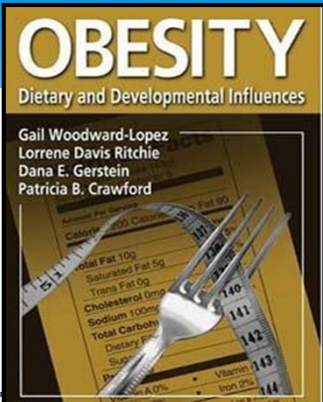
---

---

---

**OBESITY**  
Dietary and Developmental Influences

Gail Woodward-Lopez  
Lorrene Davis Ritchie  
Dana E. Gerstein  
Patricia B. Crawford



---

---

---

---

---


---

---

---

**❖ Causes of obesity from 1992-2003 review**

1. Dietary fat	11. Fruits and vegetables
2. Whole grains	12. Dairy and calcium
3. Sugar	13. Breakfast skipping
4. Protein	14. Sweetened beverages
5. Reduced fat foods	15. Fruit juice
6. Eating out	16. Eating frequency
7. Fast foods/eating out	17. Dietary variety
8. Caloric intake	18. Snacking
9. Energy density	19. Parental restriction
10. Portion size	20. Breast feeding




---

---

---

---

---

---

---

---

---


---

---

---

**❖ Causes of obesity from 1992-2003 review**

1. Dietary fat	11. Fruits and vegetables
2. Whole grains	12. Dairy and calcium
3. Sugar	13. Breakfast skipping
4. Protein	14. <b>Sweetened beverages</b>
5. Reduced fat foods	15. Fruit juice
6. Eating out	16. Eating frequency
7. <b>Fast foods/eating out</b>	17. Dietary variety
8. Caloric intake	18. Snacking
9. Energy density	19. Parental restriction
10. Portion size	20. Breast feeding




---

---

---

---

---

---

---

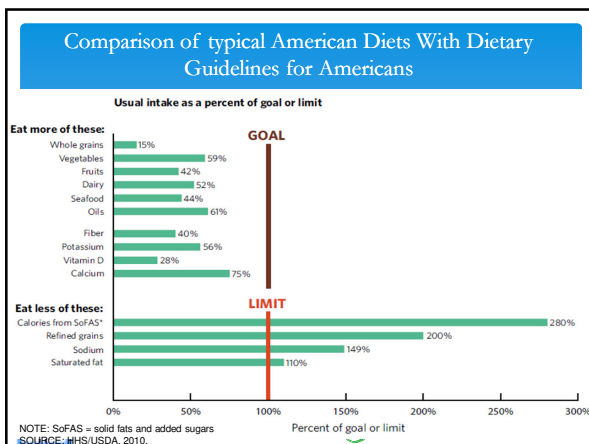
---

---

---

---

---




---

---

---

---

---

---

---


---

---

---


---

---



**Strongest evidence linking diet and excess body weight**

2010 Final DGA	2015 Draft DGA
Sweetened beverages	Added sugars from foods and sugar sweetened beverages
Eating out (fast food)	




---

---

---

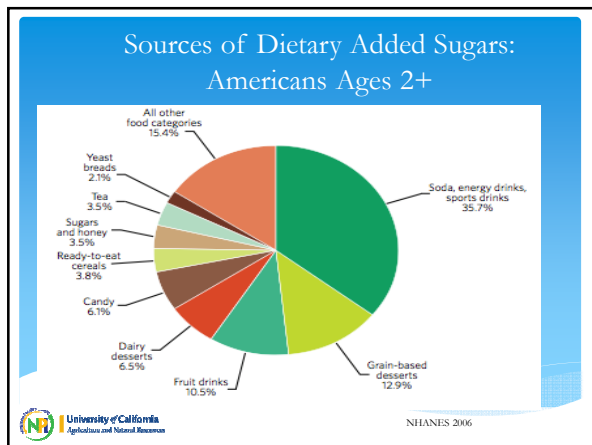
---

---

---

---

---




---

---

---

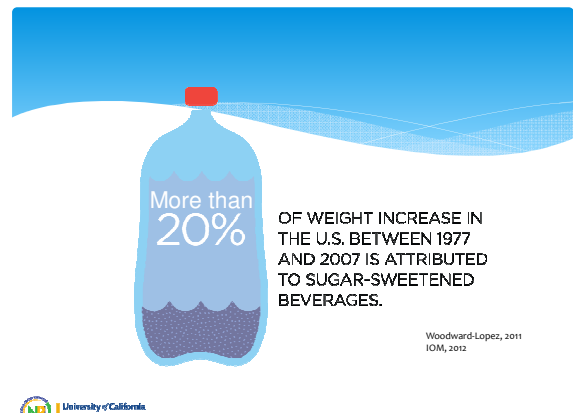
---

---

---


---

---



**More than 20%** OF WEIGHT INCREASE IN THE U.S. BETWEEN 1977 AND 2007 IS ATTRIBUTED TO SUGAR-SWEETENED BEVERAGES.

Woodward-Lopez, 2011  
ICM, 2012




---

---

---

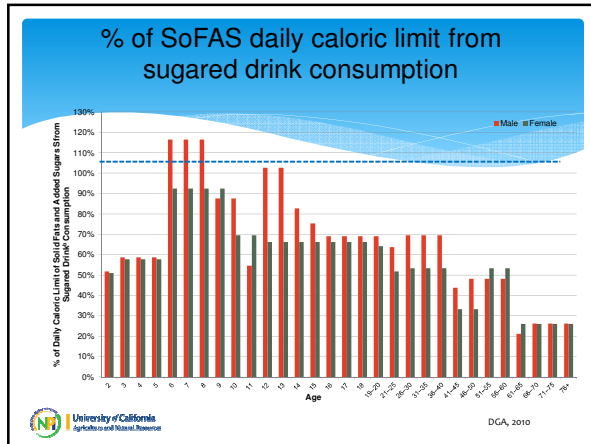
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---

### SSB Risk Beyond Obesity

- One Sugar Sweetened Beverage (SSB) per day is associated with a greater risk of type 2 diabetes, hypertension and CVD mortality (after adjusting for CVD risk factors and diet quality)
- CVD risk increases by almost a third
- Type 2 Diabetes risk doubles (for women) a day

University of California Agriculture and Natural Resources | Yang, JAMA Intern Med., 2014; Shultz, JAMA, 2004

---

---

---

---

---

---

---

---

---

---

### A Changing Role for RDs

Nutrients & education

- Foods & education
- Dietary patterns & education
- Food access & education

University of California Agriculture and Natural Resources

---

---

---

---

---

---

---

---

---

---



**RDs are the Experts**

University of California  
Agriculture and Natural Resources

---

---

---

---

---

---

---

---

About the Institute of Medicine (IOM)

- \*Established in 1970
- \*Health arm of the National Academy of Sciences
- \*Evidence-based recommendations
- \*Unbiased, authoritative advice to the nation to improve health

University of California  
Agricultural and Natural Resources

---

---

---

---

---

---

---

---

The IOM and Obesity Prevention

LOCAL GOVERNMENT ACTIONS

EARLY CHILDHOOD OBESITY PREVENTION POLICIES

Front-of-Package Nutrition Rating Systems and Symbols

SCHOOL MEALS

ALLIANCES FOR OBESITY PREVENTION

Food Marketing to Children and Youth

Threat or Opportunity?

University of California  
Agricultural and Natural Resources

---

---

---

---

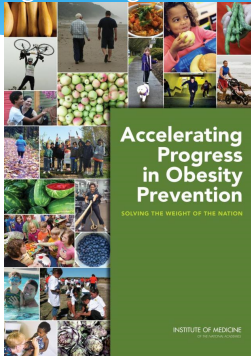
---

---

---


---

Accelerating Progress in Obesity Prevention:  
Solving the Weight of the Nation



Accelerating Progress in Obesity Prevention  
SOLVING THE WEIGHT OF THE NATION

INSTITUTE OF MEDICINE




---

---

---

---

---

---

---

---

Committee Membership

<b>Daniel Glickman, JD, (chair)</b> , The Aspen Institute and Bipartisan Policy Center	<b>Sandra Hassink, MD, FAAP</b> , A.I. duPont Hospital for Children
<b>M.R.C. Greenwood, PhD, (vice chair)</b> , University of Hawaii System	<b>Anthony Iton, MD, JD</b> , The California Endowment
<b>William Purcell, JD, (vice chair)</b> , Jones Hawkins & Farmer, PLC	<b>Steven Kelder, PhD, MPH</b> , University of Texas
<b>David Britt, MPA</b> , retired, Sesame Workshop	<b>Harold (Bill) Kohl, PhD</b> , University of Texas
<b>Jamie Chriqui, PhD, MHS</b> , University of Illinois, Chicago	<b>Shiriki Kumanyika, PhD</b> , University of Pennsylvania
<b>Patricia Crawford, DrPH</b> , University of California at Berkeley	<b>Philip Marineau, MBA</b> , LNK Partners
<b>Christina Economos, PhD, RD</b> , Tufts University	<b>Vicky Rideout, MA</b> , VJR Consulting
	<b>Eduardo Sanchez, MD, MPH</b> , Blue Cross and Blue Shield of Texas
	<b>Ellen Wartella, PhD</b> , Northwestern University




---

---

---

---

---

---


---

---

Committee on Accelerating Progress in Obesity Prevention

**STUDY CHARGE:**

“review past...obesity prevention-related recommendations, identify a set of critical recommendations for future action, and recommend indicators of progress in implementing these actions.”




---

---

---

---

---

---

---

---

### The Process

Reviewed ~800 obesity prevention-related recommendations!

Comprehensive review reflecting:

- Institute of Medicine and National Research Council
- Childhood Obesity Action Network
- Healthy Eating Activity Living Convergence Partnership
- US Department of Health and Human Services
- \* CDC, Community Preventive Services Task Force
- Keystone Forum
- National Governors Association
- National Association of County and City Health Officials
- National Physical Activity Plan
- Robert Wood Johnson Foundation
- Trust for America's Health
- USDA
- White House



---

---

---

---

---

---

---

---

### Recommendation 1: Physical Activity

Communities, health professionals, and governments should increase access to places and opportunities for physical activity.



27% OF AMERICANS GET THE RECOMMENDED AMOUNT OF PHYSICAL ACTIVITY.



---

---

---

---

---

---

---

---

### Recommendation 2: Food and Beverage Environments

Governments and the private sector should make a concerted effort to reduce unhealthy food and beverage options and substantially increase healthier foods and beverages options at affordable prices.

CALORIES CONSUMED PER DAY BY ADULTS IN



Period	Calories Consumed per Day by Adults
1971-1974	1,996
2005-2008	2,234



---

---

---

---

---

---

---

---

**Recommendation 3: Message Environments**

Industry, and governments should act aggressively to transform the environment that surrounds Americans with messages about physical activity, food, and nutrition.



OLDER CHILDREN AND ADOLESCENTS CONSUME MORE THAN **7.5** HOURS OF MEDIA EACH DAY.



---

---

---

---

---

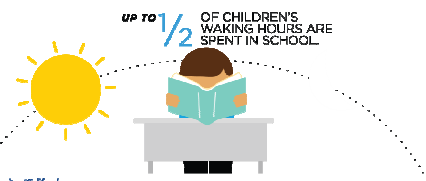
---

---


---

**Recommendation 4: Schools**

Government and education authorities, with support from parents, teachers, and the community should make schools a focal point for obesity prevention.



UP TO **1/2** OF CHILDREN'S WAKING HOURS ARE SPENT IN SCHOOL.



---

---

---

---

---


---

---

---

**Recommendation 5: Health Care and Work Environments**

Health care providers, and employers should increase the support structure for achieving better population health and obesity prevention.



**1/4** OF AN EMPLOYED ADULT'S LIFE IS SPENT AT THE WORKPLACE.



---

---

---

---

---

---

---

---

### Mapping Systems of Change

- Business
- Public
- Civic Organizations
- Health Care
- Worksites

University of California  
Agriculture and Natural Resources

---

---

---

---

---

---

---

---

### Multi-Sector Interactions

University of California  
Agriculture and Natural Resources

62

---

---

---

---

---

---

---

---

### Multi-level Strategies

- Strengthening Individual Knowledge and Skills
- Influencing Policy and Legislation
- Promoting Community Education
- Fostering Coalitions and Networks
- Changing Organizational Practices

University of California  
Agriculture and Natural Resources

Cohen, L. / Prevention Institute

---

---

---

---

---

---

---

---

### What Would You Do If You Knew That

- \* Nutrition is important to health, prevention of disease and learning
- \* Less than 2% of children meet the Dietary Guidelines
- \* Children receive up to 1/3 of their calories in the school setting
- \* Children are more likely to select healthy foods if they are offered healthy foods
- \* Lunches from home are less likely to be healthy than school lunches



---

---

---

---

---

---

---

---

### Legislation Signed into Law in 2005

- \* SB 12 sets nutrition standards for food served and sold in K-12 public schools.
- \* SB 965 bans the sale of soda and other SUGAs in all K-12 public schools.



---

---

---

---

---

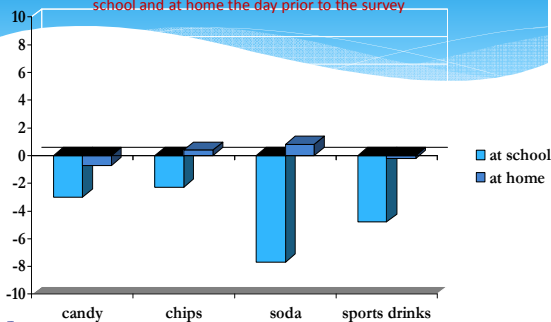
---

---

---

### Policy Evaluation

Change in percent of students reporting consumption of select items at school and at home the day prior to the survey



---

---

---

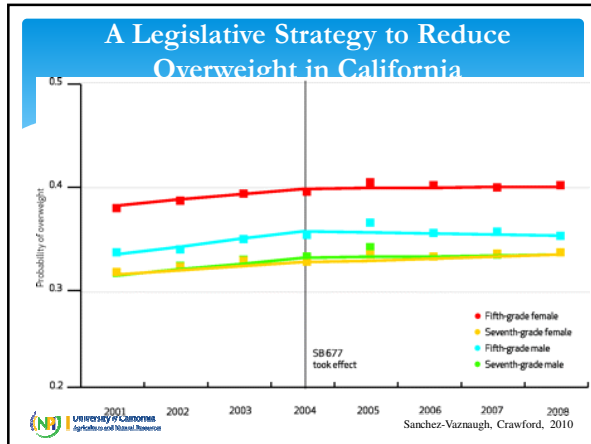
---

---

---

---

---



---

---

---

---

---

---

---

---

- ### Medical Cost Savings Per Child
- Annualize the adjusted decrease in prevalence from peak to 2008
  - Assume that annual decrease continues until 2015
  - Apply this to ALL kids in CA
  - ~ 100,000 kids DROP OUT of the obese category
  - Assuming a savings of \$220 per child\*
  - Savings of more than \$20 million
- \*based on MEPS data from 2001 to 2003, as reported in NY state comptroller report from Oct 2012)
- University of California Agriculture and Natural Resources

---

---

---

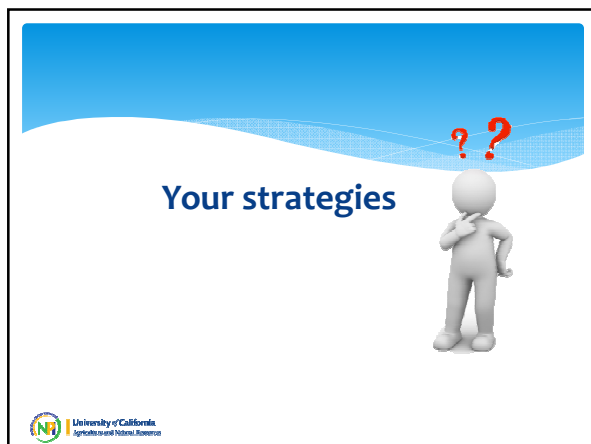
---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---