

## **Obesity and Severe Obesity Forecasts Through 2030**

**Weight of the Nation™ 2012 Conference:  
Moving Forward, Reversing the Trend  
Washington, D.C.  
May 7-9, 2012**

Produced by the Alabama Department of Public Health  
Video Communications and Distance Learning Division

## **Faculty**

**Justin Trogdon, PhD  
Research Economist  
RTI International**

## **Authors**

- **Eric Finkelstein (Duke-NUS Graduate Medical School)**
- **Olga Khavjou, Hope Thompson, and Justin Trogdon (RTI)**
- **Liping Pan, Bettylou Sherry, and William Dietz (CDC-DNPAO)**

## **Authors**

- **This work was funded by the CDC under contract number 2000-2008-27958. Findings and conclusions in this article are those of the authors and do not necessarily represent the official views of the CDC or RTI International. It does not represent and should not be construed to represent any agency determination or policy.**

## **Background and Motivation**

- **Dramatic increases in obesity rates since the 1970s, especially for severe obesity**
  - **Obesity rate = 34% in 2007-2008 (NHANES)**
    - **>100% ↑ from 1976-80**
    - **50% ↑ from 1988-1994**

## **Background and Motivation**

- **Evidence of leveling off of obesity prevalence for some adult subpopulations since 2003-2004**
- **Obesity costs are ~ 9% of annual medical expenditures (Finkelstein et al, 2009)**
  - **\$147 billion per year**

### Study Goal

- **Goal: forecast future obesity and severe obesity prevalence for 2010-2030**
  - With improvements over prior estimates
- **Forecasts were used to simulate the savings that could be achieved through modestly successful obesity prevention efforts**

### Data and Methods

### Data

- **Individual-level variables from 1990-2008 Behavioral Risk Factor Surveillance System (BRFSS)**

### Data

- **State-level variables from:**
  - Bureau of Labor Statistics (BLS)
  - American Chamber of Commerce
  - Research Association (ACCRA)
  - Census of Retail Trade

### Methods

- **Logistic regression analysis predicting the probability of:**
  - Obesity (BMI > = 30)
  - Severe obesity (BMI > = 40)

### Methods

- **Includes individual-level demographics and state-level variables expected to influence obesity**
  - Prices: alcohol, gas, fast food, groceries (relative to non-grocery), healthier foods (relative to less-healthy foods)

### Methods

- Number of fast-food and full-service restaurants per capita
- Unemployment rate
- Internet access

### Methods

- Forecasting of future obesity and severe obesity:
  - Constructed a synthetic cohort using 2008 BRFSS data and the U.S. Census population projections
  - Forecasted state-level variables through 2030

### Methods

- Multiplied coefficients from the two logit models by the data for each year of the synthetic cohort

### Methods

- Reductions in obesity-attributable medical expenditures were estimated as resulting from:
  - One percentage point reduction in future forecasted obesity prevalence
  - No growth in obesity rates after 2010
  - Healthy People 2010 goal obesity prevalence of 15%

### Results

### Projected Prevalence of Obesity (BMI > = 30)

	Year			
	2015	2020	2025	2030
Linear trend	36%	41%	46%	51%
Preferred model	35%	37%	40%	42%

### Projected Prevalence of Severe Obesity (BMI >= 40)

	Year			
	2015	2020	2025	2030
Linear trend	6%	7%	8%	9%
Preferred model	6%	8%	10%	11%

### Potential Savings in Medical Expenditures: 2030

Scenario	Forecasted Obesity Rate	Reduced Obesity Rate	Averted Cases of Obesity	Cumulative savings (billions \$)
One Percentage Point Decrease in Obesity Rates	42%	41%	3M	\$85
No Growth in Obesity Rates after 2010	42%	31%	32M	\$550
Healthy People Goal of 15% Obesity Rates	42%	15%	78M	\$1,902

### Discussion

### Discussion

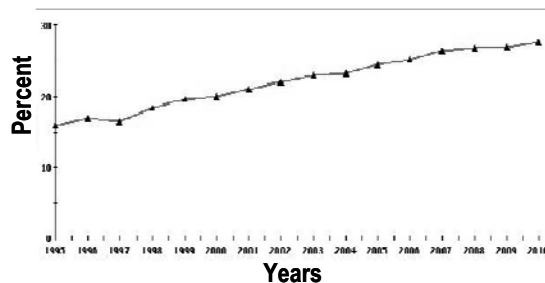
- Our forecasts of future obesity rates are lower than prior estimates
  - Still, we projected a 33% increase in prevalence of obesity by 2030

### Discussion

- Depending on the data, some estimates show flattening of obesity rates in the recent years
  - BRFSS vs. NHANES estimates

### BRFSS Obesity 1995-2010

Overweight and Obesity (BMI)  
 Nationwide (States and DC) - All Available Years  
 Response = OBESE (bmi 30.0 - 99.8)



### Discussion

- Our forecasts of future obesity rates are lower than prior estimates
  - Still, we projected a 33% increase in prevalence of obesity by 2030

### Discussion

- Depending on the data, some estimates show flattening of obesity rates in the recent years
  - BRFSS vs. NHANES estimates
  - BRFSS allowed us to incorporate state-level contextual variables

### Discussion

- Our forecasts of future severe obesity rates are higher than those from a linear trend
  - Results are alarming given that those with BMI >= 40 are:
    - At much greater risk for diabetes and other medical conditions

### Discussion

- Have shorter life expectancy, and
- Generate greater lifetime medical costs

### Discussion

- Study limitations:
  - Projections assume that logistic regression parameters and costs from past data will continue in the future
  - BRFSS excludes people without phone land-lines
  - BRFSS collects self-reported height and weight

### Discussion

- Other factors are likely to slow obesity growth even further:
  - Increased access to recreational facilities
  - Improvements in urban design
  - Anti-obesity social marketing programs

### **Discussion**

- Worksite health promotion programs
- New drugs and technologies
- Future trends in childhood obesity rates will have a major impact on adult obesity and related healthcare costs

### **Conclusions**

- Our study forecasts a 33% increase in the prevalence of obesity and a 130% increase in severe obesity in the next two decades
  - Based on extrapolating prior available data
  - Assuming trends will continue

### **Conclusions**

- Growing obesity will further hinder efforts for healthcare cost containment
- Successful interventions will result in substantial savings
  - No growth in obesity rates after 2010 could save \$550 billion over 20 years

### **What Works?**

- Institute of Medicine report “Accelerating Progress in Obesity Prevention”
  - Released May 8, 2012
- Will recommend strategies necessary to reverse the obesity epidemic

### **More Information**

**Justin Trogdon**  
**Research Economist**  
**919-541-6893**  
**[jtrogdon@rti.org](mailto:jtrogdon@rti.org)**