The Epidemic of Obesity and Type 2 Diabetes: US Patterns and Disparities

William H. Dietz MD, PhD
Chair, Redstone Global Center for Prevention and Wellness
Obesity Trends Among U.S. Adults
BRFSS, 1998
Obesity Trends Among U.S. Adults
BRFSS, 2002
Obesity Trends Among U.S. Adults
BRFSS, 2006

No Data          <10%           10%–14%              15%–19%          20%–24%          25%–29%           ≥30%
Obesity Trends Among U.S. Adults
BRFSS, 2010

No Data          <10%           10%–14%         15%–19%          20%–24%          25%–29%             ≥30%
Diagnosed Diabetes Among U.S. Adults
BRFSS, 1994

Missing Data           < 4.5%               4.5–5.9%             6.0–7.4%            7.5–8.9%            ≥ 9.0%
Diagnosed Diabetes Among U.S. Adults
BRFSS, 1998

[Map showing diagnosed diabetes rates by state, with color coding for different percentage ranges.]
Diagnosed Diabetes Among U.S. Adults
BRFSS, 2002

Missing Data           < 4.5%               4.5–5.9%             6.0–7.4%            7.5–8.9%             ≥ 9.0%
Diagnosed Diabetes Among U.S. Adults
BRFSS, 2006
Diagnosed Diabetes Among U.S. Adults

BRFSS, 2010

Map showing the prevalence of diagnosed diabetes among U.S. adults in 2010, with states color-coded by percentage ranges:

- Missing Data
- < 4.5%
- 4.5–5.9%
- 6.0–7.4%
- 7.5–8.9%
- ≥ 9.0%
Incidence of Diabetes in the United States

www.cdc.gov/diabetes/statistics/incidence/fig1.htm
Changes in the Prevalence of Obesity among Youth 2-19 yo and Adults ≥ 20 yo

Year

%
Changes in the Prevalence of Severe Obesity (BMI ≥ 40) in Adults

Year

%
Changes in the Prevalence of Severe Obesity* in 2-19 yo Youth

* Severe obesity: BMI $\geq$ 120% of 95th Percentile

Year

* * *
Distribution of Adults and Youth with Severe Obesity among Primary Care Physicians

Adult physicians include family practitioners, general practice, internal medicine, and ob/gyn (n = 197,853)

- BMI $\geq$ 35 - 164 people/practitioner
- BMI $\geq$ 40 - 89 people/practitioner

Pediatric physicians include pediatricians and family practitioners (n = 125,000)

- BMI $\geq$ 120% 95\textsuperscript{th} %tile – 50 youth/practitioner
Ethnic Distribution of Obesity in 2-19 yo
NHANES 2011-2014

Boys
- NHW: 14%
- NHB: 18%
- Hispanic: 22%

Girls
- NHW: 15%
- NHB: 21%
- Hispanic: 21%
Ethnic Distribution of Obesity in Adults
NHANES 2011-2014

Men:
- NHW: 34%
- NHB: 37%
- Hispanic: 39%

Women:
- NHW: 35%
- NHB: 57%
- Hispanic: 46%
Prevalence of Obesity by SES among Men
NHANES 2005-2008

Ogden CA et al. NCHS Data Brief 2010: #50
Prevalence of Obesity by SES among Women
NHANES 2005-2008

Ogden CA et al. NCHS Data Brief 2010: #50
Recent Changes in Prevalence among 2-5 yo
NHANES Data

Prevalence (%)

Years


13.9 10.7 10.1 8.4 9.5
Changes in the Prevalence of Obesity among Youth (2-19 yo) and Adults (≥ 20 yo)

Changes in the Prevalence of Obesity among U.S. Adults


Obesity Prevalence (%)

- Men (20-39 yo)
- Women (20-39 yo)
- Men (40-60 yo)
- Women (40-60 yo)
- Men (> 60 yo)
- Women (> 60 yo)

NHANES II
NHANES III
NHANES (continuous)
Global Prevalence of Obesity
(A. Rodgers and A. Woodward, unpublished data)

Developing

Developed

WOMEN

MEN

Age Group
- 5-9 yo
- 10-14 yo
- 15-19 yo
- 20-24 yo
- 25-29 yo
- 30-34 yo
- 35-39 yo
- 40-44 yo
- 45-49 yo
- 50-54 yo
- 55-59 yo
- 60-64 yo
- 65-69 yo
- 70-74 yo
- 75-79 yo
Prevalence of Obesity in Selected Age Groups – NHANES 2011-2014

Ogden CL et al. NCHS Data Brief #219, November 2015
Demographics of People Who Gained $\geq 20$ kg between 1985-86 and 1995-1996 (CARDIA)

Household Management Energy Expenditure per Week.


http://127.0.0.1:8081/plosone/article?id=info:doi/10.1371/journal.pone.0056620
Changes in Physical Activity

- Increased use of appliances
- Elimination of PE and recess
- Suburbanization
- Increased car use
- Post-industrial society – shift from manufacturing to service economy
Shifts in Food Practices in the United States

- Increased cost of healthful foods
- Decreased cost of junk foods
- Increased portion size
- Increased processed foods
- Increased variety
- Increased availability
- Increased school vending and a la carte foods
Targets for Obesity Prevention and Control 2001

• Breastfeeding
• Reduce television time
• Increase fruit and vegetable intake
• Increase physical activity
Targets for Obesity Prevention and Control 2016

Bias and stigma
Reduce energy intake
   Reduce sugar drinks
   Decrease high $E_D$ foods – pizza, fast food
Decrease television time
Increase daily physical activity
Pregnancy: pre-pregnant weight, weight gain, diabetes, smoking
Breastfeeding
Sleep