



# Congressional Budget Office

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## **Designing Policy Interventions to Address Obesity: Research and Analytic Challenges**

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# Defining, Measuring, and Projecting Obesity

Alternative measures of obesity associated with different health risks/degrees of risk:

- Body mass index (BMI)
  - Easiest to measure and self-report, but subject to reporting error
  - Sometimes misleading : Elderly people? Racial and ethnic subpopulations?
- Body fat percentage
- Central adiposity (excess abdominal fat)
  - More relevant for elderly people?

Duration matters → recent focus on “obesity years”:

- Challenging to measure due to recall bias, few longitudinal studies

Issues with projecting future obesity prevalence:

- Weighting recent vs. historical trends
- Projecting BMI categories vs. shifts in BMI distribution
- Incorporating duration

# Effects of Obesity on Health

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## Risk factor for:

- Multiple chronic conditions
- Adverse pregnancy outcomes
- Disability
- Dementia?
- Mortality—protective effects for elderly?

## Challenges of isolating effects:

- Competing health risks
- Variation across lifespan
- Effects of prior obesity years
- Varying relationships between effects and measures
- Changing relationships over time
- Variation among population subgroups

# Effects of Obesity on Health Care and Disability Costs

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## Wide variation in estimates of:

- Health care costs attributable to obesity
- Effects on subsequent costs of:
  - Preventing obesity among populations at risk
  - Intentional weight loss among obese people

## Challenges of isolating effects and specifying counterfactuals:

- Competing health risks
- Other individual characteristics with independent effects on costs
- Non-linearity; concentration of additional costs among severely obese
- Reverse causality

## Effects on payers:

- Dependence on prevalence of obesity/severe obesity, and varying effects, among population subgroups
- Interactions of longevity and disability effects: Implications for Medicare and Medicaid

# Assessing Effects of Interventions (for Prevention and/or Mitigation)

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Different types of interventions → different evaluation questions and research issues:

- Clinical interventions for individuals: behavioral, pharmaceutical, surgical, combinations
- Interventions targeting defined groups: community-, school-, or employment-based
- Interventions targeting populations: laws and regulations, excise taxes

Issues with evaluation studies:

- Methodological weaknesses
- Wide ranges of conclusions
- Publication biases

Challenges for systematic reviews:

- Weighting older studies

# Evaluating Interventions Targeting Individuals or Defined Groups: Internal Validity

Does intervention improve health and/or reduce costs of participants?

- What is basis for comparison?
  - Randomized controlled trials vs. observational comparison groups
  - Addressing observed and unobserved differences with observational comparison groups
- How are outcomes measured?
  - Intermediate measures: weight, biomarkers
  - Health status measures: chronic conditions, disability, mortality
  - Health care costs: challenges of small sample sizes and high-cost cases
- How is confounding addressed?
  - Smoking, physical activity, comorbidities, socioeconomic status, etc.
- What time frames are considered?
  - Focus on relatively short-term intermediate outcomes
  - Inferences for longer-term health status outcomes (given difficulty of maintaining weight loss/healthy behaviors)
- How is attrition accounted for?
  - Intent-to-treat vs. completers
  - Imputation methods for non-completers

# Evaluating Interventions Targeting Individuals or Defined Groups: External Validity

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How generalizable are findings to broader population and to everyday practice?

- How is sample selected?
  - Representativeness of people eligible to participate—of overall population and key subgroups
  - Differences between participants and nonparticipants (among those eligible)
  
- How should findings from controlled clinical studies be used?
  - Efficacy vs effectiveness in everyday practice
  - Converting from clinical to community-based interventions

## For Further Information

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