Obesity: The Business Case for Intervention

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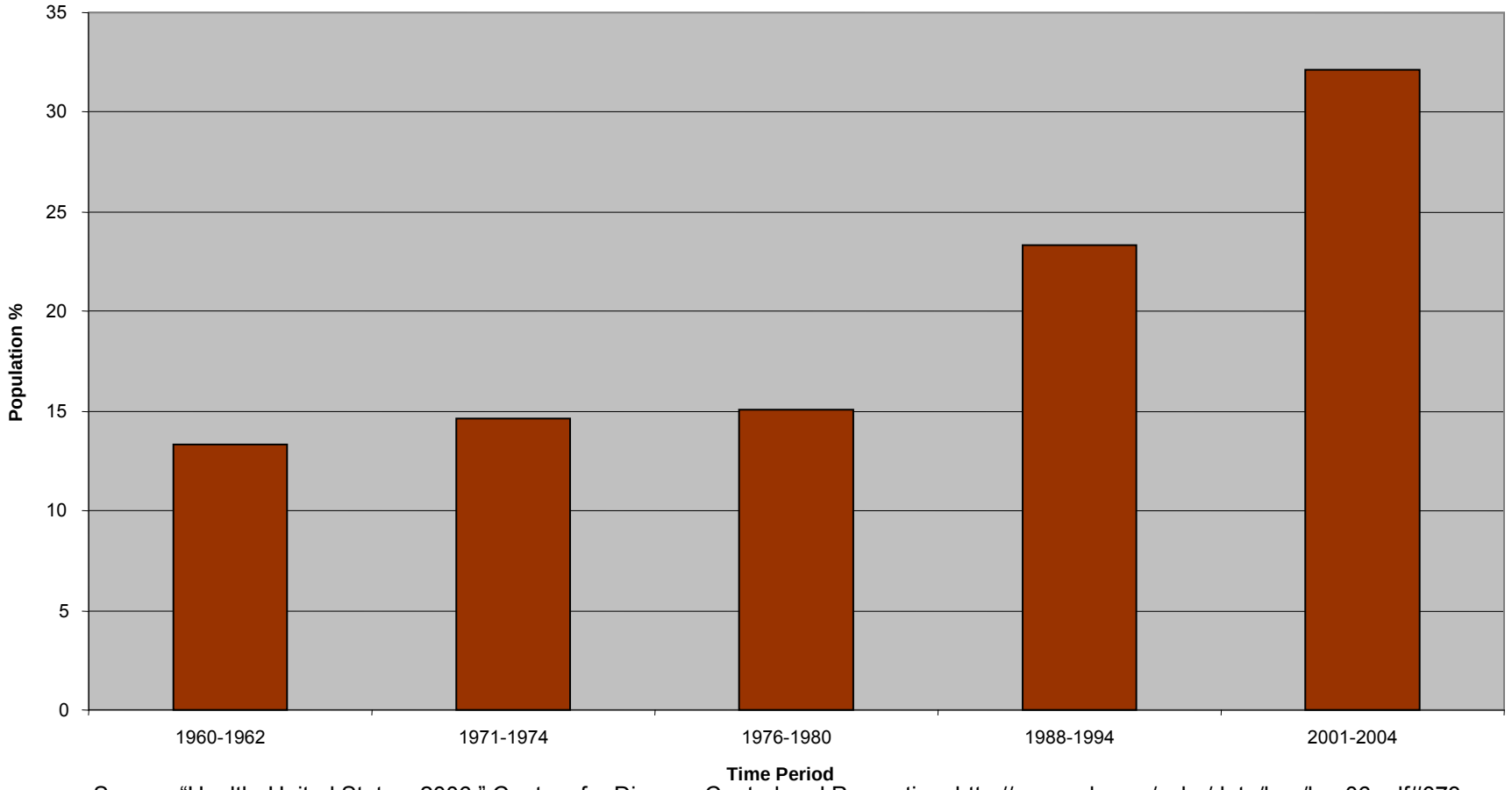
Outline

- Trends in obesity
- Types of economic analyses for policies to reduce obesity
- Examples of return-on-investment analyses for obesity
  - Government
  - Employers
- Cost saving not equal to cost effective
- Research gaps
- Conclusions

National Obesity Rates Among Adults (ages 20-74)



Source: "Health, United States, 2006." Centers for Disease Control and Prevention http://www.cdc.gov/nchs/data/hus/hus06.pdf#073

Trends Among Youth

- 17 % of U.S. children are overweight and many more are at-risk
- Over the last 30 years:
  - rate of overweight for 6-11 year olds tripled (from 4% to almost 19%)
  - rate of overweight for 12-19 year olds increased from 6% to over 17%
- Since 1990, twice as many children aged 2-5 are overweight (13.9% vs. 7.2%)
- Large racial disparities among kids
  - Overweight prevalence rose by more than 120% among African American and Hispanic children compared with 50% among Caucasians from 1986 to 1998

Types of Economic Evaluation

- Comparison of costs and benefits/effects of intervention
  - Answers question: How much do gains in health cost?
  - Typical audiences
    - Researchers (medicine, public health, economics)
    - Policy makers and regulatory bodies
  - Examples
    - Cost-effectiveness analysis (CEA)
    - Cost-utility analysis (CUA)
    - Cost-benefit analysis (CBA)

Types of Economic Evaluation (cont.)

- Financial analysis
  - Answers question: Will a health policy pay for itself?
  - Typical audience:
    - Private sector
    - Businesses/employers
  - Examples
    - Budget impact
    - Return on Investment (ROI) analysis

Cost-Effectiveness and Cost-Utility Analysis (CEA/CUA)

- Requires quantified health outcomes
- Outcomes
  - CEA – Natural units
    - Cases of disease prevented
    - Life-years saved
  - CUA – Preference-based measure of health
    - Combination of mortality and morbidity
    - Quality-adjusted life-years (QALYs)
    - Disability-adjusted life-years (DALYs)

Cost-Benefit Analysis (CBA)

- Health outcomes are converted to dollars
  - Costs and benefits in same units of measure → can calculate net benefit to society
  - Can compare to non-health policies and outcomes
- Valuing health gains in dollars can be controversial
  - Methods for putting dollar values on health
    - Human Capital (HC)
    - Value of Statistical Life (VSL)
    - Willingness-to-Pay (WTP)
- Used chiefly in regulatory policy analyses

Financial Analyses

- Analysis of net financial costs and benefits to entity paying for an intervention
- Typically short-term (1-5 years)
- Unlike CBA, ignores external costs and benefits to stakeholders
  - Including health of participants!
- Also known as
  - “Business case” analysis
  - Budget impact analysis
  - Return on Investment (ROI) analysis

Is Government Intervention Warranted to Save Money?

- Overweight and obesity increase the annual medical bill by $90 billion per year, or 9% of medical expenditures
- The government (and taxpayers) finances half of the total annual medical costs attributable to obesity, or more than $45 billion per year
- But is this a reasonable justification for government intervention?
- Resolving the financial externality would suggest that only cost-saving interventions are warranted
  - Extremely rare
  - Would also suggest giving away free cigarettes!

Public Health Interventions for Addressing Childhood Overweight: Analysis of the Business Case

Eric A. Finkelstein, PhD, and Justin G. Trogdon, PhD

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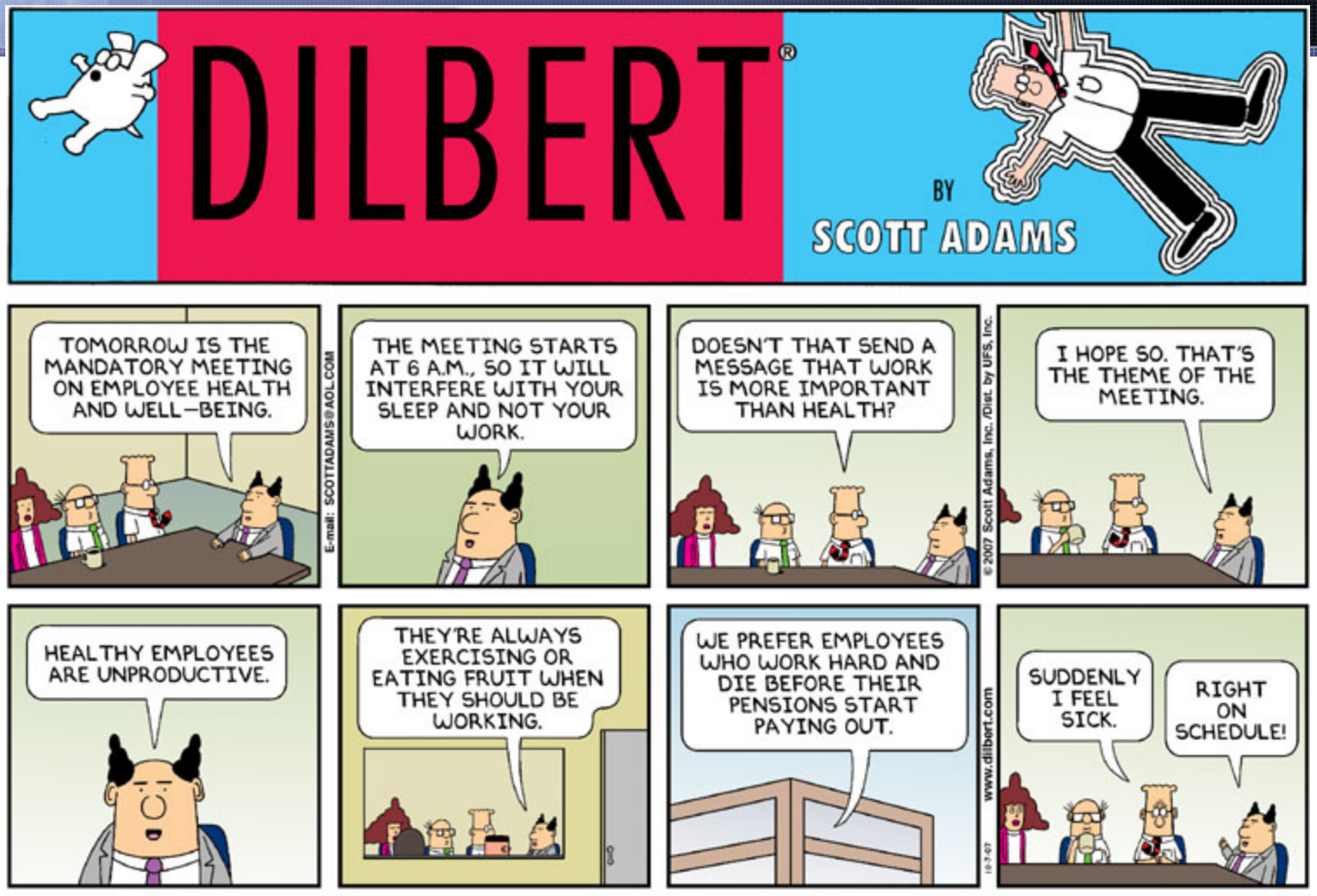
- Hypothetical ROI analysis of prevention of child obesity and overweight
- 2-part regression model of medical costs associated with at-risk or overweight
  - Data from MEPS
  - Result: incremental cost about $200 per year
- Implications
  - Hypothetical counseling intervention would have to eliminate 100% of incremental cost to achieve positive ROI
  - Public health should not rely on business case argument for prevention

The Employer's Dilemma



Obesity Cost Calculator (OCC)

- Many companies want to know whether programs targeting obesity will generate positive return on investment
- The Obesity Cost Calculator includes a module to help assess ROI for programs targeting overweight and obese employees
  - Developed by RTI International
  - CDC will make the toolkit publicly available on a CDC web page (www.cdc.gov/leanforlife)
- The module is flexible enough to evaluate many different types of programs

Estimates of Savings for a Representative Employer

Total reductions in annual costs (medical + absenteeism) per person by percentage of body weight lost

Avg. Weight Loss (%)	Overweight	Obese I	Obese II	Obese III	All Overweight and Obese
5%	$60	$100	$110	$160	$90
10%	$160	$200	$250	$320	$190
15%	$240	$300	$370	$480	$290
20%	$320	$400	$500	$640	$390
25%	$400	$510	$620	$790	$490

Overweight includes (body mass index [BMI; kg/m^2]) 25-29.9, obese I BMI 30-34.9, obese II BMI 35-39.9, and obese III BMI $\geq$ 40. All figures in 2007 dollars.

Recommended Worksite Strategies

- CDC's Community Guide (2005)
  - Recommended a combination of nutrition and physical activity interventions.
    - E.g., nutrition education, financial incentives, and on-site exercise facilities
  - Average weight loss: 4.9 pounds
  - *If* interventions could *sustain* weight loss of 5 pounds at an annual cost < $30/person, these interventions would be cost-saving in every year
  - Possible examples: Brownell et al. (1984); Erfurt et al. (1991)

Weight Watchers

- Clinical trial of Weight Watchers (Tsai and Wadden 2005)
  - Maximum weight loss was about 5% at 6 months and about 3% at one year
  - Assuming that average weight loss is in the 3%-5% range, a company that offered a subsidy of approximately 10% of the Weight Watchers cost could expect to break even

Prescription Drug Coverage

- Clinical trial results for orlistat have demonstrated 12-month weight loss in the range of 2.5 to 3.5 kilograms (5.5 to 7.7 pounds) versus placebo (Kelley et al. 2002; Hauptman et al. 2000)
- Annual costs to insurers would be approximately $730 per year
- Anywhere from $30 to $120 of those costs would be expected to be recouped in lower medical expenditures and reduced absenteeism
- On average, prescription drug coverage does not have a positive ROI

Workplace Redesign

- Consider a $200,000 investment in infrastructure for our 1,000 person company (roughly $200 per employee)
  - E.g., walking trails, changes to the cafeteria, or other investments aimed at improving weight outcomes for overweight and obese employees
- Would need to result in roughly 4% weight loss in the first year and *sustained* thereafter for a positive ROI to be realized within 5 years

Why Don't Businesses Invest More in the Health of their Workforce?

- Profit maximization
  - Costs of obesity are high but obesity-related initiatives are sometimes costly
  - Little financial incentive to invest in younger obese workers who are not yet costly
- Short time horizon (typically < 5 years)
  - Investment return is likely to be received by another business
- Burden falls on others
  - 38% of the $58,000 cost of obesity accrues after age 65
- Adverse selection

Cost Savings ≠ Cost Effective

- Cost-saving means quantified benefits exceed quantified costs for intervention B relative to intervention A or status quo
- Cost-effective means intervention B provides good value for the resources used relative to intervention A or status quo
- Cost-saving a higher hurdle for an intervention to jump
- Scott Grosse (CDC): “Benjamin Franklin said, ‘An ounce of prevention is worth a pound of cure’, but he didn’t say it would cost less!”

Preventive Services

- While many preventive services are cost effective, few are cost saving
- Maciosek et al. (2006) evaluated 25 preventive services recommended by the USPSTF, of which only 5 were cost saving
  - Aspirin prophylaxis in high risk adults
  - Childhood immunization series
  - Tobacco use screening and brief intervention
  - Pneumococcal immunization
  - Vision screening in adults

What Should We Do? What are the Challenges?

- Do not expect cost savings—focus on value
- Economic evaluations (CEA/CUA) of systems-level changes needed
  - Cost accounting can be challenging
    - Scope of changes
    - Number of stakeholders
    - Long time horizon
- Focus on policies that lower the marginal cost of active living
  - How responsive are people to changes in the “price” of activity?

What's Next for Worksite Wellness

- A successful obesity prevention program should
  - Make it cheaper and easier to be thin—not fat
  - Be profit maximizing for the employer
  - E.g., incentive-based programs are increasingly common and may be cost-saving (Finkelstein et al. 2007)
- Remaining questions for economic evaluations of workplace wellness programs
  - Are costs of obesity reversible via weight loss?
  - Fuller accounting of obesity costs for worker's compensation and disability costs, reduced productivity, and increased life insurance costs (Trogdon et al. 2008)

Conclusions

- Economic evaluation focuses on measuring value of health outcomes relative to cost, *not* saving money
  - Can be used to help prioritize resources to the most effective strategies
- Financial or ROI analyses can also be used
  - To market a subset of interventions that are cost saving in the short run
  - To inform payers of financial impact of coverage decisions
- Interventions that change marginal costs and benefits are likely to be followed by changes in behavior

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