Obesity: The Business Case for Intervention

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February 20, 2009
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
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)
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!
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

TOMORROW IS THE MANDATORY MEETING ON EMPLOYEE HEALTH AND WELL-BEING.

THE MEETING STARTS AT 6 A.M., SO IT WILL INTERFERE WITH YOUR SLEEP AND NOT YOUR WORK.

DOESN’T THAT SEND A MESSAGE THAT WORK IS MORE IMPORTANT THAN HEALTH?

I HOPE SO. THAT’S THE THEME OF THE MEETING.

HEALTHY EMPLOYEES ARE UNPRODUCTIVE.

THEY’re ALWAYS EXERCISING OR EATING FRUIT WHEN THEY SHOULD BE WORKING.

WE PREFER EMPLOYEES WHO WORK HARD AND DIE BEFORE THEIR PENSIONS START PAYING OUT.

SUDDENLY I FEEL SICK.

RIGHT ON SCHEDULE!
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

<table>
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<tr>
<th>Avg. Weight Loss (%)</th>
<th>Overweight</th>
<th>Obese I</th>
<th>Obese II</th>
<th>Obese III</th>
<th>All Overweight and Obese</th>
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<tr>
<td>25%</td>
<td>$400</td>
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</table>

Overweight includes (body mass index [BMI; kg/m²]) 25-29.9, obese I BMI 30-34.9, obese II BMI 35-39.9, and obese III BMI ≥ 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)
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
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
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!”
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

References (cont.)


