



Cornell University

Overview of My Research on the Economics of Obesity

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January 9, 2014

Usefulness of Economics in Studying Obesity

- Offers widely-accepted theoretical framework for human behavior (constrained maximization)
 - Economists ask different questions, generate different predictions
- Useful for calculating economic consequences of obesity (direct medical costs as well as indirect labor market costs)
- Offers clearly-defined rationales for policy intervention
 - Fix market failures
- Offers useful methods for estimating causal effects, not just correlations
 - Determining causes and consequences of obesity
 - Measuring the effectiveness of interventions and policies
 - Determining which policies work *best*: cost-effectiveness analysis

Overviews of the Economics of Obesity

- Explanations of economic models of diet and physical activity
 - Cawley, John. 2011. “The Economics of Obesity.” Chapter 8 in: *The Oxford Handbook of the Social Science of Obesity*, (Oxford University Press: New York).
 - Cawley, John. 2004. “An Economic Framework for Understanding Physical Activity and Eating Behaviors.” *American Journal of Preventive Medicine*, 27(3S): 117-125.
- Overviews of the economics of childhood obesity and policies to prevent or reduce it:
 - Cawley, John. 2010. “The Economics of Childhood Obesity.” *Health Affairs*, 29(3): 364-371.
 - Cawley, John. 2006. “Markets and Childhood Obesity Policy.” *The Future of Children*, 16(1): 69-88.

Broader Related Overviews

- Overview of the various social science approaches to studying obesity:
 - Cawley, John (editor). 2011. *Handbook of the Social Science of Obesity*, (Oxford University Press: New York, NY).
- Comprehensive review of the economic approach to studying risky health behaviors:
 - Cawley, John, and Christopher J. Ruhm. 2012. “The Economics of Risky Health Behaviors.” Chapter 3 in: *Handbook of Health Economics*, Volume 2. (Elsevier: New York), pp. 95-199.

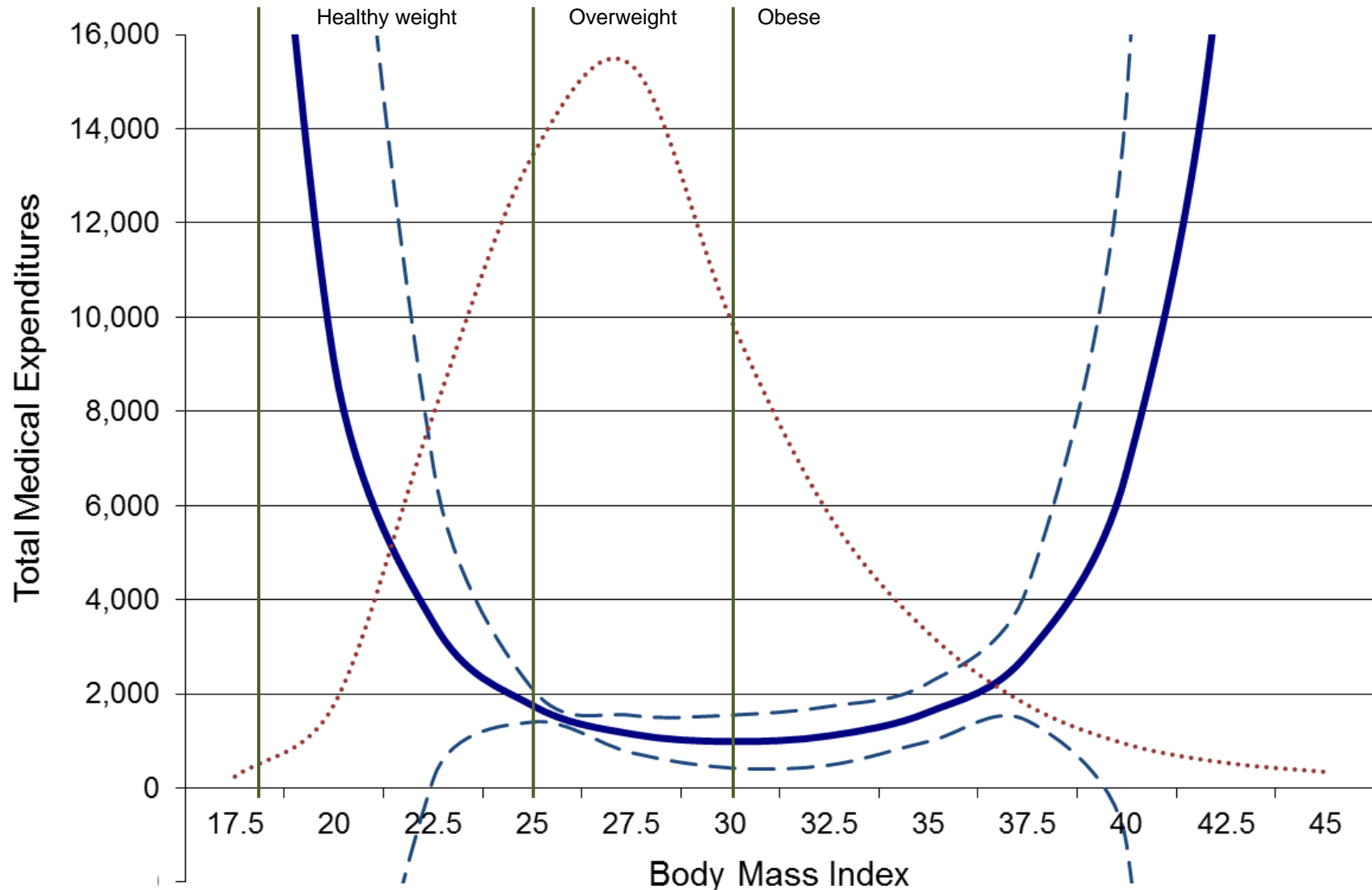
Research on the Economic Causes of Obesity

- Additional income has no detectable effect on weight of the elderly
 - Exploits natural policy experiment (Social Security benefits notch) to estimate causal effects; find no detectable impact of extra income on weight or obesity
 - Does not support claim of WHO that rising obesity due to rising incomes
 - Cawley, John, John Moran, and Kosali Simon. 2010. “The Impact of Income on the Weight of Elderly Americans.” *Health Economics*, 19(8): 979-993.
- Maternal employment associated with significant reductions in time spent shopping for food, cooking, eating with children, playing with children; husbands offset little of this decrease
 - Cawley, John, and Feng Liu. 2012. “Maternal Employment and Childhood Obesity: A Search for Mechanisms in Time Use Data.” *Economics and Human Biology*, 10(4): 352-364.
- Currently studying the impact of advertising of specific branded food items on consumption of those same branded food items (for children, teens, and adults)
 - With Rosemary Avery, Don Kenkel and Alan Mathios

Research on the Economic Consequences of Obesity (I)

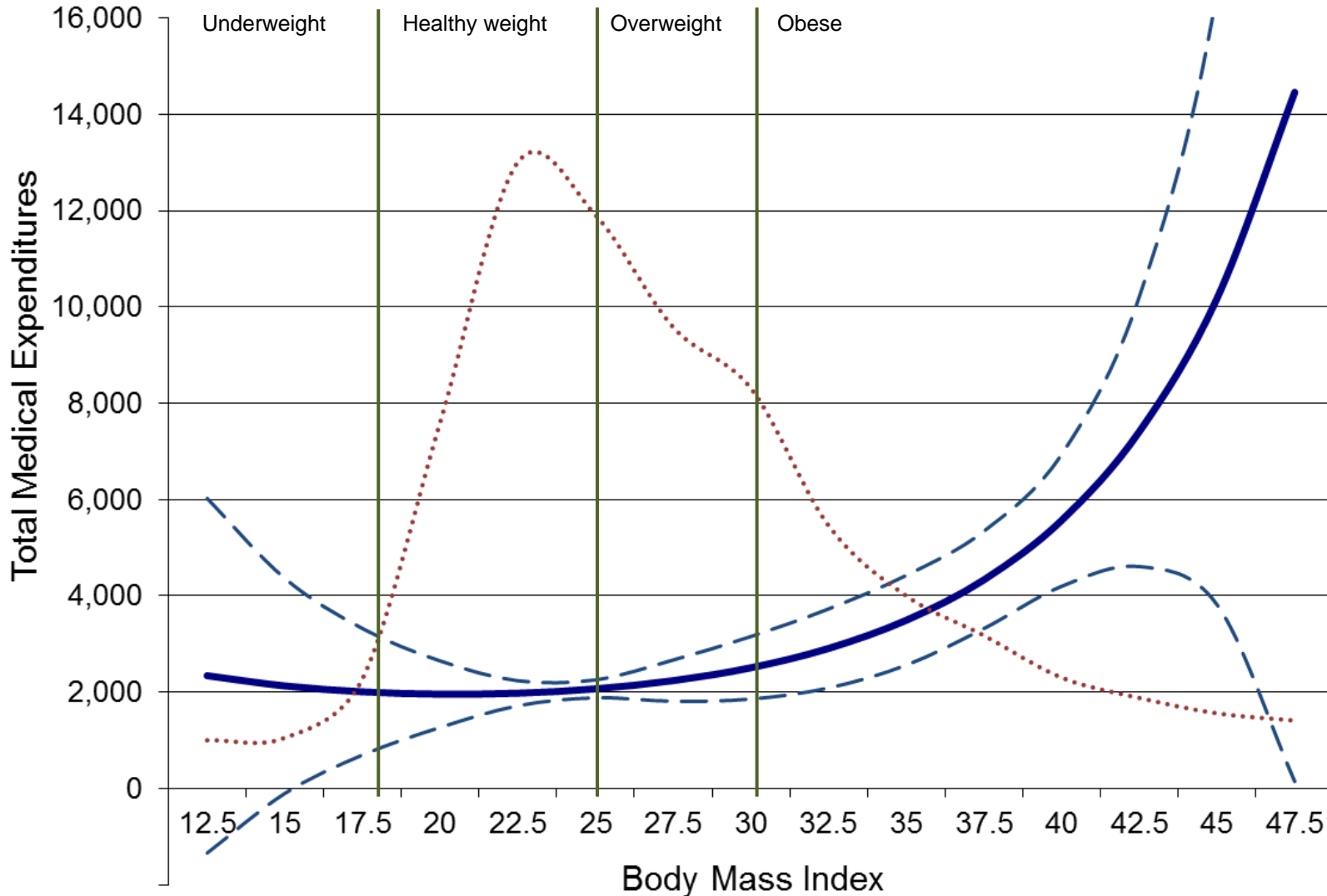
- Direct medical care costs of obesity:
 - Historically, studies report correlation of obesity with health care costs
 - But that correlation could be due to unobserved heterogeneity between the obese and non-obese
 - Use model of instrumental variables to estimate the causal effect of obesity on health care costs
 - Preliminary estimates show much higher than previously estimated:
 - \$2,741 higher annual health care costs per obese adult
 - Aggregate national costs per year: \$190 billion (20.6% of US national health expenditures)
 - Cawley, John and Chad Meyerhoefer. 2012. “The Medical Care Costs of Obesity: An Instrumental Variables Approach.” *Journal of Health Economics*, 31(1): 219-230.

Predicted Medical Expenditures by BMI – Men



Source: Cawley and Meyerhoefer, *Journal of Health Economics* (2012)

Predicted Medical Expenditures by BMI – Women



Source: Cawley and Meyerhoefer, *Journal of Health Economics* (2012)

Research on the Economic Consequences of Obesity (II)

- Labor market consequences of obesity:
 - Lower wages: e.g. 11.2% lower for obese white females
 - Cawley, John. 2004. “The Impact of Obesity on Wages.” *Journal of Human Resources*, 39(2): 451-474.
 - Higher job absenteeism: \$4.3 billion annually in U.S.
 - Cawley, John, John A. Rizzo, and Kara Haas. 2007. “Occupation-Specific Absenteeism Costs Associated with Obesity and Morbid Obesity.” *Journal of Occupational and Environmental Medicine*, 49(12): 1317-1324.
 - Impairs transition from welfare to work for white, but not African-American, women
 - Cawley, John, and Sheldon Danziger. 2005. “Morbid Obesity and the Transition From Welfare to Work.” *Journal of Policy Analysis and Management*, 24(4): 727-743.
 - Can’t reject null hypothesis of no effect of obesity on employment disability
 - Cawley, John. 2000. “An Instrumental Variables Approach to Measuring the Effect of Body Weight on Employment Disability.” *Health Services Research*, 35(5, Part II): 1159-1179.

Research on Consequences of Obesity (III)

- Threat to military readiness
 - Percent of civilians who exceed US Army enlistment standards for weight, height doubled for men and tripled for women 1959-2008
 - In 2007-08, 5.7 million men and 16.5 million women exceeded the standards and thus ineligible to enlist
 - Cawley, John, and Johanna Catherine Maclean. 2012. “Unfit for Service: The Implications of Rising Obesity for U.S. Military Recruitment.” *Health Economics*, 21(11): 1348-1366.
- Delayed skill attainment in children as young as 3 years old
 - Cawley, John and C. Katharina Spiess. 2008. “Obesity and Skill Attainment in Early Childhood.” *Economics and Human Biology*, 6(3): 388-397.
- Teen girls (but not boys) who are obese are more likely to initiate smoking
 - Cawley, John, Sara Markowitz, and John Tauras. 2004. “Lighting Up and Slimming Down: The Effects of Body Weight and Cigarette Prices on Adolescent Smoking Initiation.” *Journal of Health Economics*, 23(2): 293-311.

Research on Consequences of Obesity (IV)

- Obese teens are less likely to date
 - Cawley, John, Kara Joyner, and Jeff Sobal. 2006. “Size Matters: The Influence of Adolescents’ Weight and Height On Dating and Sex.” *Rationality and Society*, 18(1): 67-94.
 - Cawley, John. 2001. “Body Weight and the Dating and Sexual Behaviors of Young Adolescents.” In *Social Awakening: Adolescent Behavior as Adulthood Approaches*, edited by Robert T. Michael. (Russell Sage: New York).
- Obese young adults are less likely to match with a physically attractive romantic partner
 - Carmalt, Julie H., John Cawley, Kara Joyner, and Jeffery Sobal. 2008. “Body Weight and Matching with a Physically Attractive Partner.” *Journal of Marriage and the Family*, 70(5): 1287-1296.

Methods of Preventing and Treating Obesity (I)

- Complications after bariatric surgery
 - Cawley, John, Timothy Prinz, Susan Beane, and the New York State Bariatric Surgery Workgroup. 2006. “Health Insurance Claims Data as a Means of Assessing Reduction in Comorbidities Six Months After Bariatric Surgery.” *Obesity Surgery*, 16(7): 852-858.
 - Cawley, John, Matthew J. Sweeney, Marina Kurian, Susan Beane, and the New York State Bariatric Surgery Workgroup. 2007. “Predicting Complications after Bariatric Surgery Using Obesity-Related Comorbidities.” *Obesity Surgery*, 17(11): 1451-1456.
- Demand for anti-obesity drugs (e.g. much greater for women than men)
 - Cawley, John, and John A. Rizzo. 2007. “One Pill Makes You Smaller: The Demand for Anti-Obesity Drugs.” *Advances in Health Economics and Health Services Research*, 17: 149-183.
- FDA’s removal of anti-obesity drugs from the market had negative spillovers to other anti-obesity drugs still on market
 - Cawley, John, and John A. Rizzo. 2008. “Spillover Effects of Prescription Drug Withdrawals.” *Advances in Health Economics and Health Services Research*, 19: 119-144.

Methods of Preventing and Treating Obesity (II)

- Physical education:
 - For elementary school students, PE increases physical activity and lowers BMI for boys
 - Cawley, John, David Frisvold, and Chad Meyerhoefer. 2013. “The Impact of Physical Education on Obesity among Elementary School Children.” *Journal of Health Economics*, 32(4): 743-755.
 - For high school students, PE modestly increases physical activity but has no impact on weight
 - Cawley, John, Chad Meyerhoefer, and David Newhouse. 2007. “The Impact of State Physical Education Requirements on Youth Physical Activity and Overweight.” *Health Economics*, 16(12): 1287-1301.
- HealthCorps, an intervention in high schools, reduces soda pop consumption, increases physical activity and increases health knowledge
 - Cawley, John, Linda Cisek-Gillman, Rob Roberts, Carolyn Cocotas, Tieshka Smith-Cook, Michelle Bouchard, and Mehmet Oz. 2011. “Effect of HealthCorps, a High School Peer Mentoring Program, on Youth Diet and Physical Activity.” *Childhood Obesity*, 7(5): 1-8.

Methods of Preventing and Treating Obesity (III)

- Evaluation of a workplace intervention that offers financial rewards for weight loss: attrition very high, weight loss modest
 - Cawley, John, and Joshua A. Price. 2013. “A Case Study of a Workplace Wellness Program That Offers Financial Incentives for Weight Loss.” *Journal of Health Economics*, 32(5): 794-803.
- Nutrition guidance systems for supermarket shelves
 - Evaluating impact of Guiding Stars on purchases in Hannaford supermarket chain with Nudging Nutrition team
- Taxes on soda pop and other energy-dense foods:
 - Nudging Nutrition field experiment with Cornell colleagues: Brian Wansink, David Just, Harry Kaiser, Bill Schultze, Jeff Sobal, Elaine Wethington
 - Cawley, John. Forthcoming 2012. “Taxes on Energy Dense Foods to Improve Nutrition and Prevent Obesity.” In Kelly D. Brownell and Mark S. Gold (editors), *Handbook of Food and Addiction*, (Oxford University Press: New York).
 - Faulkner GE et al. 2011. “Economic Instruments for Obesity Prevention: Results of a Scoping Review and Modified Delphi Survey.” *International Journal of Behavioral Nutrition and Physical Activity*, 8(109): 1-14.

Methods of Preventing and Treating Obesity (IV)

- Determinants of state legislative action on childhood obesity
 - Cawley, John, and Feng Liu. 2008. “Correlates of State Legislative Action to Prevent Childhood Obesity.” *Obesity*, 16(1): 162-167.
- Voters’ willingness to pay higher taxes to reduce childhood obesity
 - Cawley, John. 2008. “Contingent Valuation Analysis of Willingness to Pay to Reduce Childhood Obesity.” *Economics and Human Biology*, 6(2): 281-292.
- Cost effectiveness of various methods of prevention and treatment
 - Cawley, John. 2007. “The Cost Effectiveness of Programs to Prevent or Reduce Obesity: The State of the Literature and a Future Research Agenda.” *Archives of Pediatrics & Adolescent Medicine*, 161(6): 611-614.
 - Roux et al. 2008. “Cost Effectiveness of Community-Based Physical Activity Interventions.” *American Journal of Preventive Medicine*, 35(6): 578-588.

Measurement of Obesity

- Value of more accurate measures of fatness than body mass index (BMI) for social science research
 - e.g. BMI overstates obesity among African-Americans, muscular individuals
 - Burkhauser, Richard V., and John Cawley. 2008. “Beyond BMI: The Value of More Accurate Measures of Fatness and Obesity in Social Science Research.” *Journal of Health Economics*, 27(2): 519-529.
- Analysis of skinfold trends reveals obesity began rising 1-2 decades before it is visible in BMI
 - Burkhauser, Richard V., John Cawley, and Maximilian D. Schmeiser. 2009. “The Timing of the Rise in U.S. Obesity Varies With Measure of Fatness.” *Economics and Human Biology*, 7(3): 307-318.
- We urge that social science datasets collect and include more accurate measures of fatness than BMI based on self-reported weight and height
 - Burkhauser, Richard V., and John Cawley. 2009. “Adding Biomeasures Relating to Fatness and Obesity to the Panel Survey of Income Dynamics.” *Biodemography and Social Biology*, 55(2):118–139.

Relevant Appointments

- Co-Director, Institute on Health Economics, Health Behaviors and Disparities, Cornell University, 2011 – present
- Visiting Professor, Charles Perkins Centre, University of Sydney (Australia), 2013 - present
- Scientific Advisory Board of the Behaviour and Health Research Unit, Cambridge University (UK), 2011 – present
- Prevention Committee, American Diabetes Association, 2010 – 2011
- Expert Panel, Heart and Stroke Foundation of Canada (HSFC) funded review of the international research related to economic policies, obesity and health. 2009-2010
- Board of Directors, Shaping America's Health, the strategic obesity prevention initiative of the American Diabetes Association, 2008 – 2009
- Co-chair, National Institutes of Health conference “Feeding Families: Bridging Social Sciences and Social Epidemiology Approaches to Obesity Research” 2008
- Executive Committee, Federal Communications Commission Task Force on “Media and Childhood Obesity: Today and Tomorrow,” 2006 – 2008
- Keystone Forum on “Away-From-Home Foods: Opportunities for Preventing Weight Gain and Obesity,” sponsored by the U.S. Food and Drug Administration. 2005-2006
- Centers for Disease Control and Prevention Expert Panel “The Role of Schools in Addressing Childhood Overweight.” 2005
- Centers for Disease Control and Prevention Advisory Committee “Project MOVE: Measurements of the Value of Exercise,” 2003 – 2004
- Institute of Medicine Committee “Prevention of Obesity in Children and Youth,” 2003 – 2004

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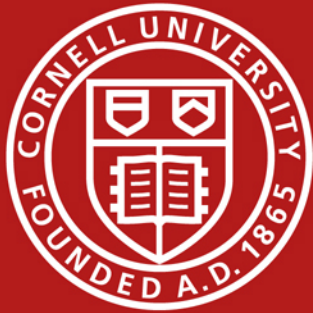
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