Can Weight Management Programs in Worksites Reduce the Obesity Epidemic?^{1,2}

Susan B. Roberts^{3*} and Nancy Krebs⁴

³Energy Metabolism Laboratory at JM USDA Human Nutrition Research Center on Aging, Tufts University, Boston, MA; ⁴Department of Pediatrics, University of Colorado, Denver, CO

Rates of overweight and obesity are at epidemic levels in the United States, and national health care costs are increased by ~\$200 billion/y for diseases associated with excess weight (1). Worksites are considered potentially important venues for national efforts to contain the obesity epidemic, in particular because >50% of the adult population receives paid employment and because worksites have pre-existing social groups that may be helpful for weight control if they can become a positive rather than negative social force. This symposium invited 3 speakers and a discussant to review evidence of the potential effectiveness of worksites in national weight management efforts and anticipated effects on health care costs.

Figure 1 summarizes randomized, controlled trials in North America and worldwide during the past 15 y that investigated worksite weight management programs. Studies are divided into whether the goal of the study was weight loss or prevention of weight gain. As seen in the figure, the majority of studies focused on prevention of weight gain, and they typically implemented environmental changes for physical activity and foods offered in cafeterias and vending machines. However, results were modest, and the majority of studies found that any positive effects of the programs decreased over time, resulting in no significant effects on weight or BMI after 12 mo. Because most obese persons are recommended to lose 5–10% body weight to improve health (2), there is a recognized urgent need to identify weight loss interventions that are both effective and sustainable, and some of the published worksite studies examined the effectiveness of weight loss programs at worksites. A variety of published best practices for worksite interventions were used in those interventions including recommendations to decrease energy

intake and/or increase physical activity and, in some cases, lifestyle counseling, incentives, and/or weight loss competitions (2). Nevertheless, weight loss was low, ranging from +1.8 to –6.3 kg for randomized trials of >6 mo duration. Furthermore, the highest mean weight loss values were achieved at worksites that were not in North America, and for the United States and Canada, weight loss ranged from +1.7 to only –2.8 kg. The causes of low weight loss in most published worksite interventions is not known, but 1 possible explanation may be the relatively strong focus on environmental factors rather than individual-level behavior changes, even in studies that focused on weight loss rather than prevention of weight gain. A new worksite weight loss intervention was also reported at the symposium that had a mean net weight loss relative to controls of 8.9 kg, suggesting that future improvements may be possible.

The symposium also examined potential health care costs associated with weight loss. On a national level, increased health care costs associated with obesity are now estimated to be nearly \$200 billion per year (1) and on an individual level costs are estimated to be increased by \$2,800 per obese person per year (3). These estimates are greater than previously documented, but as noted by Chad and Meyerhoefer (3), previous studies of costs associated with obesity used self-reported health care expenditures and self-reported weights and heights, and known biases in reporting of these parameters would tend to underestimate the health care costs of obesity. Moreover, such estimates only focus on health care costs and do not include known additional costs of obesity in the workforce, including greater absenteeism and reduced productivity. However, as noted previously, published worksite weight loss studies to date have not achieved the >5% mean weight loss anticipated to be needed before significant health benefits can be achieved, and further studies of health care costs are needed in interventions that are effective for weight loss.

In summary, worksites can potentially be important locations for weight management programs that contribute to curbing the national obesity epidemic. In published studies, weight loss programs targeting overweight and

¹ This article is a summary of the symposium "Intervention Points in Obesity: How Effective Are Worksite Interventions for Weight Control and Reducing Excess Health Care Costs Associated with Obesity?" held April 24, 2012 at the ASN Scientific Sessions and Annual Meeting at Experimental Biology 2012 in San Diego, CA. The symposium was sponsored by the American Society for Nutrition, the ASN Medical Nutrition Council, and the ASN Obesity RIS.

² Author disclosures: S. B. Roberts, holds shares and is on the board of a weight loss company. N. Krebs, no conflicts of interest.

* To whom correspondence should be addressed. E-mail: susan.roberts@tufts.edu.

Figure 1. Worksite studies in North America and worldwide during the past 15 y that have investigated worksite weight management programs. Studies are divided into those that involved randomized, controlled trials for weight loss (2,4–7) and randomized, controlled trials for the prevention of weight gain (2,8–11).

obese employees have been relatively more effective for weight loss than programs for prevention of weight gain, but most studies, and especially those in North America, have not yet demonstrated substantial mean rates of weight loss and sustainability of weight loss comparable to those obtained in health care and other settings. Further studies are urgently needed to demonstrate effective worksite interventions and to quantify their sustainability and impact on health care costs, absenteeism, and worker productivity.

Acknowledgments

All authors have read and approved the final manuscript.

Literature Cited

1. Institute of Medicine [Internet]. Washington DC: National Academies of Sciences; c2012 [updated 2012 May 23; cited 2012 May 30] Accelerating Progress in Obesity Prevention: Solving the Weight of the Nation; [about 6 screens] Available from: <http://www.iom.edu/Reports/2012/Accelerating-Progress-in-Obesity-Prevention.aspx>.
2. Anderson LM, Quinn TA, Glanz K, Ramirez G, Kahwati LC, Johnson DB, Buchanan LR, Archer WR, Chattopadhyay S, Kalra GP, et al. The effectiveness of worksite nutrition and physical activity interventions for controlling employee overweight and obesity: a systematic review. *Am J Prev Med*. 2009;37:340–57.
3. Cawley J, Meyerhoefer C. The medical care costs of obesity: an instrumental variables approach. *J Health Econ*. 2012;31:219–30.
4. Barham K, West S, Trief P, Morrow C, Wade M, Weinstock RS. Diabetes prevention and control in the workplace: a pilot project for county employees. *J Public Health Manag Pract*. 2011;17:233–41.
5. Tate DF, Wing RR, Winett RA. Using Internet technology to deliver a behavioral weight loss program. *JAMA*. 2001;285:1172–7.
6. Benedict MAAD. Worksite-based weight loss programs: a systematic review of recent literature. *Am J Health Promot*. 2008;22:408–16.
7. Siegel JM, Prelip ML, Erausquin JT, Kim SA. A worksite obesity intervention: results from a group-randomized trial. *Am J Public Health*. 2010;100:327–33.
8. Racette SB, Deusinger SS, Inman CL, Burlis TL, Highstein GR, Buskirk TD, Steger-May K, Peterson LR. Worksite Opportunities for Wellness (WOW): effects on cardiovascular disease risk factors after 1 year. *Prev Med*. 2009;49:108–14.
9. French SA, Harnack LJ, Hannan PJ, Mitchell NR, Gerlach AF, Toomey TL. Worksite environment intervention to prevent obesity among metropolitan transit workers. *Prev Med*. 2010;50:180–5.
10. Linde JA, RW J. Testing a brief self-directed behavioral weight control program. *Behav Med*. 2011;37:47–53.
11. Linde JA, Nygaard KE, Macle hose RF, Mitchell NR, Harnack LJ, Cousins JM, Graham DJ, Jeffery RW. HealthWorks: results of a multi-component group-randomized worksite environmental intervention trial for weight gain prevention. *Int J Behav Nutr Phys Act*. 2012;9:14.