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Kevin G. Volpp
University of Pennsylvania

Robert Galvin
Yale School of Medicine

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Abstract

Health care payers have an increasing interest in using financial incentives to change personal health behaviors, with an estimated 82% of employers using financial incentives for healthy behavior in 2013.¹ Several factors are fueling this increased interest: steadily increasing costs that have been resistant to traditional forms of control, the realization that the majority of costs are driven by chronic conditions, which are themselves in large part a result of lifestyle choices, and emerging reports that incentives have successfully modified behaviors in a variety of contexts.^{2,3} In addition, the Affordable Care Act allows employers to use up to 30% of total premiums (50% if programs include smoking) for outcomes-based rewards or penalties.⁴

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VIEWPOINT

Reward-Based Incentives for Smoking Cessation

How a Carrot Became a Stick

Kevin G. Volpp, MD, PhD

Center for Health Equity Research and Promotion, Philadelphia Veterans Affairs Medical Center, Philadelphia, Pennsylvania, and Leonard Davis Institute of Health Economics Center for Health Incentives and Behavioral Economics, Philadelphia.

Robert Galvin, MD, MBA

Equity Healthcare, The Blackstone Group, Philadelphia, Pennsylvania, and Department of Medicine, Yale School of Medicine, New Haven, Connecticut.

Corresponding

Author: Kevin G. Volpp, MD, PhD, Center for Health Incentives and Behavioral Economics, Perelman School of Medicine and the Wharton School, University of Pennsylvania, 423 Guardian Dr, 1120 Blockley Hall, Philadelphia, PA 19104-6021 (volpp70@wharton.upenn.edu).

Health care payers have an increasing interest in using financial incentives to change personal health behaviors, with an estimated 82% of employers using financial incentives for healthy behavior in 2013.¹ Several factors are fueling this increased interest: steadily increasing costs that have been resistant to traditional forms of control, the realization that the majority of costs are driven by chronic conditions, which are themselves in large part a result of lifestyle choices, and emerging reports that incentives have successfully modified behaviors in a variety of contexts.^{2,3} In addition, the Affordable Care Act allows employers to use up to 30% of total premiums (50% if programs include smoking) for outcomes-based rewards or penalties.⁴

Cigarette smoking is a habit that remains one of the leading causes of preventable mortality⁵ and thereby also has a large influence on health care costs. In a randomized controlled trial involving 878 employees, financial incentives worth a total of \$750 increased long-term smoking cessation rates from 5.0% to 14.7% at the end of 9 to 12 months.⁶ The ratio of successful long-term cessation in this study was similar to that achieved among smokers given nicotine patches, sprays, bupropion, and varenicline. Six months after discontinuing the incentives, the initial quit rate ratio of 2.9 (14.7% with incentives vs 5.0% without incentives) remained at 2.6, providing reasonably good evidence of sustainability.

Examination of the financial returns from implementing a similar program was done by the employer where this trial was performed, using available literature and factoring in employee turnover. The model was reviewed by outside actuarial experts. The company's conclusion was that there was a 5-year payback period, consistent with the firm's time frame for other investments.

However, simply applying the reward-based incentive program as designed ran into a series of unanticipated road blocks. In this Viewpoint, we explain how the \$750 reward eventually became implemented as a \$625 surcharge.

Carrots vs Sticks

There are age-old beliefs about the use of "carrots" (rewards) vs "sticks" (penalties). Although these approaches can be seen as economically equivalent (eg, the difference in the cost of health benefits for smokers and nonsmokers can be framed in terms of either rewards or penalties), rewards are seen by some program designers as more desirable because they are not perceived as being punitive and can offset the nonmonetary costs (such as discomfort) to smokers of quitting. Carrots may also be more effective than sticks for an employer seeking to position itself as a desirable place to work.

Sticks, on the other hand, are being widely used because of the perception that they are effective and because

they do not require employers to pay anything extra for desired behaviors. A stick-based approach penalizes individuals who do not modify their behavior and has the advantage of incentivizing those individuals even when not actually applied, because most people want to avoid the penalty. Sticks may be more efficient because carrots need to be frequently paid whereas sticks, if properly designed, are more rarely applied, lowering the costs of assessing compliance with desired behaviors. This is why, for example, theft is penalized rather than nonthefts awarded. Although the work by Kahneman and Tversky⁷ demonstrates that a dollar lost affects people more strongly than a dollar gained (loss aversion), sticks can be problematic if the costs of monitoring are high and if this leads to an environment in which employees feel like they are being constantly penalized, suggesting that selective application of a stick-based approach is likely to be necessary.

The firestorm of protest at Pennsylvania State University that followed the deployment of a program in the fall of 2013 that penalized employees \$100 a month if they did not complete a health risk assessment led to the program being abruptly canceled. Although there were a number of communication issues—and the program planned to collect sensitive information from employees, such as plans for pregnancy and testicular self-examination—this example illustrated that penalty-based programs are more likely to generate resistance than programs that simply offer rewards.

Road to Implementation

The management of health care costs had long been a focus in the company where the original study was conducted and there was growing interest in creating a "culture of health," in which benefit design and worksite programs would be used to decrease behaviors that led to chronic disease. Several factors contributed to the transformation from carrot to stick. The finance group was very involved in overseeing health cost management and, due to their general reluctance to add costs of any kind to the company's bottom line, they were opposed to absorbing a sizeable up-front cost increase in the form of a reward (estimated at several million dollars) despite the company's own return on investment modeling.

Contributing to their opposition was the firm's decision, based on input from employee focus groups, not to enforce objective blood or saliva testing for evidence of smoking cessation, which increased the possibility that employees would game the system to earn the reward. The focus groups also uncovered strongly held views that employees who are smokers should not be rewarded for doing something that many employees had already done on their own (not smoking) and concerns about fairness (ie, nonsmokers felt that they

had been subsidizing the health insurance premiums for smokers for years and did not want to add to this by paying rewards). Although the health care team made the argument that there was no guarantee that cessation rates would be similar when changing from a reward to a surcharge and that employees could be informed that rewards for smoking cessation would reduce the existing subsidy for smokers' premiums in the future, both the finance and human resource groups thought it most prudent to follow the focus group feedback, although the research evidence was based on the carrot approach.

Once the decision was made to impose a surcharge for smokers, the decision to tie this into health insurance premiums rather than a separate penalty was made for practical reasons. Tying these differential premiums to payroll deductions was far simpler administratively than setting up a separate system for financially penalizing smokers. From a mental accounting standpoint rewards or penalties that are administered separately are far more effective—a \$100 check handed to a person is much more visible than a \$100 addition to that person's paycheck automatically deposited into his or her bank account—but premium adjustments are typically used by employers both because of administrative simplicity and because this preserves the tax-free nature of the premium adjustment. However, in this case it would have been difficult to separately collect money from smokers who did not quit, highlighting that while rewards can be made more visible by providing them through channels other than the standard payroll system, collecting penalties likely would have to be done using existing administrative mechanisms.

In 2010, the firm began charging current smokers a \$625 annual surcharge. Employees could have the surcharge waived for 1 year if they agreed to participate in a smoking cessation program that the company offered at no cost. Smoking status was self-identified at annual enrollment, as the company decided that saliva or urine testing to verify smoking cessation was simply too intrusive and administratively complex to go with at the outset. Employees were reminded that identification of their smoking status, consistent with all the information they provided at annual enrollment, was subject to the firm's integrity policy whereby employees can lose their jobs for not being honest with the company.

Conclusions

The road to implementation of this initiative led to a surcharge-based approach that could differ greatly in effectiveness from the reward-based approach that was originally tested. There is a need for systematic testing of the relative effectiveness of rewards and penalties in the context of health behavior.

In the context of smoking, in which all smokers would be penalized for continuing to smoke, theoretical arguments in favor of using stick-based approaches because of lower processing costs hold true because there are fewer smokers than nonsmokers. Implementing a surcharge program as part of premium adjustments is administratively simpler than alternatives, but direct testing of the effect of bundling such rewards—or penalties—with larger sums of money, such as premiums, should be tested vs approaches that keep the rewards and penalties separate from paychecks and insurance premiums. Alternative efforts to leverage loss aversion through voluntary participation in precommitment or deposit contracts, in which participants forfeit money they contribute if they don't succeed in achieving their goals, have been limited by participation rates typically in the range of 10% to 25%, a limitation that needs to be solved for these tools to have a significant widespread effect on improving health.

The Affordable Care Act provisions enabling larger employer-based outcome incentives⁴ suggest that hundreds of billions of dollars could flow through such incentive programs. How such programs are implemented will likely vary significantly in different employer contexts based on the underlying culture and philosophy about rewards vs penalties, and such decisions will likely have a large effect on program effectiveness. In addition, researchers should be aware that administrative challenges in delivering rewards will limit their usage and that integrating the real-world limitations of payroll and human resource systems into research designs could result in findings more helpful to payers and more likely to be used. A robust series of studies that directly compare the effectiveness of sticks vs carrots vs carrots and sticks together would help build an evidence base that could make these decisions data driven and less based solely on culture and beliefs.

ARTICLE INFORMATION

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