

# TOBACCO CESSATION PROGRAM ENGAGEMENT USING BEHAVIORAL ECONOMICS



**The** World Health Organization ranks the U.S. as 37th in health<sup>1</sup>, despite being first in health care spending overall and per capita. A large part of the gap between spending and results can be attributed to human behavior, which is a common barrier to many health goals including the prevention and management of illness and the cultivation of wellness.

Tobacco use is a leading preventable cause of premature mortality worldwide<sup>2</sup>. In the U.S., tobacco is a fundamental factor in nearly 1 in 5 deaths<sup>3</sup>. No other single health factor creates a greater financial or human burden. Yet 15.1% of U.S. adults still smoke<sup>4</sup> and more take it up each day.

Employers and health plans bear much of the economic costs of smoking, which amount to nearly \$170 billion in direct medical expenses and more than \$156 billion in lost productivity<sup>5</sup> annually. The Centers for Disease Control and Prevention estimates that compared to non-smokers, each smoker costs an employer approximately \$2,056 more per year in health benefits alone<sup>6</sup>. In an attempt to curb these costs, 85% of employers provided a smoking cessation program in 2016 and 68% offered financial incentives to participate<sup>7</sup>. Even with incentives reaching an average of \$331 per smoker, only 10% of eligible employees actually participate in employer-sponsored smoking cessation programs<sup>8</sup>. It is evident that there is a need for better approaches to behavior change.

## BEHAVIORAL ECONOMICS

The problem is not that people are unaware of the dangers of tobacco. It is safe to conclude that, fifty years after the first Surgeon General's warning came out about the harms of tobacco, there is a universal understanding that smoking kills. In fact, approximately 70% of all smokers want to quit<sup>9</sup>. Smokers do not lack knowledge; they face a behavioral challenge because habits are hard to change and because nicotine, in particular, is so addictive.

Conventional approaches to behavior change often assume that an educated public will make rational decisions that optimize personal welfare. However, behavioral economics derives from the understanding that people are not always rational and instead often make choices against their best interests. People are biased toward the present, overly optimistic about their futures, and averse to loss and regret. Experts in behavioral economics harness these decision-making errors to do good and nudge people to change behavior and achieve their goals. By keeping these predictable patterns of behavior in mind when designing health insurance, care management programs, or the health-related aspects of everyday life, behavioral economists aim to meet people half-way: helping the behavioral patterns they already follow lead them to better health instead of asking them to completely transform their behavior.

Many organizations believe they are applying behavioral economics because they use financial incentives to encourage health behaviors. That is economics, not behavioral economics, and while its value in health care has been positive, there is opportunity to improve its impact. Behavioral economics moves beyond transactional elements of economics, such as paying people to go to the gym, to create social and financial incentive programs designed to account for the very decision errors that lead us to eat dessert even though we want to lose weight or skip antihypertensive doses even though we want to avoid a stroke.

VAL Health, the leading organization in applying behavioral economics to health, develops solutions to increase engagement in smoking cessation and other health and wellness programs. While standard, transactional economics comes from the view that the most influential feature of an incentive is its size, VAL Health's incentive programs are designed from evidence that the most important feature of an incentive program is its design.

Three key factors that make incentive designs effective include saliency, immediacy, and achievability. When rewards are hidden from participants, such as premium adjustments bundled into paychecks, they are less effective than more visible rewards, such as physical gift cards. Timing is also crucial. To reinforce a behavior, feedback needs to be delivered in-sync with the activity itself. For example,

daily feedback on medication adherence is more effective than a monthly report. Finally, even a visible, well-timed incentive needs to be seen as achievable to be motivating. A goal to go to the gym 120 times a year seems much less doable than a goal to go two times per week.



## SALIENCY

Bundling incentives even as high as \$550 into premiums was not effective at driving weight loss among obese employees<sup>10</sup>.



## TIMING

A daily contest with an expected rewards value as low as \$1.40 per day led to 30% higher sustained engagement in home-based health monitoring for patients with poorly-controlled diabetes<sup>11</sup>.



## ACHIEVABILITY

Employees achieved daily walking goals 50% more often when rewards were tied to their own efforts rather than to their team's behavior, which they had less control over<sup>12</sup>.

## THE SMOKING CESSATION STUDY

In 2013, the National Institutes of Health awarded VAL Health a Small Business Innovation Research (SBIR) grant to study the impact of behavioral economics-based incentives on engagement with a real-world digital smoking cessation program.

Toward this end, VAL Health designed a randomized controlled trial to evaluate the impact of its flagship incentive program, VAL Health Rewards, combined with Pro-Change Behavior Systems' digital smoking cessation program. VAL Health Rewards is a behavioral economics-based contest where participants can earn money in weekly drawings if they are up-to-date with their behavior change program. The program emphasizes variable and probabilistic rewards, regret aversion, and other techniques known from behavioral economics to be particularly motivating. Pro-Change uses the Transtheoretical

Model of behavior change to categorize participants' readiness to change, then tailors each participant's digital experience accordingly.

Over 400 study participants were recruited through health care providers in the Rhode Island Primary

Care Physicians Corporation and targeted Facebook ads. Participants who completed their first digital smoking cessation session were enrolled in the study. All participants received up to six months of complimentary access to Pro-Change’s digital smoking cessation program. By random assignment, half were enrolled in VAL Health Rewards on top of the Pro-Change program. The goal was to evaluate the effect of VAL Health Rewards on program engagement.

## THE RESULTS

With VAL Health Rewards, participants not only engaged in the digital cessation program more often and for a longer duration, they also quit smoking at a higher rate.

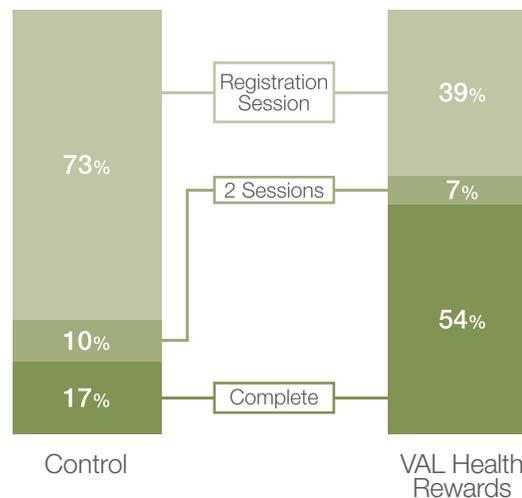
Participants in the VAL Health Rewards group completed the program at 3.2 times the rate as the group with no incentives.

Ongoing engagement was also higher for the VAL Health Rewards group—after registering and completing the first monthly session, only 27% of participants in the group with no incentives returned to complete a second session, while 61% of participants in the VAL Health Rewards group returned, as shown in **figure 1**.

The increase in ongoing engagement led to a higher proportion of participants who advanced in their readiness to quit smoking. “Any progression through these stages of change is a success because it means that a person is closer to quitting,” explains Sara Johnson, Co-President and CEO of Pro-Change. “This is an important success metric because moving forward even one stage of change doubles the likelihood that a smoker will quit in the next six months.” Over 43% more people advanced one or more stages of change in the VAL Health Rewards group than in the group with no incentives.

Karen Horgan, President and Co-Founder of VAL Health, reflects that, “the ultimate goal of any smoking cessation program is to help people quit smoking. The use of VAL Health Rewards achieved just that with 17.9% of participants quitting, 44% more than in the group with no rewards.” ♦

**figure 1**  
SESSIONS COMPLETED, BY ARM



## VAL HEALTH

VAL Health is the leading behavioral economics firm focused on health. VAL Health delivers improved health engagement and lower costs for payers, employers, and digital health platforms through its consulting practice and its flagship behavioral economics based incentives program, VAL Health Rewards.

➤ [Contact info@valhealth.com to learn more](mailto:info@valhealth.com)

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