

# MARKET WATCH

## **P4P4P: An Agenda For Research On Pay-For-Performance For Patients**

Incentives for patients to change their behavior can work alongside similar incentives for their providers to help them change.

**by Kevin G. Volpp, Mark V. Pauly, George Loewenstein, and David Bangsberg**

**ABSTRACT:** Unhealthy behavior is a major cause of poor health outcomes and high health care costs. In this paper we describe an agenda for research to guide broader use of patient-targeted financial incentives, either in conjunction with provider-targeted financial incentives (pay-for-performance, or P4P) or in clinical contexts where provider-targeted approaches are unlikely to be effective. We discuss evidence of proven effectiveness and limitations of the existing evidence, reasons for underuse of these approaches, and options for achieving wider use. Patient-targeted incentives have great potential, and systematic testing will help determine how they can best be used to improve population health. [*Health Affairs* 28, no. 1 (2009): 206–214; 10.1377/hlthaff.28.1.206]

**P**AY-FOR-PERFORMANCE (P4P) in the United States has become synonymous with incentives for clinicians, hospitals, and health care systems to improve the quality of care they deliver to patients. A wide range of P4P schemes are current across the United States, although evidence to date does not show that these schemes have greatly improved outcomes.<sup>1</sup> Although P4P continues to receive most of the attention paid to incentive schemes associated with health care, there is growing interest in an alternative, potentially complementary approach of applying incentives to patients rather than to providers.<sup>2</sup> Patients' behavior before or after getting medical services can greatly affect their health outcomes. Designing better incentives for patients is a promising development, because the potential benefits in improving population health are arguably greater for patient-targeted than provider-targeted interventions. We discuss the potential for patient-targeted incentives, "P4P for patients" (P4P4P), as a cost-effective means of improving health, and we highlight research needed if P4P4P is to be used more effectively.

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## P4P4P: The Potential

The potential benefit of interventions to improve patients' behavior exceeds that of interventions aimed at health care providers, in part because unhealthy behavior may contribute more than inadequate health care does to poor health and premature death. Unhealthy behavior such as smoking, poor diet, and sedentary lifestyles accounts for as much as 40 percent of premature deaths in the United States, whereas deficiencies in health care delivery account for only 10 percent.<sup>3</sup> Smoking, the leading cause of preventable death, accounts for approximately 435,000 deaths each year, but only 2–3 percent of smokers quit each year.<sup>4</sup> Obesity is the second-leading cause of preventable death, and U.S. obesity rates have increased dramatically over the past two decades.<sup>5</sup> The social and structural environment, public policies, genetics, and access to and quality of providers affect the rates of smoking and obesity, but people's behavioral choices are clearly a central driver.

■ **Preventive services and addictive substances.** Incentive-based approaches have been shown to be highly effective in two areas: (1) increasing the use of preventive services that involve a limited number of visits, and (2) reducing the use of addictive substances. Examples of the former include studies showing increases in rates of follow-up of abnormal Pap smears, postpartum visits by adolescents, TB test reading, and the rate at which intravenous (IV) drug users received all three doses of hepatitis B vaccine compared to outreach alone.<sup>6</sup> The evidence that such approaches reduce the use of addictive substances such as cocaine and nicotine, including tripling of long-term smoking cessation rates, suggests that financial rewards to promote long-term changes in behavior could affect a wide range of health behavior requiring frequent reinforcement and follow-up over time.<sup>7</sup>

■ **Longer adherence to providers' ad-**

**“Financial rewards to promote long-term changes in behavior could affect a wide range of health behavior.”**

**vice.** Another reason to consider further testing of incentive-based approaches is that many highly efficacious medical tests, treatments, and medications have limited effectiveness because of patients' behavior. For example, one study found that a year after a myocardial infarction, nearly half of patients prescribed cholesterol medications had stopped taking them.<sup>8</sup> Much variability in outcomes following admissions for medical treatments or procedures in which public reporting and P4P incentives generally focus on physician or hospital performance actually depend on patients' adherence to providers' advice to not smoke and to take their medications.<sup>9</sup>

## P4P4P: The Current Situation

Wider use of P4P4P makes sense in part because of “imperfections” in the insurance market. In contrast to automobile insurance, where policies are individually purchased and premiums are based on each person's driving behavior and prior accident record, most U.S. health insurance premium structures contain no deterrent to unhealthy behavior. Eighty-five percent of the U.S. population has employer-sponsored or federal/state health insurance whose premiums bear no relationship to the individual policyholder's behavior. Providing either rewards for higher levels of healthy behavior or penalties for lower levels could lead people to internalize the costs and benefits their behavior imposes on their health insurance pool and on the health care system.<sup>10</sup>

■ **“Carrots” and “sticks” in large corporations.** P4P4P is most widely used in large corporations, where it is increasingly common to provide employees with incentives for health-promoting behavior.<sup>11</sup> However, only a few types of behavior are targeted, and few large firms are doing this, but this number could increase if there were better evidence about the effectiveness and cost-effectiveness of this approach. Employers might realize significant benefits in decreased absenteeism and

increased productivity from higher rates of healthy behavior. For example, each adult smoker costs \$1,760 annually in lost productivity and \$1,623 in excess medical spending.<sup>12</sup> Simulations suggest that the savings from decreased absenteeism and increased productivity outweigh future savings in health care costs.<sup>13</sup>

Blue Shield of California, IBM, and Wells Fargo and Company are using positive incentives as “carrots,” giving employees monetary rewards for activities such as filling out health risk assessment forms and exercising. UnitedHealth Group deposits money into medical savings accounts for selected patients with chronic conditions who adhere to prescribed regimens.<sup>14</sup> Scotts Miracle-Gro Company uses both “carrots” and “sticks” to motivate behavior change in its workforce. Employees are “strongly encouraged” to take health risk assessments and are charged higher premiums for refusing or not following the recommendations.<sup>15</sup> Other “stick-based” approaches include rejecting job applicants who do not have “healthy lifestyles,” firing employees who smoke, and reducing insurance coverage when Medicaid recipients fail to follow clinical recommendations.<sup>16</sup>

Evaluations of these programs rarely appear in peer-reviewed journals, and we know of only one such intervention run as a randomized controlled trial, which makes inferences about effectiveness difficult to determine.<sup>17</sup> More-rigorous analysis would greatly help us learn about the effectiveness and relative cost-effectiveness of different approaches.

■ **Limitation to wider use of P4P4P.** A major limitation to wider use of such approaches is the lack of data to guide their development. We know little about the relative costs and benefits of different incentive designs, the magnitude and frequency of the incentives, the optimal program duration, the relative effectiveness of cash and noncash equivalents, positive versus negative rewards, targeting of different populations, and the value of pairing incentive-based approaches with communication, education, and tailoring. These areas all need careful study to help us

understand how to use incentive-based approaches most effectively. Another major research need is for examination of longer-term impacts of incentives on behavior.<sup>18</sup>

■ **Impact of copayments.** Extensive evidence shows that increases in copayments for prescription drugs decrease rates of refills and adherence. In higher-risk populations, the savings insurers realize from increased cost sharing by patients may largely be offset by increases in hospitalizations and emergency room visits.<sup>19</sup> This possibility has motivated many current value-based insurance initiatives. However, we know little about the cost-effectiveness of reductions in copayments. It is often implied that reductions will improve health to the same extent as increases affect health negatively, although this might not occur if people respond differently to equally valued incentives framed as gains (reductions) or losses (increases). Some evidence suggests that cost savings would result from providing angiotensin-converting enzyme (ACE) inhibitors to diabetics without copayments.<sup>20</sup>

### The Resistance To P4P4P

Given the potential benefits of improving health behavior and the success of incentive-based interventions in some contexts, why have incentive programs not become more prevalent?

■ **Weak evidence base.** One reason is that many insurers and employers are skeptical about effectiveness. The evidence base is largely limited to short-term follow-up studies of preventive services, although this evidence is arguably stronger than the evidence for P4P for providers. Another reason is that some published studies have found no effect of incentives. For example, a recent Cochrane review of financial incentives for smoking cessation concluded that financial incentives do not increase smoking cessation rates in workplaces.<sup>21</sup> This is not the same as evidence of no effect; none of the studies reviewed had the power to detect an 80 percent increase in long-term quit rates, and the magnitude of the incentives was generally too small to constitute an adequate test. Some of the studies had pay-

ments with expected values as low as \$10.

■ **High turnover rates and deferred benefits.** Another reason insurers or employers may be reluctant to invest in these approaches is that rates of turnover in private insurance markets and among employees are high, which means that savings in future medical spending are likely to accrue to others. This is less of an issue for firms or entities such as Medicare or the Department of Veterans Affairs (VA) with very low turnover rates. In addition, the costs of incentive programs are immediate and tangible, whereas savings from reduced medical costs or increased productivity are delayed and may accrue to different people than those who would pay for the incentive programs.

■ **Perverse incentives for providers.** Some perverse supply-side incentives may contribute to the lack of enthusiasm toward P4P4P. Hospitals and physician practices generally make money by treating sick patients, particularly through procedural interventions, not from keeping people healthy. Health systems are unlikely to use limited resources to motivate patients to improve health behavior unless they expect those programs to attract a larger share of profitable patients from a given community.

■ **Targeting and fairness concerns.** Another issue is the need for precise targeting so that incentive programs do not largely reward people for doing “what they would have done anyway.” This can be avoided if a program selectively uses penalties or if it reduces general rewards like annual raises. This must be balanced against considerations of fairness but could mean that such programs should be offered to all employees or policyholders who meet certain categorical criteria, such as a weight-loss incentive program for diabetics with body mass index (BMI) greater than 30 kg/m<sup>2</sup>. The legal parameters of what employers and insurers can do in this regard are still being delineated, although employers may have

more latitude than community insurers do.<sup>22</sup> Consideration also needs to be given to how to best hold patients “harmless” if they are not using generally recommended therapies on the basis of medical advice—for example, a patient who has been told to avoid using beta-blockers after a heart attack because of severe asthma.

■ **Ethical reservations.** Finally, some people have somewhat amorphous moral or ethical reservations about paying people to take actions that it is felt they should take on their own. The resistance to incentive plans may be particularly strong among patients such as lifelong nonsmokers, who might complain that rewarding smokers for not smoking is unfair, although the framing of such programs greatly affects patients’ perceptions.<sup>23</sup> Paying smokers to stop smoking,

for example, might benefit nonsmokers within an insurance pool because their health insurance premiums may decrease.

### Options For Operationalizing P4P4P

■ **Performance-based incentives for healthy behavior.** In our opinion, the greatest potential gains from P4P4P come from providing rewards for good health behavior. Many patients have strong health incentives to quit smoking, lose weight, or take beneficial medications, but they fail to do so, in part because the benefits tend to be delayed and intangible if not entirely invisible. Patients thus face what have been labeled “internalities,” in which they do not recognize that they are imposing costs on themselves, much as “externalities” entail a failure to internalize costs imposed on others.<sup>24</sup> Rewards can provide immediate and tangible benefits for reducing such costs by improving health behavior, leading patients to internalize the future costs they impose on themselves. Rewards can encourage behavior that is beyond the reach of insurance cost sharing because it does not involve use of health

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services directly, such as smoking cessation or weight loss.

There are important logistical considerations. Given concerns about high rates of turnover, incentive programs are more likely to be cost-effective in cases with high short-run payoffs such as asthma management or smoking, given the losses in productivity associated with frequent smoking breaks. In cases with a compelling public health rationale, such as nonadherence to medication among patients with multidrug-resistant TB, government intervention might be appropriate. For payers such as the VA or Medicare, which serve as long-term insurance providers, it may be cost-effective to provide incentives for changes in health behavior with longer-term payoffs, such as blood pressure control.

Other incentive interventions could involve selectively lowering copayments for obtaining certain medications, tests, or treatments. High copayments are commonly used to reduce demand for insured services, relative to full coverage. Insurers tend to target a few highly effective but underused services for low copayments, instead of selectively raising copayments for services that are overused. More discriminating use of cost sharing to encourage use of underused high-benefit services and discourage use of overused low-benefit services might be appropriate.<sup>25</sup> Variation in patient cost sharing could include reduction of copayments below zero for high-benefit services, such as the use of cholesterol-lowering medications after acute myocardial infarction. Although the changes in patients' costs from such interventions might be small relative to the total cost covered by the insurer, such changes likely receive substantial weight in patients' decision making because such copayments are immediate and tangible, in contrast to the medical benefits, which tend to be delayed and intangible.

#### ■ Supercharging incentives: insights

**“Incentive interventions could involve selectively lowering copayments for obtaining certain medications, tests, or treatments.”**

**from behavioral economics.** Many of the patient-targeted incentive programs introduced to date have not used insights gained from behavioral economics on the psychology of human motivation. This makes their success all the more impressive but suggests that more carefully crafted incentive interventions could provide more bang for the same buck.

*Frequent small rewards.* One important lesson from the psychology literature is that very small incentives can have a large impact if de-

livered with great frequency, ideally soon after behavior that is being “encouraged” takes place. In one set of landmark studies, Stephen Higgins and coauthors induced long-term abstinence from heroin and cocaine addicts using very small reward vouchers redeemable for consumer goods delivered daily

on proof of abstinence, even though the manifestly larger rewards incumbent on kicking their addiction had failed.<sup>26</sup> These programs are highly cost-effective, even in comparison with the cost of the drug alone—that is, ignoring costs such as crime and unemployment.<sup>27</sup> Moreover, a meta-analysis of such programs found that the immediacy of reward delivery was a key predictor of program efficacy.<sup>28</sup>

Likewise, a daily lottery-based incentive for warfarin adherence showed significant improvements in both inappropriate medication dosing and time out of the international normalized ratio (INR) range.<sup>29</sup> Daily feedback in either the form of a similar daily lottery-based incentive or with a deposit contract in which study participants had money at risk if they didn't lose weight but could double their money if they did lose weight was also effective in achieving substantially more initial weight loss than in control group subjects.<sup>30</sup> Providing small but tangible rewards may be even more effective in clinical contexts such as high blood pressure or hypercholesterolemia in which patients are asymptomatic but need to take medication regularly.

*Small rewards segregated from larger ones.* An-

other important lesson is that the same gain or loss can have very different impacts depending on how it is “framed.” Most importantly, when it comes to incentives for health-promoting behavior, small gains and losses segregated from larger payments are more likely to influence behavior than those integrated into larger payments.<sup>31</sup> Thus, getting a discount of \$25 on a \$1,000 insurance premium is likely to be much less motivating than receiving a separate payment of \$25. For this reason, a reward-based program may be more effective than a program based on insurance premium adjustment. People may prefer insurance that charges higher up-front premiums but provides frequent and explicit rewards for good behavior.

*Positive rather than negative incentives.* We believe that positive incentives generally work

better than negative incentives. In some cases, such as quitting smoking or dieting, healthy behavior removes a major source of pleasure and is likely to cause stress. Introducing the threat of sanctions does nothing to offset the loss of pleasurable activities and is likely to exacerbate the stress, which has been shown to cause relapse to addiction as well as return to unhealthy eating habits.<sup>32</sup> Patients are also less likely to voluntarily accept incentive schemes that involve punishment rather than reward and are likely to be resentful if such programs are introduced without their consent. However, “stick”-based approaches are used fairly widely, and direct comparisons of positive and negative incentives should be more systematically tested.

*Lotteries rather than very small payments.* Lotteries are likely to be more effective than direct monetary payments if the expected value of rewards is small. People tend to discount very small costs and benefits, a phenomenon known as the “peanuts effect,” which helps explain the popularity of lotteries.<sup>33</sup> People also tend to overweight small probabilities, which also helps account for the popularity of lotter-

ies.<sup>34</sup> Both of these factors suggest that lottery payments will provide greater motivation than small certain payments of equal expected value; if the direct payment is large, this is probably not the case. Deposit contracts, in which individuals voluntarily enter into agreements in which they lose money if they fail to meet certain health goals, can be used to take advantage of loss aversion, a well-documented phenomenon in which people feel the pain of a loss much more strongly than the joy of a gain of equal magnitude.<sup>35</sup>

*Joint-incentive bonus.* A final idea that we believe has great potential but, to the best of our knowledge, has yet to be tried would involve providing the patient and physician with a joint incentive bonus contingent on achievement of a specific goal, such as smoking cessation or weight loss. The prospect of such a joint

payment could create the feeling that patients and physicians are on the same “team,” working together toward a mutually desirable goal. Such approaches could also be used in creating incentives for groups of patients that would be realized if one’s “buddy” or other members of the team realize their goals.

### Open Issues

Although the potential for improvements in population health may be greater by giving incentives to patients rather than providers, a number of other unresolved questions must be addressed by future research.

One question is whether it is better to make incentives contingent on outcomes, such as weight loss, or on behavior, such as increasing exercise or improving diet. The advantage of incentivizing outcomes is that outcomes are typically easier to verify, and patients can choose their own means of achieving them. Incentive programs that target outcomes are likely more cost-effective because they pay only if the desired outcomes are achieved. However, patients may feel cheated if they change behavior but fail to achieve goals suffi-

**“A final idea that has yet to be tried would involve providing the patient and physician with a joint incentive bonus contingent on achievement of a specific goal.”**

cient to receive payment. Some patients may have a genetic propensity to be, for example, overweight, making it more difficult to succeed. This suggests that outcomes should perhaps be risk-adjusted here as in other types of P4P programs, but better understanding of the relative degree of difficulty for patients with different types of characteristics is needed for this to be feasible. More research is needed to determine which types of incentive approaches are best for different types of goals and which are allowable under various federal rules for different corporate entities.<sup>36</sup>

Another uncertainty concerns the long-term effects of providing incentives for healthy behavior. To the extent that incentives change behavior, it is possible that short-term changes in behavior will be solidified in the form of good habits that remain entrenched even if incentives are removed.<sup>37</sup> On the other hand, it is possible that the introduction of incentives could reduce intrinsic motivation for engaging in healthy behavior, in which case the incidence of case healthy behavior could drop to or below its no-incentive baseline once incentives are removed.<sup>38</sup> Again, research is needed to understand the behavioral impact of both introducing and removing incentives.

**I**NCENTIVES ARE commonly used in many aspects of American life. The current norm within group-based insurance plans of charging people who engage in high-risk behavior the same premiums as those who engage in unhealthy behavior implicitly encourages unhealthy behavior. There have been few systematic attempts to use price reductions or rewards to encourage healthier behavior. Given that a substantial portion of all health care costs are attributable to behavior choices, thoughtful testing of incentive programs that share potential savings from healthier behavior with patients would greatly increase our ability to determine whether these approaches result in cost-effective improvements in health. This could complement existing provider-targeted P4P efforts and be part of broader efforts to offset common decision errors using insights from

economics and psychology.<sup>39</sup> The extent and continuing cost of the disease burden from preventable diseases suggest that we cannot afford not to systematically investigate this largely overlooked approach to improving health.

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