fishbowls and candy bars

Using Low-Cost Incentives To Increase Treatment Retention

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Contingency management approaches that reward patients for meeting their drug abuse treatment objectives have demonstrated effectiveness in cocaine dependence clinical trials nationwide. The cost of such programs, however, was considered prohibitive for most communitybased treatment providers.

To create a more affordable contingency management approach, Nancy M. Petry, Ph.D., a professor of psychiatry and researcher at the University of Connecticut Health Center in Farmington, devised a low-cost prize incentive system that is compatible with most standard therapeutic approaches. Her system has proven effective in clinical trials involving nearly 500 patients to date, all conducted in community substance abuse programs.

Michael J. Bohn, M.D., is medical director of UW Health-Gateway Recovery in Madison, an independent nonprofit treatment center where the primary substances of abuse among patients are alcohol, cannabis, cocaine, heroin, and other opiates. Most patients have had some treatment before arriving at Gateway, and about 70 percent are there under some sort of legal pressure.

Dr. Bohn, influenced by readings of Dr. Nick Azrin's work on incentives and Dr. Steve Higgins on vouchers for substance abuse treatment, and with background knowledge of "token economies" used in psychiatry, started using incentives in his clinic in 2001. He had noticed that substance abusers, particularly those with attention deficit disorder, conduct disorder, and antisocial personality disorder, were much more likely to keep their appointments when he kept a bowl of candy on the table in his office, particularly if the patient could be assured that his or her favorite candy brand would be available.

In that same year, Dr. Bohn learned of Dr. Nancy Petry's work with low-cost incentive systems in which the subjects selected vouchers for prizes from just such a bowl. He was attracted by the economic practicality of the approach and its potential to appeal to younger, more impulsive substance abusers.

Drs. Bohn and Petry began to correspond, eventually meeting for the first time in 2002. In this article, researcher and clinician discuss their experience with the prize incentive system.

STARTING OUT

Nancy Petry: When I first moved to Connecticut I was interested in adapting contingency management treatments to community settings. Contingency management treatments have been found to be very effective for treating cocaine dependence. Patients earn vouchers, which are like money, for providing cocaine-negative urine samples. The vouchers go into a clinic-managed bank account, and patients can spend them on virtually anything they want. In several studies of contingency management treatments, patients who got the vouchers stayed in treatment longer and achieved significantly more abstinence. A primary issue with vouchers, however, has been the cost. In most of the studies, patients could earn $1,000 or more in vouchers during the course of treatment.

I didn't have a lot of money to work with, so I came up with the prize system. Rather than earning vouchers, every time patients provide a drug-free urine sample, they earn a chance to draw a slip of paper from a bowl. Each draw has the possibility of winning a prize, but they don't always win prizes. Half of the time they draw from the bowl, they don't win anything at all: The slip says, 'Good job. Try again.' About half the time, they get a nsmall prize worth about a dollar, like their choice of a gift certificate to the donut shop, a bus token, or some costume jewelry. A few slips say 'large prize,' and those are worth about $20—like watches, Walkman devices, and sweatshirts. One of the slips of paper in the bowl is the jumbo prize—something like a TV or a VCR.

The approach retains all the key features of the voucher system—for example, consecutive drug-free urine tests are rewarded with increasing numbers of draws. But instead of the average cost of $600 per patient in voucher trials, patients in our studies usually earn about $200 in prizes.

Michael Bohn: When I first tried to get others interested in the use of incentives, many clinicians were interested, but there was quite a bit of opposition. HMO contract managers felt such treatment might tarnish the HMO's or UW Health-Gateway Recovery's reputation, particularly among recovering community members who might see incentives as conflicting with a substance abuser defining his or her own reasons to do well in recovery. Some of my colleagues were unwilling to consider this a bona fide treatment because it wasn't talk-based therapy. Others felt it was immoral to be paying substance abusers, either in cash or in goods and services. Even when I stressed that we would be rewarding substance abusers for doing well—that is, for abstaining or for making progress toward abstinence or progress toward other goals, I met considerable resistance. So it took 2 or 3 years to gain sufficient support among providers and others to get an incentive system going. There were also practical issues, as substantial time is required to develop a list of specific patient behaviors to monitor and determine how to run the rewardbased system.

At the same time, we attempted to get parents of the adolescents in our program interested in the incentives idea and had some success. The parents had often reported having great difficulty setting limits with their substance-abusing children, and they had become frustrated by battles that often deteriorated into power struggles over the adolescent's behavior. They often would punish the kids and threaten consequences that they simply could not enforce, such as 'lifetime grounding.' We began, with the help of some experienced adolescent therapists, to persuade individual parents that it would be helpful to try to reward their child for doing well. We helped them begin to use objective measures of specific behaviors, such as attendance at school and treatment sessions, to reward their kids.

We have also begun to use coupons for things that kids like—such as free pizzas, passes to water parks and laser tag arcades, fast food restaurants, and the like—as incentives that adolescents particularly value. These coupons, most of which are good for a year, are sold in a low-cost book available for about $30, which really cut down on the cost to the program. Our staff donated a few of the coupon books to get us started.

Using these coupons, either as scheduled bonuses for consistent behavior, as in traditional voucher systems, or in fishbowl-type drawings, we saw more of the adolescents staying in treatment. And it wasn't costing us anything. The parents were giving the same rewards they would otherwise have given outright, such as permission to the use the car, money for dates, and the like—but using them now as contingencies. So it really was a revenueneutral proposition, and seemed to have initial success.

Our success was not universal, however. Clearly, there were some kids who would have required more money than their parents could afford or would have required parents with the patience of Job to be able to carry out the project. But we had some early, fairly rapid and dramatic successes. The word spread among adolescents: Treatment was not so bad after all, and if a kid did well, not only did the parents let up on the consequences a bit, but he or she got coupons or other goodies and sometimes hit the jackpot! Coupled with having some excellent adolescent therapists, the reward system has significantly reduced our dropout rate among adolescents and has substantially increased parental involvement and satisfaction.

KEY SYSTEM COMPONENTS

Programs and patients

Petry: I have done clinical trials of the prize incentives system with alcoholdependent, cocaine-dependent, and methadone-maintained patients who were dependent on opioids. We have applied the technique in both group and individual therapy settings, always in community-based programs. The incentives are always used as an add-on to patients' normal therapy. About half the patients in each study get the incentives along with the standard therapy, and the other half get standard therapy alone. When we compare retention rates and abstinence rates between the groups, the patients who earned the incentives stayed in treatment longer and achieved longer periods of abstinence.

Bohn: We use the system with perhaps 5 percent of our patients, mostly adolescents and individuals who have had multiple treatments—three or more—within 1 year.

Petry: The revolving-door patients are a good group to use incentives with because when they improve, it does wonders for staff morale. In fact, one of the very first patients we enrolled in our first 'fishbowl' study was a guy who had been in and out of treatment for years. He was randomized into the fishbowl condition and stayed for the whole course of recommended treatment. The staff initially had been suspicious of the incentives program, but when they saw it work with this man, they thought, 'Maybe there is really something here.' The revolving-door patients also incur the greatest medical and mental health care costs, so it is worth investing an additional couple hundred dollars to reduce their drug use and all of the problems associated with it.

Bohn: Corrections professionals charged with monitoring probationers and parolees are very interested in using vouchers, particularly for individuals who are very lowfunctioning or have mental disorders as well as substance use disorders. It's a simple matter of dollars. They understand that spending some dollars up front makes sense because the reincarceration rates and costs are so high among substance abusers who are discharged from prison.

Petry: In my studies, we get a fair number of substance abuse patients who have bipolar disorder or are relatively stabilized on antipsychotics. In our methadone clinic studies, we get a large percentage with dual diagnosis. These patients seem to respond just as well as other groups. Focusing on special groups like these can cut resistance to the approach. A lot of people simply get angry about the concept of giving rewards to drug abusers, but they are less likely to do so when you talk about a specific patient group, such as those with dual diagnosis or adolescents.

What to reinforce

While negative urine tests are the primary objective reinforced by the prize system, Drs. Petry and Bohn also use prizes and other low-cost incentives to reinforce a variety of additional treatment-related goals and behaviors.

Petry: We are building on the research results that indicate that the longer patients stay in treatment, the better they do. The rationale for reinforcing non-drug-using behaviors is to keep patients interested in coming to treatment longer and to assist them with developing behavioral changes that may help them stay off drugs for the long haul.

We are running a study now at one clinic that evaluates whether reinforcing activities alone can reduce drug use. In one condition, patients are reinforced for giving negative urine samples, as is typically done in incentive studies. In a second treatment condition, patients are reinforced for completing goal-related activities, such as attending a job interview, creating a resume, or going to a parent training class. Patients in a third condition do not receive incentives. Patients in all three of the groups receive standard group therapy at the clinic, and they all have their urine tested regularly. Both of the contingent-reward groups are outperforming the standard condition. The people who are receiving reinforcement just for doing their activities are doing just as well as or better in terms of their substance abuse outcomes than the people who are directly reinforced for leaving drugnegative urine specimens. I think this is because they are staying in treatment longer, so they are getting the benefits of the therapy, and they may also be changing their lifestyles in therapeutic ways.

Bohn: I suspect that meeting treatment goals that are personally important to the substance abuser, maybe goals that the patient feels are more important than having clean urine, may mean that someone in treatment will do well across the board.

Petry: We typically do a personal needs assessment during the first week in treatment. We assess needs across about 10 different dimensions—education, employment status, housing, family relationships, social and recreational activities, and so on. The patients select two or three of those areas. Then each week, we and the patient agree upon some specific activity related to those treatment goals. The activity must be feasible to complete within the upcoming week and objectively verifiable. For instance, 'improving my health' is not an appropriate activity to select, because it is too vague. But 'calling a doctor's office and making an appointment' is a good activity because it is doable and verifiable. We might verify it by having the patient call from our office, and immediately he or she is rewarded. The next week, if the patient keeps the appointment and brings back a slip of paper showing his or her attendance, that behavior is reinforced as well. The goal is for the activities to build on each other week by week. We published a paper that describes a thousand or so activities that patients actually selected (Petry et al., 2001). (See "Patient-Selected Goals and Activities for Incentive Reinforcement.")

We had one patient who had lost contact with his adult son and had grandkids he had never met. One week he said he wanted to reestablish contact with his son. He wrote a letter and brought in the letter as verification. We mailed it with him, and so then he earned his draw from the fishbowl for completing that activity. The next week he wanted to call his son, so he did that from our office. The next week he met his son at a restaurant and brought back the receipt. After a couple of weeks he got to meet the grandkids. And then for the rest of treatment he would take the grandkids somewhere every Saturday morning. About a year later a research assistant ran into the former patient at an Easter egg hunt with his grandchildren. The man said that he was still taking his grandkids somewhere every Saturday morning and this has kept him sober for 2 years or so since the project ended. This is a great example of the progression of activity contracting. The results are exactly what we hoped for.

Bohn: We use a lot of the tips Nancy provided in her paper on how to phase objectives and measure progress, at least for adults. For adolescents, we have invented some of our own. For instance, a very common goal for adolescents is to get a goodpaying job. Many are unemployed, or they have made lots of money by drug dealing, so finding a job that pays more than minimum wage is very important for them. Secondly, they want to have use of a vehicle. Many, if they live at home, may have access to the family car, but their parents frequently bar them from using it. So acquiring their own transportation is frequently a goal.

Objectives we commonly identify in interviewing adolescents and their parents are to

- decrease the frequency of angry outbursts,
- eat a meal with the family on a regular basis,
- spend some time helping with household chores,
- spend some time socializing with younger siblings,
- attend classes regularly,
- reduce tardiness.

Patient-Selected Goals and Activities for Incentive Reinforcement		
Specific Goals	Activities	Verification Methods
Further education	Obtain information about classes, programs Complete financial aid forms	Call from office, brochures Completed applications
Get a job	Work on resume, arrange for references Make and keep an appointment with a job counselor Go to job interviews	Printed resume, call from office Signed business card, paperwork Business cards of interviewers
Engage in volunteer work	Obtain information about volunteer opportunities Volunteer	Brochures Signed, dated form
Improve parenting performance	Straighten out legal problems with respect to children Take children on outings	Letters, business cards, proof of support payment Receipts, programs, party favors
Get medical checkups and care	Make doctor, dentist, eye appointments Get needed information from doctor (prescription refill, test results, etc.) brochures	Call from office, give appointment date Call from office, receipts, printed
Improve nutrition	Go to dietitian or nutritionist Go grocery shopping	Business card, written information Receipt
Obtain sober housing	Meet with housing counselor Find appropriate apartments in newspaper Look at apartments	Forms, business cards Circled ads List of pros, cons, prices
Manage time	Be on time for appointments with counselor, groups	Counselor's certification
Increase commitment to treatment	List treatment goals	Completed lists
Put finances in order	Clear up bank statement, pay bills	Paperwork, receipts
Affiliate with a 12-step fellowship	Obtain information about participion Attend a minimum number of meetings	Pamphlet, info, counselor confirms with AA leaders Signed, dated pamphlets
Keep a recovery journal	Complete worksheets in recovery books	Completed worksheets
Source: Adapted from Petry et al., Journal of Substance Abuse Treatment, 2001.		

Finally, adolescents need to find sober things that are fun to do. Over time, we have developed a group of kids who socialize together. They are interested in rewards like bowling vouchers.

Working on a project can be particularly useful for our young patients. One group of local adolescents in treatment centers is working to develop a series of substance-free parties in which the kids are responsible for promotion and lining up deejays, promoting rap music contests, and other related activities.

Bohn: When I first heard Nancy's talk she mentioned giving candy bars or gold stars or other simple recognition to people who show up for individual or group sessions, or don't interrupt during group, or are well-behaved in the waiting area. We have begun using incentives to promote prosocial behaviors among adolescents and individuals who are referred by the court and have little if any initial motivation for abstinence. What we find over time is that those individuals who are offered the incentives are much less likely to interrupt or glorify drug use or do other inappropriate things. Simply giving candy bars has changed the scope of the conversation.

Petry: Some of the therapists in our study projects have picked up on this. They especially like to give candy bars on Monday mornings for people showing up after the weekend, since this is the hardest time for patients to come back.

Bohn: What patients notice is that the therapist throws somebody a candy bar. Some people get several in the course of a group and others get none.

MAKING IT WORK

Petry: The evidence shows, I think strongly, that onsite drug testing is necessary if you are using these procedures to reinforce drug abstinence. If you send the urine samples to a hospital lab and don't get the results back for 3 days, then you can't reward the patient for 3 days. That's too long. You will not be able to establish an association between the patient's drug use or abstinence and whether or not he or she gets a reward.

Some of the research literature says that if you are going to reinforce urine test results, you have to do it frequently. Unfortunately, I hear about programs that want to start reinforcing negative urine test results, but then they screen urine samples only once a month. That simply is not going to work. Far too much time elapses between the behavior of abstinence and the reward for the behavior.

The testing sticks that are available now are quite accurate. They may have different cutoff values than the lab, but they can still determine with a high degree of confidence whether or not someone has been using in the preceding 1 to 3 days.

It's a shame that programs often have a hard time getting reimbursed for using these cheaper drug tests. Sending a test to a lab could cost $20, $50, or $100, depending on what analyses you order; whereas the dip stick tests are about a dollar for each drug you test for.

Bohn: Because of work schedules for the people we treat, we have been doing random urine screens twice a week. We probably should be doing more, but that's about all we can do at this time, given the limited [health care coverage] of the people we treat.

We absorb the cost of the onsite testing as part of the cost of a regular visit, which actually helps our bottom line. We have capitated contracts with the HMOs, so we pay the bills for either type of testing. And with onsite testing available, we find we send many fewer specimens offsite.

The prizes

Petry: We keep a prize cabinet with at least 20 different items in the small and large categories. In the jumbo category we have three or four items.

You can't let yourself get too regimented on what your prizes are. I have seen the system fail because this happens. It is easier to buy all your prizes at one store, but sometimes you have to make the extra effort to go and get specific things that patients really want. It's a pain to get $1 gift certificates to a lot of different stores, but having a large variety of items and things that patients really want is important.

Bohn: Candy bars are incredibly popular with our patients, but we have not used them to reinforce things like clean urines, only socially acceptable behaviors in the therapy group.

Petry: The magnitude of the reward is important, as well as the schedule upon which it is delivered. There are a lot of behavioral principles that you need to know to make the prize system work. (See "Behavioral Principles in Contingency Management Programs.") Having someone who is knowledgeable in the field of behavioral psychology can really help

Bohn: We encountered some initial resistance among patients who did not win a prize the first time. We have increased the rate of winning by reducing the number of 'try again' slips in the fishbowl. After several group sessions, people start to notice that more and more of them are winning and they begin to encourage each other to try and continue doing well.

Petry: We found that across the board at every site.

Bohn: When I finally met Nancy last fall, I was most intrigued by the possibility of soliciting goodies from supportive merchants and others. We have begun to use this approach in therapy for adolescents. We've been going to electronics and other merchants to get high-end items and to department stores to get medium and low-end items. We publicize their contributions through the local newsletters that the HMOs and our health network publish regularly and distribute to large numbers of people. We are also planning to have a recognition banquet for donors. (See "Tips for Soliciting Merchant Contributions.")

Petry: Michael's idea of solicitation in the local community and giving recognition to donors is a good way to make everyone feel they are participating and benefiting.

Keeping on track

Petry: The prize system can backfire if you don't use the correct behavioral principles. It can also backfire if the patients, rather than the staff, start dictating how things are done. For example, the patient might say he is only going

to give urine specimens on Mondays and Tuesdays. That's not an appropriate testing schedule because he could use drugs on Tuesday night and it would not be detected in the next Monday's test. You have to keep what you are doing consistent with why you are doing it, or the system won't work.

One problem we have seen is patients cheating, palming the little slips of paper marked for prizes. If somebody starts winning a lot of large and jumbo prizes and you suspect they're cheating, you need to figure out how to solve the problem without alienating the patient. In our case, what we did was switch the ink color and catch the patient at his own game. When he pulled out his 10 slips for the day, the ones he had palmed had the wrong ink. We made a joke of it and said, 'We caught ya!' And he was fine with that. He laughed.

The goal is to always keep the patient in treatment. In that case everyone ended up being happy. The patient didn't get to keep cheating the system, and he didn't get angry and leave.

Bohn: We have encountered people who have tried to cheat the system and we have handled it in similar ways.

Petry: The key thing is that we are trying not to be punitive. But at the same time, you have to be smart, because you don't want to reward the patient for antisocial behavior.

Bohn: The people who run this system have to be very friendly and very enthusiastic. A fair number of people are very suspicious of drug abusers and alcoholics and tend to have a negative attitude. I don't they are the right folks to try to implement this or any other type of program.

Petry: If you are using the system outside a research setting to improve clinical outcomes, you can modify things to make them work for you. You have to be openminded and learn from your own experience.

REIMBURSEMENT AND FUTURE RESEARCH

Petry: The voucher system has been around longer than the prize system and has been studied more. In Dr. Higgins' studies with vouchers, the durations of continuous abstinence have been longer than in my studies with low-cost incentives. However, his studies have all been done in university clinics, which are very different settings from the community-based clinics I have been working with. With researchbased clinics, for instance, patient insurance isn't an issue, the dropout rates aren't nearly as high, and there is a much lower patient-to-therapist staff ratio.

I just finished a head-to-head comparison of vouchers versus prizes in a community clinic and statistically the two incentive systems performed similarly. Both did much better than treatment as usual. The prize system, though, is much less costly than the voucher system.

An important open question is whether patients sustain the behaviors promoted by the prize incentives after they leave treatment. We also are starting to look at cost-effectiveness and long-term benefits. These are difficult research questions because they call for large sample sizes. We are collecting data, but my guess is that it will be a couple of years before we've got enough data to draw any meaningful conclusions.

Tips for Soliciting Merchant Contributions

Explain that prizes promote healthy behavior and increase donors' visibility.

Emphasize the goal of keeping clients on track toward stable recovery.

Find out what budgets merchants have for charitable contributions.

Give receipts for donations.

Involve a prominent recovering person in solicitations.

Work with local media to publicize merchants who contribute.

Be patient and persistent.

Behavioral Principles in Contingency Management Programs

1. Behaviors targeted for change must be readily detectable. Frequent monitoring through urinalysis several times per week will verify that the patient is replacing drug use with drug abstinence.
2. A patient who demonstrates the desired behavior receives a prompt, tangible reward. For instance, a negative drug test earns a clinic privilege, a small gift, or a gift certificate for merchandise.
3. A patient who demonstrates the unchanged, undesired behavior receives no reward. Sometimes mild sanctions, such as a delay in obtaining methadone takehome privileges, are used in response to inappropriate behaviors.

Bohn: I think low-cost incentives and the prize system have great promise. But the HMOs, which hold our purse strings, are quite skeptical about whether our tactics will work outside the research setting. We need to gather sufficient data to persuade them that this is a reasonable thing to try, and not only with patients who are in the so-called revolving door of treatment, but also for people entering treatment for the first time. We may have to do a small pilot demonstration to make our case.

This is something you change and implement in steps. If we had control over everything, it would be much easier. Still, there's an awful lot we can do.

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