NATIONAL DIABETES PREVENTION PROGRAM

Emerging Practices
A Guide for Using Incentives to Enroll and Retain Participants in the National Diabetes Prevention Program Lifestyle Change Program

INTRODUCTION

An estimated 88 million adults in the United States have prediabetes, and only about 15% are aware they have it.[1] The National Diabetes Prevention Program (National DPP) lifestyle change program is a yearlong, structured intervention proven to be effective in preventing or delaying type 2 diabetes among people with prediabetes or at high risk of getting diabetes.[2,3]

Participants who stay in the program longer lose a higher percentage of weight,[4–6] which is the key factor associated with preventing or delaying type 2 diabetes.[2,7]

Enrolling and retaining participants in lifestyle change programs can be challenging, especially for population groups that are at higher risk of disease and less likely to enroll in these programs. One strategy that may be promising is the use of incentives.

Purpose of This Guide

This guide provides information about incentives for organizations that are interested in using them. It describes different types of incentives and the level of evidence to support them. It also provides information about factors to consider when deciding whether to use incentives.

This information is based on findings from a systematic literature review of 21 studies of lifestyle change programs that used incentives, as well as lessons learned from other CDC projects. Because of the narrow focus and limited number of studies in the literature review, these findings may not apply to all populations, settings, programs, or health outcomes. Additionally, organizations should ensure their communication products and program materials adapt to the specific cultural, linguistic, environmental, and historical situation of the communities and populations.

Types of Incentives

A variety of incentives have been used in lifestyle change programs. This guide focuses on cash, noncash financial, nonfinancial, and mixed incentives.

Cash Incentives
Giving cash to a participant in person or by direct deposit into a bank account.

Noncash Financial Incentives
Giving items that have monetary value but are not cash. Examples include gift cards, vouchers, and insurance premium discounts.

Nonfinancial Incentives
Giving items that may have some value, but no direct monetary value. Examples include certificates of achievement, free gym memberships, prizes, and products such as pedometers and food measuring devices.

Mixed Incentives
Combinations of cash, noncash financial, and nonfinancial incentives.

Note: Emerging practices are new practices that have a plausible theoretical basis and preliminary evidence of impact. These practices need more use and evaluation to determine if their effects can be replicated over time and in other settings and populations.[8]

Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion
Division of Diabetes Translation

LESSONS LEARNED FROM CDC PROJECTS

From 2012 to 2017, CDC funded six national organizations to expand delivery of the National DPP lifestyle change program. These organizations partnered with over 160 other organizations to deliver the program across 38 states, enrolling over 14,000 participants.

One strategy used to increase enrollment and retention was to provide incentives, including noncash financial incentives (such as gift cards) and nonfinancial incentives (such as gym memberships, food measuring devices, and childcare or transportation passes), that were not supported by federal funding. Cash incentives were not used because they were not allowed under this funding opportunity.

An evaluation of these efforts over 4 years found that nonfinancial incentives were significantly associated with:

- Higher overall attendance among participants.
- Higher attendance during months 7 to 12.
- Longer length of participation.[9]

In 2017, CDC began funding 10 national or regional organizations to start new CDC-recognized organizations in areas with low access to the National DPP lifestyle change program. These new organizations focus on enrolling populations at higher risk of type 2 diabetes into new or existing programs.

A preliminary assessment of the first 2 years of this project found that participants who attended programs that provided any type of incentive had significantly higher levels of attendance than those who participated in programs that did not provide incentives. Participants who attended programs that provided noncash financial incentives also had significantly higher average weight loss at 12 months.

Additional analyses of the types of incentives provided and weight loss outcomes among different population groups showed that, on average, nonfinancial incentives were associated with significantly higher weight loss among non-Hispanic Black persons compared to non-Hispanic White persons.[10]

For people who had trouble meeting their weight loss goals, noncash financial incentives were associated with significantly higher weight loss among Hispanic persons and non-Hispanic Black persons compared to non-Hispanic White persons.[10]

OVERALL CONSIDERATIONS FOR USING INCENTIVES

When planning to use incentives to enroll and retain participants in the National DPP lifestyle change program, consider the following factors:

- Variability of the incentive, which means the way the quantity or amount of the incentive is provided (see box at right for types of variability).
- Certainty of the incentive, meaning how confident participants can be that they will receive the incentive (see box at right for types of certainty).
- Delivery method used to distribute the incentive—for example, in person or by mail or email.
- Timing and frequency—for example, how often and when the incentive will be distributed during the yearlong program.
- Availability of funds for incentives—for example, each organization's budget or any restrictions on how funds can be used.
- Opportunities to integrate incentives with other services—for example, as part of social support or counseling.
- Degree to which incentives support other program objectives—for example, food measuring devices that help participants eat a healthy diet or gym memberships that encourage physical activity.
- Appropriateness of the incentive type for the population group, health outcome, or health behaviors of focus.
- Strategies designed to help participants maintain health outcomes or changes in their health behaviors after incentives have ended.

Other considerations are described in the following sections, which provide more information about each incentive type.

Variability of Incentive

- **Fixed rate:** Same quantity or amount every time the incentive is given.
- **Variable rate:** Quantity or amount of the incentive based on activity, task, timing, or milestone.
- **Increasing rate:** Quantity or amount of the incentive increases over time.
- **Decreasing rate:** Quantity or amount of the incentive decreases over time.
- **Deposit contract:** Participants invest their own money or the program deposits money in an account. Participants lose the money if they do not achieve defined tasks or milestones.
- **Mixed:** A combination of two or more of the other categories.

Certainty of Incentive

- **Guaranteed:** Participants receive the incentive if they participate in the program (no additional requirements).
- **Criteria-based guaranteed:** Participants must complete an activity or milestone before the incentive is given.
- **Criteria-based lottery:** Participants must complete an activity or milestone to become eligible for a lottery to get the incentive.
- **Lottery:** All participants are eligible for a chance to win the incentive. They do not need to meet a specific criteria or behavior to be eligible.
- **Mixed certainty:** A combination of two or more of the other categories.

CASH INCENTIVES

Cash incentives involve the distribution of cash to program participants in person or by direct deposit into a bank account.

This section describes findings from 11 studies in the systematic review that focused on cash incentives.

Elements of Cash Incentives

Value

In the studies reviewed, cash incentives ranged from $1 to $1,200. They averaged about $160.

Variability of Incentive

Variable-rate cash incentives that were dependent on participant weight loss,[11-13] deposit contracts,[14] or data reporting requirements[15] were common. Fixed-rate cash incentives, such as initial payments of $25, were also used.[16]

Timing and Frequency

More positive results were reported in programs that lasted over 6 months and distributed incentives weekly.[17]

Certainty of Incentive

A common practice was to use a criteria-based guaranteed structure where a milestone (such as losing a certain amount of weight) had to be met before the incentive was distributed. A mixed certainty of incentive structure was also used, where guaranteed and criteria-based guaranteed incentives were combined.[18,19]

Examples of Variability of Incentive

- **Weight loss:** $1 for every 1% weight loss.
- **Deposit contracts:** Participants deposit their own money, which is matched by the program. They risk losing their deposits if they don't meet their goals.
- **Reporting:** Participants receive $160 for completing all reporting requirements.

What Can Cash Incentives Achieve?

Cash incentives have been used with various populations in different settings and have contributed to improvements in certain health outcomes.

Level of Evidence	Populations	Settings	Outcomes
	Adults older than 18 years who are overweight or have obesity.	▪ Long-term care facility worksite. ▪ Clinic or hospital. ▪ Web-based. ▪ University.	▪ Lost weight.[12–14,20,21] ▪ Maintained weight loss.[12,13,15,20] ▪ Improved diabetes risk scores.[12]

= Recommended with some level of evidence, = Mixed evidence, and = Insufficient evidence.

Factors to Consider

Before using cash incentives to enroll and retain participants in the National DPP lifestyle change program, consider taking the following actions:

- Assess your program setting and participants. Cash incentives have mostly been used in worksite settings. This approach may work in other settings, but more evidence is needed.
- Develop a plan and use proven strategies to ensure that the desired behavior change, such as weight loss, is maintained after the incentives have stopped.
- Calculate the total amount you will need if every participant earns the maximum amount of cash allowed. This will help prevent budget overruns.
- Provide cash incentives on a variable interval, such as $1 for 1% weight loss, to keep participants motivated to meet their goals and improve their health outcomes.
- Think about how you will give the cash to participants. If your program is online and participants are in other locations, you may not be able to give cash in person. You may want to consider a noncash financial incentive that can be mailed or emailed.
- Use other strategies in addition to incentives to reinforce health behavior change.[15]

NONCASH FINANCIAL INCENTIVES

Noncash financial incentives involve the distribution of items that have monetary value but are not cash. Examples include gift cards, vouchers, and insurance premium discounts.

This section describes findings from two studies in the systematic review that focused on noncash financial incentives.

Elements of Noncash Financial Incentives

Value

In the studies reviewed, noncash financial incentives ranged from $2.50 to $320. They averaged about $20 and included debit cards[22] and in-kind vouchers to local businesses.[23]

Variability of Incentive

In one study, incentives were based on completion of program requirements. Participants received up to $20 on a debit card for monitoring their blood glucose levels or attending a diabetes education session.[22] In another study, variable-rate incentives were used. Participants reported minutes of physical activity, which were then converted into points.[23]

Timing and Frequency

Incentives were provided at the halfway point and at the end of the program.[22,23]

Certainty of Incentive

A criteria-based guaranteed structure was commonly used for noncash financial incentives.[22,23] For example, an activity (such as hemoglobin A1C testing) had to be completed before the incentive was distributed.

What Can Noncash Financial Incentives Achieve?

Noncash financial incentives have been used with various populations in different settings and have contributed to improvements in certain health outcomes.

Level of Evidence	Populations	Settings	Outcomes
	▪ Adults 18 years or older with a known diagnosis of type 1 or type 2 diabetes. ▪ Adolescents and adults aged 16 to 65 years.	▪ Primary care setting. ▪ Worksite.	Participants that received incentives reported: ▪ Significantly higher adherence to the recommended diet, but no statistical improvements in diabetes clinical outcomes.[22] ▪ Slightly higher number of minutes of physical activity logged.[23]

 = Recommended with some level of evidence,  = Mixed evidence, and  = Insufficient evidence.

Factors to Consider

Before using noncash financial incentives to enroll and retain participants in the National DPP lifestyle change program, consider taking the following actions:

- Determine how much incentive is needed to motivate participants. For example, one study reported that 57% of participants waited longer to redeem their points, possibly because they wanted to earn higher-value rewards.[13]
- Choose a method to deliver the incentive. Noncash financial incentives can be mailed, emailed, or given directly to participants. If your program is online and participants are in other locations, mail or email may work best.
- Provide incentives for health behaviors or outcomes that can be measured (such as weight loss), rather than self-reported by participants. This approach will reduce misreporting.

NONFINANCIAL INCENTIVES

Nonfinancial incentives involve the distribution of items that may have some value, but no direct monetary value. Examples include certificates of achievement, free gym memberships, prizes, and products such as pedometers and food measuring devices.

This section describes findings from two studies in the systematic review that focused on nonfinancial incentives.

Elements of Nonfinancial Incentives

Value

In the studies reviewed, nonfinancial incentives included a sports bag, a drink bottle, and drawings from a prize bowl. The prize bowl had 500 cards, half of which resulted in prizes. Of these cards, 209 were for small prizes, such as healthy snacks, bottled water, or toiletries that cost about $1. Forty cards were for larger prizes, such as fitness DVDs, $20 gift cards, or weight sets. One card was for a jumbo prize of fitness equipment.[24]

Variability of Incentive

In one study, incentives were based on weekly weight loss.[24] Participants received one draw from a prize bowl for each pound lost, up to a maximum of 2 pounds per week (so as not to reinforce rapid weight loss). They received an increasing number of bonus draws for each week of weight loss. Participants also earned draws for completing activities from the program manual. In total, they could earn up to 36 draws for activities and 216 draws for weight loss.

Timing and Frequency

In one study, incentives were provided at the beginning of the program and at the 2-month mark.[25]

Certainty of Incentive

A mixed certainty structure was commonly used for nonfinancial incentives.[24,25] For example, some programs used a combination of criteria-based guaranteed incentives (such as completing an exercise session) and criteria-based lottery incentives (such as losing weight to earn prize drawings).

What Can Nonfinancial Incentives Achieve?

Nonfinancial incentives have been used with various populations in different settings and have contributed to improvements in certain health outcomes.

Level of Evidence	Populations	Settings	Outcomes
✓	▪ Adults aged 18 to 65 years with body mass index (BMI) ≥30 and blood pressure of 110/70 mmHg to 140/90 mmHg. ▪ Adults aged 40 to 75 years with type 2 diabetes or BMI >25 who had not participated in strength training previously.	▪ Community.	▪ Lost weight.[24] ▪ Reduced their hemoglobin A1C levels.[25]

✓ = Recommended with some level of evidence, ! = Mixed evidence, and ✗ = Insufficient evidence.

Factors to Consider

Before using nonfinancial incentives to enroll and retain participants in the National DPP lifestyle change program, consider taking the following actions:

- Assess your population of focus to determine whether a nonfinancial incentive would motivate them to participate in the program and complete activities or milestones.
- Determine your budget and estimate the number of participants who may be eligible for incentives. Nonfinancial incentives such as prize drawings typically cost less than cash and noncash financial incentives. You can also solicit in-kind prizes from local businesses or partner organizations.

MIXED INCENTIVES

Mixed incentives involve a combination of cash, noncash financial, and nonfinancial incentives. For example, participants might receive a cash incentive when they enroll in a lifestyle change program and a noncash financial incentive for continued participation and achievement of goals.

This section describes findings from six studies in the systematic review that focused on a combination of incentive types.

Elements of Mixed Incentives

Value

In the studies reviewed, noncash financial incentives included $25 to $300 gift cards, 30% reductions in health insurance premiums (a savings of $600 to $1,200), and free exercise sessions. Nonfinancial incentives included bracelets, T-shirts, scales, pedometers, and fitness trackers.

Variability of Incentive

Three studies used fixed-rate incentives. Participants received program or insurance discounts or a specific item when certain activities were completed.[26–28] For example, in one study, participants received a new colored watch band for their exercise tracker when they completed 200 miles of movement and a program T-shirt when they completed 400 miles.[26] In another study, teams with the highest mean weight loss received gift vouchers.[29]

Timing and Frequency

Most programs provided incentives at the beginning and end of the program.

Certainty of Incentive

A mixed certainty structure was commonly used for mixed incentives.[30] For example, programs used some combination of guaranteed incentives (given for participation only), criteria-based guaranteed incentives (given for completing an activity), and criteria-based lottery incentives (entering participants into a lottery for completing a task).

What Can Mixed Incentives Achieve?

Mixed incentives have been used with various populations in different settings and have contributed to improvements in certain health outcomes.

Level of Evidence	Populations	Settings	Outcomes
	▪ Adults aged 18 to 69 years. ▪ Employees with prediabetes or type 2 diabetes. ▪ Adults older than 18 years who are overweight or have obesity.	▪ Community. ▪ Worksite.	▪ Increased participation in employee program.[28] ▪ Improved fitness score.[30] ▪ Lost weight.[27–30]

= Recommended with some level of evidence, = Mixed evidence, and = Insufficient evidence.

Factors to Consider

Before using mixed incentives to enroll and retain participants in the National DPP lifestyle change program, consider taking the following actions:

- Choose incentives that reduce barriers to participation for your population of focus. Examples include vouchers for taxi services or local businesses and programs that offer night and weekend class sessions.
- Use self-monitoring approaches that are supported by technology-based tracking systems, such as MyFitnessPal.
- Use phone or online coaching to make programs sustainable in community settings.
- Use incentives to retain participants or bring them back to your program. For example, one study offered gift cards to participants who missed follow-up health visits as part of a 2-year weight loss intervention. The cards were an incentive to encourage participants to come in for their final 24-month visit. Of the 158 people eligible to receive gift cards for missed visits, 108 completed their last visit.[31]

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