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RESEARCH ARTICLE

Perceived Impact of Incentives for Chronic Disease Prevention

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Introduction: This study evaluates the effect of program and incentive characteristics on satisfaction with incentives and perceived impact of incentives on behavior change among Medicaid beneficiaries who participated in the Centers for Medicare and Medicaid Services Medicaid Incentives for Prevention of Chronic Diseases program.

Methods: In 2014–2015, an English- and Spanish-language survey was administered to Medicaid Incentives for Prevention of Chronic Diseases program participants about their satisfaction with incentives and perceived impact of incentives. Completed surveys were received from 2,276 eligible sample members (response rate=52.7%). In 2016–2017, multilevel, multivariable, ordinal logistic regression models were performed to examine program characteristics that predict outcomes, while controlling for respondent characteristics.

Results: Medicaid Incentives for Prevention of Chronic Diseases participants were satisfied with program incentives. Most survey respondents strongly agreed that they liked getting incentives for taking care of their health (78%), they were happy with the incentives overall (75%), the incentives were fair (73%), and they liked how often they received incentives (67%). Participants in programs delivered by telephone reported higher satisfaction with incentives compared with those in programs delivered in person. However, participants in programs delivered both in person and by telephone were more likely to perceive a positive impact of incentives. Incentive form was a significant predictor of satisfaction with incentives but not of incentive impact. Dollar amount of incentives influenced satisfaction with incentives and impact of incentives.

Conclusions: Program delivery method, incentive form, and incentive magnitude are important characteristics to consider when designing incentive programs. Incentive programs can consider providing modest incentive amounts to achieve self-reported impact on behavior change.

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INTRODUCTION

Chronic diseases account for approximately 60% of deaths[1] and 20% of total U.S. healthcare costs.[2] Medicaid beneficiaries have higher rates of preventable chronic diseases.[3,4] Receiving incentives may encourage Medicaid beneficiaries to engage in chronic disease prevention programs and change unhealthy behaviors. Section 4108 of the Affordable Care Act authorized the Centers for Medicare and Medicaid Services (CMS) Medicaid Incentives for Prevention of Chronic Diseases (MIPCD) program to develop evidence-based, chronic disease prevention programs that

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assess the effectiveness of incentives in encouraging change in health risks and outcomes among Medicaid beneficiaries.[5] The MIPCD program is aligned with value-based insurance design principles that focus on the value of health services rather than on only health-care quality or cost.[6] Evidence is inconclusive whether chronic disease prevention programs produce a substantial reduction in costs.[6] Nevertheless, targeting chronic disease prevention programs to Medicaid beneficiaries is potentially high value because this population is at higher risk for preventable chronic diseases.

The MIPCD program awarded grants to implement chronic disease prevention programs in ten states: California, Connecticut, Hawaii, Minnesota, Montana, Nevada, New Hampshire, New York, Texas, and Wisconsin. State programs varied in their program characteristics, including health focus and delivery method. Health focus areas were diabetes prevention, diabetes management, weight management, smoking cessation, hypertension, or personal health goals. In Texas, participants worked with a patient navigator to develop personal health goals related to any health focus area (Appendix Table 1, available online, provides overview of MIPCD programs).

Behavioral economics studies found that incentives for participating and adhering to goals were effective at encouraging behavior change; incentives for achieving outcomes showed positive short-term effects that were not sustained.[7,8] Variation in incentive designs make it challenging to disentangle the effectiveness of components of incentives. Consequently, Adams and colleagues[9] designed a framework to examine characteristics of incentive programs, including: (1) form (e.g., money, money-valued, or health-related products); (2) target (e.g., incentives earned for engaging in processes or achieving outcomes); (3) timing (e.g., incentives provided immediately following or delayed after target behavior); (4) magnitude (i.e., different values of incentives); (5) certainty (i.e., guaranteed or not guaranteed incentives); and (6) direction (i.e., incentives use a positive "carrot" approach or negative "stick" approach).

Drawing on the concept of incentive form by Adams et al.,[9] most MIPCD programs provided money-valued incentives (i.e., cash, debit cards, and gift cards). Texas provided a flexible wellness account that participants could use to purchase items related to personal health goals. Nevada provided points that participants could redeem online for rewards.

For incentive target, MIPCD programs offered incentives for either participating in activities (referred to as process incentives), achieving specific outcomes (referred to as outcomes incentives), or both. For incentive magnitude, MIPCD programs varied in the maximum dollar amount of incentives that were possible to earn. Across all program participants in this study, the average dollar amount of incentives earned was about $603, ranging from a low of $40 in California to a high of $2,830 in Texas.[a]

Consistent with Section 4108 of the Affordable Care Act, CMS required an independent, national evaluation across the ten MIPCD states. Previous studies found that multisite evaluations have "significant value because they can provide information on specialized programs and populations"[10]; multisite evaluations that use multilevel modeling are particularly useful because they can explore whether program-level factors can help explain variation in individual-level outcomes.[10] In the present study, the multisite evaluation provides a unique opportunity to examine participants' experience with incentives and the perceived impact of incentives overall and by differences in program and incentive characteristics. Although the MIPCD programs differed, the programs all had in common having Medicaid beneficiaries as participants, focusing on chronic diseases, and using incentives. Research questions include: *How satisfied are participants with incentives? What are participants' perceptions about the impact of incentives on health behaviors? What factors determine satisfaction and perceived impact?*

METHODS

In 2014–2015, an English- and Spanish-language survey was administered to MIPCD program participants in all MIPCD states except Hawaii (survey instrument found in Appendix File 1, available online).[b] Survey data were paired with demographic measures from the MIPCD State Minimum Data Set. The Minimum Data Set is an instrument that participating states used to report measures to CMS.

Study Sample

The survey sample consisted of Medicaid beneficiaries aged ≥18 years who participated in the incentive arm of their state's program within the past 6 months. Participants were included in the incentive arm because the survey asked about incentives, and the control arm did not receive incentives. A census sample was used in all states except California, where a simple random sample was used due to the large number of participants.

Measures

The dependent variables were self-reported attitudes toward incentives and perceived impact of incentives. Respondents scored their agreement with the following statements on a 4-point Likert scale ranging from *strongly agree* to *strongly disagree*: *I like getting rewards or incentives for taking good care of my health*; *I am happy with the rewards or incentives; I am happy with how often I got*

[a]This study does not explore the concepts of incentive timing, certainty, or direction by Adams and colleagues because (1) reliable data on timing were unavailable, (2) all MIPCD programs guaranteed incentives, and (3) all MIPCD programs implemented a carrot approach.

[b]Hawaii was excluded because it administered its own survey. This survey was translated in multiple languages so that it could be administered to the high proportion of program participants who spoke languages other than English and Spanish.

(or will get) the rewards or incentives; the rewards or incentives are fair; rewards or incentives helped me (or will help me) set goals and work toward them; and rewards or incentives helped me (or will help me) make positive changes in my life.

The first four statements measure attitudes toward incentives, and the latter two statements measure perceived impact of incentives. Measures were selected for consistency with the independently administered Hawaii MIPCD state survey (HI-PRAISE).[11]

Several program and incentive characteristics were used as explanatory variables. For incentive characteristics, the authors drew on the framework by Adams et al.[9] that includes as key characteristics incentive form, incentive target, and incentive magnitude. Program health focus was categorized as diabetes prevention, diabetes management, weight management, smoking cessation, hypertension, or personal health goals. Program delivery method was categorized as in person, by telephone, or both in person and by telephone. Incentive form was categorized as money-valued (e.g., cash, debit card, or gift card), flexible wellness account, or points redeemable for rewards. Incentive magnitude was constructed using the actual dollar amount of incentives that participants earned across all payments and all measures during their entire participation in the program. Incentive magnitude was then collapsed into five categories: (1) $0 to <$25, (2) $25 to <$100, (3) $100 to <$400, (4) $400 to <$2,500, and (5) ≥$2,500. Incentive target was categorized as process incentives alone, outcome incentives alone, or both. Process incentives were received for participating in the program, and outcome incentives were received for improvements in health behaviors (e.g., increased physical activity) or health outcomes (e.g., decreased blood pressure).

Statistical Analysis

In 2016–2017, bivariate analyses assessed associations of respondent- and program-level factors with satisfaction with and perceived impact of incentives using Pearson chi-square statistics or—as needed for continuous explanatory variables—regression models. Multilevel, multivariable, ordinal logistic regression models, using the program as a random effect, examined program-level factors that might predict outcomes, while controlling for respondent-level factors. Regression models included factors that were at least marginally significantly ($p< 0.10$) associated with outcomes in bivariate analyses. Regardless of statistical significance, models controlled for demographic characteristics of respondents. Covariates included in regression analyses were examined for multicollinearity (variance inflation factor >5) prior to inclusion in models. Missing survey data were imputed using data from the MIPCD State Minimum Data Set when data were available. Individuals with missing data that could not be imputed were excluded from analyses.

RESULTS

Completed surveys were received from 2,276 eligible sample members, for a response rate of 52.7% (Appendix Tables 2 and 3, available online). A total of 2,276 completed surveys were received; however, two surveys were duplicates, completed by the same participant. They were not included in the analysis frame. Fifty-one (4.3%) surveys were completed in Spanish. Respondents' mean age was 50 years. Respondents most commonly reported being female (64%), being not married (78%), and having a high school degree or equivalent (34%). About one fifth were employed full- or part-time, and 34% received disability benefits or Supplemental Security Income.[c] Half identified as white, one third identified as black or African American, and 16% identified as Hispanic or Latino (Table 1).

Table 1. Demographic Characteristics of Survey Respondents

Characteristics	Survey demographics, *n* (%)
Overall	2,274
State	
California	357 (15.7)
Connecticut	393 (17.3)
Hawaii	N/A
Minnesota	175 (7.7)
Montana	21 (0.9)
New Hampshire	301 (13.2)
Nevada	42 (1.9)
New York	385 (16.9)
Texas	338 (14.9)
Wisconsin	262 (11.5)
Age, years	
≤44	530 (23.3)
45–52	550 (24.2)
53–58	517 (22.8)
≥59	675 (29.7)
Sex	
Male	825 (36.3)
Female	1,449 (63.7)
Married	
Yes	476 (21.6)
No	1,732 (78.4)
Education	
Less than high school graduate or GED	602 (26.7)
High school graduate or GED	760 (33.7)
Some college or 2-year college degree	712 (31.6)
4-year college degree or more	180 (8.0)
Employed full-time or part-time	
Yes	454 (20.2)
No	1,795 (79.8)
Receiving disability or Supplemental Security Income	
Yes	772 (33.9)
No	1,502 (66.1)
Race	
White alone	1,136 (51.4)
Black or African American alone	742 (33.6)
Other	332 (15.0)
Ethnicity	
Hispanic or Latino	368 (16.3)
Not Hispanic or Latino	1,891 (83.7)

N/A, not applicable.

[c]These respondents selected *other* in response to the questions about their current employment status and specified that they were receiving disability benefits or Supplemental Security Income.

Table 2. Overall Satisfaction With and Perceived Impact of Incentives

Characteristic	Somewhat or strongly disagree, *n* (%)	Somewhat agree, *n* (%)	Strongly agree, *n* (%)
Respondent liked getting rewards or incentives for taking good care of health	115 (5.7)	327 (16.2)	1,572 (78.1)
Respondent happy with rewards or incentives overall	160 (8.0)	350 (17.5)	1,494 (74.6)
Respondent happy with how often got rewards or incentives	235 (11.8)	416 (20.9)	1,343 (67.4)
Rewards or incentives are fair	163 (8.1)	384 (19.2)	1,456 (72.7)
Rewards or incentives helped set goals and work toward them	184 (9.2)	502 (25.0)	1,320 (65.8)
Rewards or incentives helped make positive changes in life	179 (8.9)	515 (25.6)	1,319 (65.5)

Nonresponse bias was explored using the race and sex of all MIPCD program participants by state. Findings suggest that the percentage of white and female survey respondents is similar to that of the overall population of MIPCD program participants. The one exception is the state of California. Fifty-nine percent of survey respondents were female compared with about 70% of the overall population of MIPCD program participants.

Overall, survey respondents were happy with the incentives. Most survey respondents strongly agreed that they liked getting incentives for taking good care of their health (78%), they were happy with the incentives overall (75%), the incentives were fair (73%), they were happy with how often they got incentives (67%), the incentives helped them set goals and work toward them (66%), and the incentives helped them make positive changes in their life (66%; Table 2).

Bivariate analyses showed program and demographic characteristics were significantly associated with satisfaction with and perceived impact of incentives. Respondents who reported greater satisfaction and perceived impact were those who participated in programs that had the personal health goals focus (i.e., Texas program), were delivered both in person and by telephone, provided flexible wellness accounts, offered process incentives alone, and had higher incentive magnitude (Appendix Tables 4 and 5, available online). Sex, education, and receipt of disability or Supplemental Security Income significantly predicted satisfaction with incentives, whereas race and sex significantly predicted perceived impact of incentives (Appendix Tables 6 and 7, available online). Although males and females both strongly agreed that incentives helped them make positive changes in life (66% for both), males were more likely to somewhat or strongly disagree (11% vs 8% for females, p=0.012; Appendix Table 7, available online).

Multivariate results showed that respondents' sex and employment status significantly predicted satisfaction with incentives, but not impact of incentives (Table 3). Female respondents were more likely to report higher satisfaction with incentives (all measures) compared with male respondents. Employed respondents were more likely than unemployed respondents to report higher agreement that they were happy with incentives overall and that incentives were fair. Race significantly predicted perceived impact of incentives, but not satisfaction with incentives. Black respondents were more likely than white respondents to report higher agreement that the incentives helped set goals and work toward them.

Respondents who participated in programs delivered by telephone were more likely to have higher agreement with three measures of satisfaction with incentives compared with respondents who participated in programs delivered in person only. Respondents who participated in programs delivered both in person and by telephone were more likely to have higher agreement with both measures of perceived impact of incentives compared with respondents who participated in programs delivered in person only.

Incentive form was a significant predictor of satisfaction with incentives, but not impact of incentives. Respondents who participated in programs that provided points redeemable for incentives were more likely to have lower agreement with three measures of satisfaction with incentives compared with respondents who participated in programs that provided money-valued incentives. Incentive target was not significant in any models.

Although incentive magnitude was significant in all models, the dollar amount that made a significant difference varied by outcome. Respondents who received incentives valued >$25 were more likely to have higher agreement that they were happy with how often they got incentives, compared with respondents who received incentives valued $0 to <$25. Respondents who received incentives valued >$100 were more likely to have higher agreement that they were happy with the incentives overall, that the incentives are fair, and that the incentives made an impact (both measures), compared with respondents who received incentives valued $0 to <$25. Respondents who received incentives valued >$2,500

Table 3. Summary of Ordinal Proportional Odds Models of Outcomes on Satisfaction With and Perceived Impact of Incentives

Characteristic	Respondent liked getting rewards or incentives for taking good care of health, OR (95% CI)	Respondent happy with rewards or incentives overall, OR (95% CI)	Respondent happy with how often got rewards or incentives, OR (95% CI)	Rewards or incentives are fair, OR (95% CI)	Rewards or incentives helped set goals and work toward them, OR (95% CI)	Rewards or incentives helped make positive changes in life, OR (95% CI)
Program delivery method						
In person	ref	ref	ref	ref	ref	ref
Telephonic	1.57 (0.80, 3.06)	**1.95 (1.21, 3.16)**	**1.75 (1.12, 2.73)**	**1.77 (1.10, 2.84)**	1.13 (0.68, 1.89)	1.33 (0.79, 2.21)
Both in person and telephonic	1.56 (0.99, 2.46)	1.29 (0.93, 1.80)	1.18 (0.87, 1.60)	1.36 (0.99, 1.87)	**1.45 (1.00, 2.08)**	**1.54 (1.06, 2.24)**
Incentive target						
Process incentives alone	ref	ref	ref	ref	ref	ref
Outcome incentives alone	0.74 (0.41, 1.34)	0.77 (0.45, 1.31)	0.79 (0.47, 1.32)	0.68 (0.40, 1.14)	0.95 (0.55, 1.65)	0.80 (0.47, 1.37)
Process and outcome incentives	0.94 (0.60, 1.46)	0.88 (0.60, 1.28)	0.95 (0.67, 1.35)	0.80 (0.55, 1.15)	1.02 (0.66, 1.56)	0.99 (0.64, 1.52)
Incentive form						
Money valued incentives	ref	ref	ref	ref	ref	ref
Flexible wellness account	1.01 (0.37, 2.75)	1.41 (0.65, 3.05)	1.28 (0.63, 2.60)	0.89 (0.43, 1.83)	1.09 (0.44, 2.68)	0.97 (0.40, 2.35)
Points redeemable for rewards	0.55 (0.18, 1.68)	**0.35 (0.13, 0.94)**	**0.21 (0.08, 0.53)**	**0.30 (0.12, 0.80)**	1.24 (0.42, 3.66)	0.87 (0.31, 2.47)
Dollar amount of incentive received						
$0–<$25	ref	ref	ref	ref	ref	ref
$25–<$100	1.01 (0.66, 1.54)	1.45 (0.99, 2.12)	**1.74 (1.22, 2.48)**	1.31 (0.90, 1.91)	1.07 (0.76, 1.52)	1.26 (0.89, 1.79)
$100–<$400	1.13 (0.73, 1.75)	**2.20 (1.54, 3.14)**	**2.26 (1.62, 3.16)**	**1.89 (1.34, 2.68)**	**1.56 (1.06, 2.30)**	**1.67 (1.14, 2.44)**
$400–<$2,500	1.90 (0.97, 3.71)	**2.42 (1.39, 4.22)**	**3.16 (1.87, 5.34)**	**2.06 (1.19, 3.57)**	**3.19 (1.69, 6.04)**	**3.22 (1.73, 5.97)**
≥$2,500	**3.44 (1.25, 9.52)**	**3.36 (1.42, 7.99)**	**4.27 (1.94, 9.42)**	**4.82 (2.10, 11.06)**	**4.37 (1.76, 10.84)**	**6.02 (2.47, 14.65)**
Age, years						
≤44	ref	ref	ref	ref	ref	ref
45–52	0.89 (0.65, 1.24)	0.89 (0.65, 1.21)	1.08 (0.82, 1.42)	0.99 (0.73, 1.33)	1.11 (0.84, 1.48)	1.01 (0.76, 1.34)
53–58	0.96 (0.68, 1.36)	0.93 (0.67, 1.28)	1.11 (0.83, 1.49)	0.95 (0.70, 1.29)	0.94 (0.70, 1.26)	0.94 (0.70, 1.25)
≥59	0.88 (0.64, 1.21)	0.86 (0.63, 1.16)	1.23 (0.94, 1.63)	1.04 (0.78, 1.40)	0.97 (0.73, 1.28)	1.05 (0.79, 1.39)
Sex						
Male	ref	ref	ref	ref	ref	ref
Female	**1.32 (1.05, 1.67)**	**1.59 (1.28, 1.98)**	**1.42 (1.16, 1.74)**	**1.29 (1.04, 1.60)**	1.08 (0.88, 1.33)	1.10 (0.90, 1.35)
Married						
No	ref	ref	ref	ref	ref	ref
Yes	0.93 (0.71, 1.22)	1.09 (0.83, 1.41)	1.05 (0.83, 1.34)	1.18 (0.91, 1.54)	1.21 (0.94, 1.54)	1.12 (0.88, 1.42)
Education						
High school graduate or GED	ref	ref	ref	ref	ref	ref
Less than high school graduate or GED	1.07 (0.79, 1.44)	1.03 (0.77, 1.37)	1.11 (0.84, 1.45)	0.99 (0.75, 1.32)	1.03 (0.79, 1.34)	1.13 (0.87, 1.48)
Some college or 2-year college degree	1.16 (0.88, 1.53)	0.93 (0.72, 1.21)	0.86 (0.67, 1.09)	0.96 (0.74, 1.24)	0.89 (0.70, 1.13)	1.04 (0.82, 1.32)
4-year college degree or more	1.04 (0.68, 1.60)	0.93 (0.62, 1.41)	0.71 (0.49, 1.04)	0.75 (0.51, 1.11)	0.90 (0.62, 1.31)	0.80 (0.55, 1.15)

(*continued on next page*)

Table 3. Summary of Ordinal Proportional Odds Models of Outcomes on Satisfaction With and Perceived Impact of Incentives (*continued*)

Characteristic	Respondent liked getting rewards or incentives for taking good care of health, OR (95% CI)	Respondent happy with rewards or incentives overall, OR (95% CI)	Respondent happy with how often got rewards or incentives, OR (95% CI)	Rewards or incentives are fair, OR (95% CI)	Rewards or incentives helped set goals and work toward them, OR (95% CI)	Rewards or incentives helped make positive changes in life, OR (95% CI)
Employed full- or part-time						
No	ref	ref	ref	ref	ref	ref
Yes	0.95 (0.72, 1.26)	**1.34 (1.01, 1.76)**	1.25 (0.97, 1.61)	**1.31 (1.00, 1.72)**	1.07 (0.83, 1.36)	1.00 (0.78, 1.27)
Race						
White alone	ref	ref	ref	ref	ref	ref
Black alone	1.04 (0.79, 1.37)	1.02 (0.79, 1.31)	1.09 (0.86, 1.38)	0.87 (0.68, 1.11)	**1.32 (1.04, 1.68)**	1.26 (0.99, 1.60)
Other	1.07 (0.76, 1.50)	1.23 (0.88, 1.72)	1.03 (0.77, 1.40)	1.10 (0.79, 1.52)	1.30 (0.96, 1.75)	1.27 (0.94, 1.72)
Ethnicity						
Not Hispanic or Latino	ref	ref	ref	ref	ref	ref
Hispanic or Latino	0.72 (0.50, 1.03)	1.09 (0.77, 1.55)	1.09 (0.79, 1.50)	1.00 (0.72, 1.40)	1.08 (0.78, 1.50)	1.08 (0.78, 1.48)

Note: Boldface indicates statistical significance ($p<0.05$).

were more likely to have higher agreement that they liked getting incentives for taking good care of their health, compared with respondents who received incentives valued $0 to <$25.[d]

An estimated model predicted the marginal probabilities of reporting higher satisfaction with and perceived impact of incentives by setting one predictor to a specific value for all respondents, while keeping the values of other predictors unchanged. The averages of the predicted probabilities over all respondents at this specific value were compared with those at a value selected as reference. Changes were plotted in the model-predicted marginal probabilities of disagreeing, somewhat agreeing, and strongly agreeing with satisfaction with and perceived impact of incentives for the categories of the dollar amount of the incentive received relative to incentive amounts of $0 to <$25 (Figure 1). For each outcome, if all participants were given an incentive in a category of higher amounts, and their other characteristics used as model covariates were kept unchanged, the probability of disagreeing and somewhat agreeing would decrease, but the probability of strongly agreeing would increase. In the margin plot for the outcome "happy with how often got incentives" (Figure 1A), both the decreases and the increases were significant for the categories of $25 to <$100 or higher amounts, as indicated by their 95% CIs below or above zero. Regarding the outcome "happy with incentives overall" (Figure 1B), significant changes were observed for the category of incentive amounts as low as $100 to <$400. Similar trends were apparent for the outcome "incentives are fair" and both measures of the impact of incentives. Regarding the outcome "respondent liked getting incentives for taking good care of health" (Figure 1C), significant changes were only observed for the category ≥$2,500.

DISCUSSION

This study found MIPCD participants were satisfied with incentives. Most survey respondents strongly agreed that they liked getting incentives for taking care of their health, they were happy with the incentives overall, and the incentives were fair. Participants had somewhat lower satisfaction with how often they received incentives.

Program delivery method significantly predicted three measures of satisfaction with incentives, with higher satisfaction among participants in telephone programs compared with in-person programs. However,

[d]Texas and New Hampshire were the only two states in which it was possible to earn ≥$2,500 in incentives.

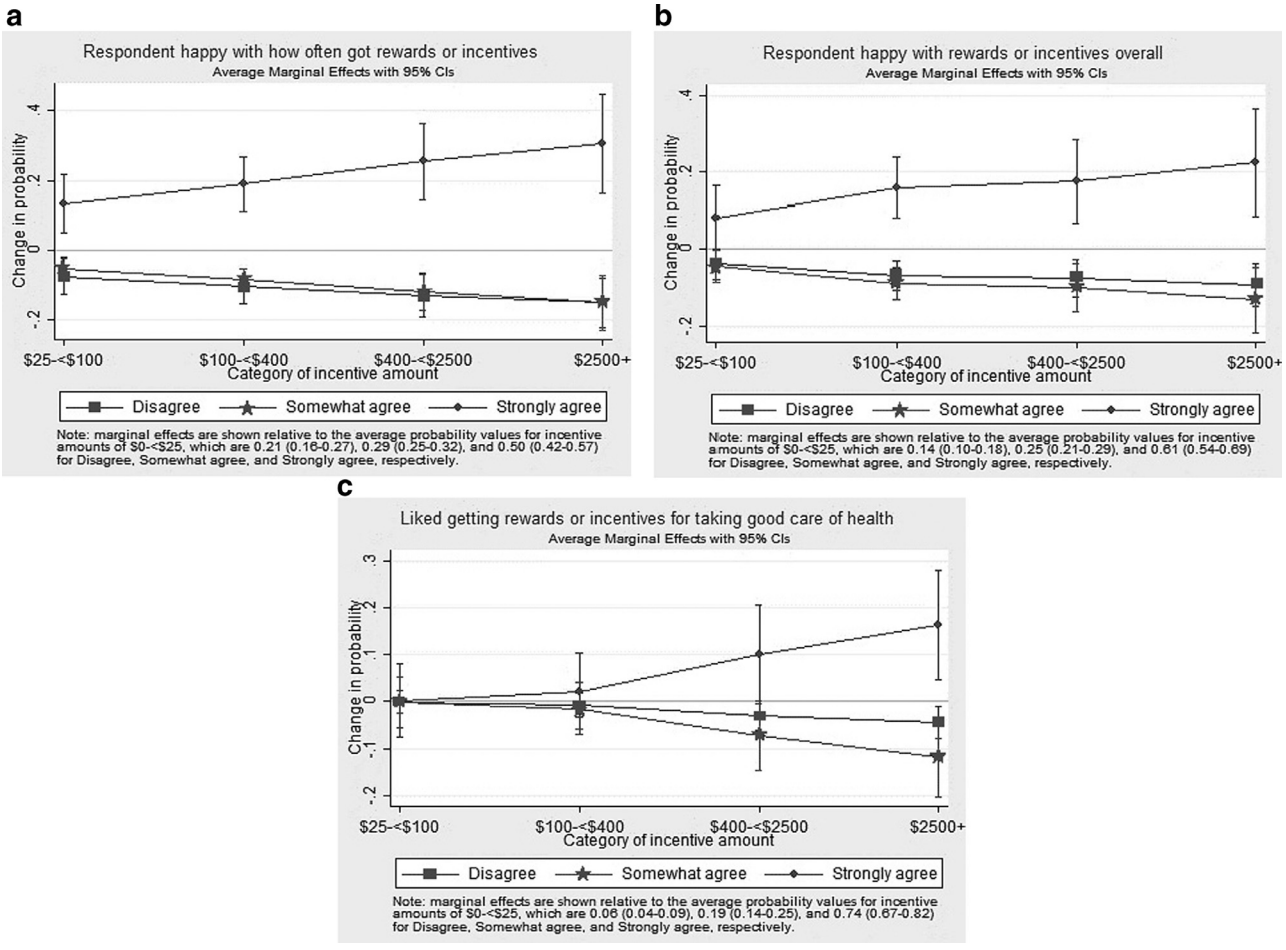

Figure 1. Ordinal proportional odds model of satisfaction with and perceived impact of incentives: average marginal effects, change in predictive probability for each category of incentive amount relative to reference category of $0–<$25.

participants in programs delivered both in person and by telephone were more likely to perceive a positive impact of incentives. The higher satisfaction with incentives for participants in telephone programs may be because these participants found it easy to earn incentives (e.g., less time, more access). The greater perceived impact of incentives for participants in programs delivered both in person and by telephone may be because these participants had more opportunities to engage with program staff and receive support on how to use incentives to benefit their health.

Incentive form significantly predicted satisfaction with incentives but not of incentive impact. Participants receiving points redeemable for rewards were less satisfied compared with those receiving money-valued incentives. This finding differs from previous literature that found positive results for programs that offered coupons (80%), followed by cash (73%), free or reduced-cost medical services (67%), lottery (60%), and gifts (57%).[8] Because points redeemable for rewards are like coupon incentives, points redeemable for rewards may be just as effective as money-value incentives—if the program were implemented differently. In MIPCD, the points redeemable for rewards program often required participants to access a computer to redeem rewards; eliminating this requirement may enhance access to incentives and improve satisfaction with incentives.

Incentive magnitude significantly predicted satisfaction with and perceived impact of incentives. Receiving incentives valued at $25 to less than $100 (compared with less than $25) was associated with respondents being happy with how often they got incentives. Receiving incentives valued at $100 to less than $400 (compared with less than $25) significantly predicted all measures of perceived impact of incentives, and two of four measures of satisfaction with incentives. Receiving incentives valued at $2,500 or more (compared with less than $25) was associated with respondents liking getting incentives for taking good care of their health. Although previous studies generally found that higher value incentives result in greater behavior change,[8,12–14] results suggest that program participants can be satisfied with

smaller incentive amounts, and modest incentive amounts can have a self-reported impact on behavior change.

Limitations

In terms of limitations, this study reflects the perceptions of MIPCD program participants that provided their feedback via survey. Because of sample bias, survey respondents may not fully represent participants in the sample; the survey did not engage participants that spoke languages other than English or Spanish. The limited diversity in programs may prevent disentangling which factor or combination of factors contributed to high satisfaction. Given the limited diversity of programs and the small overall program sizes, sample sizes for specific subgroups (e.g., participants receiving points redeemable for rewards) were small.

CONCLUSIONS

This study provides important insights into the design and effectiveness of incentive programs. MIPCD programs implemented chronic disease prevention programs designed to assess the effectiveness of incentives for changing behaviors and health outcomes of Medicaid beneficiaries. Findings suggest that program delivery method, incentive form, and incentive magnitude are important characteristics to consider when designing incentive programs. Incentive programs can consider providing modest incentive amounts to achieve self-reported impact on behavior change.

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All authors contributed to drafting the manuscript. Thomas Hoerger, Katherine Treiman, and Stephanie Teixeira-Poit designed the survey data collection. Stephanie Teixeira-Poit and Lei Li conducted the quantitative analyses. Katherine Treiman, Stephanie Teixeira-Poit, and Lei Li interpreted the results.

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SUPPLEMENTAL MATERIAL

Supplemental materials associated with this article can be found in the online version at https://doi.org/10.1016/j.amepre.2018.11.029.

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