

Cardiac Rehabilitation Adherence Strategy
Incorporating Motivational and Financial Incentives

Subject	Content
Definition/Description	<p>Incentives are particularly powerful at promoting cardiac rehabilitation (CR) attendance, increasing treatment completion, and improving adherence rates.</p> <p>Increasing adherence is particularly important when benefits appear to be dose-dependent (increase as number of sessions completed increases) as appears to be the case in CR.¹</p>
Key Terms/ Abbreviations	<ul style="list-style-type: none"> • CR = cardiac rehabilitation
Background and Purpose	<p>The use of incentives is based on behavioral economic principles:</p> <ul style="list-style-type: none"> • People have predictable biases that affect their behavior. They overestimate current “costs” (discomfort and inconvenience of attending CR) and are not well influenced by future benefits (improved health).² • Incentives provide an immediate benefit to attending to help overcome initial barriers until longer-term benefits start, such as improved fitness. <p>Incentives are a potentially powerful tool and thus may also prove cost-effective when applied to CR, as further increases in participation are expected to reduce health care costs.³</p> <p>Points to consider to use incentives effectively:</p> <ul style="list-style-type: none"> • Incentives must be delivered immediately after desired behavior (e.g. at the end of a completed exercise session) to be maximally efficacious. • Generally the higher value the incentive the greater the effect. • Efficacy can also be maximized by offering things of use to most people (e.g. gift/gas cards) or by offering incentives that can also help overcome barriers (gas cards/parking passes/co-pay waivers).
Relevant Metrics	Number of CR sessions completed.
Process Description/ Processes Impacted	<p>These are the steps to incorporating motivational and financial incentives for CR participation:</p> <ol style="list-style-type: none"> 1. Obtain support from program director to implement program 2. Verify data on sessions attended prior to implementation (identify baseline attendance levels) 3. Identify staff member(s) in charge of implementation

	<ol style="list-style-type: none"> 4. Chose population of interest (is this being done for everyone? Particularly at-risk patients?) 5. Identify and obtain incentives being used (gift cards, parking passes, etc.) 6. Pilot with 5-10 patients 7. Check processes/efficacy 8. Implement broadly <p>Use of incentives to improve CR adherence has been tested in the following two studies.</p> <ol style="list-style-type: none"> 1. In Gaalema et al. a clinical trial with low-socioeconomic patients (Medicaid-enrollees), participants were randomized to either a control condition or to a condition where they can earn financial incentives for completing CR sessions (see supplemental materials below). While the trial is on-going pilot data indicate this may be a promising intervention to increase participation and adherence to CR: <ol style="list-style-type: none"> a. 77% of pilot intervention patients initiated CR compared to 25% of matched patients in the control group.⁴ b. Those receiving incentives completed 31 sessions compared to the 13.6 sessions completed in the control group.⁴ c. 80% of patients in the intervention group completed the CR program compared to 8% of patients in the control group.⁴ 2. In Pack et al., the use of prizes for completing every 6 sessions (parking passes, t-shirts, water bottles) were used as incentives to improve CR adherence as a quality improvement project. This project compared outcomes from >1,000 patients in the incentive group to a historical control group: <ol style="list-style-type: none"> a. Median number of attended CR sessions improved from 12 to 20.⁵ b. CR completion rate improved from 14% to 39%.⁵
Key People/ Departments to Engage	<ul style="list-style-type: none"> • Support from director of program and clinic staff. • Staff member(s) to track attendance and distribute incentives.
Data Sources	Clinical record of number of CR sessions completed.
Cost Concerns	A source for the incentives/gift cards will need to be identified. Staff time is needed to track and distribute incentives. A cost-effectiveness analysis of this intervention is on-going but likely staff time will be made up for by increased session attendance.
Timeline	Can be implemented fairly quickly once appropriate staff member and funds are identified.
Supporting Material	See the following supplemental materials:

	<ul style="list-style-type: none"> • Case Study – University of Vermont. Financial Incentives to Promote Cardiac Rehabilitation Participation and Adherence Among Medicaid Patients <p>See the following supplemental materials below:</p> <ul style="list-style-type: none"> • Financial Incentives to Promote Cardiac Rehabilitation Participation and Adherence Among Medicaid Patients <ul style="list-style-type: none"> ○ Scenario 1 – Sample Financial Incentives Schedule to Increase CR Participation and Adherence in Lower-SES Patients – Attends All 36 Visits ○ Scenario 2 – Sample Financial Incentives Schedule to Increase CR Participation and Adherence in Lower-SES Patients – Skipped Visits • Sample tracking sheet • Commonly requested gift card list (low-income)
<p>References</p>	<ol style="list-style-type: none"> 1. Hammill BG, Curtis LH, Schulman KA, Whellan DJ. Relationship Between Cardiac Rehabilitation and Long-Term Risks of Death and Myocardial Infarction Among Elderly Medicare Beneficiaries. <i>Circulation</i>.2010;121(1):63-70. 2. Ades PA, Gaalema DE. Coronary heart disease as a case study in prevention: Potential role of incentives. <i>Preventive Medicine</i>. 2012;55(Suppl1):S75-S79. 3. De Gruyter E, Ford G, Stavreski B. Economic and social impact of increasing uptake of cardiac rehabilitation services—a cost benefit analysis. <i>Heart, Lung and Circulation</i>. 2016;25(2):175-83. 4. Gaalema DE, Savage PD, Rengo JL, Cutler AY, Higgins ST, Ades PA. Financial incentives to promote cardiac rehabilitation participation and adherence among Medicaid patients. <i>Preventive Medicine</i>. 2016;92:47-50. 5. Pack QR, Johnson LL, Barr LM, Daniels SR, Wolter AD, Squires RW, Perez-Terzic CM, Thomas RJ. Improving cardiac rehabilitation attendance and completion through quality improvement activities and a motivational program. <i>Journal of cardiopulmonary rehabilitation and prevention</i>. 2013;33(3):153.

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Financial Incentives to Promote Cardiac Rehabilitation Participation and Adherence Among Medicaid Patients

Gaalema DE, Savage PD, Rengo JL, Cutler AY, Higgins ST, Ades PA. Financial incentives to promote cardiac rehabilitation participation and adherence among Medicaid patients. Preventive Medicine. 2016;92:47-50.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4985497/pdf/nihms760671.pdf>

- Schedule below adjusted based on ongoing clinical trial.
- Initial visit attendance yields \$4
- Each subsequent visit yields an additional \$2 up to \$50 per session
- If a session is missed without a valid reason, payment resets and the incentive value starts at \$4 again. If two sessions successfully attended after reset, schedule goes back to where it was prior to reset.

Scenario 1 – Sample Financial Incentives Schedule to Increase CR Participation and Adherence in Lower-SES Patients – Attends All 36 Visits

Total Potential Incentives: \$1,248

Visit	Incentive	Visit	Incentive	Visit	Incentive
1	\$4	13	\$28	25	\$50
2	\$6	14	\$30	26	\$50
3	\$8	15	\$32	27	\$50
4	\$10	16	\$34	28	\$50
5	\$12	17	\$36	29	\$50
6	\$14	18	\$38	30	\$50
7	\$16	19	\$40	31	\$50
8	\$18	20	\$42	32	\$50
9	\$20	21	\$44	33	\$50
10	\$22	22	\$46	34	\$50
11	\$24	23	\$48	35	\$50
12	\$26	24	\$50	36	\$50

Scenario 2 – Sample Financial Incentives Schedule to Increase CR Participation and Adherence in Lower-SES Patients – Occasional Missed Visits

Total Potential Incentives: \$828

Visit	Incentive	Visit	Incentive	Visit	Incentive
1	\$4	13	skipped	25	\$40
2	\$6	14	\$4	26	\$42
3	\$8	15	\$6	27	skipped
4	\$10	16	\$28	28	\$4
5	\$12	17	\$30	29	\$6
6	\$14	18	\$32	30	\$44
7	\$16	19	\$34	31	\$46
8	\$18	20	\$36	32	\$48
9	\$20	21	\$38	33	\$50
10	\$22	22	skipped	34	\$50
11	\$24	23	\$4	35	\$50
12	\$26	24	\$6	36	\$50

Sample Tracking Sheet

Inc 1	G																			
Inc 2	G															G				
Inc 3	G										G									
Inc 4	G					G					G					G				
Inc 5	G										G									
Inc 6	G					G					G					G				
Inc 7	G					G					G					G				
Inc 8	G					G					G					G				
Inc 9	G					G					G					G				
Inc 10	S					G					G					G				
Inc 11	G					G					G					G				
Inc 12	G					G					G					G				
Inc 13	G					G					G					G				
Inc 14	G										G									
Inc 15	G										G									
Inc 16	G										G									
Inc 17	S										G									
Inc 18	D R O P O U T					D R O P O U T					D R O P O U T					D R O P O U T				
Inc 19	D R O P O U T					D R O P O U T					D R O P O U T					D R O P O U T				
Inc 20	D R O P O U T					D R O P O U T					D R O P O U T					D R O P O U T				
Inc 21	S					D R O P O U T					D R O P O U T					D R O P O U T				
Inc 22	N E V E R S T A R T E D					N E V E R S T A R T E D					N E V E R S T A R T E D					N E V E R S T A R T E D				
Inc 23	N E V E R S T A R T E D					N E V E R S T A R T E D					N E V E R S T A R T E D					N E V E R S T A R T E D				
Inc 24	N E V E R S T A R T E D					N E V E R S T A R T E D					N E V E R S T A R T E D					N E V E R S T A R T E D				
Inc 25	N E V E R S T A R T E D					N E V E R S T A R T E D					N E V E R S T A R T E D					N E V E R S T A R T E D				
Inc 26	N E V E R S T A R T E D					N E V E R S T A R T E D					N E V E R S T A R T E D					N E V E R S T A R T E D				
Inc 27	G					G					G					G				

Commonly Requested Gift Cards (for low-income populations)

- Gas cards
- Walmart
- Grocery store
- Department stores (TJ Maxx, Kohls)
- Drug store/pharmacy