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Increasing Cardiac Rehabilitation Participation-A Community Health Insurance Plan's Experience

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Précis: This study, by a community-based health insurance plan, found that increasing cardiac rehabilitation (CR) engagement requires coordinated effort from stakeholders—cardiology providers, hospitals, CR providers and health plans.

Summary Statement

- Cardiac rehabilitation rates are low nationwide, despite the known benefits. A community-based health insurance plan implemented several evidenced-based initiatives including waiving co-pays, incentivizing providers and covering remote cardiac rehabilitation (RCR) to assess if participation in cardiac rehabilitation (CR) would increase.
- RCR increased CR rates and were additive to facility-based CR (FBCR) rates, suggesting that the introduction of RCR will not displace FBCR.
- Time to enrollment improved overall, driven by improvement in those enrolling in RCR.
- Increasing CR engagement requires coordinated effort from stakeholders—cardiology providers, hospitals, CR providers and health plans.

System Change			
Capital District Physicians' Health Plan (CDPHP) Initiative	**Change Concept**	**Change Ideas**	**CDPHP Implementation/Tools & Resources**
Elimination of Co-Pays	Reduce Cost Sharing Barriers for cardiac rehabilitation (CR) Services	Assist patients with high out-of-pocket costs or economic burden to navigate payment options	Eliminated co-pays where possible
Coverage of Remote Cardiac Rehabilitation (RCR)	Develop Flexible Models That Better Accommodate Patient Needs	Develop hybrid model of home-based and facility-based program that includes key components of CR	Provided RCR option Provided option for members to participate in both facility-based cardiac rehabilitation (FBCR) & RCR (hybrid)

Valued-based Incentives to physicians	Use Clinician Follow-up to Bolster Enrollment or Participation	Engage referring clinicals by providing process reports and completion of program outcomes	Incented cardiology practices (monetarily) to educate patients on the importance of CR and also incentivized cardiology practices for each patient who completed CR
Focus on metrics, specifically HEDIS metrics related to CR	Make CR a Health System Priority	Use CR referral enrollment and participation as quality-of-care indicators	Used HEDIS data to inform implementation activities through the use of data dashboards
	Use Data to Drive Improvements in Referrals to CR	Use performance measures in a quality improvement system Regularly provide dashboard with CR referral metrics, goals, and performance	Performance on HEDIS metrics was shared with cardiology practices and hospitals
	Reduce delay from discharge to 1st CR Appointment	Before hospital discharge establish an early, within 12 days of discharge, outpatient appointment.	Worked with all CR providers on reducing time from discharge to first appointment Implemented CR awareness initiative to help cardiology offices and hospitals educate and refer patients to CR
	Use Clinician Follow-up to Bolster Enrollment or Participation	Engage referring clinicians by providing letters that highlight non-enrolled patients for clinician follow-up Engage referring clinicians by providing progress reports and completion of program outcomes	Provided gap list to large provider groups
Community Education regarding CR to cardiology practices, hospitals, cardiac rehab providers and patients	Educate Patients About the Benefits of Outpatient CR	Use videos to describe your CR program and the impact of CR on health outcomes before hospital discharge or at the beginning of outpatient CR	Developed an educational video on the importance of CR and what a patient's options are. Video could be used in all settings as well as sent to patients for review outside of a healthcare setting.
home-based and facility-based program that	Educate Patients About the Benefits of Outpatient CR	Provide patient education materials that convey CR benefits	Developed education materials for inpatient and outpatient use.
Dedicated staff to identifying and facilitating enrollment in CR	Make CR a Health System Priority	Establish a hospital champion, such as a quality of care leader or CR administrator	Established the following: -physician champion -implementation champion -implementation team (inpatient and outpatient nurse case managers, social workers)
	Make CR a Health System Priority	Engage care team in CR to ensure their buy-in in CR	Inpatient and outpatient care managers worked with providers in cardiology practices and hospitals to improve referral to CR workflows Education (via webinar and in person) was provided to providers in cardiology practices and hospitals
	Incorporate Referral into Standardized Process of Care	Develop a standard process for informing an external CR program of a referred patient Implement standardized paper/faxed referral to CR from an inpatient setting	Worked with virtual CR provider through a portal and with regular touch base meetings to ensure that referred patients were captured
	Incorporate Referral into Standardized Process of Care	Develop and communicate a standardized referral process or policy for patients	Worked with virtual CR provider through a portal and with regular touch base meetings to ensure that referred patients were captured.

	Use Data to Drive Improvement in Referrals to CR	Identify patients who had a cardiac event without a referral to a CR program	Reviewed gap lists monthly.
	Educate Patients about the Benefits of Outpatient CR	Deploy an inpatient "liaison" to help educate, refer, schedule, and enroll eligible patients in outpatient CR	Inpatient care managers educated, referred patients to CR. Members interested in CR sent to CR care manager point team
	Identify Populations at Risk for Low Engagement	Know the characteristics that are predictive of attendance and drop-out to identify patients at particular risk, to offer extra support	Worked with RCR provider who reached out to CDPHP CR liaison to assist with patients who were: unable to be reached, were unwilling to participate, and who had low engagement
	Improve Patient Engagement	Incorporate motivational and financial incentives for meeting goals for session attendance	CDPHP reached out to patients if notified of a member's unwillingness to participate or low engagement
	Incorporate Referral into Standardized Processes of Care for Eligible Patients	Include referral to CR in order sets for appropriate patients; Incorporate into EHR as appropriate	Worked with providers to explore use of EHR tools to automate referrals. Also explored and incorporated, to the extent possible, automation capabilities to flag health plan team members to refer a patient to CR
*Eliminated patient cost share for all groups (commercial, Medicare, Medicaid) but those on high deductible plans.			

Table 1: Capital District Physicians' Health Plan Initiatives in Comparison to the Millions Heart Cardiac Rehab Change Package26

Quarter	Q4 2019			Q1 2020			Q2 2020			Q3 2020			Q4 2020			Q1 2021			Q2 2021			Q3 2021			Q4 2021			Q1 2022			Q2 2022		
Month	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3			
Health Plan Approval for Physician Incentives																																	
Approval for Cost-Share Waivers (Medicaid, Medicare, Commercial)																																	
Contract with Virtual Care Provider																																	
Program Implementation																																	
Year 1 Evaluation																																	

Table 2: Cardiac Rehabilitation Initiative Development and Implementation Timeline

Patient Demographic Characteristics	Total (N=1,762)	FBCR (N=218) % (N)	RCR (N=153) % (N)	No rehab (N=1,391) %(N)	*P*-value
Age (y) Mean SD	61.6 (11.7)	61.3 (10.5)	60.8 (9.06)	61.7 (12.1)	
Age (y) Median (IQR)	62 (55-70)	63 (54-69)	60 (55-66)	62 (55-70)	
Age: <=39	77	7.8 (6)	0 (0)	92.2 (71)	0.0062*
Age: 40-49	157	14.7 (23)	7.6 (12)	77.7 (122)	0.6155
Age: 50-59	484	12.6 (61)	12.2 (59)	75.2 (364)	0.0048*
Age: 60-69	588	13.8 (81)	9.7 (57)	76.5 (450)	0.2129
Age: 70-79	377	11.4 (43)	5.3 (20)	83.3 (314)	0.0201*
Age: 80-89	74	5.4 (4)	6.8 (5)	87.9 (65)	0.1265
Age: 90-99	5	0.0 (0)	0.0 (0)	100.0 (5)	0.5124
Gender					
Female	564	11.9 (67)	8.9 (50)	79.3 (447)	0.9027
Male	1198	12.6 (151)	8.6 (103)	78.8 (944)	0.9027

Diagnoses					
MI	591	2.4 (14)	4.1 (24)	93.6 (553)	<.0001*
PCI	427	8.2 (35)	7.5 (32)	84.3 (360)	0.0043*
MI PCI	329	21.6 (71)	10.9 (36)	67.5 (222)	<.0001*
Valve	150	13.3 (20)	8.0 (12)	78.7 (118)	0.8994
CABG	115	30.4 (35)	20.9 (24)	48.7 (56)	<.0001*
MI CABG	77	33.8 (26)	16.9 (13)	49.4 (38)	<.0001*
CABG Valve	24	29.2 (7)	29.2 (7)	41.7 (10)	<.0001*
MI Valve	18	11.1 (2)	5.6 (1)	83.3 (15)	0.8726
MI PCI CABG	12	25.0 (3)	16.7 (2)	58.3 (7)	0.2129
MI CABG Valve	10	30.0 (3)	10.0 (1)	60.0 (6)	0.2228
PCI CABG	4	25.0 (1)	0.0 (0)	75.0 (3)	0.6464
Transplant	3	33.3 (1)	0.0 (0)	66.7 (2)	0.5002
MI Transplant	1	0.0 (0)	0.0 (0)	100.0 (1)	0.8751
MI PCI CABG Valve	1	0.0 (0)	100.0 (1)	0.0 (0)	0.0052*
Insurance Type					
Medicare	604	12.8 (77)	6.8 (41)	80.5 (486)	0.124
Medicaid	425	7.5 (32)	4.9 (21)	87.5 (372)	<.0001*
Commercial	733	14.9 (109)	12.4 (91)	72.7 (533)	<.0001*

*Statistically significant (P<0.05)
SD: standard deviation, IQR: interquartile range, FBCR: facility-based cardiac rehabilitation, RCR: remote cardiac rehabilitation, MI: myocardial infarction, PCI: percutaneous coronary intervention, Valve: valve procedure, CABD: coronary artery bypass graft.

Table 3: Patient Demographic Characteristics

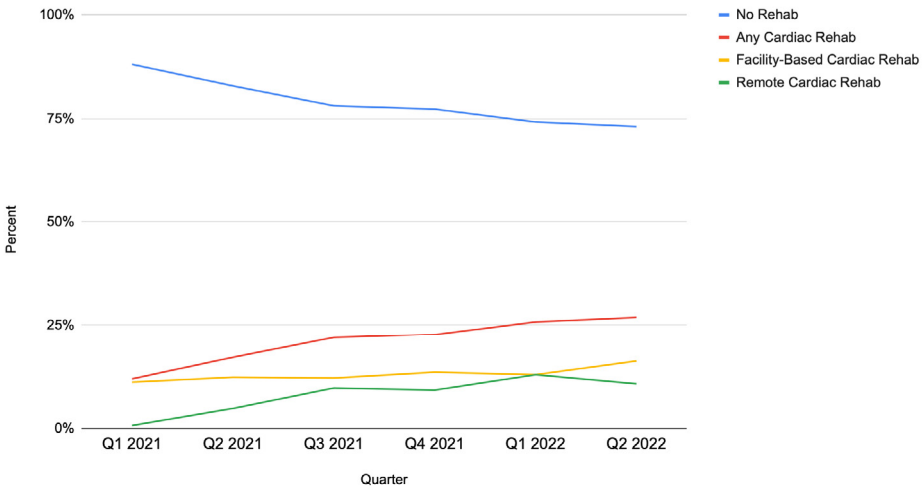

Figure 1: Cardiac Rehabilitation Participation

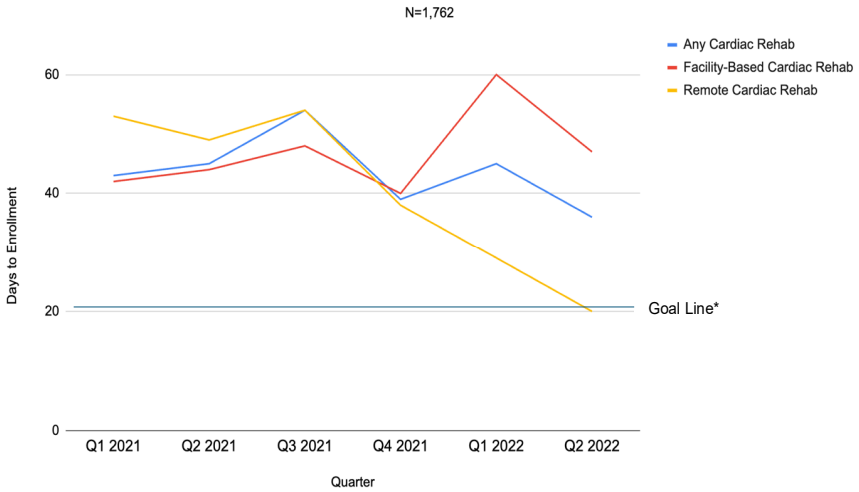

Figure 2: Time to Enrollment

Abstract

Objective

Participation in cardiac rehabilitation (CR), a new HEDIS measure, is low despite known benefits. Barriers are system, provider, and patient related. We assessed the impact of a CR initiative implemented by a community-based, non-integrated, not-for-profit health insurance plan to increase CR.

Study Design

Quality improvement cohort study conducted between January 2021 and June 2022.

Methods

The Capital District Physicians' Health Plan (CDPHP) in Albany, New York, implemented a CR initiative (CRI) to increase participation by 1) eliminating patient cost-share, 2) covering remote CR (RCR), 3) implementing physician value-based incentives, 4) presenting metrics to providers, 5) educating providers and patients, and 6) dedicating staff to enrollment facilitation. Chi-square tests analyzed differences among patients enrolling in facility-based CR (FBCR), RCR, or no CR. Changes in time to enrollment were examined.

Results

Of 1,736 eligible patients, FBCR enrollment increased from 11.1% (32/286) to 16.2% (50/308), RCR from 0.7% (2/286) to 10.7% (33/308), and overall CR from 11.9% (34/286) to 26.9% (83/308) ($P < .0001$) during the data collection period of Q1 2021 to Q2 2022. Time to enrollment changed from 40 to 47 days for FBCR ($P= 0.1792$), 53 to 20 days for RCR ($P < .0001$), and 43 to 36 days overall ($P = 0.3348$) in the same time period. Older patients and those undergoing cardiac procedures were more likely to enroll.

Conclusions

RCR increased CR rates and were additive to FBCR rates, suggesting that the introduction of RCR will not displace FBCR. Time to enrollment improved overall, driven by improvement in those enrolling in RCR. Implementation of a multi-component, multi-level strategy in health plans may be useful for increasing participation in CRprocedures during medical education, simulation-based routines and periodic NR training are required to improve neonatal outcome.

Background

Despite its American Heart Association/American College of Cardiology (AHA/ACC) class 1a recommendation, participation in cardiac rehabilitation (CR) across the United States (US) remains low [1-4]. Only a quarter of patients engage in CR and only a quarter of those complete it, hence it was made a National Committee on Quality Assurance (NCQA) Healthcare Effectiveness Data and Information Set (HEDIS) measure [1-5]. A 2022 study of Medicare beneficiaries in 2017 revealed that only 28.6% of patients completed > 1 session within a year of discharge from a qualifying event and of those, only 27.6% completed all 36 sessions [4]. New York State (NYS) ranked second to last nationally in the study with only 15.6% of patients completing > 1 session. Million Hearts, a national initiative jointly led by the Centers for Disease Control and Prevention (CDC) and the Centers for Medicare and Medicaid Services (CMS) set a goal to increase CR participation to 70% [6]. The evidence-based benefits of CR attributed to fitness and diet/nutrition and physiologic effects have shown a 13% to 24% reduction in total mortality over 1-3 years, and a 31% decrease in rehospitalizations over one year [7-12].

Additionally, patients experience an increase in their physical function and overall quality of life [7-11] Common barriers to patients attending CR are lack of accessible locations, travel, work, and co-pays [1-11,13]. Because the benefits of CR are dose related, adherence and completion of the regimen are key [14-17]. While CR is indicated for most cardiac patients, often those with more acute disease get referred and enroll, while those with chronic conditions, such as heart failure, are less frequently referred [1-4,18].

COVID-19 created a need for alternate CR delivery models.19 While remote cardiac rehabilitation (RCR) solutions have been available for decades and show similar results to facility-based cardiac rehabilitation (FBCR) in eligible patients, there has been a call to evaluate their effectiveness in varied health systems and among diverse populations, as most studies have been conducted within the Kaiser and Veterans Affairs (VA) systems [19-26].

A comprehensive search of the literature revealed no studies in the US of a non-integrated health plan addressing CR participation. This quality improvement cohort study examines the impact of CR improvement efforts, including the introduction of RCR, introduced by a health insurance plan within a non-integrated health system. Specifically, we examine the impact on referral, enrollment and participation rates in CR.

Methods

This quality improvement cohort study followed the STrengthening the Reporting of OBservational studies in Epidemiology (STROBE) and Standards for QUality Improvement Reporting Excellence (SQUIRE) reporting guidelines. The Sterling Institutional Review Board reviewed this initiative; patient informed consent was not required p [27]. Context The Capital District Physicians' Health Plan (CDPHP) is a physician-founded, not-for-profit community health insurance plan

serving approximately 40% of 1.1 million people in the Capital Region of New York State [28]. Plan membership consists of commercial (60%), Medicare (10%), Medicaid (20%) and administrative services (ASO) (10%) members. At the time of the study, CDPHP was a non-integrated health plan.

In 2019, CDPHP examined the use of CR and determined that only 16% of eligible members had at least one CR visit (per the HEDIS definition)5, with 15% of those completing all their CR sessions. Based on these findings, CDPHP launched a cardiac rehabilitation initiative (CRI). Between October 2019 and June 2022, CDPHP reviewed and implemented evidence-based strategies to increase referral, enrollment, and adherence to CR based on literature including the CDC's Cardiac Rehabilitation Change Package (Table 1) [27-34]. A multidisciplinary team of health plan physicians, actuarial staff, care managers and quality improvement staff was created in conjunction with the New York State Department of Health (NYS DOH). The following efforts were implemented 1) elimination of patient cost-share (co-pays/co-insurance), 2) coverage of RCR , 3) valued-based physician incentives, 4) focus on metrics, 5) provider and patient engagement efforts and 6) dedicated staff identifying and facilitating enrollment, including gap lists review. The CRI officially launched on April 1st 2021. The project was part of NYS DOH's Diabetes and Heart Disease and Control program funded by the CDC (DP10-1815) [35].

Table 2 displays the set up and implementation timeline. CRI development and implementation took a total of 18 months from program conception to program implementation (October 2019-March 2021). Filing changes for cost share waivers with the governing bodies for Medicaid, Medicare and commercial took 9 months. Contracting with Movn Health took 4 months. Implementation of the change package strategies occurred simultaneously from Q2 2021 through Q2 2022.

Elimination of Patient Cost Share

Internal review of CR usage and a cost-benefit analysis led to eliminating patient cost-share (co-pays/co-insurance) where possible. Some plans such as high deductible plans and administrative-services only plan, did not allow waivers without certain conditions. CDPHP filed intent to waive member cost-share with CMS for Medicare patients, and the New York State Department of Financial Services for commercial offerings.

Coverage of Remote Cardiac Rehabilitation (RCR)

CDPHP contracted with Movn Health, a national RCR provider, to deliver CR. The Movn program is based on the MULTIFIT model [23,24,36]. Patients receive a cellular enabled weight scale, blood pressure cuff, smart watch (Apple Watch or Garmin), resistance bands, education material, and app access to track progress and communicate with their care manager. Patients were set up with an exercise regimen, counseling and one-on-one counseling sessions for 12 weeks, followed by 9 months of monitoring. Members could switch between FBCR and RCR once during the program. Movn was primarily set to serve low- to moderate-risk patients per the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR) stratification, though exceptions for higher-risk patients were made with physician approval [37].

Value Based Incentives to Physicians

To improve CR referrals, CDPHP developed three provider incentives: educating patients on CR's importance, facilitating enrollment, and encouraging completion. Incentives were offered to cardiology practices in CDPHP's larger quality and specialty value-based programs. Beyond negotiated payments, practices meeting CR benchmarks were eligible for additional incentives.

Focus on Metrics

To monitor improvements in enrollment, participation, and completion of CR, CDPHP adopted six key metrics, a blend of the American Heart Association/American College Cardiology Clinical Performance and Quality Metrics for Cardiac Rehabilitation [38]. and the HEDIS Cardiac Rehabilitation Engagement (CRE) metrics5: 1. Enrollment in CR (first visit) 2 [39]. Time to enrollment in CR (from qualifying event to first visit—goal 21 days) 3 [5]. Initiation (>2 visits), 4 [5]. Engagement 1 (> 12 visits), 5[5]. Engagement 2 (> 24 visits), and 6 [5]. Achievement (>36 visits) [5,39]. Data was shared with providers quarterly to show performance relative to peers.

Provider & Patient Engagement

An educational campaign was rolled out on the CRI program to hospital systems, cardiology practices (including cardiac surgery), FBCR programs, and patients. Patients were educated via newsletters, blogs and the CDPHP website. A patient education video outlining the benefits of CR and the options of FBCR and RCR was developed for hospitals and cardiology practices (see Appendix A). All providers received individualized education in person or via or web conference. Providers were encouraged to provide eligible patients the option to attend FBCR or RCR.

CDPHP established frameworks to assess CR referral, enrollment and participation. Review of these frameworks shaped the content for monthly follow-up visits with providers which included baseline data review, current referral processes and setting forth progressive next steps. Detailed workflows and tools used with providers can be found in Appendices B-D.

A patient satisfaction survey was administered over the phone to understand referral patterns and ensure patient satisfaction with FBCR and RCR (see Appendix E).

Staff for Identification and Facilitation of Enrollment in CR

CDPHP established a physician champion for project oversight. A project lead was also designated to educate inpatient care managers (CDPHP staff in highest volume hospitals) and outpatient care managers (staff managing patients post hospital discharge) on how to identify CR eligible patients and facilitate enrollment in FBCR or RCR based on eligibility and preference. Additionally, the project lead coordinated referrals if needed, monitored daily admission/discharge feeds and reviewed gap lists.

Study Population

Data were collected on 1,762 CDPHP members >18 years, discharged from January 1st 2021-June 30th 2022 with the following diagnoses: myocardial infarction (MI), percutaneous coronary intervention (PCI), valve procedure (Valve), coronary artery bypass graft (CABG), transplant or a combination of these procedures. Data collection of the specific measures began in Q1 2021, one quarter before the intervention began (Q2 2021); data prior to Q1 2021 were not available. CDPHP members who were Medicare, Medicaid and commercial were included. Since the population of interest were those considered for HEDIS measures, patients with heart failure and/or discharged to hospice or palliative care were excluded.

Statistical Analyses

We examined the sociodemographic and clinical characteristics of the cohort using means (standard deviation) and medians (interquartile range) for continuous variables and proportions for dichotomous variables. We compared Q1 2021 to Q2 2022. Of the five monitored metrics, we assessed 1) enrollment in CR and 2) time to enrollment in CR, as these measures were readily available at the time of manuscript preparation. Chi-square was employed to assess distributional differences among patient characteristics stratified by type of CR, and to assess differences in participation in CR over time. A trend line was fit to the time to enrollment to assess whether the trend over time was significant. SAS Enterprise Guide version 7.15 (SAS Institute, Inc., Cary, NC) was used for all analyses. P-value <0.05 was considered statistically significant.

Results

Of the 1,762 patients included between Q1 2021 and Q2, 2022., 218 (12.4%) were discharged to FBCR, 153 (8.7%) to RCR and 1,391 (78.9%) did not receive any form of CR. Table 3 details all the patient sociodemographic characteristics. The mean age was 61.6 with 68.0% of the cohort being male. Myocardial infarction (33.5%) was the most common diagnosis and the insurance breakout was as follows: Medicare (34.2%), Medicaid (24.1%) and commercial (41.6%). Approximately 85% of the patients included in the cohort had no cost share.

Enrollment in FBCR went from 11.1% (32/286) (Q1, 2021) to 16.2% (50/308) (Q2, 2022). Enrollment in RCR went from .7% (2/286) (Q1, 2021) to 10.7% (33/308) (Q2, 2022) respectively. Total enrollment in CR increased from 11.9% (34/286) (Q1, 2021) to 26.9% (83/308) (Q2, 2022) (P <.0001) (see Figure 1). Note the RCR offering started in Q2; however, some patients who were discharged with qualifying diagnoses in Q1 2021 received the treatment in Q2 2021 and are captured in the data. Between Q1, 2021 and Q2, 2022 the average time to enrollment in FBCR went from 42 days (Q1 2021) to 47 days (Q2, 2022) (P = 0.1792) while the average time to enrollment for RCR decreased from 53 to 20 days (P < .0001), exceeding the recommended goal line of 21 days set by the AHA/ACC39. Overall, the average time to enrollment decreased by seven days by Q2, 2022 (P = 0.3348) (see Figure 2).

Most patients did not enroll in CR (78.9%; 1391/1762). Compared to other groups, patients < 39 years old enrolled less in CR and were more likely to attend FBCR over RCR if they attended (P = 0.0062); patients between the 50-59 were more likely to attend RCR than FBCR (P = 0.0048); and patients between the ages of 70-79, enrolled more in CR overall and attended FBCR over RCR (P = 0.0201).

Patients with the diagnosis of MI only enrolled in CR less than other groups and this held true across FBCR and RCR (P <.0001); patients with PCI only looked very similar (P = 0.0043); patients with MI followed by PCI enrolled in CR more than other groups and were more likely to attend FBCR than RCR (P <.0001); patients with CABG were more likely to get CR and attend FBCR more than RCR (P <0.0001); patients with MI CABG looked very similar as well (P <0.0001). Lastly, patients with CABG VALVE procedures were the most likely to enroll in CR with distribution of patients going to FBCR and RCR being fairly equal (P <.0001).

Patients with commercial coverage were more likely to enroll in CR than other patients, and twice as likely to participate in RCR than other groups (P <.0001); patients with Medicaid coverage were less likely to enroll in CR overall and half as likely to attend FBCR or RCR than other groups (P <.0001).

Discussion

The CRI was a concerted effort to improve access to CR by highlighting need, removing barriers, providing incentives, and introducing a RCR option for health plan members and providers. Overall participation in CR increased and time to

enrollment improved, especially for RCR. Furthermore, we observed that RCR did not undermine FBCR participation. Patients with procedures have a higher chance of being referred; there is opportunity to improve CR across all age groups and insurance types.

Further study is warranted to understand how and why performance in CR improved. The CRI could have introduced competition or scrutiny forcing system change to accommodate patients, as evidenced by the CR increase. One could speculate that RCR's time-to-enrollment improvement resulted from better coordination with providers over time or increased staffing, which may be easier to achieve in virtual environment.

There were key learnings which, if addressed, could help to significantly amplify the initial successes of the initiative.

Program Development

Program development to the launch of CRI took 18 months. Working in parallel to address varying program components could have accelerated implementation. A staged rollout could have allowed for a faster deployment. Provider education is iterative and takes time; thus, cost share waivers and physician incentives could have been introduced later. Regardless, health plans who wish to replicate the CRI process need to be vigilant about timely benefit waiver filings.

Program Implementation

Initial Uptake of CRI

The CRI did not immediately increase CR enrollments. This is reflected in the initial RCR patient uptake and stable FBCR enrollments. Providing data, including benchmarking data, proved effective.

Acceptance of RCR

The gradual RCR update was due to provider hesitation, partly from system preferences for FBCR. Data on FBCR enrollment delays and RCR suitability for low/moderate-risk patients validated the need for both. Discussing hybrid programs (RCR and FBCR) and potential improved workflows, opened up conversations. Concerns about RCR efficacy were addressed by sharing supporting data. over the efficacy of RCR did come up; this was addressed by sharing data on effectiveness of RCR.

Generating Systematic Referrals to CR

Enrollments in RCR were facilitated almost entirely by health plan care managers using health plan gap data. In some cases, providers coordinated with CDPHP care managers for referrals. Since CDPHP was the only health plan with the CRI, improving the CR process for all patients was challenging for providers given the lack of universal coverage. Providers had to implement a different workflow for CDPHP members, which limited scaling referrals, especially for RCR, often not covered by other health plans.

A major opportunity for increasing CR uptake is automatic referrals [13,17]. Our provider query found some had automatic referrals, while others lacked a systematic process. Referral processes often existed for planned procedures but not for unplanned events like MIs. For hospitals who did have automated referrals, many did not include all eligible patients and were referring only to the system's FBCR. In some cases, hospitals were eager to develop automated systems however encountered IT barriers (suboptimal EMR systems, lengthy processes) preventing swift system change in the order of 1-2 years for workflow changes.

Health Systems Change

Practitioner behavior-change favors multifaceted approaches, which we implemented (incentives, data feedback, one-on-one communication) [17,37,40]. A key learning is that effective systems change takes time. Providers must understand the problem, digest the solution, and implement change amongst a sea of competing health systems priorities.

Additionally, the strongest predictor of enrollment in CR is physician endorsement [40-41]. Despite our concerted rollout efforts, we were unable to achieve consistent physician referral to CR in this early deployment phase. Moving referral efforts upstream from the health plan liaisons to providers at the point of care is ideal. Studies show that combining automatic referrals with point-of-care education leads to the highest CR referral and subsequent enrollment rates (>86% referral, >74% enrollment) [30].

In the absence of CR policy mandates or public reporting and while quality metrics like HEDIS CR metrics are still new, working with early adopter physician champions and administrators with authority to shepherd efforts is critical [29,40,46]. Most recommendations in the Cardiac Rehabilitation Change Package rely on leadership. Policy makers may consider policy mandates or public reporting to accelerate change, as seen in other areas of cardiac care [43-45].

Even with leadership and potential reporting/policy change, a systems-based approach where CR providers keep patients engaged and the patient's primary providers support completion is of utmost importance [6-14]. Future endeavors to increase CR may consider a community collaboration with multiple stakeholders (i.e., hospitals, practices, CR providers, health plans, public health partners). In this effort, the CR stage can be set, goals and timeline for improvement defined, and a unified approach to addressing the problem can be tackled with both practitioners and administrators.

Study Limitations

This initiative was deployed in 2021 during the height of the COVID-19 pandemic, limiting true baseline data as FBCR was scarce prior to the implementation of the program. It may have also artificially inflated RCR participation. Second, data constraints, including limited pre-study health plan data and incomplete race/ethnicity capture, restricted true pre-post- comparison and advanced analyses. Third, CDPHP incentivized physician practices but not hospitals or CR facilities. Fourth, referral data access was limited and may have been a better program adoption indicator. Fifth, our study was restricted to one health plan, limiting generalizability. Sixth, varied intervention costs made cost-effectiveness assessments difficult. Finally, with only 15 months of data, we reported on enrollment, not participation or completion.

Conclusion

The CRI introduced a paradigm shift and created momentum among providers to address modifiable barriers namely patient identification for CR and referral and enrollment processes. This study provides a structure that can be used to guide health plans. The referenced frameworks to assess a community's CR infrastructure and workflows may also be useful. Successful implementation of FBCR or RCR is dependent on clear referral and continued support processes for CR. Clinician and administrative leadership buy-in to CR is needed to create automatic systems and clinician endorsement for seamless referral and enrollment. Future efforts may see accelerated change with either a larger community wide initiative with multiple health plans and health system stakeholders at the table, or via policy mandates that support system change.

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Disclosures

Zainab Magdon-Ismail was employed by the Capital District Physicians' Health Plan through the study period of this work; she is currently an advisor to Movn Health.

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