



# Dramatic Impact of a Liaison-Mediated Referral Strategy on Cardiac Rehabilitation Participation After Percutaneous Coronary Intervention: Insights from the Blue Cross Blue Shield of Michigan Cardiovascular Consortium

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## Background

- While cardiac rehabilitation (CR) improves outcomes after percutaneous coronary intervention (PCI) it remains underutilized.<sup>1,2</sup>
- A liaison-mediated (LM) referral, where a healthcare professional discusses the program with patients and facilitates CR scheduling before discharge through concerted care-coordination, is one referral strategy currently endorsed by the Agency for Healthcare Research and Quality that may promote CR use.<sup>3</sup>

## OBJECTIVE

To evaluate whether a liaison-mediated CR referral strategy is associated with improved CR participation after PCI within 90 days of hospital discharge.

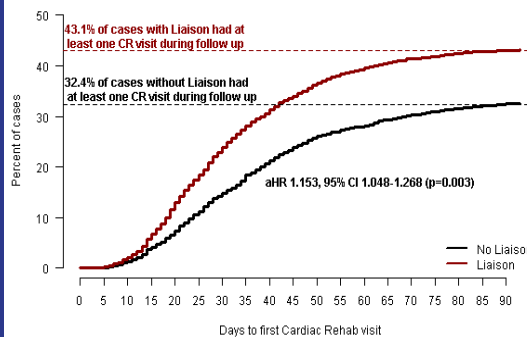
## METHODS

- Retrospective cohort study of patients who underwent PCI across 48 non-federal hospitals in Michigan between January 2021 and April 2022.
- Only patients referred to CR at discharge with documented presence or absence of a LM encounter were included.
- Clinical and liaison implementation data were linked to administrative claims to determine CR participation, defined as attendance of  $\geq 1$  CR session within 90 days of discharge.
- Bayesian hierarchical logistics regression was used to compare CR participation between liaison cohorts and hospital-level variation in CR participation.<sup>4</sup>
- Cox-proportional hazard modeling was used to compared the days elapsed between discharge and CR participation between liaison cohorts.
- A multiple-choice survey was sent to participating sites with a >40% LM implementation rate to evaluate the specific responsibilities of the CR liaison. Sites could select more than one answer choice.

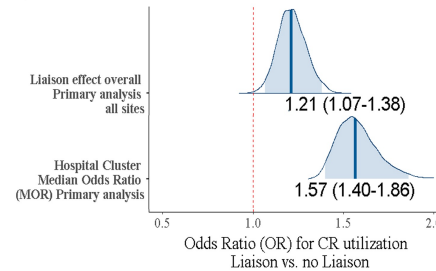
## RESULTS

|                                   | No Liaison    | Liaison       | P-value |
|-----------------------------------|---------------|---------------|---------|
| No. of cases                      | 4700 (52.1%)  | 4323 (47.9%)  |         |
| Age (mean (SD))                   | 69.55 (10.78) | 69.39 (11.01) | 0.499   |
| Sex, men (%)                      | 3212 (68.3)   | 2956 (68.4)   | 0.987   |
| Insurance coverage: (%)           |               |               | <0.001  |
| Commercial BCBSM PPO              | 1319 (28.1)   | 1159 (26.8)   |         |
| Commercial BCN HMO                | 297 (6.3)     | 322 (7.4)     |         |
| Traditional Medicare (FFS)        | 1358 (28.9)   | 1157 (26.8)   |         |
| Medicare Advantage BCBSM PPO      | 1268 (27.0)   | 1162 (26.9)   |         |
| Medicare Advantage BCN HMO        | 283 (6.0)     | 291 (6.7)     |         |
| Dual Eligible (Medicare/Medicaid) | 144 (3.1)     | 200 (4.6)     |         |
| CAD Presentation (%)              |               |               | <0.001  |
| non-ACS                           | 2625 (55.9)   | 1877 (43.4)   |         |
| NSTE-ACS                          | 1433 (30.5)   | 1627 (37.6)   |         |
| STEMI                             | 642 (13.7)    | 819 (18.9)    |         |
| Diabetes Mellitus                 | 1821 (38.8)   | 1594 (36.9)   | 0.073   |
| Prior PCI                         | 1960 (41.8)   | 1581 (36.6)   | <0.001  |
| Peripheral Artery Disease         | 692 (14.7)    | 445 (10.3)    | <0.001  |

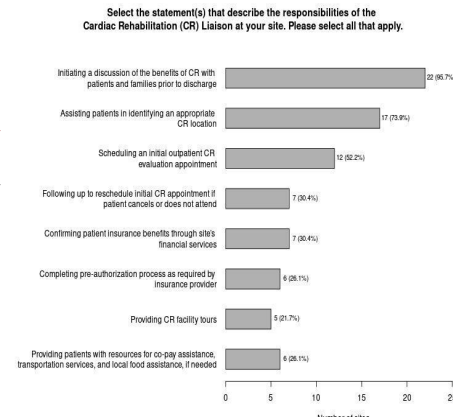
**Table 1:** Baseline clinical and demographic variables between liaison intervention cohorts.



**Figure 1:** Kaplan-Meier curve describing the time to the first CR session within the 90-day follow-up period between liaison and non-liaison cohorts.



**Figure 2:** Adjusted estimated liaison effect on CR utilization, (described as the adjusted odds ratio (aOR)), and hospital variation in CR participation (described as cluster median odds ratio (MOR)). 95% posterior distributions with median (line) and 95% credible intervals (shaded area) in figure.



**Figure 3:** Survey results assessing the specific responsibilities of the CR liaison across hospital sites. Multiple choice prompts are provided verbatim within the distributed survey.

## RESULTS

- 9,023 patients underwent PCI between January 2021 and April 2022 and were referred to CR at discharge.
- The liaison and non-liaison cohorts were balanced in age and sex, although the liaison cohort was more likely to present with ACS and had fewer comorbidities (Table 1).
- The LM cohort had a 10.7% greater unadjusted 90-day CR participation rate than the non-LM cohort (Figure 1).
- The median days to the first CR session was 28 versus 33 for the liaison and non-liaison cohorts, respectively ( $p < 0.001$ ) (Figure 1).
- After adjustment, the LM cohort had a significantly higher likelihood of CR participation compared with the non-LM group (Figure 2).
- Hospital-level variation in CR participation exceeded that of the liaison effect (Figure 2).
- Most sites reported liaisons were responsible for discussing CR's benefits, facility identification, and scheduling the first CR appointment (Figure 3).
- Some sites reported liaisons provided transportation resources, copy assistance, and helped with insurance pre-authorization (Figure 3).

## CONCLUSION

- A LM CR referral was associated with higher odds of CR participation within 90 days of discharge after PCI and may mitigate delays in CR enrollment.
- However, there was significant hospital variation in CR participation, indicating hospital-level factors may be more influential on CR participation after PCI compared with the LM referral.
- Liaison commonly discussed CR's benefits, assisted with scheduling, and provided services to help patients overcome logistical barriers to CR participation.
- A LM referral may be an effective strategy to improve CR participation and patient outcomes after PCI. Nevertheless, future quality initiatives should evaluate additional hospital-level variables that impact CR participation after PCI.

## CITATIONS

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