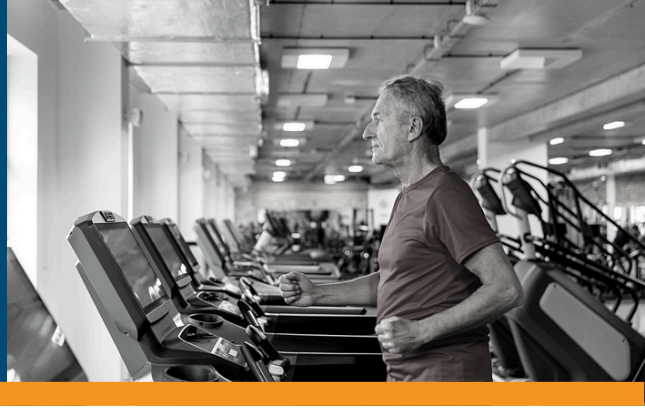
CQI VALUE ASSESSMENT

Measuring the Impact of Cardiac Rehabilitation after Percutaneous Coronary Intervention (PCI)

August 2022



AT A GLANCE

About BMC2

- Supported by BCBSM Value Partnerships program
- Works to improve the quality of CVC care in Michigan
- Supports 50 member hospitals that perform PCI

BMC2 Resources

- Best practice protocols
- Risk calculators
- Michigan Cardiac Rehabilitation Best Practices Toolkit
- Peer-reviewed publications

"It is estimated that those 3,182 additional patients who attended cardiac rehabilitation after their PCI avoided 145 readmissions, which equates to approximately $1.8 million healthcare dollars saved."

Michigan Value Collaborative

BMC2

Blue Cross Blue Shield Blue Care Network of Michigan

Nonprofit corporations and independent licensees of the Blue Cross and Blue Shield Association

BACKGROUND

The Blue Cross Blue Shield of Michigan Cardiovascular Consortium (BMC2) is a collaborative consortium of healthcare providers dedicated to improving the quality of care and outcomes for cardiovascular patients across the state of Michigan. Using clinical data and expertise from participating hospitals, BMC2 hosts three prospective, multicenter quality improvement registries: percutaneous coronary intervention (PCI), vascular surgery, and the Michigan Structural Heart Consortium (MISHC). Registry data is used to identify opportunities for care improvement, design quality improvement initiatives, and evaluate changes in care quality over time.

BMC2 also partners with the Michigan Value Collaborative (MVC) to equitably increase participation in cardiac rehabilitation (CR) for all eligible individuals in Michigan, and BMC2 has led efforts to increase CR referrals in Michigan after PCI. MVC claims data indicate statewide CR utilization increased from 26% to 34% between 2015 and 2019. To estimate the value of this activity, BMC2 and MVC partnered to estimate the lives saved, readmissions avoided, and dollars saved from avoided readmissions.

METHODOLOGY

Measuring Equity and Value

Cardiac rehabilitation is an established high-value service in that it saves lives in addition to saving money by avoiding readmissions and future cardiac events. This analysis set out to attach an estimate of the lives saved and cost savings for PCI patients who attended one or more CR sessions in Michigan.

Data Sources & Study Population

The primary data source was MVC-defined PCI episodes as well as AMI episodes with a PCI DRG (246, 247, 248, 249, 250, 251). The analysis included episodes with start dates from 1/1/15 through 12/31/19, from all MVC payer sources: Blue Cross Blue Shield of Michigan (BCBSM) PPO Commercial, BCBSM PPO Medicare Advantage, Blue Care Network (BCN) HMO Commercial, BCN HMO Medicare Advantage, Medicare Fee-For-Service, and Michigan Medicaid. The analysis was limited to episodes that took place at one of Michigan's 48 BMC2 member hospitals that perform PCI. These parameters yielded 67,156 episodes with a PCI.

Published literature heavily informed this analysis. The Anderson et al. 2016 meta-analysis* assessed the benefits of CR for coronary heart disease, and two numbers from this study underpinned this ROI exercise. In this meta-analysis, Anderson et al. calculated a "number needed to treat" (NNT) of 37 for mortality. In other words, for every 37 patients who attend one or more CR sessions, one of their lives was saved on average. Readmissions were found to have an NNT of 22. So for every 22 patients who attended one or more CR sessions, one of those patients on average avoided readmission.

Methodological Approach

Within the 67,156 episodes, facility and professional claims were investigated for CR procedure codes (CPT 93797 or 93798, HCPCS G0422 or

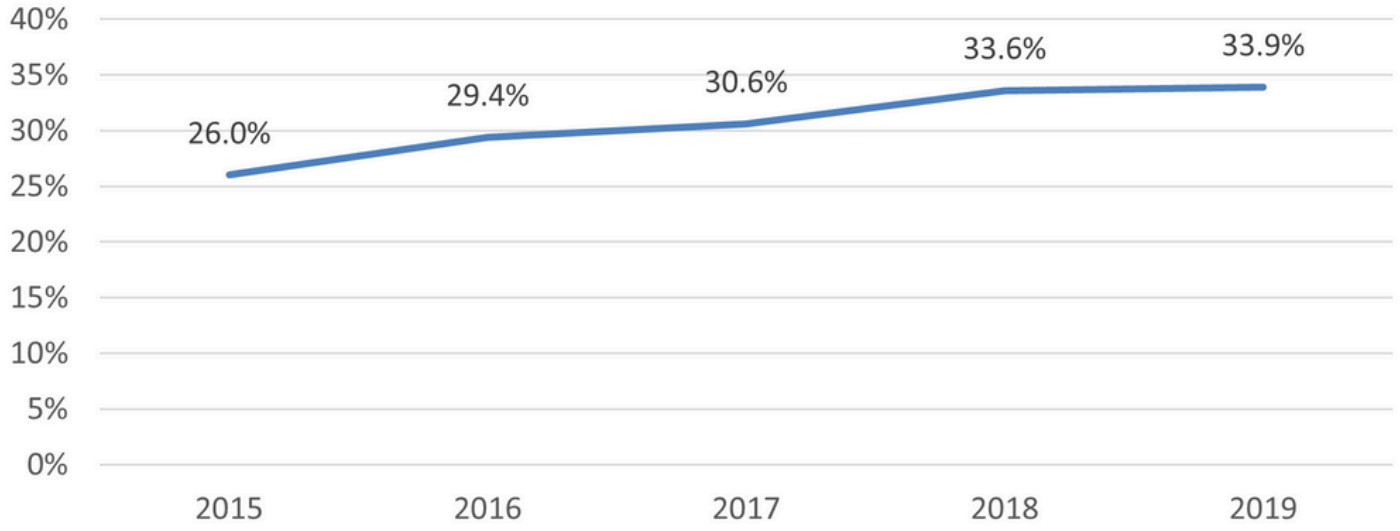
MICHIGAN CARDIAC REHAB NETWORK

Use the QR code to access the new MiCR Best Practices Toolkit for specific interventions to improve CR utilization.

Annual CR Rate Equation

$$\frac{\text{\# of PCI and AMI w/PCI episodes in a given year that included at least 1 CR visit within 90 days}}{\text{All eligible PCI and AMI w/PCI episodes, excluding those with a CR-ineligible discharge disposition}}$$

Figure 1. 90-Day Cardiac Rehabilitation Participation Rate After PCI, 2015-2019



G0423) or revenue code 943 indicating CR. At this point, annual CR rates were calculated for the years 2015-2019. If an episode included just one CR visit within 90 days of hospital discharge, it was counted in the numerator. Episodes for patients who died in the hospital, were discharged to hospice, or had a missing discharge disposition were excluded from the denominator because they were not CR candidates.

After annual CR numerators, denominators, and rates were calculated for all five years (Figure 1), the number of additional CR attendees in 2016-2019 was estimated using 2015 counts as a baseline. For example, if CR utilization rates had stayed constant at 2015 levels, the estimation would yield zero additional attendees. From there, the number of lives saved each year after 2015 was estimated using the NNT of 37, and these annual estimates were summed to yield the total number of lives saved. Similarly, the number of readmissions avoided each year after 2015 was estimated using the NNT of 22, and these annual estimates were summed to yield the total number of readmissions avoided. Cost savings from avoided readmissions over the five years were estimated by multiplying the total number of readmissions avoided by the median price-standardized readmission payment in PCI episodes ($13,003).

Limitations

This analysis relies heavily on Anderson et al.'s 2016 meta-analysis on CR, taking its published NNT numbers as underpinning assumptions. A secondary limitation is that completion of CR was not measured, only attendance at a single session.

RESULTS

MVC estimated that the increase in CR attendance over 2015-2019 translated to 3,182 additional patients attending CR and 86 lives saved. In terms of readmissions, MVC estimated those 3,182 additional attendees avoided 145 readmissions, or approximately $1.8 million health care dollars saved.

FINDINGS & NEXT STEPS

It was encouraging that CR rates improved over 2015-2019, but the pandemic years of 2020 and 2021 brought about a dramatic decrease in patients attending CR. Early claims-based analyses indicated a rebound in 2022, and MVC and BMC2 have set a statewide goal of 40% CR attendance by 2024 for all eligible PCI patients. If this goal is achieved, thousands more Michigan residents would attend CR, equating to dozens more lives saved, potentially hundreds of readmissions avoided, and millions of dollars saved.

MVC and BMC2 distribute CR reports to Michigan hospitals every six months to keep them appraised of their own CR utilization rates. In addition, the collaboration between BMC2 and MVC has led to the formal creation of the Michigan Cardiac Rehab Network (MiCR), which aims to equitably increase participation in CR for all eligible individuals in Michigan. Hospitals interested in improving their rates can find useful resources in the MiCR CR Best Practices Toolkit and the Million Hearts Cardiac Rehabilitation Change Package.

*Anderson L, Oldridge N, Thompson DR, Zwisler AD, Rees K, Martin N, Taylor RS. Exercise-Based Cardiac Rehabilitation for Coronary Heart Disease: Cochrane Systematic Review and Meta-Analysis. J Am Coll Cardiol. 2016 Jan 5;67(1):1-12. doi: 10.1016/j.jacc.2015.10.044. PMID: 26764059