Michigan Value Collaborative

POSTER SESSION
FALL 2023

MICHIGANVALUE.ORG

Reducing Clinical Interruptions - Optimizing Best Practice Advisories in the EMR

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Sparrow Health System

Background

Interruptions of clinical workflow should be carefully controlled. Indiscriminate interruptions are problematic, contributing to alert fatigue.

Physician and RN feedback indicates that many interruptive alerts are viewed negatively and do not add perceived value.

Many alerts are dismissed with no action taken, displaying multiple times per patient. Alert acceptance declines as alerts are repeated for a given patient. Increasing % Action Taken may improve adherence to best practices and improve patient outcomes.

Alerts triggering at “open chart” may not be tailored to the most optimal point in the workflow.

Objectives

Baseline: 164,758 interruptive BPA / Month

SMART Target: Reduce number of alerts by 40%.

Process

Created cross-functional team of IT analysts.

Analyzed BPA triggering data and feedback

Created BPA Master list, grouping advisories into categories and developing common approaches for similar types of alerts

Reviewed alert feedback comments

Established review process and implementation framework

An analyst-led Information Technology project has reduced interruptive Inpatient BestPractice Advisories 51%

Standard processes have been implemented to sustain this success. This included:

Created ServiceNow form for BPA change requests, standardizing Voice of the Customer

Standard work: Analysts assigned to review BPAs every 3 years; created standard format for BPA periodic reviews

Quarterly organizational updates through Physician Advisory and Nursing Documentation Committees.

Embedded BPA review in workgroup meetings

SOP created for applications analysts developing new advisories

Began providing BPA data routinely in select operations support settings

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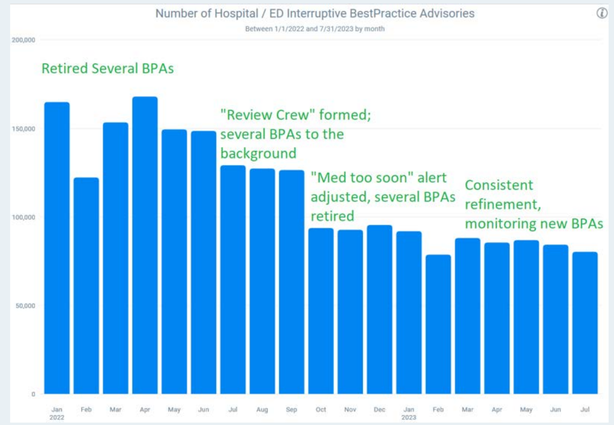
Results



Measure	January 2022	July 2023	Improvement
Total Advisories	164,758	80,126	51%
% Action Taken	10.9%	12.3%	1.4%
Open Chart Advisories	97,525	36,287	63%
Total Negative Feedback	89	66	23
Unique Advisories Displayed	180	189	Not applicable

Lessons Learned

Cross-functional IT team to learn, analyze, build

Iterative PDCA process for new BPAs: check prior to making live, check immediately after making live, embed in operational workgroup if possible.

Clinical leadership reviewed / approved all changes to avoid suppression of high value alerts, and to ensure safety was not compromised.

Voice of the Customer:

- Involvement of end users with post-implementation BPA review
- Close, consistent review of feedback

Waive the Workup: De-Implementation of Low-Value Preoperative Testing Through CQI Partnerships

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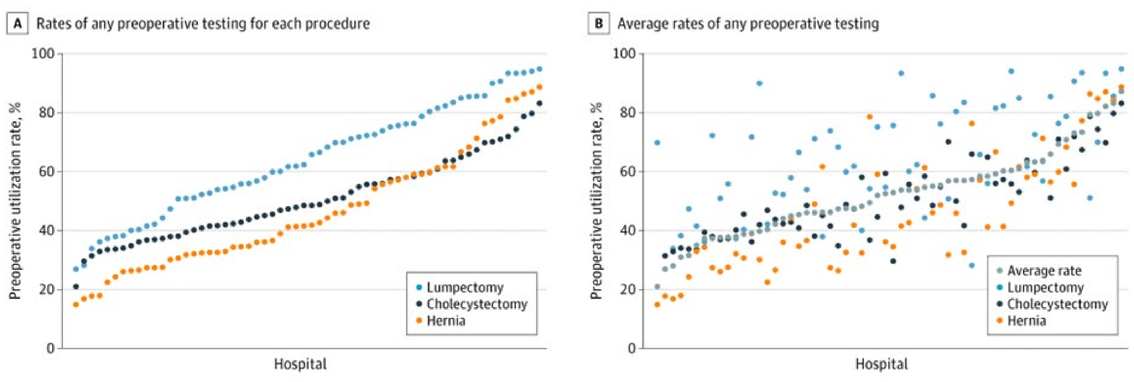
Low-Value Preoperative Testing: The Problem

Healthcare spending has grown nearly five times as much as the rest of the economy since 1960 to over $750 billion annually, $101.2 billion of which goes toward overtreatment or low-value care*. The Michigan Value Collaborative (MVC) is a Collaborative Quality Initiative (CQI) that aims to improve the health of Michigan through sustainable, high-value healthcare.

One area of focus for MVC is the de-implementation of low-value care, including the reduction of routine preoperative testing prior to low-risk surgeries, such as lumpectomy, laparoscopic cholecystectomy, or hernia repair. A large body of research as well as recommendations by multiple medical societies recommend against this type of testing.

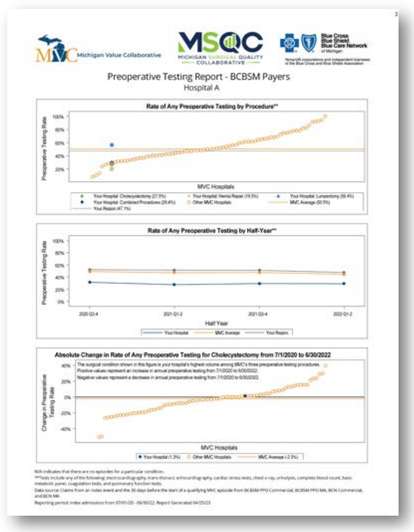
Despite recommendations, there is wide interhospital and intrahospital variation in preoperative testing prior to low-risk surgeries**

1 dot = 1 hospital



Approaches to Collaborative De-Implementation

1 Benchmarking Hospital Preop Testing Rates



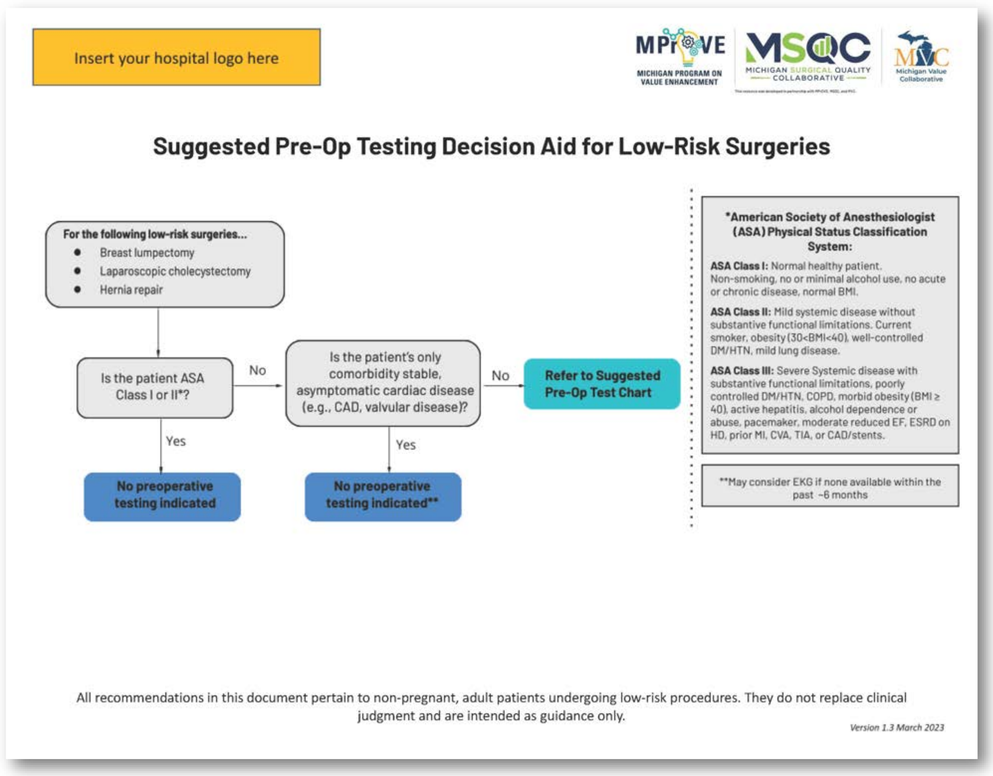
MVC began sharing biannual hospital-level preoperative testing reports with its members in 2021. MVC used claims-based data to provide hospitals with testing utilization rates prior to specific low-risk surgeries, allowing them to see how their practices compared to peers across the state. Average testing rates ranged from 10% to 97% across MVC hospitals.

2 Workgroups and Promotional Campaigns

MVC established a virtual workgroup series focused on preoperative testing, which included presentations by researchers, clinicians, and hospital quality personnel. MVC member hospitals and physician organizations were invited to attend in order to hear from experts, share practices, and collaborate. MVC also conducted week-long social media campaigns, which increased awareness within the clinical community of the risks and best practices associated with preoperative testing prior to low-risk surgeries.

3 Creation of Clinical Templates & Resources

MVC collaborated with the Michigan Program on Value Enhancement (MPrOVE) and the Michigan Surgical Quality Collaborative (MSQC) to develop a ready-made, customizable preoperative testing decision aid using ASA class, as well as a preoperative testing chart for patients who are ASA Class III or above. Both resources are housed on a co-managed resource Google site that also includes talking points for common myths, recommendations from medical societies, and more.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Suggested Pre-Op Testing Decision Aid for Low-Risk Surgeries

For the following low-risk surgeries...
- Breast lumpectomy
- Laparoscopic cholecystectomy
- Hernia repair

Is the patient ASA Class I or II*?
- No → Is the patient's only comorbidity stable, asymptomatic cardiac disease (e.g., CAD, valvular disease)?
  - No → **Refer to Suggested Pre-Op Test Chart**
  - Yes → **No preoperative testing indicated****
- Yes → **No preoperative testing indicated**

***American Society of Anesthesiologist (ASA) Physical Status Classification System:**

ASA Class I: Normal healthy patient. Non-smoking, no or minimal alcohol use, no acute or chronic disease, normal BMI.

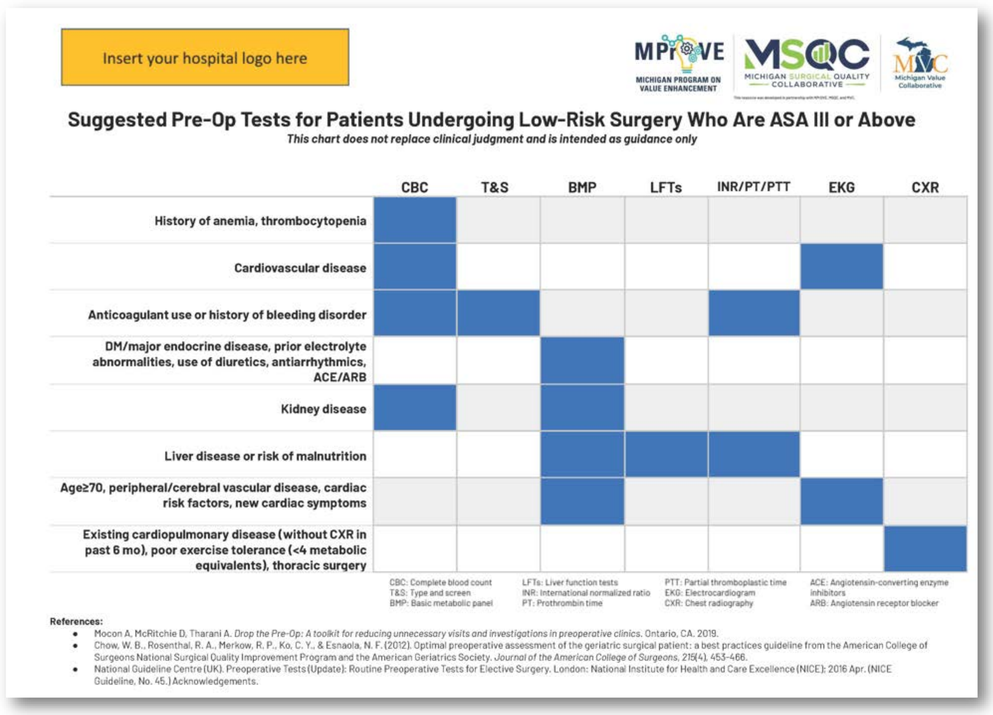
ASA Class II: Mild systemic disease without substantive functional limitations. Current smoker, obesity (30<BMI<40), well-controlled DM/HTN, mild lung disease.

ASA Class III: Severe Systemic disease with substantive functional limitations, poorly controlled DM/HTN, COPD, morbid obesity (BMI ≥ 40), active hepatitis, alcohol dependence or abuse, pacemaker, moderate reduced EF, ESRD on HD, prior MI, CVA, TIA, or CAD/stents.

****May consider EKG if none available within the past ~6 months**

All recommendations in this document pertain to non-pregnant, adult patients undergoing low-risk procedures. They do not replace clinical judgment and are intended as guidance only.

Version 1.3 March 2023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Suggested Pre-Op Tests for Patients Undergoing Low-Risk Surgery Who Are ASA III or Above

This chart does not replace clinical judgment and is intended as guidance only

	CBC	T&S	BMP	LFTs	INR/PT/PTT	EKG	CXR
History of anemia, thrombocytopenia	■						
Cardiovascular disease	■					■	
Anticoagulant use or history of bleeding disorder	■	■			■		
DM/major endocrine disease, prior electrolyte abnormalities, use of diuretics, antiarrhythmics, ACE/ARB			■				
Kidney disease	■		■				
Liver disease or risk of malnutrition			■	■	■		
Age≥70, peripheral/cerebral vascular disease, cardiac risk factors, new cardiac symptoms			■			■	
Existing cardiopulmonary disease (without CXR in past 6 mo), poor exercise tolerance (<4 metabolic equivalents), thoracic surgery							■

CBC: Complete blood count; T&S: Type and screen; BMP: Basic metabolic panel; LFTs: Liver function tests; INR: International normalized ratio; PT: Prothrombin time; PTT: Partial thromboplastic time; EKG: Electrocardiogram; CXR: Chest radiography; ACE: Angiotensin-converting enzyme inhibitors; ARB: Angiotensin receptor blocker

References:
- Mocon A, McRitchie D, Tharani A. *Drop the Pre-Op: A toolkit for reducing unnecessary visits and investigations in preoperative clinics.* Ontario, CA. 2019.
- Chow, W. B., Rosenthal, R. A., Merkow, R. P., Ko, C. Y., & Esnaola, N. F. (2012). Optimal preoperative assessment of the geriatric surgical patient: a best practices guideline from the American College of Surgeons National Surgical Quality Improvement Program and the American Geriatrics Society. *Journal of the American College of Surgeons, 215*(4), 453-466.
- National Guideline Centre (UK). Preoperative Tests (Update): Routine Preoperative Tests for Elective Surgery. London: National Institute for Health and Care Excellence (NICE); 2016 Apr. (NICE Guideline, No. 45.) Acknowledgements.

Conclusions

Several MVC member hospitals and health systems have adopted quality improvement initiatives focused on testing de-implementation. However, testing variation is still substantial, and most hospitals are not prioritizing this issue. MVC, MSQC, and MPrOVE plan to continue their collaborative partnerships with hospitals via hospital-level reports, grant-funded pilot interventions, and pay-for-performance incentives.

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Support for the Michigan Value Collaborative is provided by Blue Cross Blue Shield of Michigan as part of the BCBSM Value Partnerships program. BCBSM's Value Partnerships program provides clinical and executive support for all CQI programs. Although Blue Cross Blue Shield of Michigan and the Michigan Value Collaborative work in partnership, the opinions, beliefs, and viewpoints expressed by MVC do not necessarily reflect the opinions, beliefs, and viewpoints of BCBSM or any of its employees.

*Shrank WH, Rogstad TL, Parekh N. Waste in the US Health Care System: Estimated Costs and Potential for Savings. JAMA. 2019;322(15):1501–1509. doi:10.1001/jama.2019.13978
**Berlin NL, Yost ML, Cheng B, et al. Patterns and Determinants of Low-Value Preoperative Testing in Michigan. JAMA Intern Med. 2021;181(8):1115–1118. doi:10.1001/jamainternmed.2021.1653

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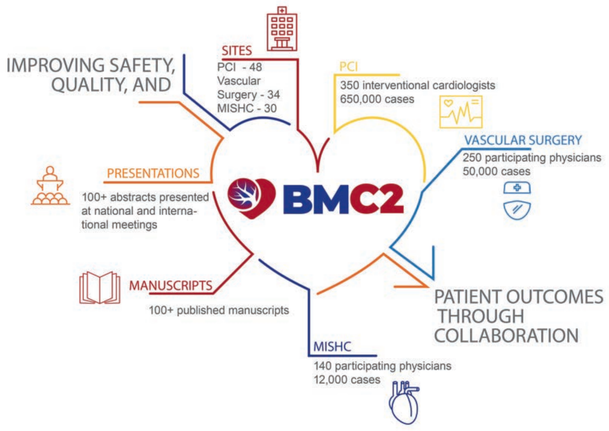
Putting Data, Knowledge, and Practice into Motion at the University of Michigan

BMC2

A Collaborative Consortium of Health Care Providers Dedicated To Improving the Quality of Care and Outcomes For Cardiovascular Patients Across the State of Michigan*

Nicholas Osborne, MD ; Rebecca Fleckenstein, RN, MS; Devraj Sukul, MD, MSc; Kathleen Frazier, RN, BSN; Amy Shirato, RN, BSN; Raed Alnajjar, MD; Stanley Chetcuti, MD; P. Michael Grossman, MD; Himanshu Patel, MD ; Sheryl Fielding, RN, BSN ; Annemarie Forrest, RN, MS, MPH; Hitinder Gurm, MD

BMC2 comprises 3 prospective, multicenter quality improvement registries



Additionally, The Michigan Cardiac Rehab Network (MiCR), a collaboration with the Michigan Value Collaborative (MVC), aims to equitably increase participation in cardiac rehab for all eligible patients in Michigan.

How It Works

Persistent Racial Disparities in Risk of Readmission and Mortality after Percutaneous Coronary Intervention (PCI) – Insights from BMC2 PCI

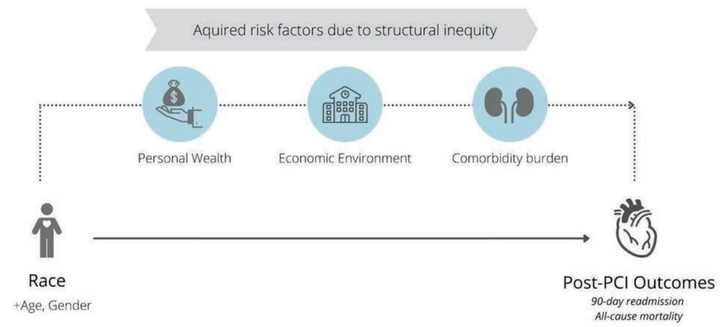
Background

- Racial disparities exist in cardiovascular disease management and outcomes, particularly for PCI
- Prior research suggests disparate outcomes immediately following PCI are attributed to comorbidity burden

Findings from BMC2 PCI

- Cardiovascular comorbidities more prevalent among Black patients
- Rates of cardiac rehab substantially lower among Black patients
- Black patients had a higher risk of 90-day readmission and mortality

Mediators of Racial Disparities in Post-PCI Outcomes



Conclusions

- Comorbidity burden continues to account for observed racial disparities in PCI outcomes, underscoring need for longitudinal care
- Complicated by bidirectional relationship between socioeconomic status and health outcomes
- Pre- and post-procedure care critical to reduce differential outcomes

Spehar SM, Seth M, Henke P, Alaswad K, Schreiber T, Berman A, Syrjamaki J, Ali OE, Bader Y, Nerenz D, Gurm H, Sukul D. Race and outcomes after percutaneous coronary intervention: Insights from the Blue Cross Blue Shield of Michigan Cardiovascular Consortium. Am Heart J. 2023 Jan;255:106-116. doi: 10.1016/j.ahj.2022.10.001. Epub 2022 Oct 8. PMID: 36216076.

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Direct and Indirect Effects of Race and Socioeconomic Deprivation on Outcomes Following Lower Extremity Bypass

Objective

Evaluate the potential pathway through which race and socioeconomic status, as measured by the social deprivation index (SDI), affect outcomes following lower extremity bypass chronic limb threatening ischemia (CLTI), a marker for delayed presentation.

Methods

Captured patients who underwent lower extremity bypass from 2015-2021.
We used mediation analysis to assess the direct effects of race and high values of SDI (5th quintile) on our outcome measures: 30-day major adverse cardiac event (MACE) defined by new myocardial infarction (MI), transient ischemic attack (TIA)/stroke, or death, and 30-day and 1-year surgical site infection (SSI), amputation and bypass graft occlusion.

Conclusions

Black patients and socioeconomically disadvantaged patients tended to present with more advanced disease, CLTI, which in mediation analysis was associated with increased odds of amputation and other complications following lower extremity bypass compared with White patients and those that were not socioeconomically disadvantaged.

Powell CA, Albright J, Culver J, Osborne NH, Corriere MA, Sukul D, Gurm H, Henke PK. Direct and Indirect Effects of Race and Socioeconomic Deprivation on Outcomes Following Lower Extremity Bypass. Ann Surg. 2023 Apr 13.

Unique features of BMC2

- Our Patient Advisory Council convened in the fall of 2021 to integrate the patient perspective into consortium improvements and decision-making.
- Peer Review - Physicians across the state review each other's cases as a quality assurance check to assess the appropriateness and quality of procedures.
- As part of the Best Practice Protocol Task Force, BMC2 physicians use research and discussion among consortium members to develop easy-to-digest snapshots of best practices.

BMC2 provides resources to consortium members including:

- Educational meetings and other training opportunities
- Best Practice Protocols for use as a supplement to national guidelines
- Risk calculators
- And more

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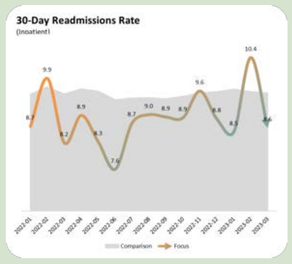
Acute Care Resource Utilization: Management of Multivisit Patients

Lisa S. Powell, MBA, PTA, *Director, Clinical Operations, E.W. Sparrow Hospital, Lansing, Mich.*
Denny Martin, DO, FACOOG *President & Chief Medical Officer, E.W. Sparrow Hospital, Lansing, Mich.*

Problem & Importance

As we continue to strive for delivery of high-quality care in the setting of efficiency, successful transitions out of the hospital are imperative. With our readmission performance unfavorable, a root cause analysis was conducted to understand what the key drivers were. Through an EMR based intervention, EW Sparrow Hospital was able to decrease the need for hospitalization in patients who had previous trends of high utilization (10+ admissions in the prior rolling 12 months), leading to increased quality of life for patients while driving down readmission rates and overall acute care utilization.



30-Day Readmission Visits
(Original 35 MVP's)

2021	2022	2023
218	65	9

Understanding the Current State

Sparrow Hospital began to analyze its utilization/readmissions data from several different approaches, one being by individual patient. Through this, we learned that in 2021 a significant portion of our utilization/readmission rate was being driven by a small number of individuals. It was at that point that we began to filter our data in different ways to look at patients who had ten or more inpatient or observation admissions in the prior year. After a root cause analysis of indication for multiple admissions, the data was analyzed for trends in admitting diagnosis, payer, social determinants, and other variables that may provide insight into addressing the specific reason driving high utilization. In response to what was learned through multiple rounds of applying various types of segmentation and filters, the team developed a strategy that required minimal resources to improve longitudinal management of these patients, regardless of where they presented in our system or who was on service.

No one in a position to control the content of this educational activity has relevant financial relationships with ineligible companies.

Learning Objectives

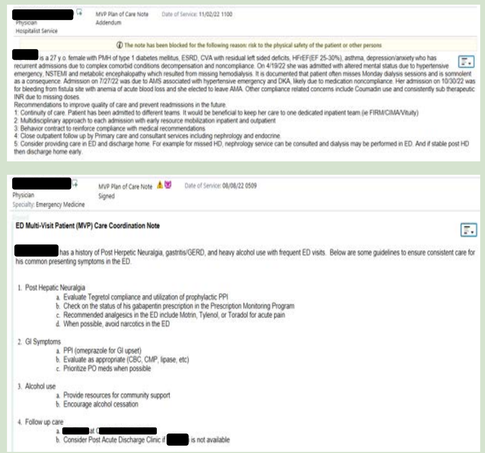
- Discuss effects of high utilization on readmissions and resource consumption and the impact on patients.
- Identify steps to improve resource consumption of patients with chronic medical conditions that have led to high utilization of acute care services.

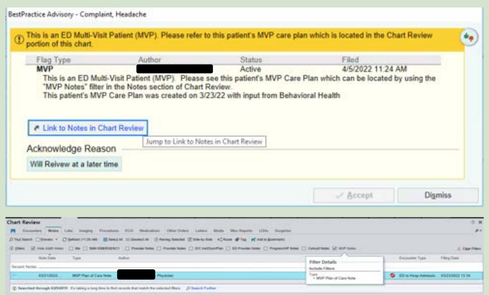
What We Measured

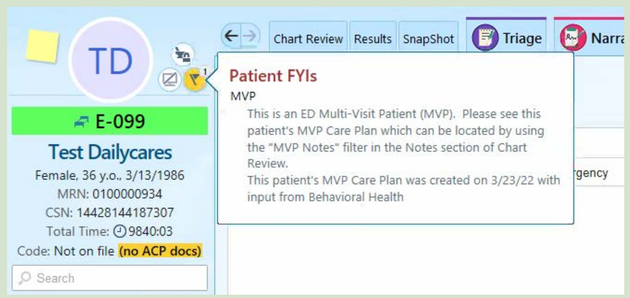
Baseline	SMART Target	Gap to Close (*Target Minus Baseline*)
Number of MVPs (2021): 35 Number of admitted days (2021): 2088	Number of MVPs (2022): 28 Number of admitted days (2022): 1670	Number of MVPs: decrease by 20% year over year (equivalent of 7 pts) Number of admitted days: decrease by 20% year over year (equivalent of 418 days)

Analysis & Interventions to Improve

A multidisciplinary physician team familiar with the patient created integrated, documented care plans providing standing guidance to their peers. An alert would fire when the provider opened the patients record, directing them to the insights from relevant primary and specialty care providers. This would help clinicians understand current medical concerns (including social determinants that may play a role in health and wellness), provide awareness of patient's baseline presentation, and share clinical guidance for both acute and chronic presentations. This clinical guidance was integral for just in time use in clinical decision making. It was found to prevent delays in care for specialty consultations, decrease unnecessary admissions, and improve post-acute transitions. In addition, the teams worked to close gaps in access to care, care navigation, and social determinants impacting how the patient sought care.

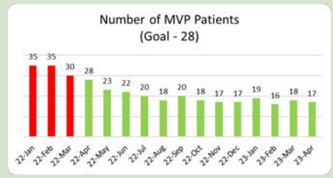


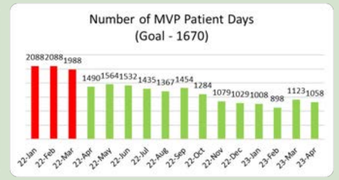




Results & Outcomes Achieved

In the first year of the initiative, Sparrow was able to decrease the overall number of patients who met the definition of an MVP from 35 to 17 unique patients, with only 4 of those 17 who remain being patients in the original pilot group. MVP acute care utilization dropped by over 55%.





Sustain & Spread

Sustain:

- Standardized review of existing care plans to ensure that patient's condition/medical needs continue to align with documented plan
- Monitor for medical necessity of admissions and use of documented care plans in medical decision making by providers

Spread:

- Expand definition of MVP to patients who have had 8+ admits and create plans, then move to 6+ admission population
- Engage additional provider groups in developing care plans for patients who admit to their service/are managed in their clinics

Keys to Success

- Multidisciplinary collaboration to create robust, encompassing plans of care for patients who have histories of high utilization and/or complex medical presentations
- Concise EMR tools that allow providers across the system to access plans in real time at the point of care
- Education to ensure plan utilization
- Process to review and update plans

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