Cardiac Rehabilitation Referral in Patients Diagnosed with Cardiac Disease

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INTRODUCTION

Topic
Cardiac rehabilitation (CR) is defined by the American Heart Association[1] as "a medically supervised program designed to improve heart health after heart problems or heart surgery".
- Promotes secondary prevention of cardiovascular disease
- Benefits individuals who have had a heart attack, chronic stable angina, received cardiac stenting, chronic heart failure, or have undergone coronary artery bypass surgery, heart valve replacement or repair, or a heart transplant[2]
- Consists of 36 sessions of aerobic exercise training, tobacco cessation counseling, nutrition counseling, stress management, psychological support, cardiovascular disease education and medication management[3]
- Participation and completion can reduce mortality up to 24% over 1 to 3 years and a 31% decrease in rehospitalizations over one year[4]
- Classified as a class 1A recommendation by the American Heart Association/American College of Cardiology[5]

Problem
In the cardiac surgery department at Penn State Hershey Medical Center (PSHMC), there was not a standardized process for CR referral post-operatively. Between January 2021 and June 2021, the PSHMC CR program received an average of 17% of eligible patient referrals for postoperative cardiac surgery patients.
- Million Hearts Initiative established by the Centers for Disease Control aims for 70% of eligible patient compliance with a CR program[6]

Aim
The purpose of this project was to increase the CR referrals within the cardiac surgery service line at PSHMC.
- Ensure all eligible patients receive an inpatient CR referral by a provider at bedside and an automatic referral in the electronic medical administration record (eMAR)
- Long-term goal of this project is to reduce the readmission rates for the cardiac surgery service line by 1% by the end of 2022

METHODS

This project was designed as a quality improvement project guided by the Model for Improvement.

Planning Stage
Intent: Increase referrals to CR for eligible patients by the cardiac surgery APP team prior to discharge
Changes: Provide education about CR to cardiac surgery team and create an automatic standardized referral protocol
Goal: More than 17% of eligible referrals for CR within a month

Action Stage
First PDSA Cycle
- Education
  - PowerPoint presented to cardiac surgery team highlighting components and benefits of CR
  - Pretest and posttest to evaluate the effectiveness of the presentation
- Automatic standardized referral protocol
  - Eligible patient identified in eMAR
  - Inpatient APP provided CR endorsement and educational brochure to the patient at bedside
  - An electronic referral sent to the CR director by standardized referral template
  - Automatic referral template added to the patient's discharge instructions
 - Feedback was sought from all participants.

Adapted PDSA
- End of October, order for CR referral created in the eMAR
  - Prechecked in the order-set, using an opt-out format
    - Took the place of the electronic message referral sent to the CR director

RESULTS

Cardiac Rehabilitation Education
- 4 inpatient APPs, 1 outpatient APP, and 1 outpatient nurse attended initial education presentation
- Average score on the pretest was 6 out of 8, or 75%
- Average score on the posttest was 8 out of 8, or 100%
- Two tailed P value 0.0006, difference is statistically significant[7]

Figure 1
Impact of CR Education on Cardiac Surgery Providers at PSHMC
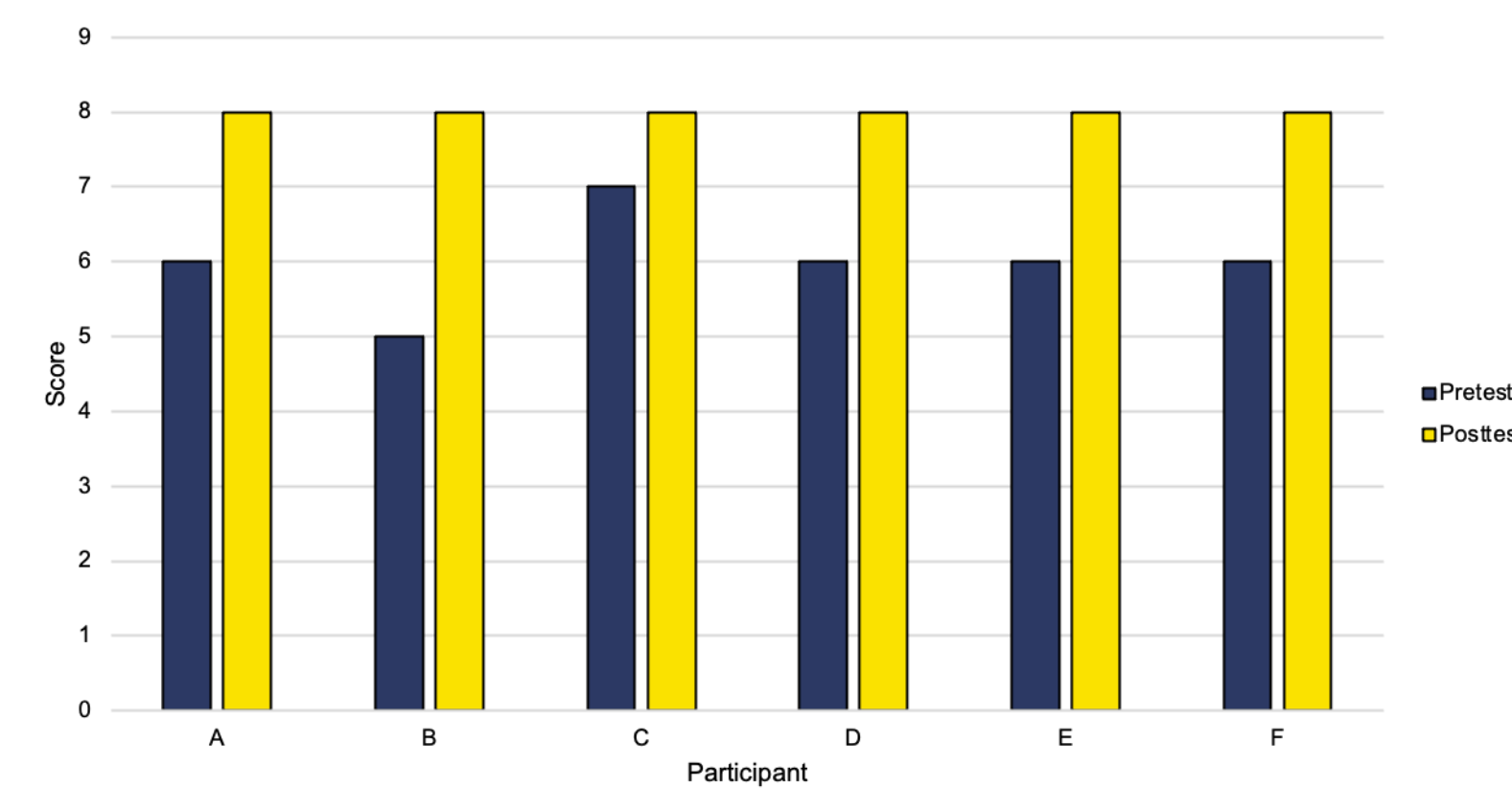
Cardiac Rehabilitation Referral
October 2021: Automatic standardized referral protocol implemented using an electronic message template sent to the PSHMC CR director
- 20 patients referred out of 32 eligible patients, or 63%
November 2021: Prechecked order for cardiac rehabilitation referral added to eMAR
- 36 patients referred out of the 41 eligible patients, or 88%
December 2021: Continued use of prechecked order for CR referral in eMAR
- 43 patients were referred out of the 43 eligible patients, or 100%

- Unpaired t-test
  - Mean percentage referrals with the automatic referral protocol: 83% with a standard deviation of 19%
  - Mean percentage of referrals without the automatic referral protocol: 30% with a standard deviation of 23%
  - Two-tailed P value for this data: 0.0045, difference is statistically significant[7]

Figure 2
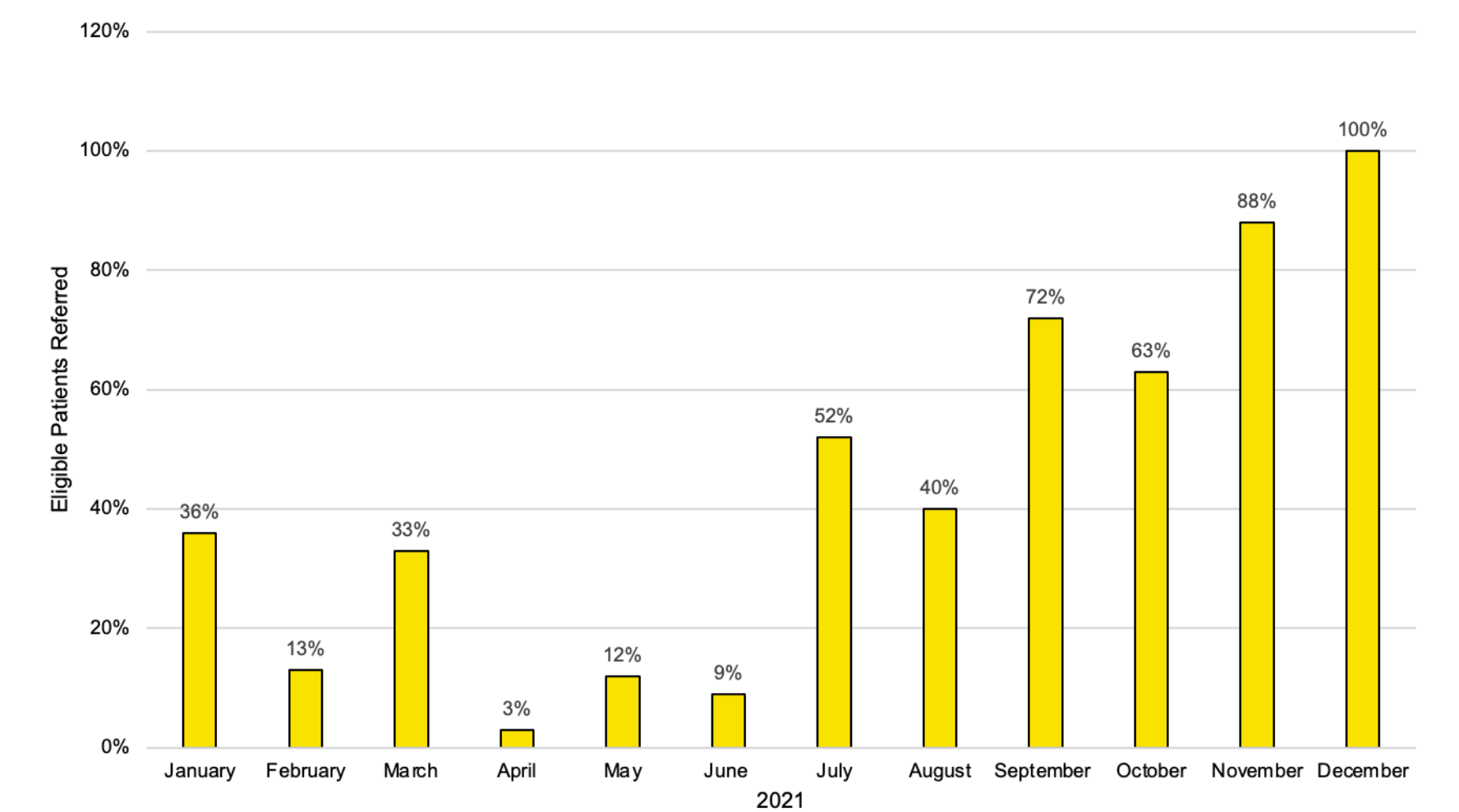*Average Percentage of Referrals With and Without Automatic Protocol*
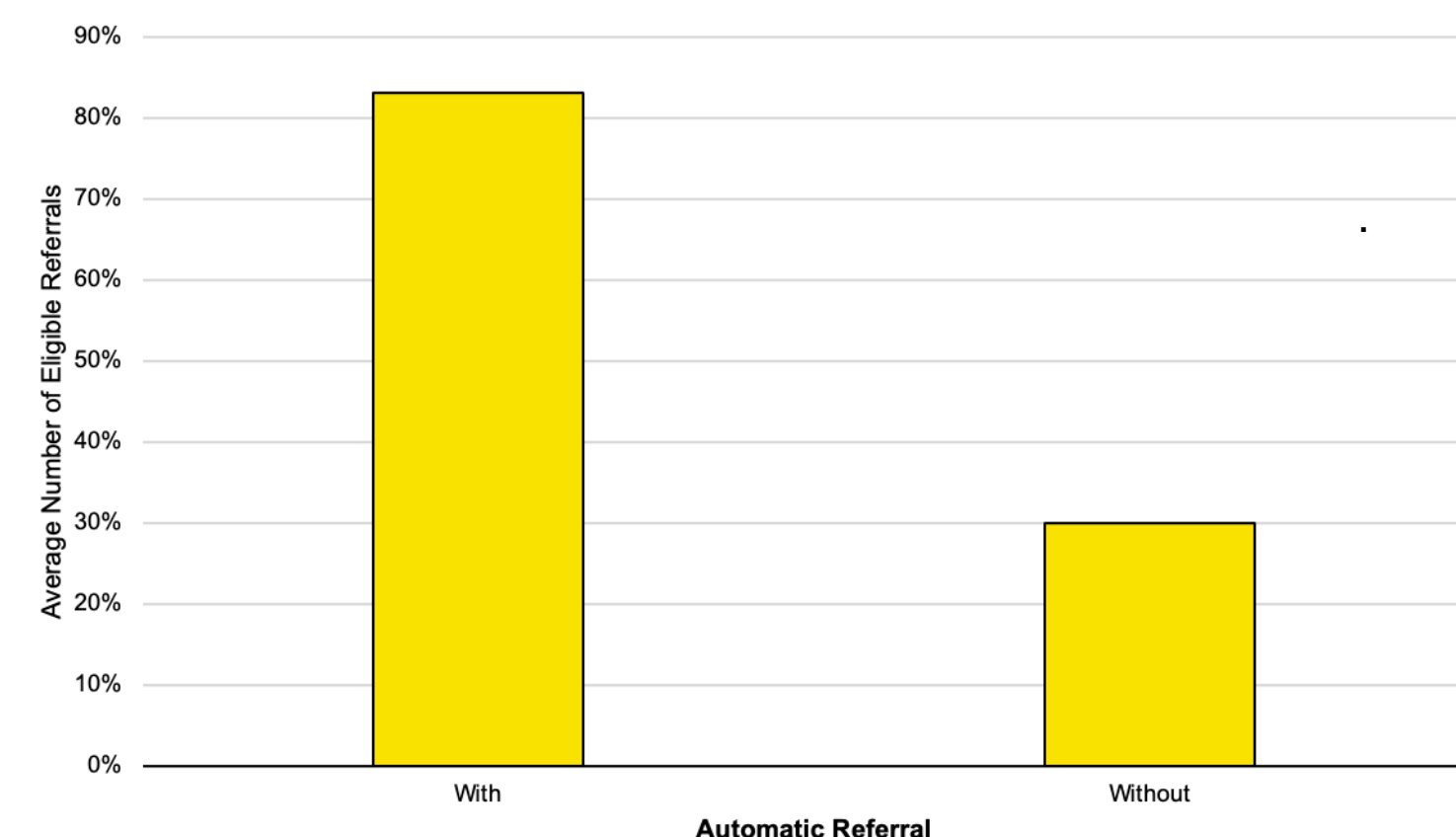
RESULTS

Cardiac Rehabilitation Referral
- Automatic referrals implemented in October 2021
- Increase in referral consistency end of the year versus beginning

Figure 3
Referrals by Cardiac Surgery Team in 2021

IMPLICATIONS FOR PRACTICE

The results of this quality improvement project align with what is found in the literature: a standardized automatic referral in the eMAR coupled with education from a bedside education liaison increases CR referrals[8].
- Increase in referrals will increase overall enrollment and completion of CR programs
- Protocol should continue to be implemented and integrated as standard practice for cardiac surgery patients at PSHMC
- Assess affects on future readmission metrics

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