Project Title

Early Intervention for Post Discharge Patients with Acute Myocardial Infarction (AMI)

Project Lead and Members

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Organisation(s) Involved

Changi General Hospital

Healthcare Family Group(s) Involved in this Project

Medical; Healthcare administration (Case management, Valued Care)

Applicable Specialty or Discipline

Cardiology

Project Period

Start date: Sep 2020

Completed date: Jan 2022

Aim(s)

Aim to improve outpatient CRP uptake, reduce unplanned readmissions and conceptualize an early intervention post discharge service for AMI patients.

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Conclusion

See poster appended/ below

Additional Information

Singapore Healthcare Management Congress 2022 – Merit Award (Operations category)

Project Category

Care & Process Redesign

Valued Based Care, Patient Reported Outcome Measures, Patient Reported Experience Measures, Patient Satisfaction

Keywords

Acute Myocardial Infarction (AMI); Post-AMI Clinic, Cardiovascular Medications, Transdisciplinary Team, C-Reactive Protein (CRP)

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Singapore Healthcare Management **2022**

Changi General Hospital · SingHealth

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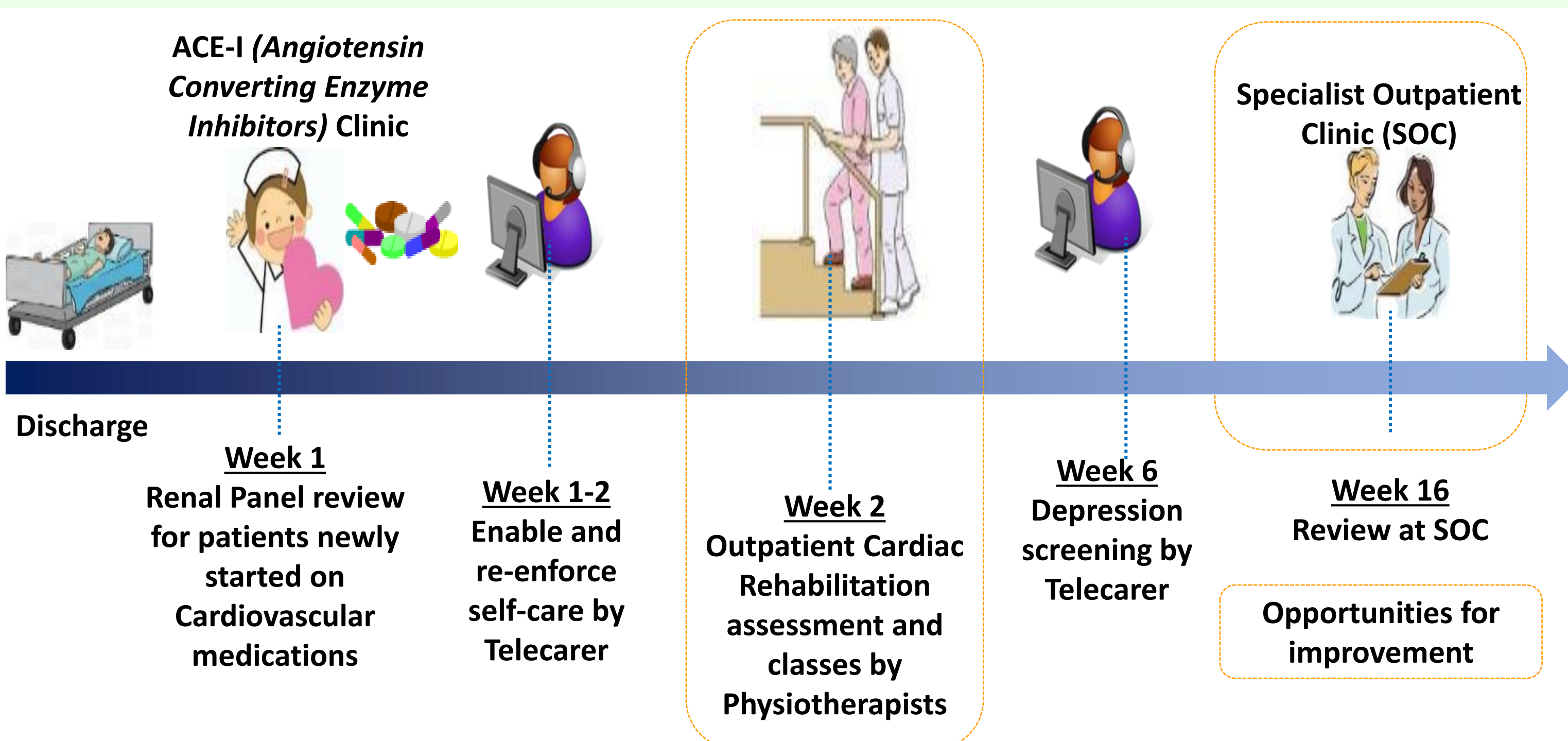Changi General Hospital

Introduction

Changi General Hospital's (CGH) AMI programme incorporates evidence-based checkpoints by a Transdisciplinary care team for holistic post-discharge care *(Figure 1)*. Timeliness and uptake of health services are crucial drivers of patient outcomes. Timely intervals in optimizing cardiovascular medications is recommended for better symptom control and reduction in mortality, where studies have shown that reviews within 2 weeks post discharge helps in reducing readmissions[1].

A new clinic service: Post-AMI (PAMI) Clinic commenced in September 2020. It is an outpatient service provided within CGH on top of existing Cardiologist appointment. In a PAMI clinic session, patients will have their cardiovascular medications optimized; counselled for CRP enrolment and self-management.

Lead time to PAMI Clinic is tracked as a process measure while outpatient CRP rates and 30-day hospital returns are tracked as outcome measures.
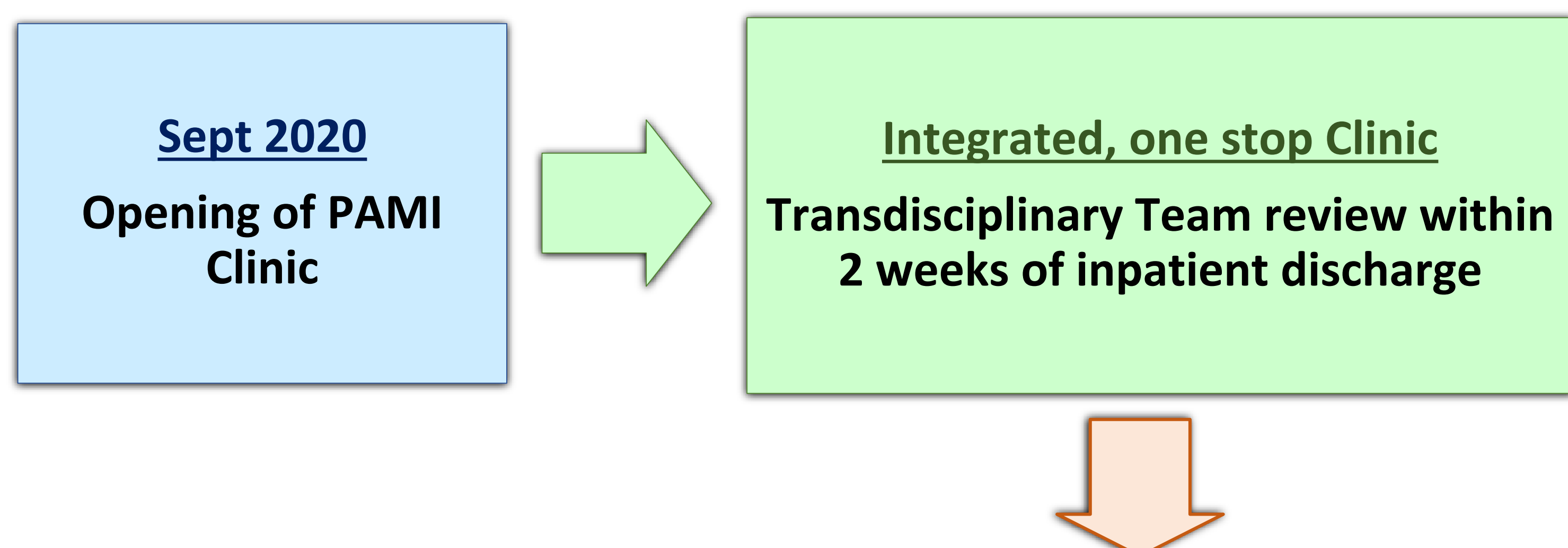
Figure 1: Current management of AMI patients upon discharge and opportunities for improvement

Discharge

Week 1 Renal Panel review for patients newly started on Cardiovascular medications

Week 1-2 Enable and re-enforce self-care by Telecarer

Week 2 Outpatient Cardiac Rehabilitation assessment and classes by Physiotherapists

Week 6 Depression screening by Telecarer

Week 16 Review at SOC

ACE-I *(Angiotensin Converting Enzyme Inhibitors)* Clinic

Specialist Outpatient Clinic (SOC)

Opportunities for improvement

Hence, our team aims to improve outpatient CRP uptake; reduce unplanned readmissions and conceptualize an early intervention post-discharge service for AMI patients.

Methodology

The team consists of various stakeholders who brainstormed on change initiatives using Plan-Do-Study-Act (PDSA) Cycles.

Sept 2020
Opening of PAMI Clinic

→

Integrated, one stop Clinic
Transdisciplinary Team review within 2 weeks of inpatient discharge

Improvement Measures
30 day A&E returns
30 day unplanned readmissions (All Cause)
Outpatient CRP rates
Lead time to PAMI Clinic (from inpatient discharge)

Services provided:

1) Physical review and examination

2) Optimisation of medications

3) Encourage CRP enrolment + prescription of home exercises + Same day CRP assessment

4) Educate patient on post AMI self-management

Results

The group that attended PAMI clinic showed significant improvement in 30-day A&E return rates (12.6%, *p=0.01**) and 30-day all-cause readmissions (10.8%, *p=0.02**) when compared to baseline rates of 14.3% and 17.1% respectively. The defaulted group had significantly poorer outcomes than baseline rates *(Figure 2)*.

The sustained improvement for the group that attended PAMI Clinic was evident in the consistently lower than baseline rates of 30D returns *(Figure 2)*. Outpatient CRP rates were also higher at 38.1% (p=0.00) vs baseline of 27.3% in Figure 3. Lead time to PAMI Clinic started out between 3-8 weeks but successfully reduced to 2 weeks through a number of PDSA cycles *(Figure 4)*.

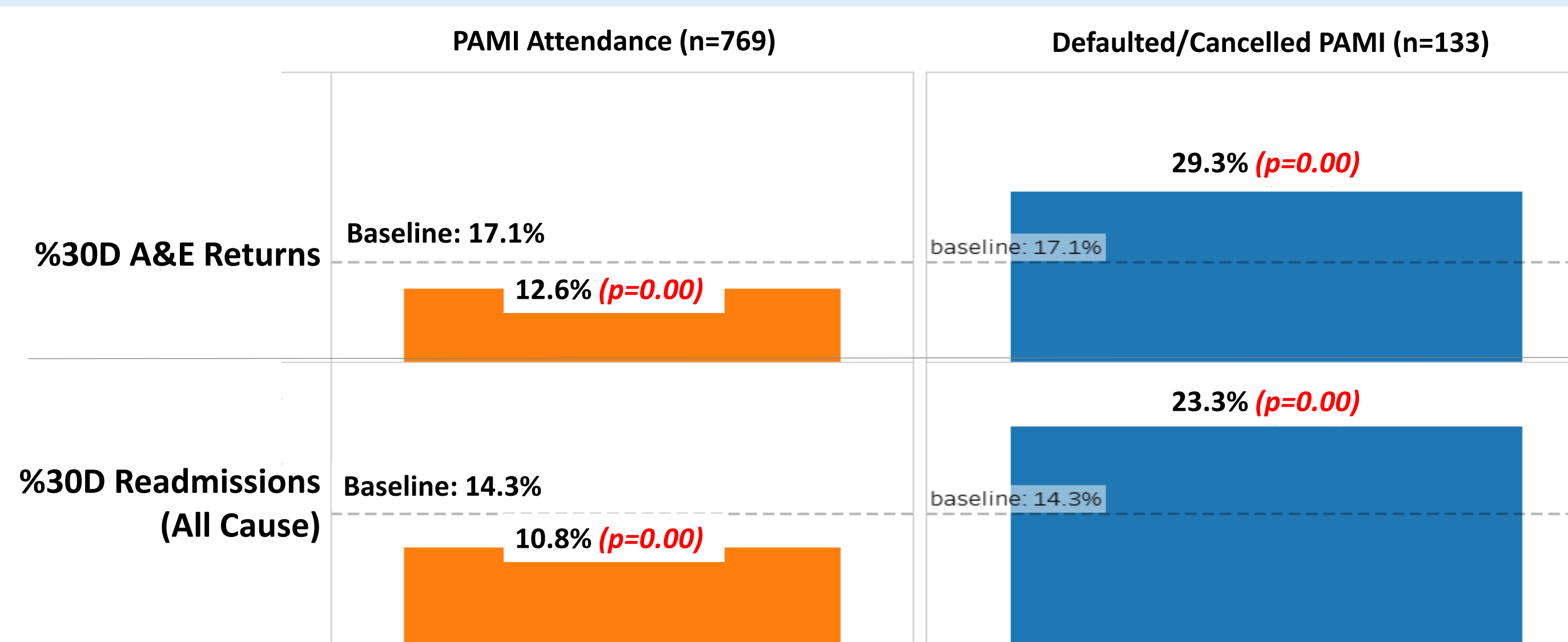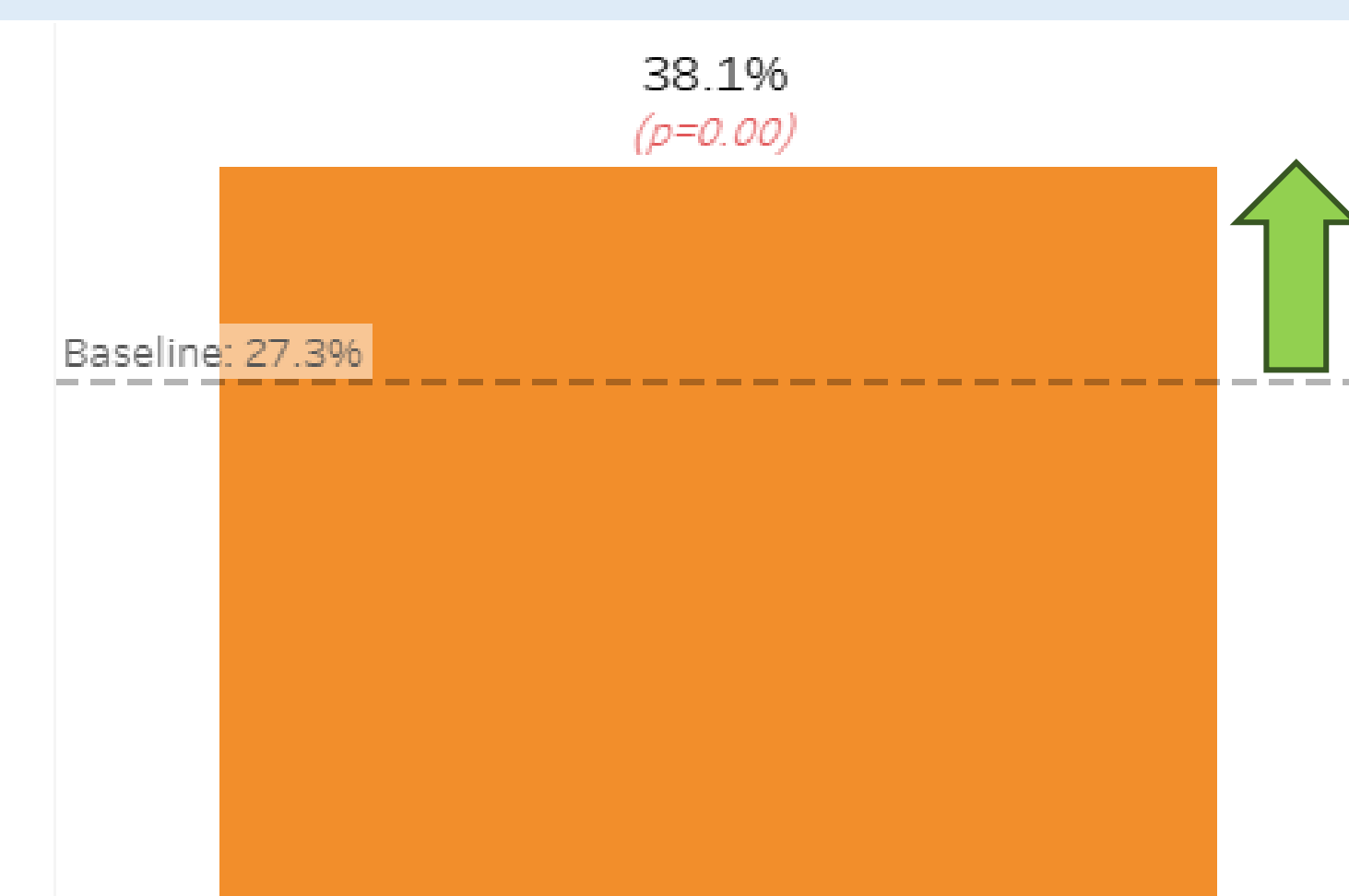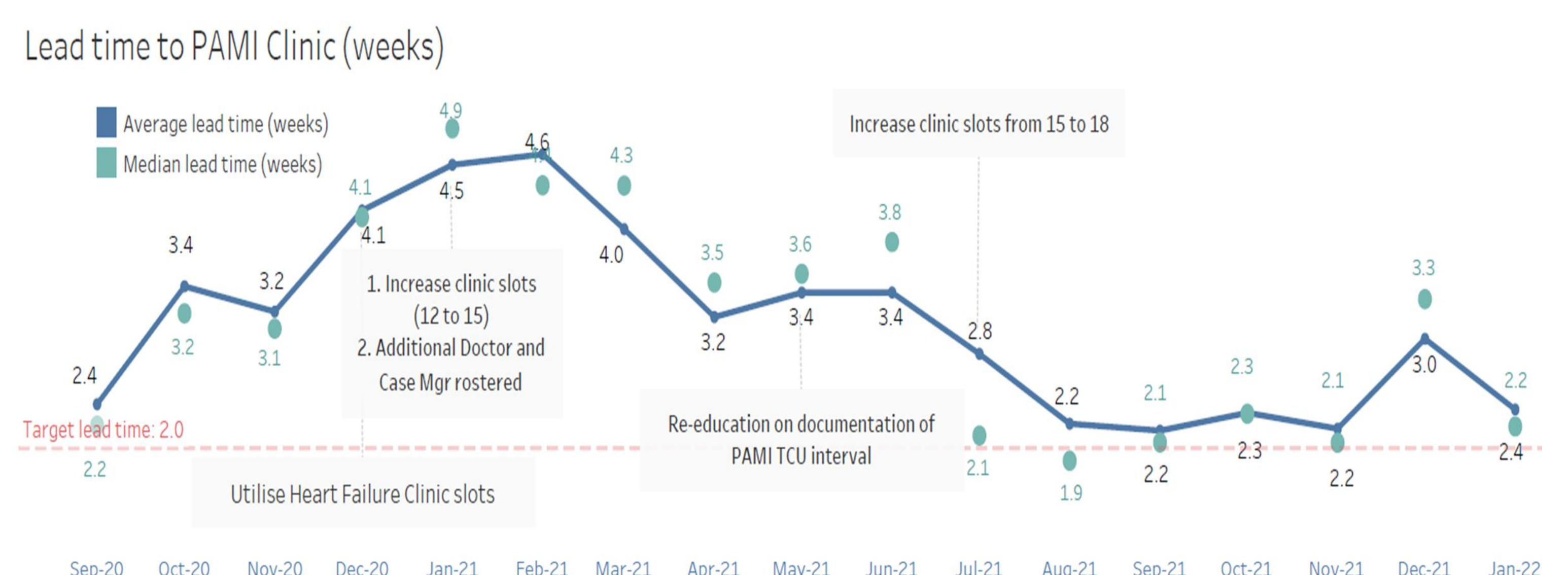### Figure 2: PAMI Clinic Outcomes (Sept 20-Jan 22)

PAMI Attendance (n=769) | Defaulted/Cancelled PAMI (n=133)

%30D A&E Returns — Baseline: 17.1% / 12.6% (p=0.00) | baseline: 17.1% / 29.3% (p=0.00)

%30D Readmissions (All Cause) — Baseline: 14.3% / 10.8% (p=0.00) | baseline: 14.3% / 23.3% (p=0.00)

Figure 3: Outpatient CRP Uptake Rate (Sept 20-Nov 22)

38.1% (p=0.00)
Baseline: 27.3%

1. BL (Baseline): 1 year prior to intervention period
2. AMI related readmissions are based on AMI Value-driven Care 30D readmission codes
3. PAMI ineligibility includes staged PCI, planned for CABG, transfer to/follow up at other acute hospitals, Prison Inmates and Poor prognosis / life expectancy ≤1 year
4. P value derived from one tailed z test of proportions. P value<0.05 denotes statistical significance
*Statistical analysis was done using a one tailed two proportion Z-test with 95% confidence interval

Figure 4: Lead time (weeks) to PAMI Clinic (Sept 20 to Jan 22)

Lead time to PAMI Clinic (weeks)

- Average lead time (weeks)
- Median lead time (weeks)

Increase clinic slots from 15 to 18

1. Increase clinic slots (12 to 15)
2. Additional Doctor and Case Mgr rostered

Re-education on documentation of PAMI TCU interval

Utilise Heart Failure Clinic slots

Target lead time: 2.0

Conclusion

The improved outcomes of PAMI group reflect benefits of early intervention. Patients reported better satisfaction in care continuity with earlier follow-up.

Future development of risk-stratification tools to streamline clinic referrals would help in right-siting and sustenance of timely reviews amidst limited clinic resources and manpower.

Reference
1. Lee DW, Armistead L, Coleman H, Cicci J, Deyo Z, Roth ME. Abstract 15387: Post-Discharge Follow-Up Within 14 Days Reduces 30-Day Hospital Readmission Rates in Patients With Acute Myocardial Infarction and/or Acutely Decompensated Heart Failure. *Circulation*. 2016;134(suppl_1):A15387-A15387. doi:10.1161/circ.134.suppl_1.15387