

## **Project Title**

Nurse/Pharmacist-Led, Doctor-Supervised, Multidisciplinary Care Team Improves  
Outpatient Heart Failure Therapy

## **Project Lead and Members**

Project lead: Chan Po Fun

Project members: Elaine Boey, Toh Lay Cheng, Saw Yik Cheun, Dennis Chua, Carrie  
Yan

## **Organisation(s) Involved**

Ng Teng Fong General Hospital

## **Healthcare Family Group Involved in this Project**

Allied Health, Nursing, Medical

## **Applicable Specialty or Discipline**

Cardiology

## **Aims**

The Heart Failure Multi-disciplinary Care (HF-MDC) team aims to double the % of  
HFrEF patients who are on target-dose GDMT, within 12 months of integrating a  
holistic multi-disciplinary approach at the Outpatient Cardiology Clinic.

## **Background**

See poster appended/ below

## **Methods**

See poster appended/ below

## **Results**

See poster appended/ below

## **Lessons Learnt**

The nurse/pharmacist-led and doctor-supervised multidisciplinary approach empowers all members of the healthcare team to deliver effective patient-centric care so that workforce efficiency is improved without safety compromise. This model is highly scalable, and can be potentially applied to management of other chronic conditions beyond heart failure.

## **Conclusion**

See poster appended/ below

## **Project Category**

Care & Process Redesign, Workflow Redesign

## **Keywords**

Heart Failure Treatment, Guideline Directed Medical Therapy, Multi-Disciplinary Care

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# NURSE/PHARMACIST-LED, DOCTOR-SUPERVISED, MULTIDISCIPLINARY CARE TEAM IMPROVES OUTPATIENT HEART FAILURE THERAPY

MEMBERS: PIPIN KOJODJOJO, CHAN PO FUN, ELAINE BOEY, TOH LAY CHENG, SAW YIK CHEUN, DENNIS CHUA, CARRIE YAN

## Define Problem, Set Aim

### Problem/Opportunity for Improvement

The QUALIFY study documented poor physician-adherence to **target-dose guideline-directed medical therapy (GDMT)** for patients with Heart Failure Reduced Ejection Fraction (HFrEF). Rates at Ng Teng Fong General Hospital were similarly low. Only 19.2% of HFrEF patients achieved target doses of beta-blockers, and 22.1% achieved target doses of ACEI/ARB/ARNI between January to September 2019. Inadequate treatment results in disease progression, acute deteriorations, and poor quality of life.

### Aims

The Heart Failure Multi-disciplinary Care (HF-MDC) team aims to double the % of HFrEF patients who are on target-dose GDMT, within 12 months of integrating a holistic multi-disciplinary approach at the Outpatient Cardiology Clinic.

Our goals include:

1. Increase in % patients on target-dose betablockers from 19% to 29%.
2. Increase in % patients on target-dose ACE-I/ARB/ARNI from 22% to 33%.

## Establish Measures

### Outcome Measures

1. % patients on target-dose beta-blockers.
2. % patients on target-dose ACE-I/ARB/ARNI.

### Process Measures

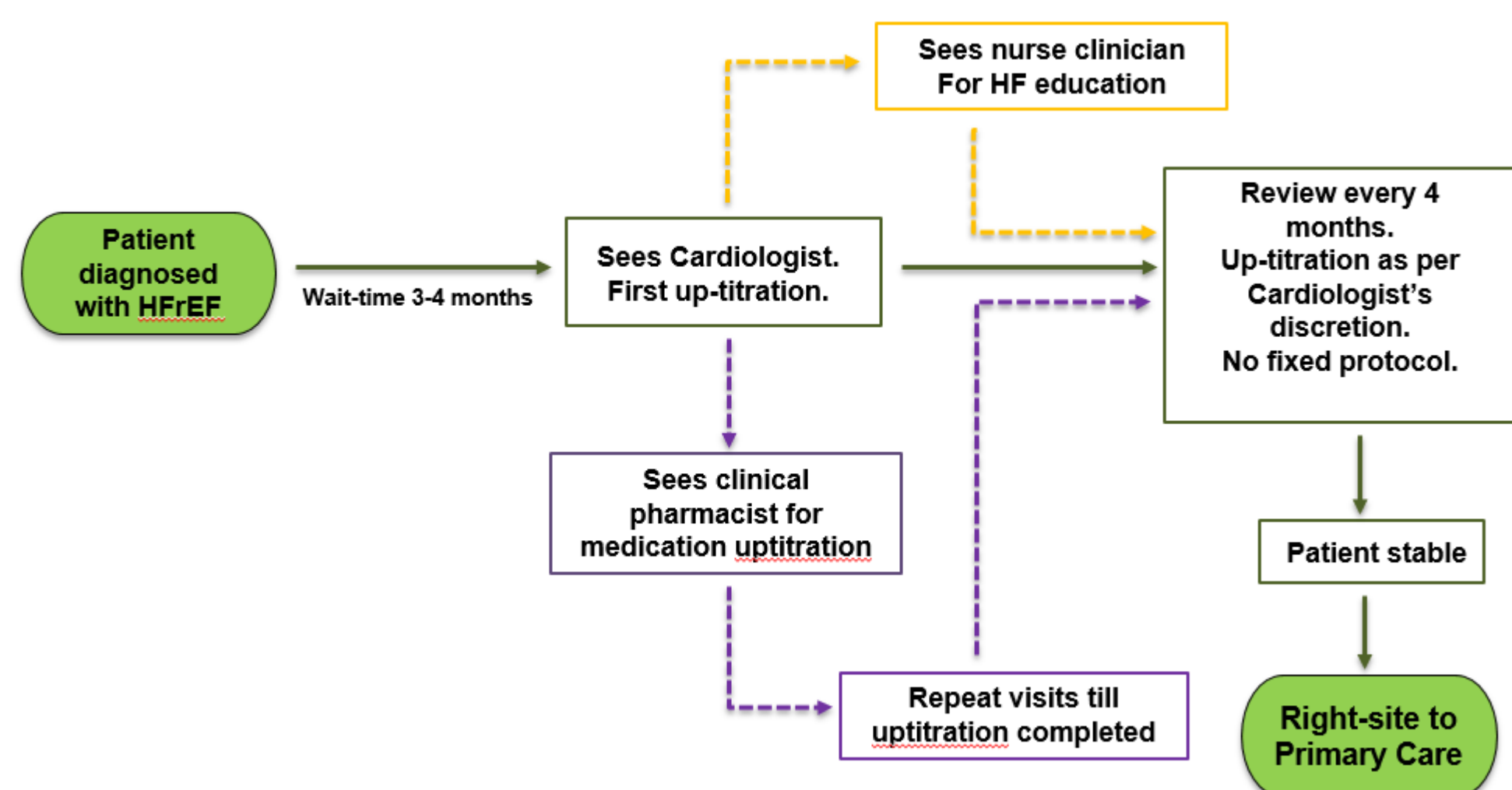
1. Cost per patient
2. Clinic capacity

### Balancing Measures

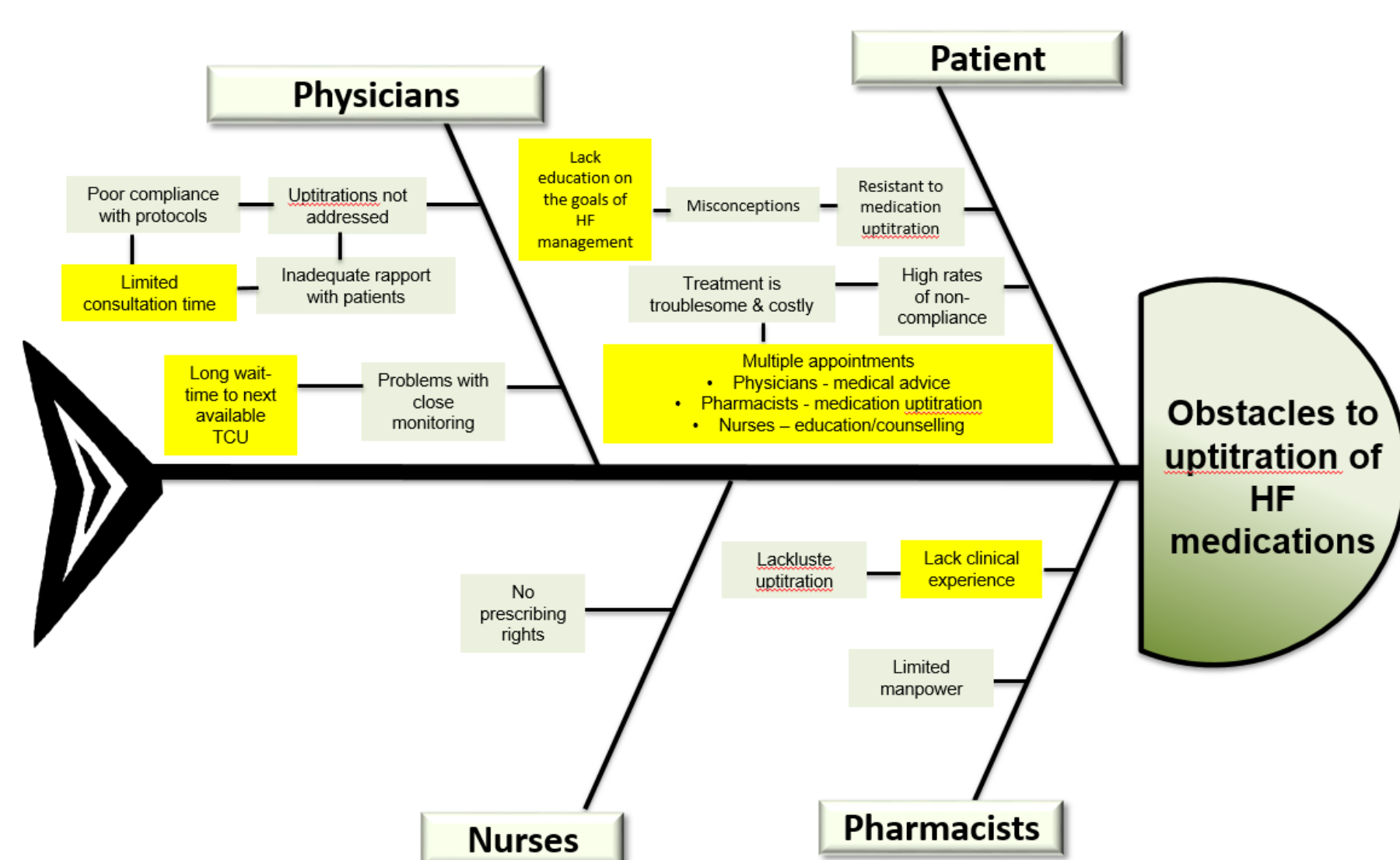
1. Time to maximum prescribed doses

## Analyse Problem

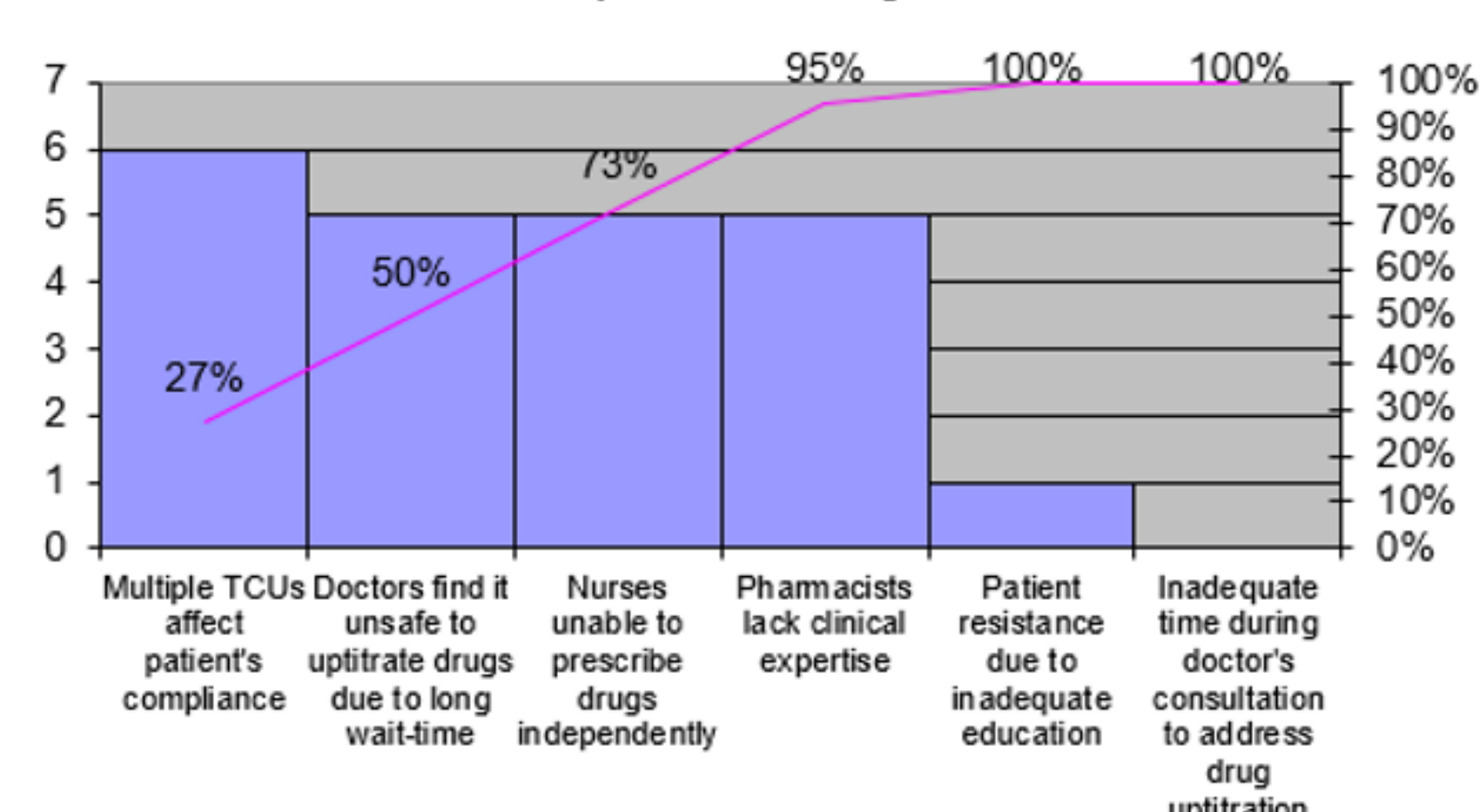
### What is your process before interventions?



### What are the probable root causes?



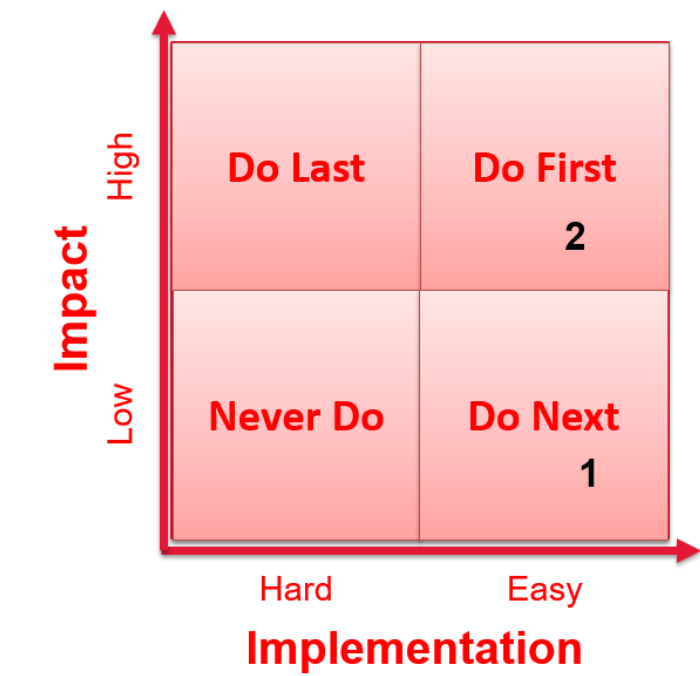
Obstacles to up-titration of HF drugs



## Select Changes

What are all the probable solutions? Which ones are selected for testing?

Root Cause	Potential Solutions
Multiple TCUs affect patient's compliance	1 Consecutive TCUs on a single day
	2 Single point-of-contact, with input from doctor, nurse, and pharmacist



A steering committee with special interest in HF, comprising a Cardiologist, Nurse Clinician, Clinical Pharmacist, and a Clinic Manager was formed. Plans were made for a **nurse/pharmacist-led clinic that is doctor-supervised**. A protocolized workflow was created based on input from key stakeholders.

The team will review the cases and make plans prior to the clinic session.

2 clinic rooms will run concurrently in the same session.

- Room A: Nurse Clinician
- Room B: Clinical pharmacist

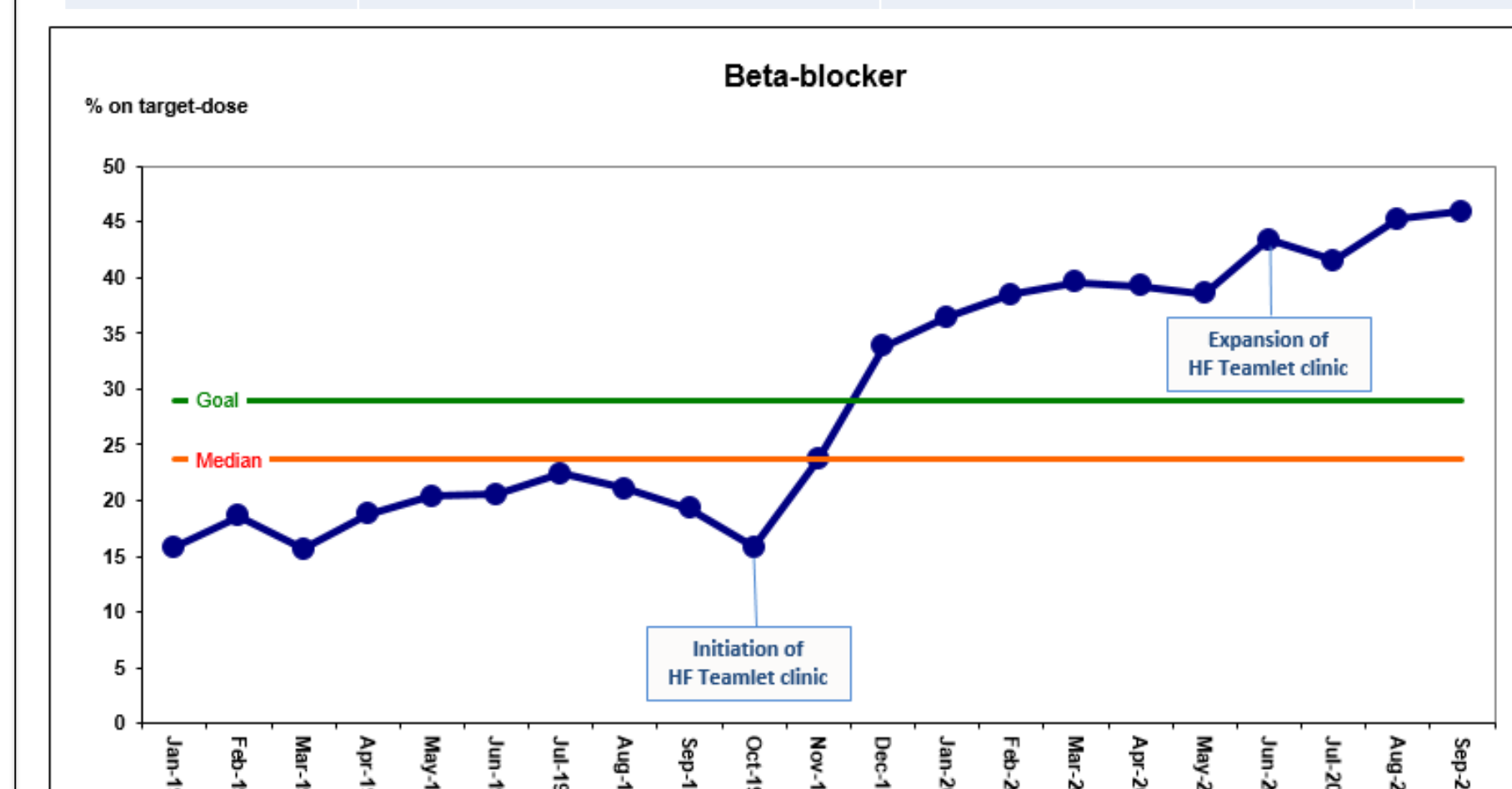
Beta-blockers and ACEI/ARB/ARNI are uptitrated according to protocol.

The HF Cardiologist is be on-site to supervise both rooms.

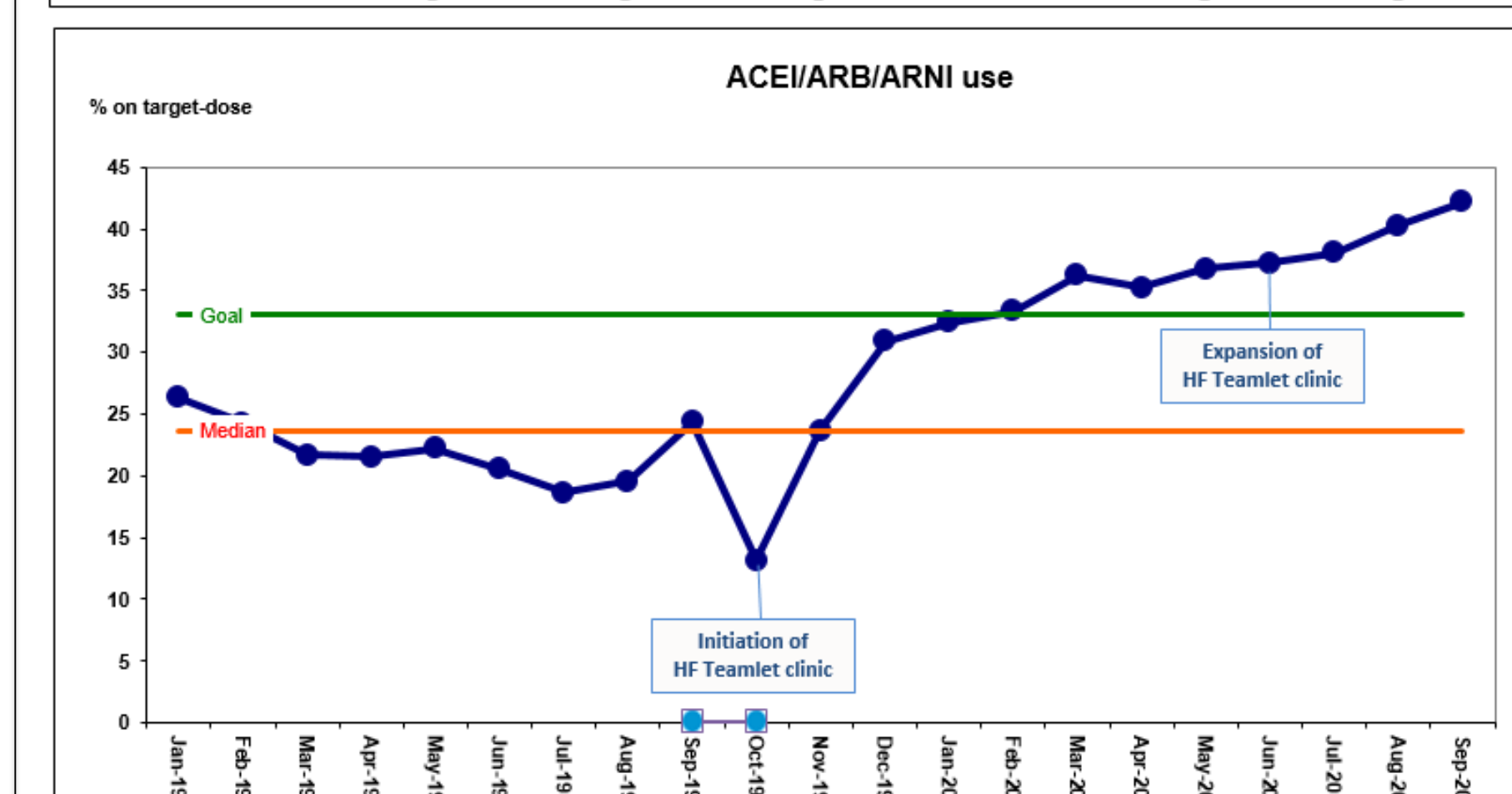
## Test & Implement Changes

How do we pilot the changes? What are the initial results?

CYCLE	PLAN	DO	STUDY	ACT
1	Test-run logistics feasibility, by the steering committee, at the outpatient Cardiology clinic, on 26/09/2019	Participants' feedback: 1. Cardiologist overstretched running between 2 rooms. 2. Pharmacist not confident to address more complex medical issues. 3. Nurse unable to independently prescribe, time wasted waiting around for help. 4. Protocol functional for uptitration of medications.	Reviewed 3 patients.  No other data collected.	Adapt workflow.  Cases will be graded into simple and complex cases.  Nurse + Cardiologist pair will review the complex cases together; Nurse addresses patient's concerns, Cardiologist provides prescription and further input.  Pharmacist reviews the simpler cases in the next room; Cardiologist is easily accessible to address any unforeseen issue that crops up
2	Implement new workflow, by the steering committee, at the outpatient Cardiology clinic, on 03/10/2019	All members felt comfortable with the new implementation.	Reviewed 13 patients.  Smooth transition from test-run to actual operations.	Adopt workflow. Scale up to 40 patients per clinic session.



	Before	After
<b>Average time to maximum prescribed dose</b>	61.2 days	52.9 days
<b>Cost per patient</b>	SGD \$51.39	SGD \$35.54



HF-MDC capacity increased from 15(pre-change) to 40(post-change) to 80(with addition of 2<sup>nd</sup> session) per week.

## Spread Changes, Learning Points

What are/were the strategies to spread change after implementation?

1. A 2<sup>nd</sup> HF-MDC team was formed in June 2020 to run an additional session each week.
  - Training was provided for 2 more nurses and 2 additional pharmacists to run the clinic
  - HF-MDC capacity increased from 15(pre-change) to 40(post-change) to 80(with addition of 2<sup>nd</sup> session) per week.
2. A post-myocardial infarction clinic (within Cardiology) was set up in November 2020, based on the same nurse/pharmacist-led and doctor-supervised multidisciplinary model.

What are the key learnings from this project?

The nurse/pharmacist-led and doctor-supervised multidisciplinary approach empowers all members of the healthcare team to deliver effective patient-centric care so that workforce efficiency is improved without safety compromise. This model is highly scalable, and can be potentially applied to management of other chronic conditions beyond heart failure.