

Project Title

Focused Echocardiograms Allow Cardiac Diagnostic Laboratory to Do More Studies
Per Day

Project Lead and Members

Project lead: Amy Koh Yoke Leng

Project members: Eva Hung, Gan Hiong Hiong, Goh Cheng Huang, Hla Yee, Loh Yu
Xuan, Teo Yuet Lin

Organisation(s) Involved

Ng Teng Fong General Hospital

Healthcare Family Group(s) Involved in this Project

Allied Health

Applicable Specialty or Discipline

Cardio technology

Aims

We aim to increase the average number of outpatients ECHOs performed per day
from 12.5 to 13.75 (10% increment)

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

We can improve work efficacy without requesting for additional resources.

Conclusion

See poster appended/ below

Project Category

Care & Process Redesign

Value Based Care (Patient Satisfaction)

Keywords

Echocardiogram, ECHO, Cardiac, Laboratory, Wait Time

Name and Email of Project Contact Person(s)

Name: Amy Koh Yoke Leng

Email: Yoke_Leng_Koh@nuhs.edu.sg

FOCUSED ECHOCARDIOGRAMS ALLOW CARDIAC DIAGNOSTIC LABORATORY TO DO MORE STUDIES PER DAY

- SAFETY
- QUALITY
- PATIENT EXPERIENCE
- PRODUCTIVITY
- COST

MEMBERS:

AMY KOH YOKE LENG, EVA HUNG, GAN HIONG HIONG, GOH CHENG HUANG, HLA YEE, LOH YU XUAN, TEO YUET LIN

Define Problem, Set Aim

Problem/Opportunity for Improvement

Echocardiograms are a limited resource. Each echocardiogram takes approximately 60 minutes to complete, and we have a finite number of technologists and machines for the task.

Demand is extremely high, and the estimated wait-time for an outpatient echocardiogram is between 6 to 7 months.

It is important to reduce the wait-time because delayed diagnosis and treatment of cardiac conditions will endanger our patients' lives.

We aim to increase the average number of outpatient ECHOs performed per day from 12.5 to 13.75 (10% increment)

Establish Measures

Outcome Measures

(i) average number of outpatient ECHOs performed per day

Process Measures

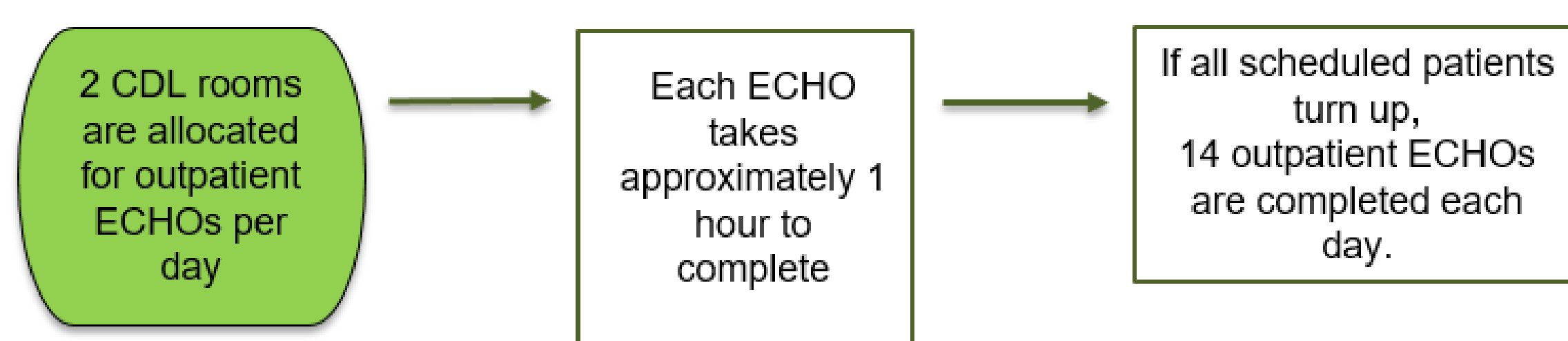
(i) Patient satisfaction score
(ii) Physician satisfaction score

Balancing Measures

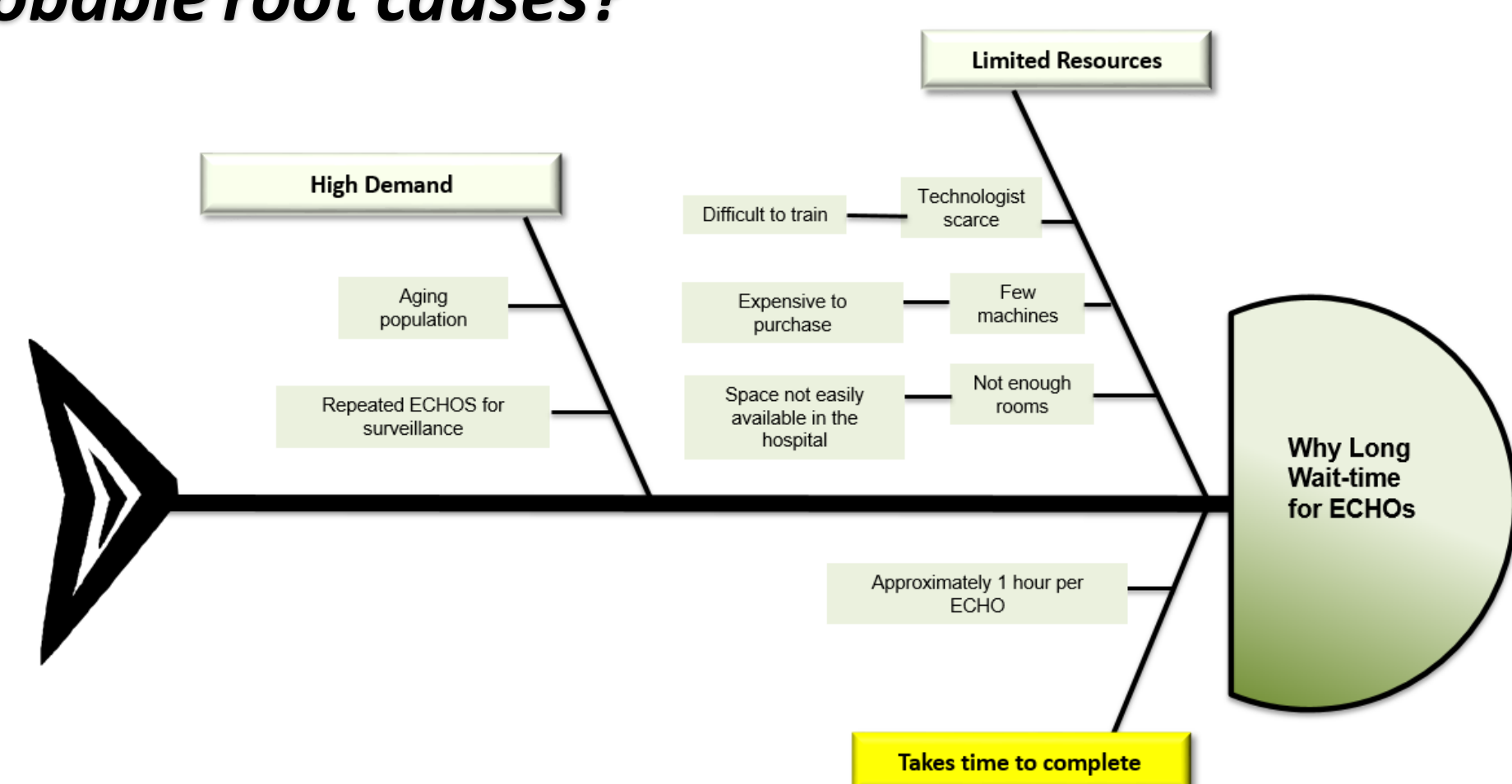
(i) % of patients found to have a missed cardiac condition due to a focused echocardiogram

Analyse Problem

What is your process before interventions?



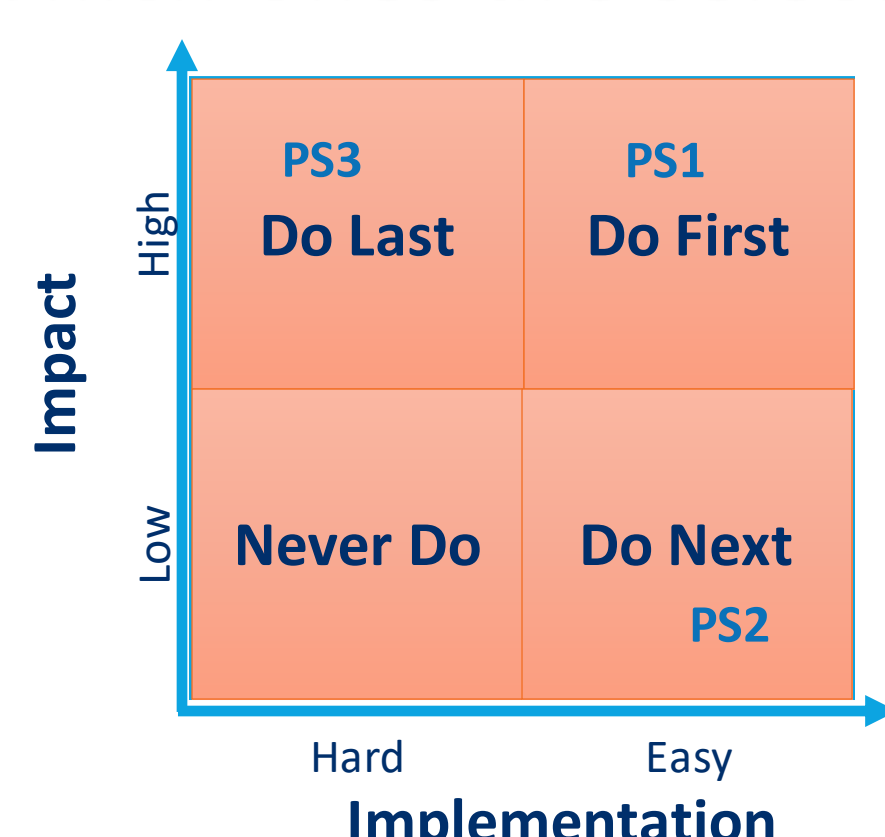
What are the probable root causes?



Select Changes

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

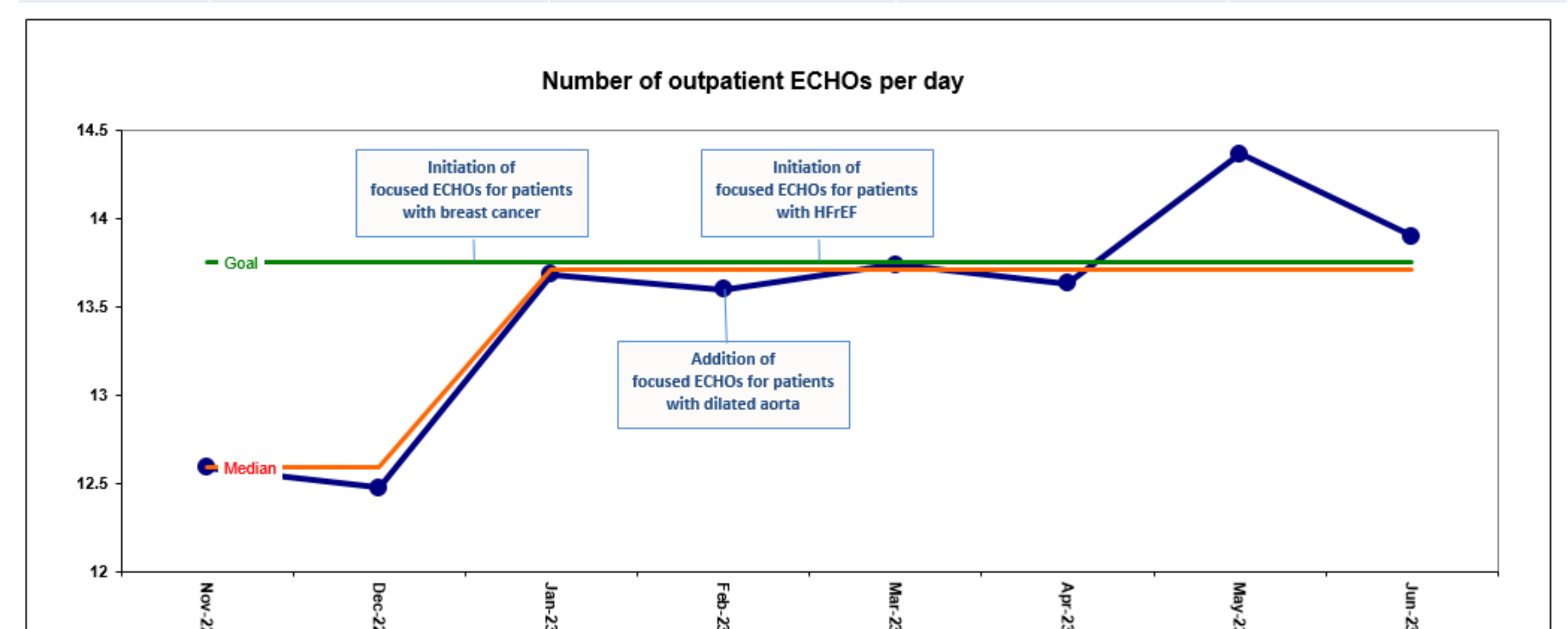
Root Cause	Potential Solutions
Long wait-time	1 Shorten echo – Do only what is necessary
	2 Screen which ECHOs are necessary
	3 Employ more ECHO technologists



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 committee, at the Cardiac Diagnostic Laboratory, on 21/12/2022.	Participants' feedback: 1. Focused study is able to provide adequate information. 2. Focused study can be performed in 15 minutes. 3. Additional load is not feasible for CDL rooms with heavy inpatient load.	Attempted focused study on 1 patient.	Adapt workflow for focused ECHO study to be performed at 8.30am by ECHO Room 2. Initial target group will be breast cancer patients on Herceptin.
2	Implement new workflow, by the committee, at the Cardiac Diagnostic Laboratory, on 03/01/2023.	All members felt comfortable with the new implementation.	Patients and physicians were satisfied with focused studies.	Allow daily booking of focused ECHO at 8.30am, at ECHO Room 2.
3	Addition of new target group – patients with dilated aortas, on 01/02/2023.	All members felt comfortable with the new implementation.	Patients and physicians were satisfied with focused studies.	Target groups: 1. Breast cancer patients on Herceptin 2. Patients with dilated aortas
4	Addition of new target group – patients with heart failure reduced ejection fraction (HFrEF), on 01/02/2023.	All members felt comfortable with the new implementation.	Patients and physicians were satisfied with focused studies.	Target groups: 1. Breast cancer patients on Herceptin 2. Patients with dilated aortas 3. Patients with HFrEF



Patient Satisfaction Score: 4.8/5

Physician Satisfaction Score: 5/5

Missed cardiac condition: 0%

Spread Changes, Learning Points

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

We intend to identify other conditions suitable for focused ECHO studies. Currently, focused ECHOs can only be ordered by Cardiology and Oncology; We will be looking into opening up the service to the rest of the hospital.

What are the key learnings from this project?

We can improve work efficacy without requesting for additional resources.