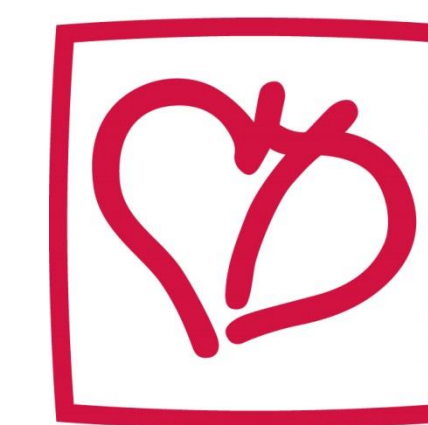




INCREASE TREADMILL ECHOCARDIOGRAPHY (TMXECHO) WORKFLOW EFFICIENCY



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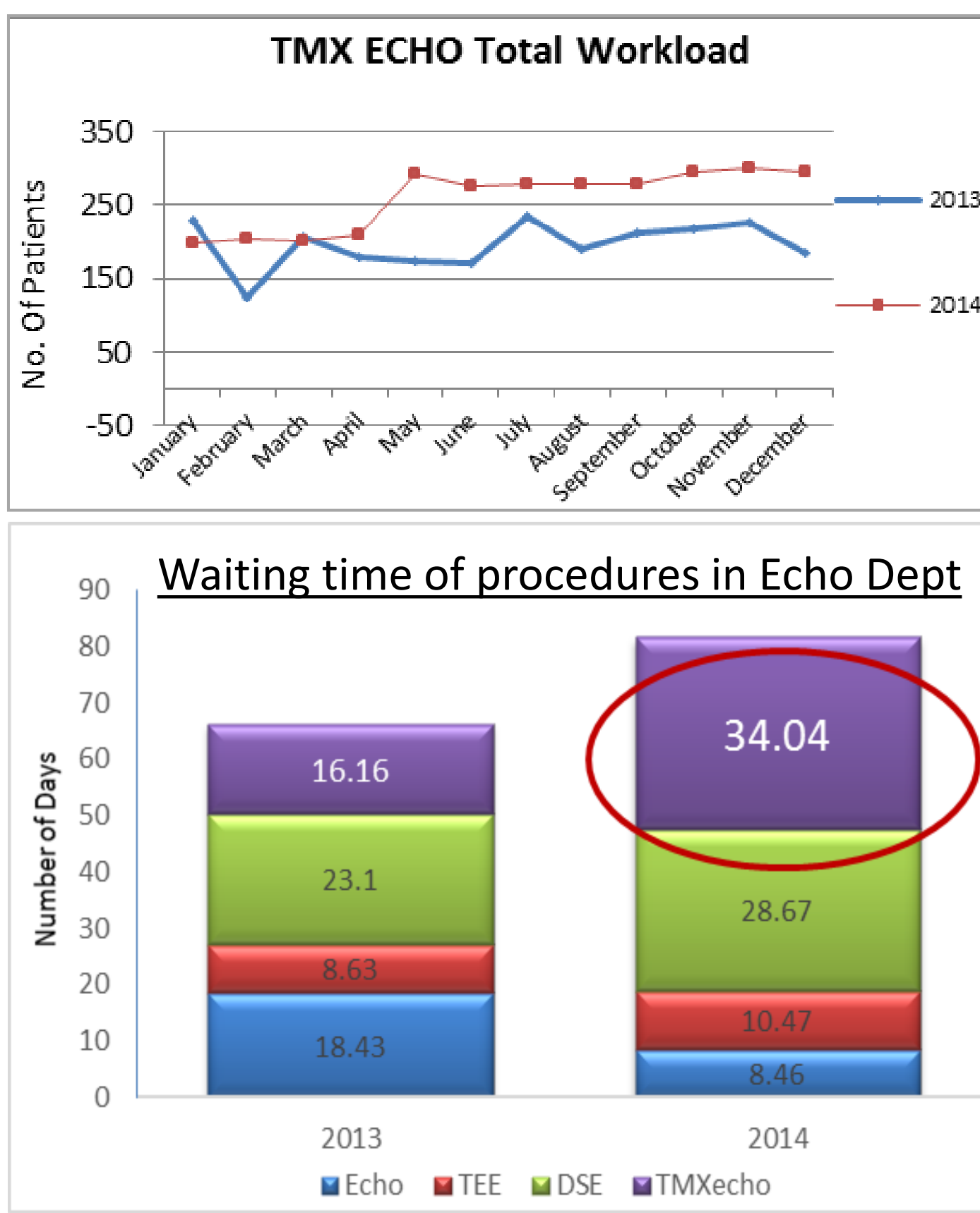
1 BACKGROUND

NHCS Cardiac Lab is projected to grow quickly over the next few years due to the rapid increase of cardiovascular diseases. TMXecho is a useful non-invasive test for assessment of patients with suspected history of coronary heart disease. It comprises of an ultrasound scan of the heart and treadmill exercise test. It is also the second highest modality of the department. In year 2013, request for TMXecho is over 3200 and exceeded nearly 4000 in year 2014. With the surge in demand, the increase in the slots was still unable to meet up with the escalation in workload, hence, and the waiting time for patient has raised significantly.

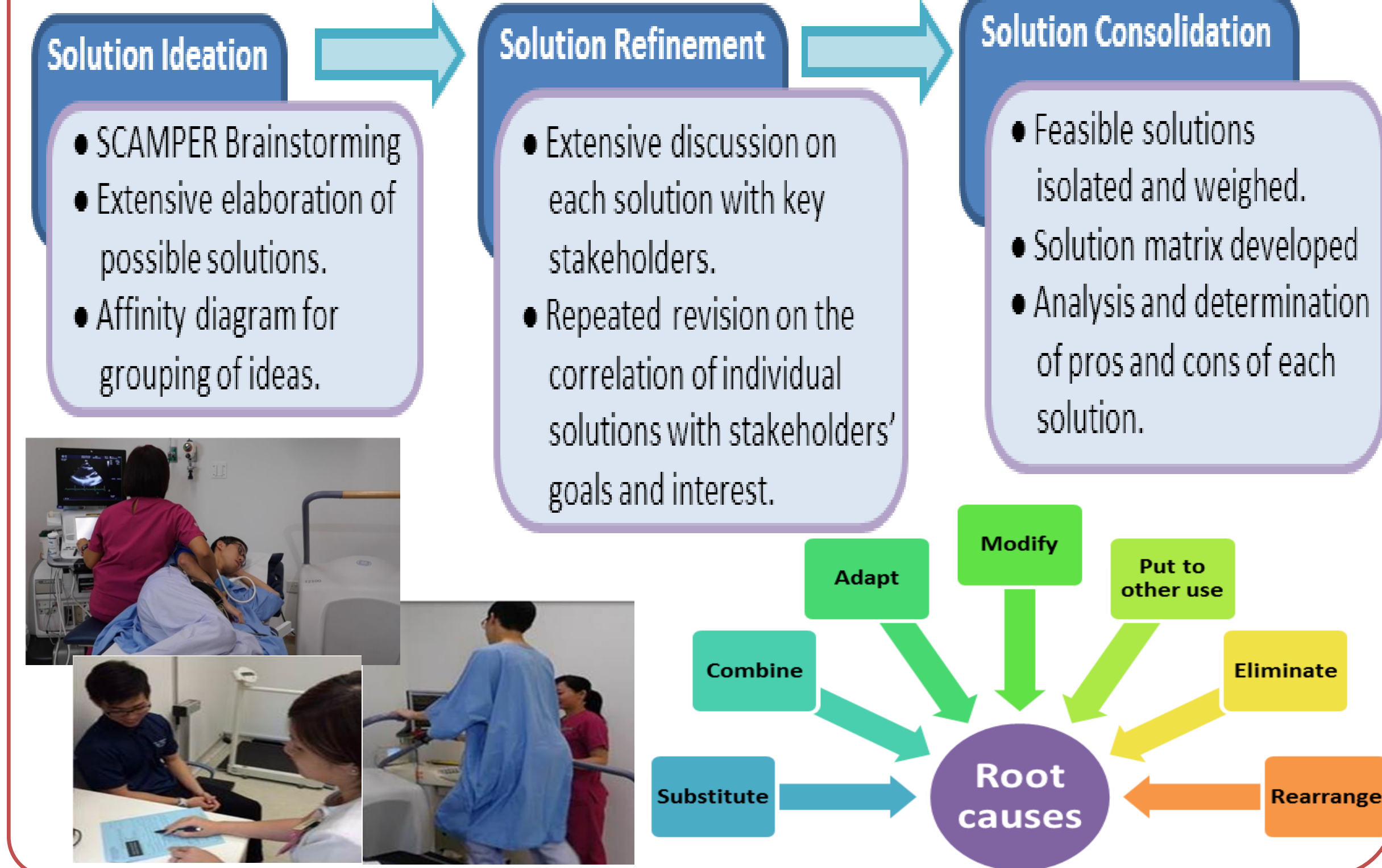
PROJECT GOALS

To increase the number of TMX Echo performed by 15%

Reduce TMXecho process time by 15%



2 METHODOLOGY



3 SOLUTIONS & IMPLEMENTATION

The workflow was reviewed and re-arranged to minimise patients' waiting time and create additional capacity for the medical technologists. A **Video** demonstration of TMXecho procedure was created to replace the physical demonstration done before every treadmill test. A **new workflow** was implemented for nurses in the assessment room to explain the treadmill process and take consent from the patients before they enter the procedure room.

A new resource named "**Force-In Treadmill Echo**" was created to accommodate the increased demand with time saved from this project.

BEFORE Implementation

Waiting time 20 minutes

Before = 40 Minutes

- Upon arrival, patient register at lab's counter
- Patient take Ht, Wt and BP in patient assessment room
- Patient wait for Q no. to be called to proceed to baseline echo room
- MT will take baseline echo scan
- Patient wait to be called to TMXecho room
- MT will explained the procedure and get patient's consent
- MT demo TMX exercise
- Patient to do TMX exercise
- At maximum exercise, patient required to lie back for post exercise echo scan

AFTER Implementation

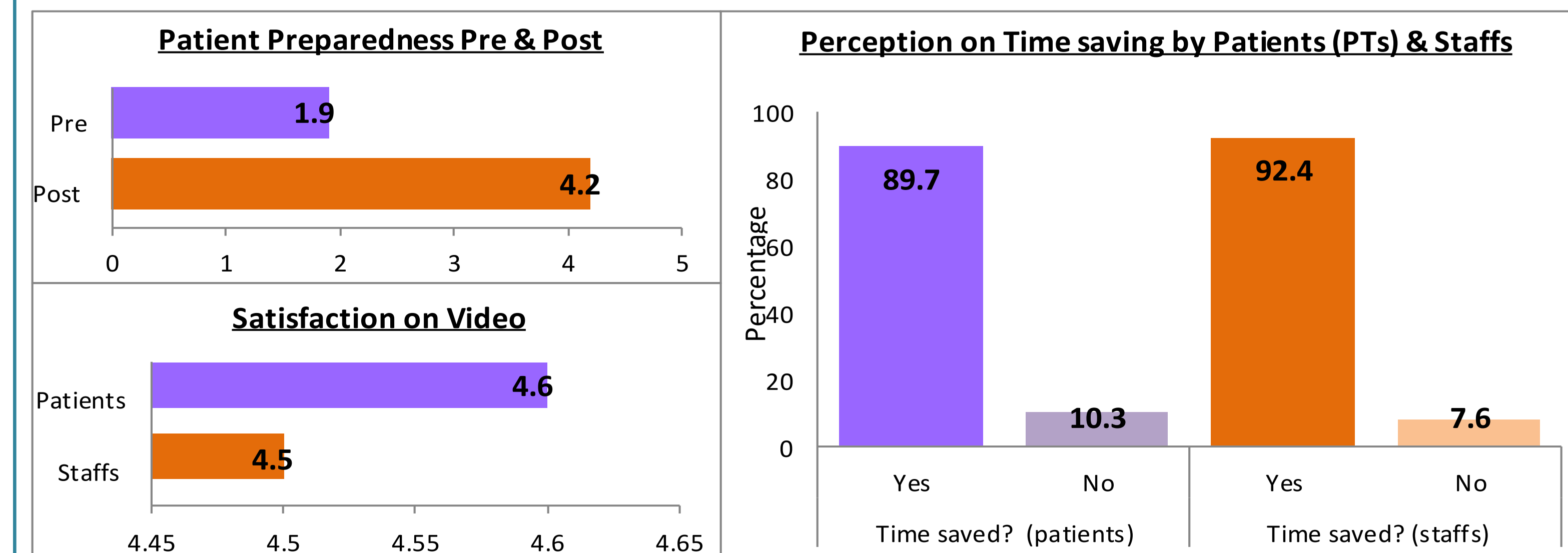
New process

Waiting time 11 minutes

After = 28 Minutes

- Upon arrival, patient register at lab's counter
- Patient take Ht, Wt and BP in patient assessment room and is asked to watch TMXecho video, followed by consent taking with nurse
- Patient wait for Q no. to be called to proceed to baseline echo room
- MT will take baseline echo scan
- Patient wait to be called to TMXecho room
- Patient to do TMX exercise
- After the exercise, patient is required to lie back for post exercise echo scan

4 RESULTS



↑ **Patient Preparedness** ↑ **Patient/ Staff Satisfaction** ↑ **Time Savings**

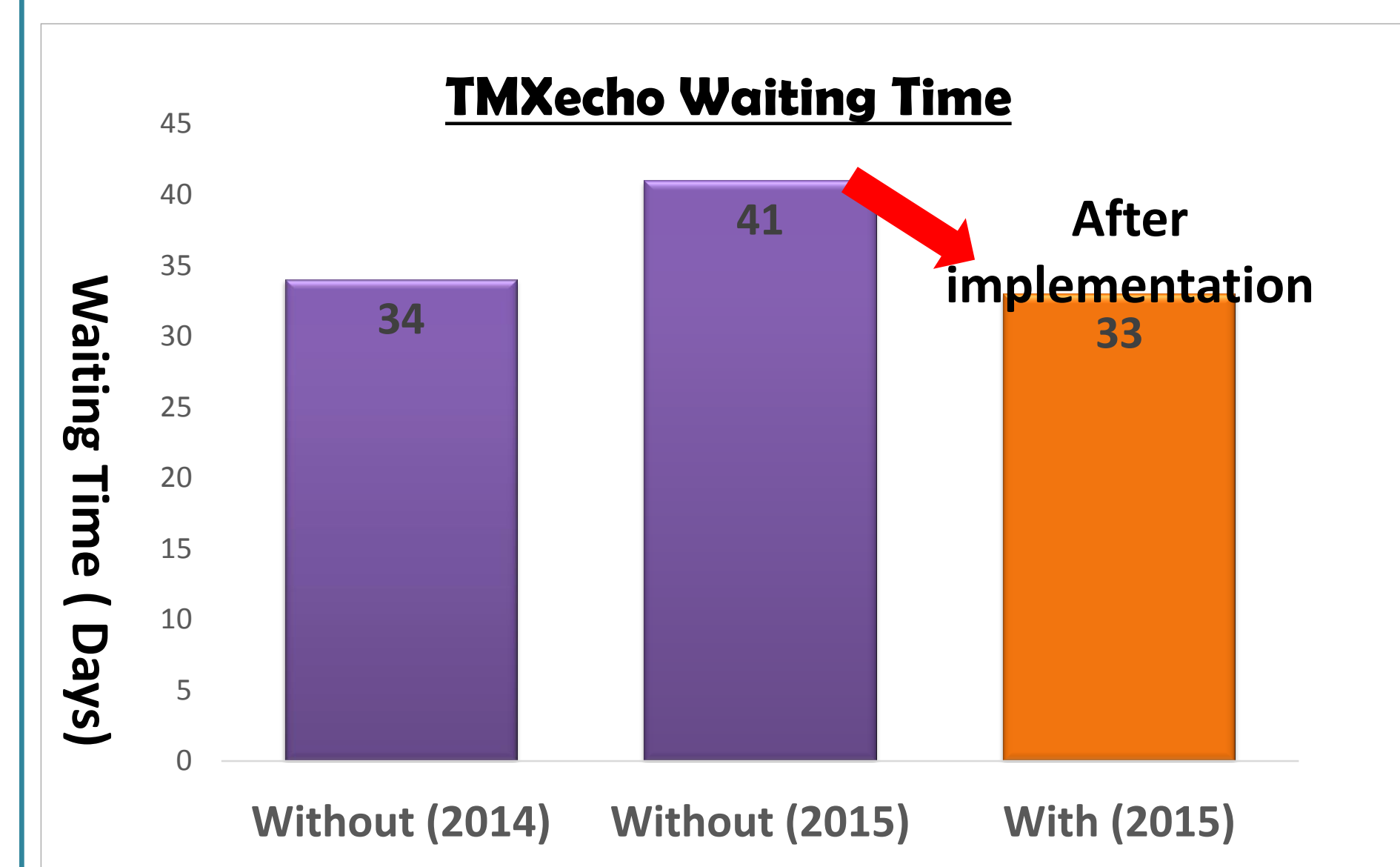
Activity	Time(min)/ Slot
Pre-implementation time taken for TMXecho	40
Post-implementation time taken for TMXecho	28
Time saved in TMXecho lab per patient	12
Time saved in TMXecho lab per day	12x22=264
Time taken for baseline echo (Pre/Post)	30
Post-implementation time taken for baseline + TMXecho	28+30=58
Additional TMXecho slots added per day	268/58=4
Additional TMXecho slots added per annum	4x250=1000

4 Additional TMXecho slots per day

1000 Additional TMXecho slots per annum



1100 Hours/\$19,800 manpower cost avoidance per annum



Improved TMXecho Waiting Time

8 Days faster to each appointment

*TMXecho workload with the same number of staff and space

Impact on Stakeholders

- | | |
|---|--|
| <p>Patients</p> <ul style="list-style-type: none"> ✓ Understood procedure better and felt more prepared ✓ Decreased in stress and anxiety ✓ Increase safety, effectiveness and better coordination/continuity of care | <p>Staffs (MTs and Doctors)</p> <ul style="list-style-type: none"> ✓ Morale boosted with better patients' engagement and internal process ✓ More time allocated to quality clinical work ✓ Enhanced communication and teamwork |
|---|--|

The New Process...

↓ **Wait Time** ↓ **Time spent in procedure room** ↓ **Man-hours Per patient**