

# 1 HOUR IS ALL IT TAKES

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- SAFETY
- QUALITY
- PATIENT EXPERIENCE
- PRODUCTIVITY
- COST

## Problem, Aim

### Problem & Opportunity for Improvement

A data analysis conducted between January to May 2022 showed that the attendance of the conventional exercise-based Cardiac Rehabilitation Programme (CRP) at Ng Teng Fong General Hospital (NTFGH) has demonstrated improvement in physical activity (PA) participation in patients after a myocardial infarction (MI). With studies showing an inverted dose response relationship between PA participation and cardiovascular disease mortality, greater cardio-protective benefits with more time spent physically active is suggested.

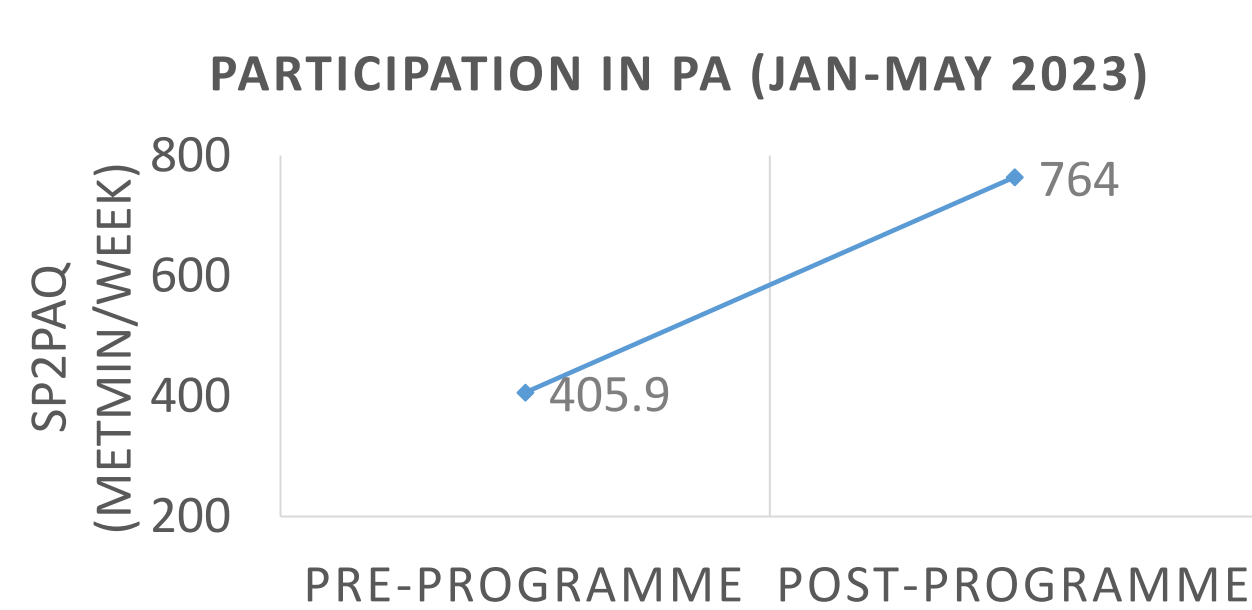
### Aim

With that, a quality improvement project was conducted to identify probable solutions to improve the clinical effectiveness of NTFGH's CRP. In a trial period of six months, the aim is to achieve a higher weekly PA participation in post MI patients greater than 764 METmin, which is the post-programme outcome at conventional CRP.

## Establish Measures

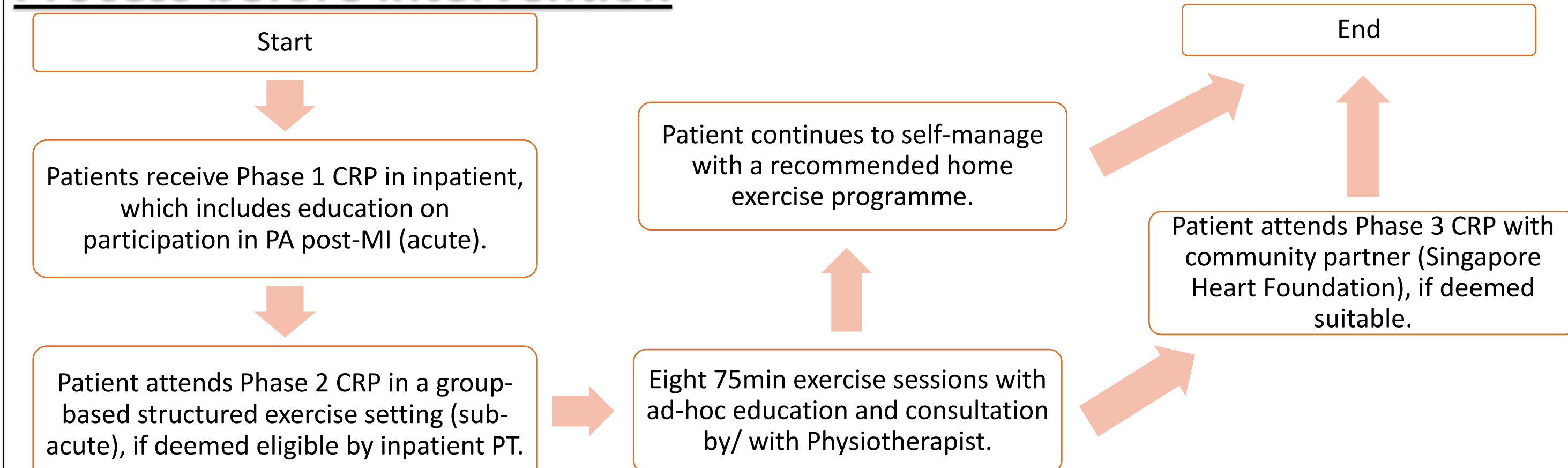
### Outcome measure and performance before intervention

**Participation in PA**  
PA participation in pre and post attendance of CRP have been measured with a Singapore version of the Physical Activity Questionnaire (Sp2PAQ), which captures time and energy expenditure of various types of PA performed by an individual. It considers all activities in which the person spends at least 10 minutes on in a usual week, such as structured exercises, time spent walking or cycling when travelling between places and household chores.

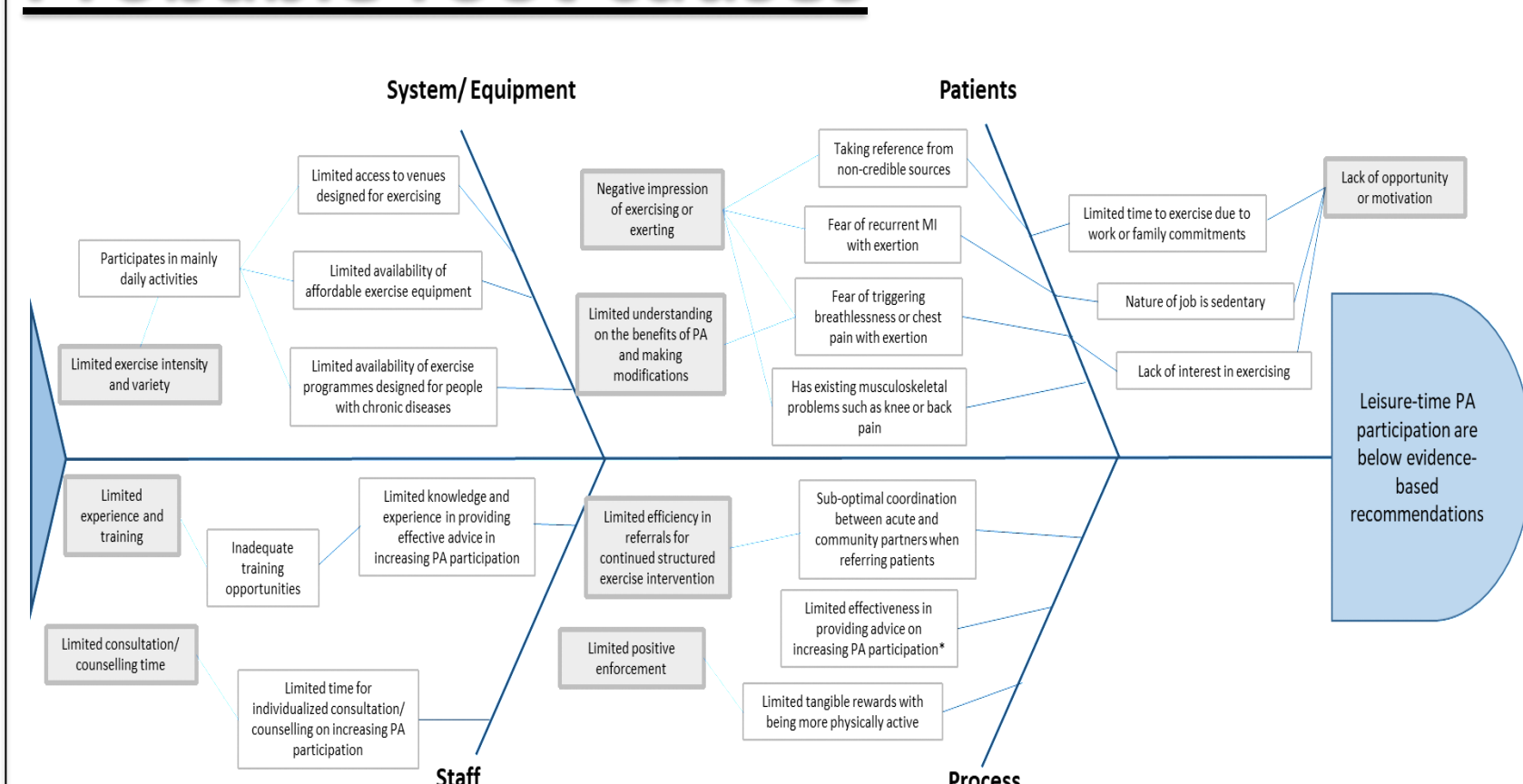


## Analyse Problem

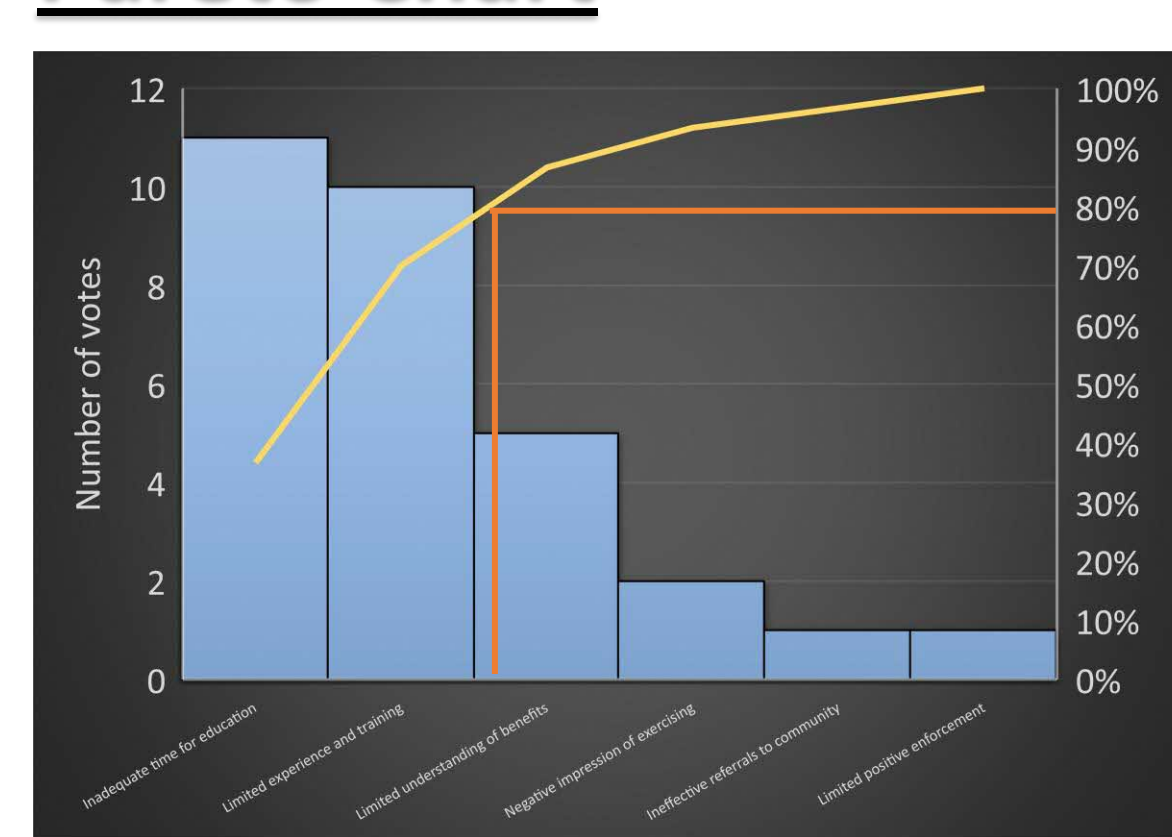
### Process before intervention



### Probable root causes

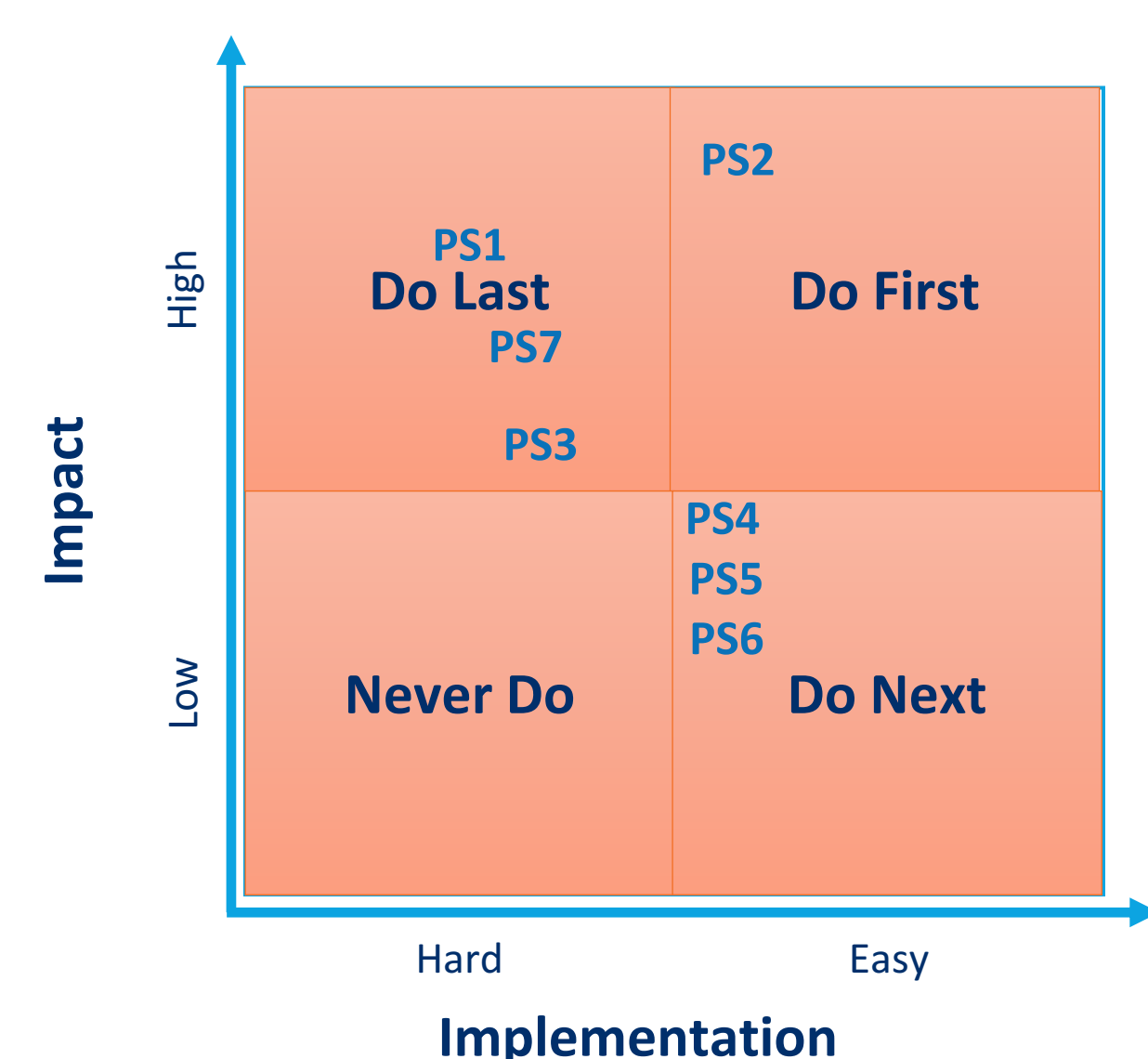


### Pareto Chart



## Select Changes

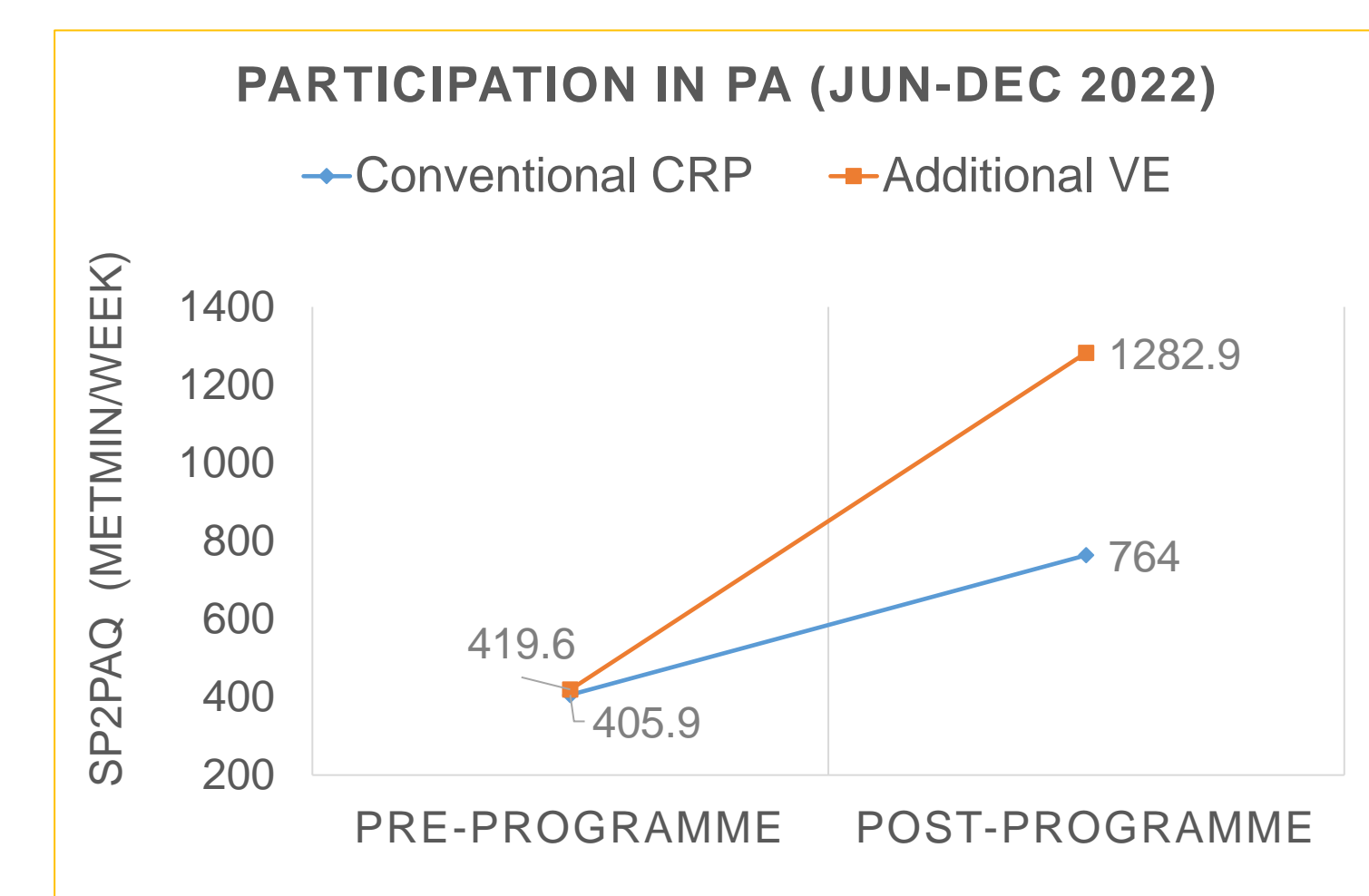
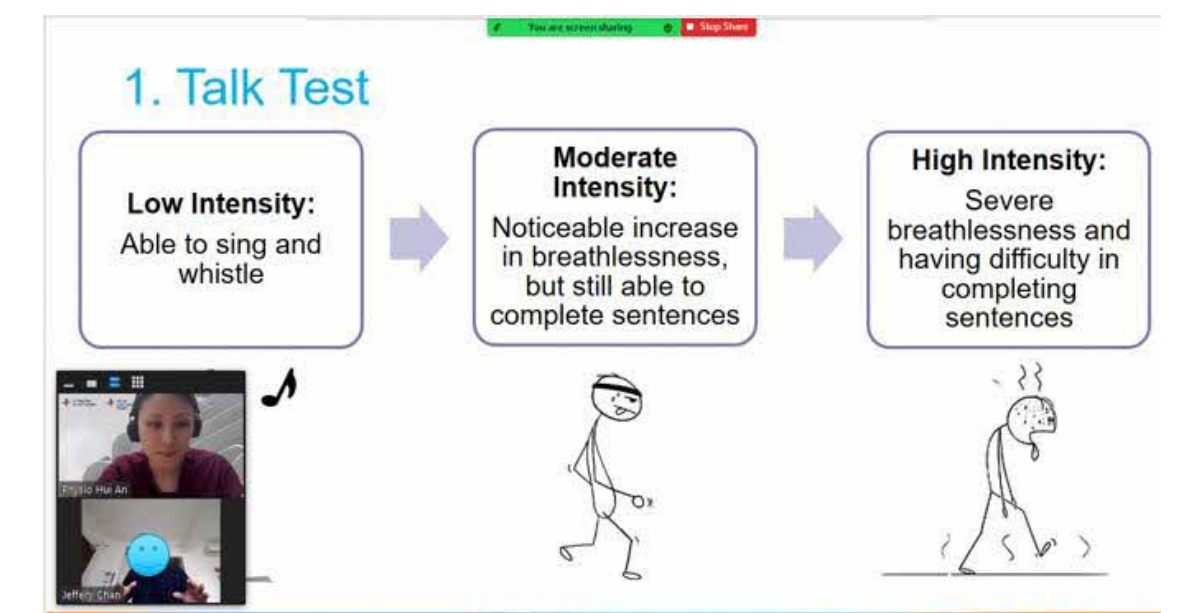
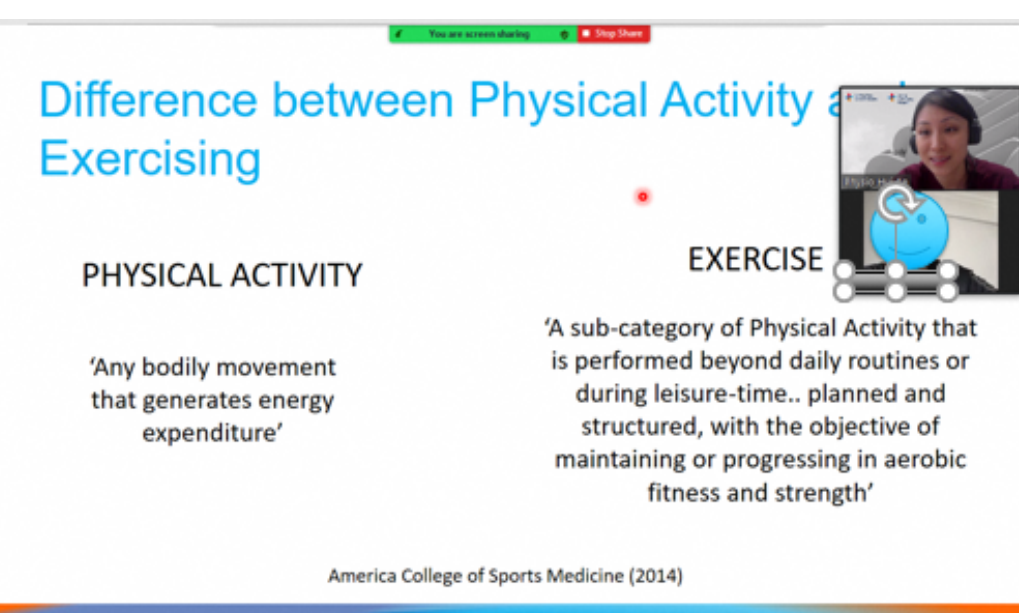
Root Causes	Potential Solutions
Inadequate opportunities for individualized consultation/education during CRP	1 Reduce number of patients per exercise class.
	2 Offer additional education component (additional sessions).
	3 Set aside two 15min for education/consultation segments during mid and end of the eight session CRP.
	4 Engage physiotherapy students in conducting education/consultation segment.
Inadequate training/experience of staff	5 Create goal setting template (patient education booklet) for physiotherapists to refer to during CRP.
	6 Have a check box to remind physiotherapist to reinforce on importance of increasing physical activity.
	7 Develop a training programme for physiotherapists to learn from seniors with more experience and have received training in behavioral changing strategies.



## Test & Implement Changes

### Piloting and reviewing the addition of an education component

CYCLE	PLAN	DO	STUDY	ACT
1	<ul style="list-style-type: none"> <li>Test suitability of using a virtual delivery platform for an education session (Virtual Education: VE).</li> <li>Test session duration and suitability of topic selected.</li> </ul>	<p>June 2022:</p> <ul style="list-style-type: none"> <li>Two participants were paired up to attend VE.</li> <li>Observed minimal interaction between patients and one patient was dominating the conversations.</li> <li>The session exceeded by 20min.</li> <li>One out of two patients needed a reminder on some home exercises that were taught at CRP.</li> </ul>	<ul style="list-style-type: none"> <li>Group-based VE sessions may lead to an uneven distribution of engagement, as participants have specific questions to ask.</li> <li>Inclusion of exercise demonstration may be needed for some patients.</li> </ul>	<p><b>Abandon:</b></p> <ul style="list-style-type: none"> <li>Group-based VE</li> </ul> <p><b>Adapt:</b></p> <ul style="list-style-type: none"> <li>Trial 1-1 sessions.</li> <li>To include exercise demonstration</li> </ul>
2	<ul style="list-style-type: none"> <li>Test duration of 1-1 sessions.</li> <li>To test the process of including a short (&lt;5min) seated exercise demonstration and practice segment.</li> <li>Observe flow of conversation for follow-up session.</li> </ul>	<p>July-September 2022:</p> <ul style="list-style-type: none"> <li>Four patients attended 1-1 sessions, one of which is a follow-up session.</li> <li>Session 1 was approximately 30min long, while follow-up session was slightly shorter (25min).</li> <li>Observed that most time within a session was spent on consultation, for first session and follow-up session.</li> <li>Follow-up session focused on recapping what was discussed previously.</li> <li>Two out of the three first session patients did not require demonstration of exercises as they could recall the exercises from CRP.</li> <li>Most patients would raise on non-physical activity related.</li> </ul>	<ul style="list-style-type: none"> <li>VE sessions should be patient led and in a consultation format. Selected topics will guide conversations.</li> <li>Not all patients would require exercise demonstration.</li> <li>Basic multidisciplinary consultation would be necessary.</li> </ul>	<p><b>Adopt:</b></p> <ul style="list-style-type: none"> <li>Continue to keep to 30min slots for first and follow-up sessions.</li> <li>Use pre-set topics to facilitate the session but allow patients to lead the conversations.</li> </ul> <p><b>Adapt:</b></p> <ul style="list-style-type: none"> <li>Exercise demonstration to be ad-hoc based.</li> <li>Prepare to answer basic multidisciplinary questions. Seek relevant professionals advise when necessary and/or to direct patient to respective professionals.</li> </ul>
3	<ul style="list-style-type: none"> <li>Review duration of follow-up sessions across more patients</li> </ul>	<p>October-December 2022:</p> <ul style="list-style-type: none"> <li>Four follow-up sessions were conducted.</li> <li>An average of 30min utilized for either sessions.</li> </ul>	<ul style="list-style-type: none"> <li>30min is an adequate slot duration for first and follow-up sessions.</li> </ul>	<p><b>Adopt:</b></p> <ul style="list-style-type: none"> <li>Keep to 30min slots for first and follow-up sessions.</li> </ul>
4	<ul style="list-style-type: none"> <li>Analyze changes in weekly leisure-time PA participation</li> </ul>	<p>January 2023:</p> <ul style="list-style-type: none"> <li>A total of seven participants completed CRP and additional VE within a period of six months.</li> </ul>	<ul style="list-style-type: none"> <li>Patients who attended additional VE had a greater increase in weekly leisure-time PA compared to those who only attended conventional CRP, 872.2METmin versus 358.2METmin.</li> </ul>	<p><b>Adopt:</b></p> <ul style="list-style-type: none"> <li>To offer two 30min VE sessions to post MI patients who are eligible.</li> </ul>



**Positive outcome:**

- Both groups achieved national cardiovascular disease prevention recommendation of 150min moderate-intensity PA in a week.
- Greater rate of improvement seen in patients who received additional VE.

To look into:

- Offering VE to all eligible patients post MI.
- Review the impact that VE has on behavioral change in a longer-term.

## Spread Changes, Learning Points

As the journey of post-MI patients includes encounters across various disciplines, the importance of attending CRP and VE can be enforced by other healthcare professionals. Additionally, the use of VE may be extended to other Physiotherapist-led chronic disease programmes with the intention of promoting benefits of PA and facilitating behavioral change.

To increase enrolment into VE, CRP Physiotherapists will be the leaders in roping in fellow physiotherapists and other disciplines to spread the impact of this additional component. This may be done through sharing of experience and the positive outcome by CRP Physiotherapists with stakeholders. Furthermore, existing 'Health Champions' who are longer term CRP attending patients, would be essential in influencing the others into who are living with the same condition to attend VE.

To conclude, it is necessary to observe the receiver's response to the implementation and to review the content and structure across various stages. Secondly, the feedback and suggestions obtained from stakeholders further contributes to the fine tuning of a project. With targeted and timely adjustments made along the way, optimal effectiveness can be achieved.