

Project Title

The Use of the Andago™ In Neurological Rehabilitation

Project Lead and Members

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Project members: Han Shuyi, Tan Hui Yin, Qiu Wenjing

Organisation(s) Involved

Jurong Community Hospital

Aims

Improve the distance ambulated by patients by a minimum of 50% in 1 session with the use of the Andago™ as compared to conventional gait training. Improve therapists' perceived ability in safely assisting patients with walking.

Background

See poster attached/ below

Methods

See poster attached/ below

Results

See poster attached/ below

Lessons Learnt

The use of Andago™ enables physiotherapists to ambulate neurological patients further than conventional therapy, improving quality of their rehabilitation process. The Andago™ increases physiotherapists' confidence in safely ambulating neurological patients who require medium to maximum assistance.

Conclusion

See poster attached/ below

Project Category

Technology, Safe Care

Keywords

Technology, Safe Care, Robotics, Quality Improvement, Allied Health, Physiotherapy,
Jurong Community Hospital, Neurological Rehabilitation, Andago™, Ambulation

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THE USE OF THE ANDAGO™ IN NEUROLOGICAL REHABILITATION

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- SAFETY
- PRODUCTIVITY
- PATIENT EXPERIENCE
- QUALITY
- VALUE

Define Problem/ Set Aim

Problem/Opportunity for Improvement

Since the start of rehabilitation services for physiotherapy in Jurong Community Hospital (JCH), therapists encounter difficulty mobilizing patients with neurological conditions who require moderate to maximal assistance in walking. This limits the maximum amount of distance they can potentially achieve, thus affecting the quality of treatment our patients receive.

Aim

1. Improve the distance ambulated by patients by a minimum of 50% in 1 session with the use of the Andago™* as compared to conventional gait training**.
2. Improve therapists' perceived ability in safely assisting patients with walking.

*Andago™ : A new rehabilitation equipment that utilizes mobile robotic technology to sense patient's movement while providing body weight support for overground gait training.

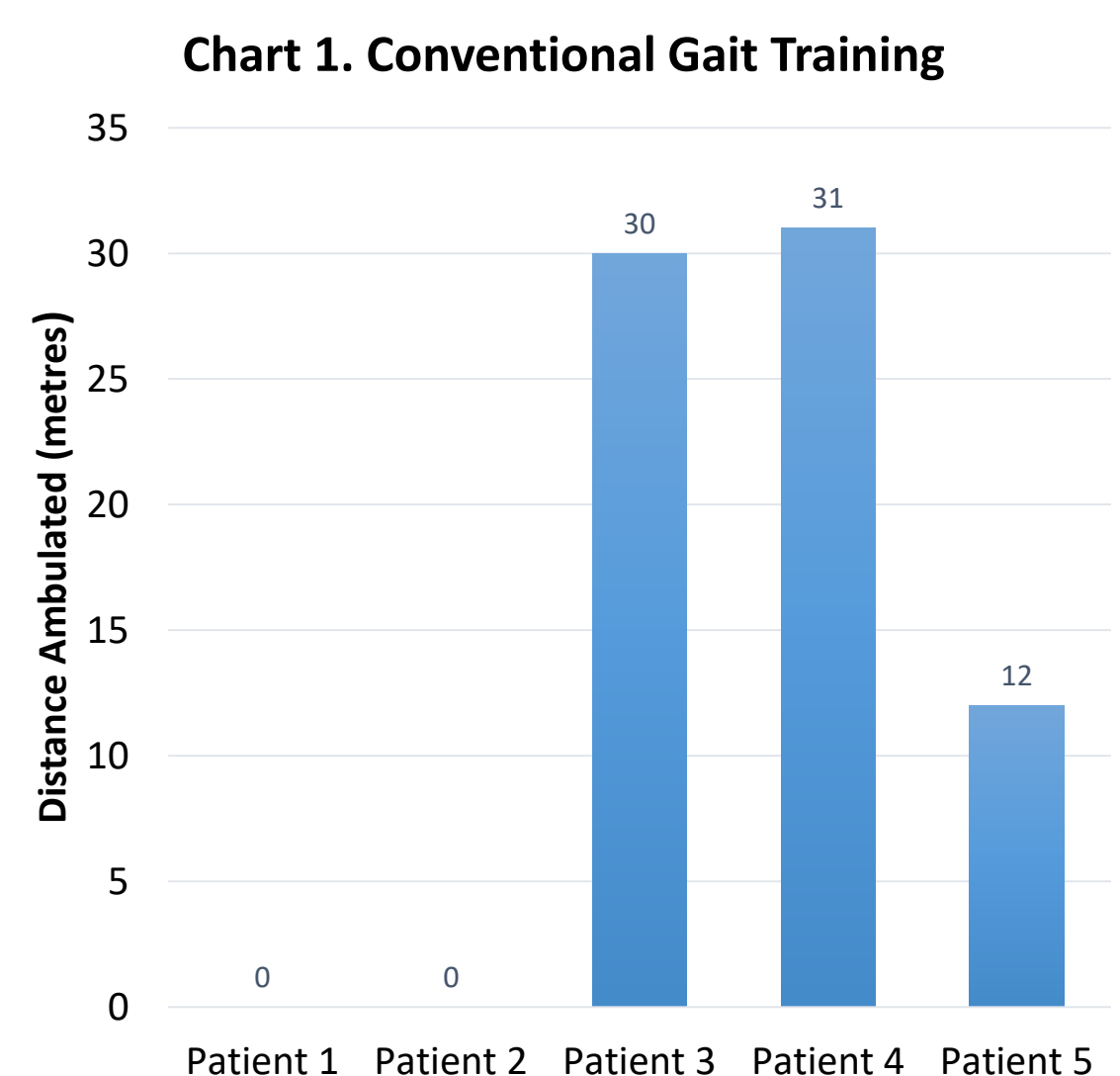
** Conventional gait training:
Ambulating patient with an appropriate walking aid.



Establish Measures

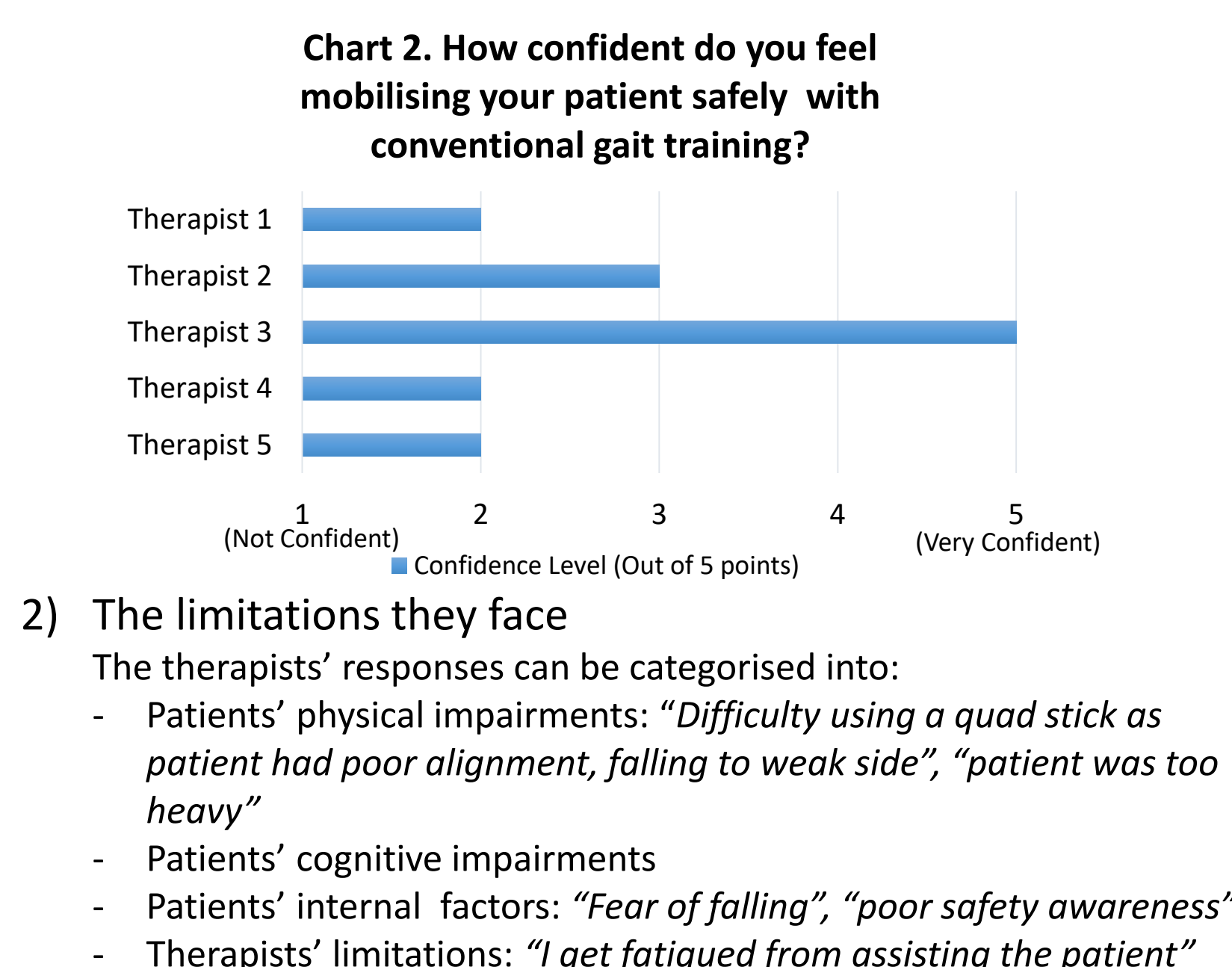
Measure 1:

We measured patient's distance ambulated with conventional gait training. (See Chart 1 below)



Measure 2:

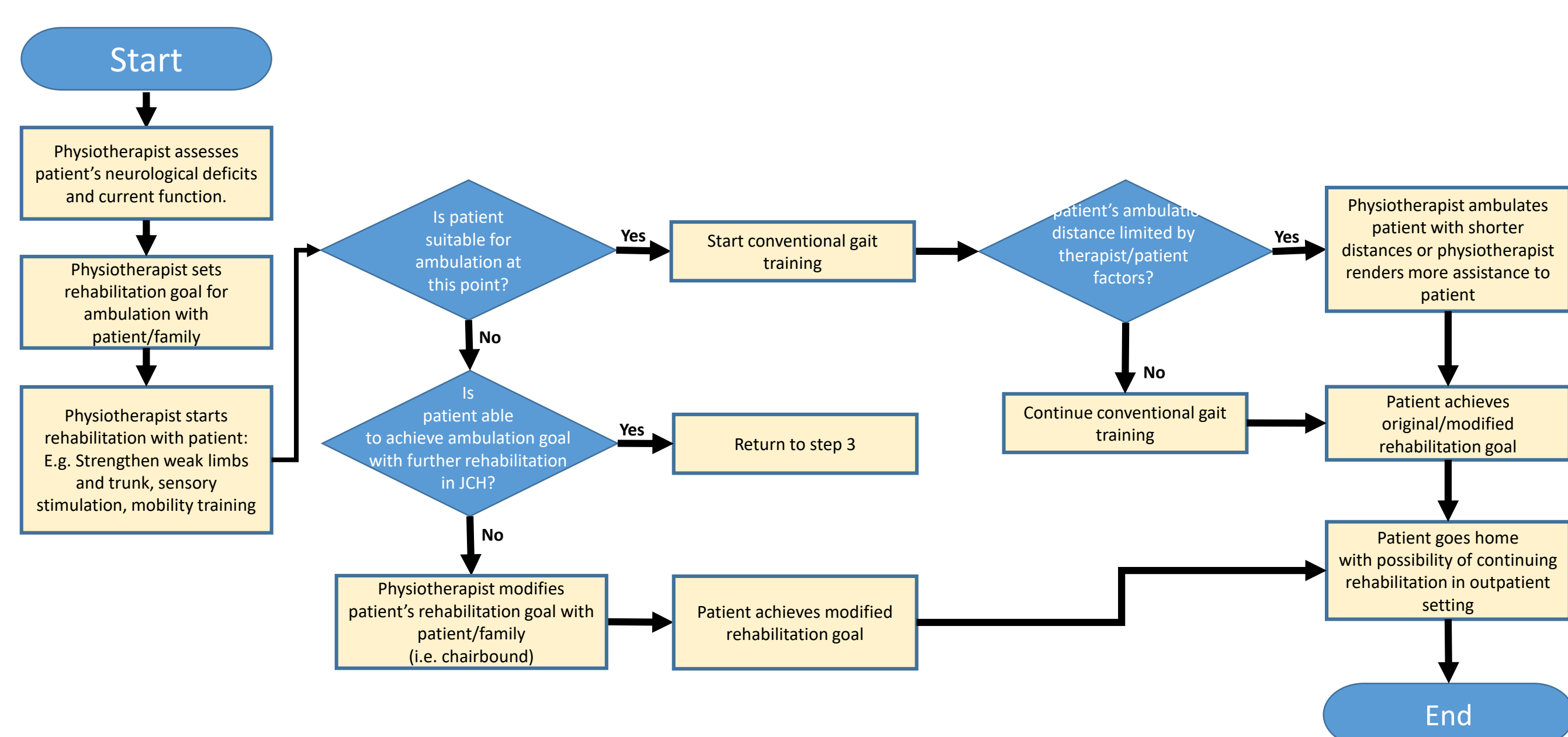
We surveyed the 5 physiotherapists to find out:
1) Their confidence level when they ambulate with patients using conventional gait training (See Chart 2 below)



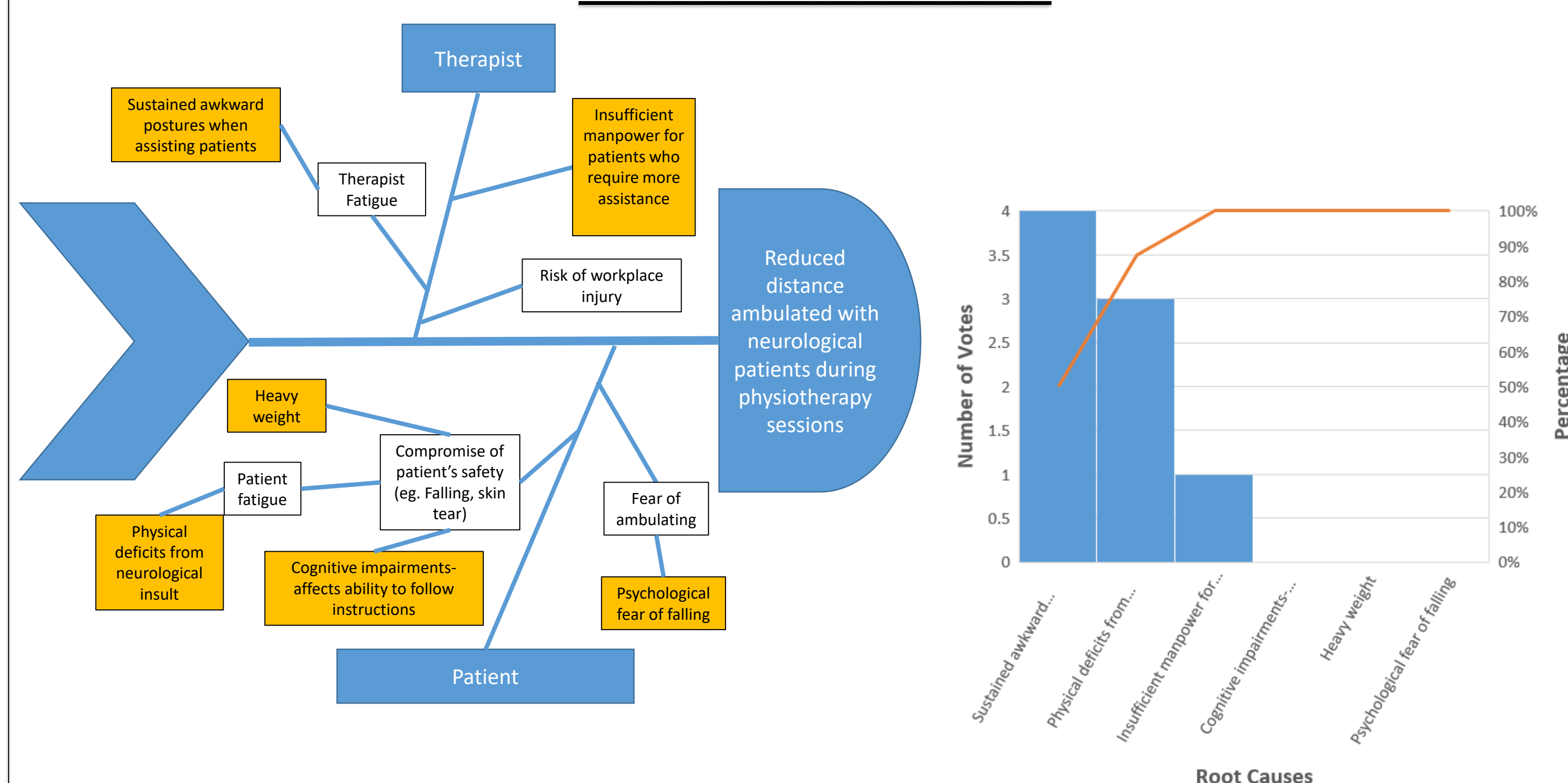
- 2) The limitations they face
The therapists' responses can be categorised into:
- Patients' physical impairments: "Difficulty using a quad stick as patient had poor alignment, falling to weak side", "patient was too heavy"
 - Patients' cognitive impairments
 - Patients' internal factors: "Fear of falling", "poor safety awareness"
 - Therapists' limitations: "I get fatigued from assisting the patient"

Analyse Problem

Process Before Intervention



Probable Root Causes



Select Changes

Probable Solutions Established

Root Causes	Potential Solutions
1. Sustained awkward postures when assisting patients	1 Do not mobilise patient and keep patient chairbound
	2 Mobilise patient over ground with a walking aid and increased manpower assistance
	3 Mobilise patient in parallel bars
2. Physical deficits from neurological insult	4 Delay ambulation phase of rehabilitation to focus on strengthening
	5 Mobilise patient with the Andago™

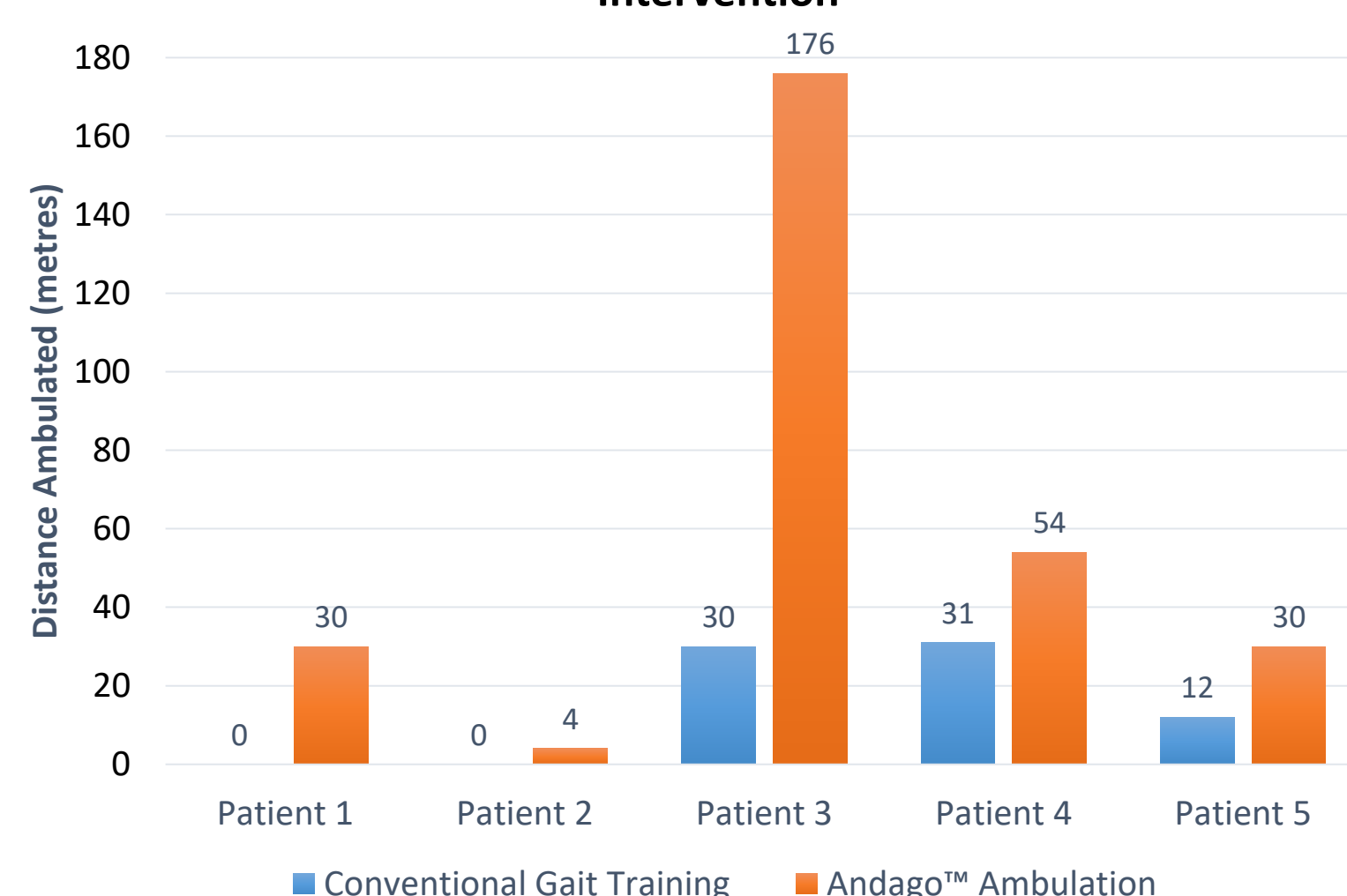
#5 was selected for testing

Test & Implement Changes

Piloting the Changes - Results

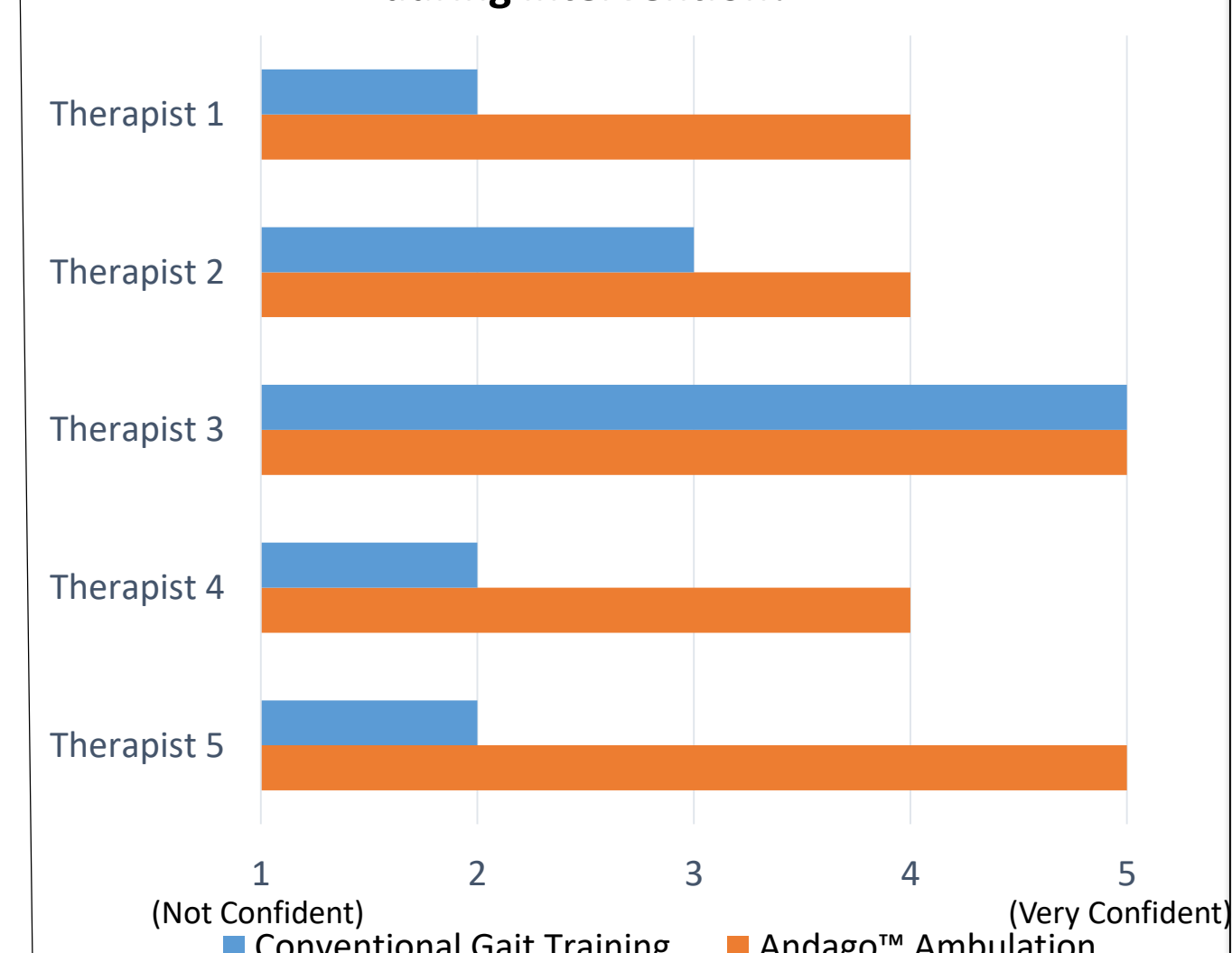
CYCLE	PLAN	DO	STUDY	ACT
1	Identify suitable neurological patients for the Andago™ use. Recruit therapists and patients from JCH within the month of June for trial of the Andago™ use.	The therapists found it safer to ambulate patients with the Andago™. Feedback from therapists without supporting weak side: 1) "If the patient was to buckle, the Andago™ can support patient" 2) "I am able to walk patient without supporting weak side" 3) "Patient is able to correct his alignment by using the left handrail. I feel that his safety improved significantly" 4) "I feel safer to walk further with patient" 5) "There is reduced risk of patient falling due to my fatigue when assisting him." 6) "The de-weighting function has helped with my patient who has severe physical deficits to practise walking earlier than he normally would with conventional therapy"	Patients were able to obtain >50% increase in distance ambulated with the use of the Andago™ as compared to conventional gait training. (See Chart 3 below) The therapists also reported an increased confidence level in safely ambulating their patients using the Andago™. (See Chart 4 below)	We decided to adopt the use of the Andago™ to assist patients and therapists to achieve a longer ambulation distance during their rehabilitation session. We can explore if consistent use of the Andago™ throughout patients' JCH stay will improve their functional outcomes and length of stay. We can potentially use the Andago™ with other suitable patient population groups which require increased assistance for ambulation.

Chart 3. Distance Ambulated Before and During Intervention



% Increase in Distance Ambulated					
Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	
>50%	>50%	487%	74%	150%	

Chart 4. How confident do you feel mobilising your patient safely before and during intervention?



Spread Change/ Learning Points

Strategies To Spread Change

- Share results of this study with fellow physiotherapists during the JCH departmental meeting.
- Educate fellow JCH neurological physiotherapist regarding the positive results of the implementation of the Andago™ and thus encourage the use of the Andago™ in ambulating neurological patients.

Key Learning Points

- The use of the Andago™ enables physiotherapists to ambulate neurological patients further than conventional therapy and hence improves quality of their rehabilitation process.
- The Andago™ increases physiotherapists' confidence in safely ambulating neurological patients who require moderate to maximal assistance
- We can further investigate the impact of the Andago™ use on improving patient's functional outcomes and length of stay in JCH.
- We can explore the use of the Andago™ in other population groups.