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# INCREASING PERCENTAGE OF ACUTE MILD STROKE PATIENT ACHIEVING INDEPENDENT WALKING AT DISCHARGE FROM ACUTE STROKE UNIT

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Adding years of healthy life

## Mission Statement

To increase percentage of \*acute mild stroke patient achieving at least \*\*independent indoor walking at discharge from Acute Stroke Unit (ASU), from 42% to 67% in 6 months

\*Acute stroke determined by radiological finding (acute infarct or hemorrhage with motricity index leg  $\geq 57$  (hip flexion, knee extension and ankle dorsiflexion of the paretic leg), good sitting balance > 30 seconds, unable to walk independently and able to obey 2 commands (NIHSS LOC commands)

\*\*Patient can transfer, turn and walk independently on level ground, but requires supervision or physical assistance to negotiate any of the following: stairs, inclines, or uneven surfaces. Walking aid can be used.

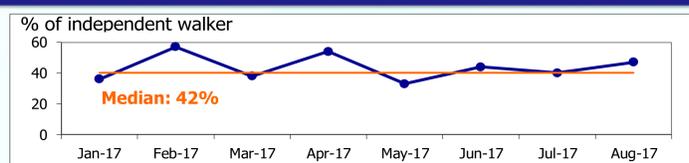
## Team Members

Role	Name	Designation	Department
Team Leader	Christina Chia Hui Ling	Principal Physiotherapist	Physiotherapy
Team Members	Tai Chu Chiau	Senior Physiotherapist	Physiotherapy
	Goh Lee Yin	Senior Physiotherapist	Physiotherapy
	Joanna Tay	Ward Resource Nurse	Nursing
	Devon Chng	Staff Nurse	Nursing
	Trudy Teh Jia Yi	Occupational Therapist	Occupational Therapy
	Zhang Yanxia	Nurse Clinician	Nursing
Facilitator	Carol Tham Huilian	Consultant	Neurology
	Jayachandran Balachandran	Principal Physiotherapist	Physiotherapy

## Evidence for a Problem Worth Solving

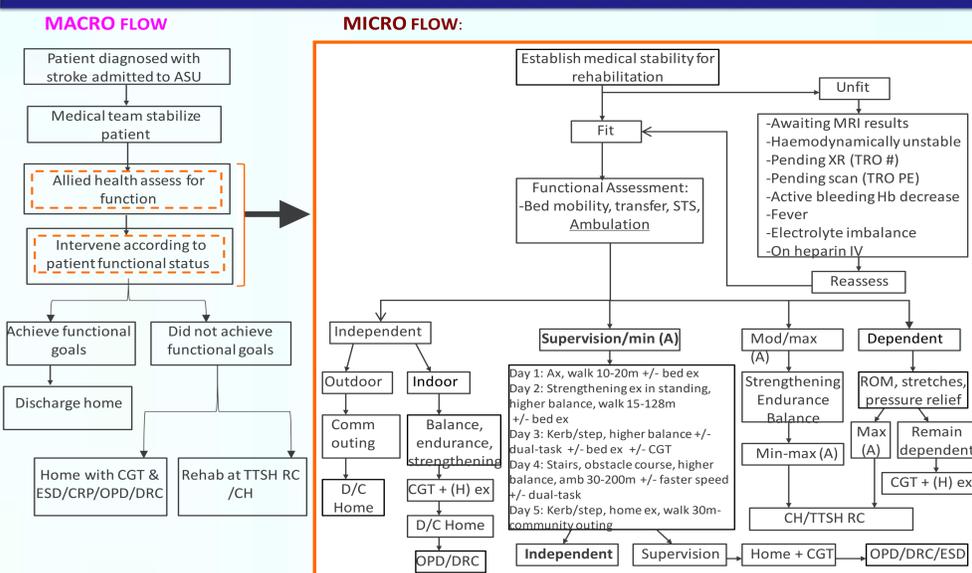
Physical activity levels are low in people with acute stroke with 22.8 hours of sedentary time (Fini et al, 2017). In A Very Early Rehabilitation Trial (AVERT Phase II RCT 2011), 67% of stroke patients were able to achieved unassisted walking at 2 weeks after stroke. In the ASU in TTSH, median 42% of mild acute stroke patient achieved at least independent indoor walking on discharge from ASU with median hospitalisation stay of 7 days.

## Current Performance of a Process

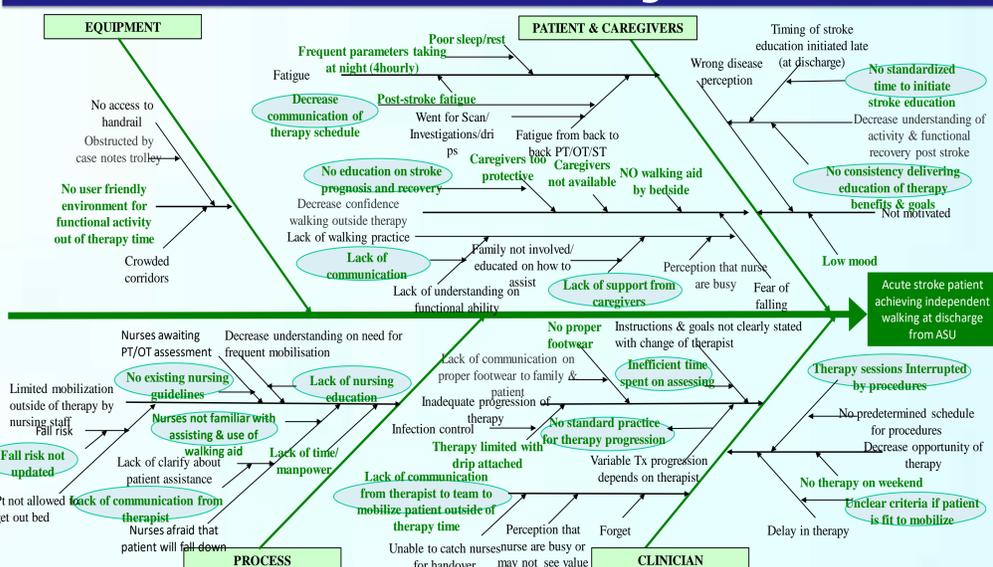


	Jan 17	Feb 17	Mar 17	Apr 17	May 17	Jun 17	Jul 17	Aug 17
No. of independent walker	4	8	5	7	5	4	2	8
No. of eligible stroke patients	11	14	13	13	15	9	5	17
% of independent walker	36	57	38	54	33	44	40	47

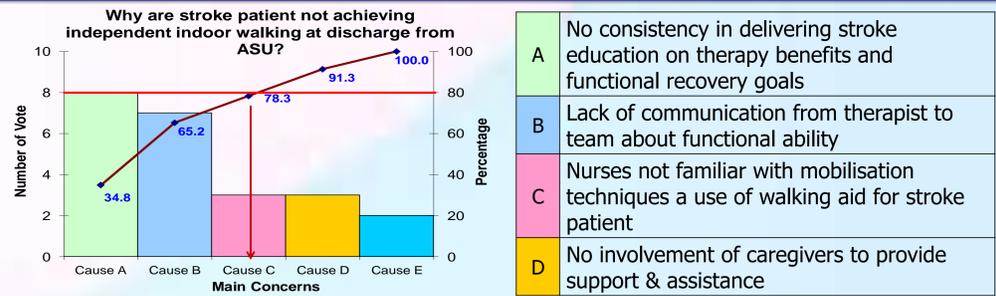
## Flow Chart of Process



## Cause and Effect Diagram



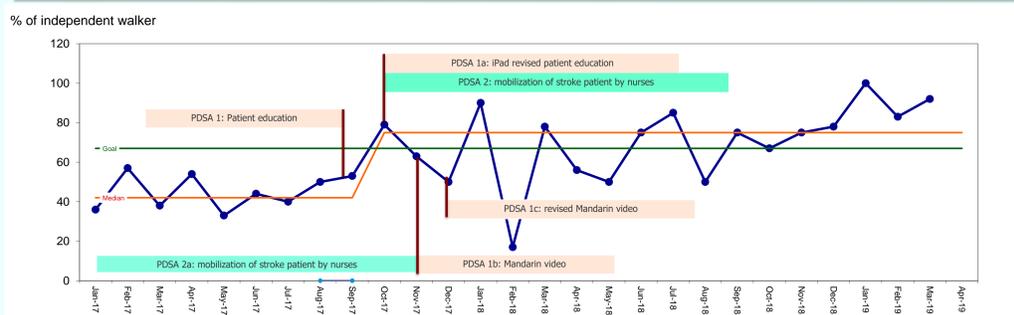
## Pareto Chart



## Implementation

PROBLEM	INTERVENTIONS	DATE OF INTERVENTION
No consistency in delivering stroke education on therapy benefits and functional recovery goals	<b>Patient Empowerment (Patient Stroke Education Tool)</b> • Improve patient knowledge and encourage active involvement in rehabilitation including outside of therapy hours and collaborative goal-setting	21 Sept 17 (PDSA 1) 7 Oct 17 (1b) 4 Nov 17 (1c)
Lack of communication from therapist to team about functional ability	<b>Standardizing mode of communication between therapy staff and nursing</b> • Patient headboard redesign, aligned understanding of terminology used for level of assistance.	23 Oct 17 (PDSA 2) 7 Nov 17 (2a)
Nurses not familiar with mobilisation techniques and use of walking aids for stroke patients	<b>Empowering nursing in patient mobilisation outside of therapy hours</b> • Education on nursing role in functional recovery based on National Clinical Guideline for Stroke • Training session on manual handling and walking aid use	

## Results



	Jan 17	Feb 17	Mar 17	Apr 17	May 17	Jun 17	Jul 17	Aug 17	Sep 17	Oct 17	Nov 17	Dec 17	Jan 18	Feb 18	Mar 18	Apr 18	May 18	Jun 18	Jul 18	Aug 18	Sep 18	Oct 18	Nov 18	Dec 18	Jan 19	Feb 19	Mar 19
No. of independent walker	4	8	5	7	5	4	2	9	10	11	10	3	9	1	2	5	4	9	11	4	9	6	9	7	1	5	11
No. of eligible patients	11	14	13	13	15	9	5	18	19	14	16	6	10	6	9	9	8	12	13	8	12	9	12	9	1	6	12
% of independent walker	36	62	33	64	39	44	40	50	53	79	63	50	90	17	78	56	50	75	85	50	75	67	75	78	100	83	92

- 75% of acute mild stroke patients achieved independent walking at discharge from baseline 42%.
- 70% of acute mild stroke patients were discharge to home, an improvement from 50% (Jan to Nov 2017).
- Acute mild stroke patients who has received this program were **3.04 times** more likely to achieve independent walking. The logistic regression model correctly classified 61.5% of cases ( $p < .001$ ).
- No statistically significant difference between groups in terms of age, severity of stroke and average length of stay. Both groups received median 4 physiotherapy sessions.

## Cost Savings

- System saving (Per bed-day): \$657
- Discharge home: 20% increase = ~2 patients
- Cost Saving 1 week: \$10,347.75
- Projected Cost Saving (1 year): \$496,692

## Problems Encountered

- Eligible patient who follow only 1 step commands with reduced cognition are not able to understand stroke education fully
- Eligible patient with safety awareness issues are not able to achieve target
- Updated headboard to improve handover and communication not sustainable

## Strategies to Sustain

- Walking aid by bedside to improve accessibility and use
- Clear handover from therapist to nurses, during nursing rounds to next shift nurses. Patient's ambulatory status are also clearly documented in the nursing notes.
- Use of eLEARN to train and empower new nurses
- One resource person delivering stroke education