



**Embedding an Enriched Environment in an Acute Stroke Unit increases activity in people with stroke:
Results of a pilot study**

Sunshine Coast Hospital and Health Service

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Key Problem

- There is evidence that stroke survivors who receive care in an acute stroke unit are more likely to be alive and independent compared with general ward care.
- Despite awareness of the positive effects of increased physical activity, available evidence indicates that stroke survivors spend the majority of the day physically inactive and alone early after stroke.
- This project was undertaken to demonstrate the need for appropriate intervention and care following stroke and to identify interventions that can increase activity levels across physical, social, and cognitive domains that have a positive effect on outcomes early after stroke.
- The effect of an enriched environment in an Acute Stroke Unit had not been explored and given the proposed benefits is the reason why this project was undertaken.

Aim of this innovation

Primary aim:

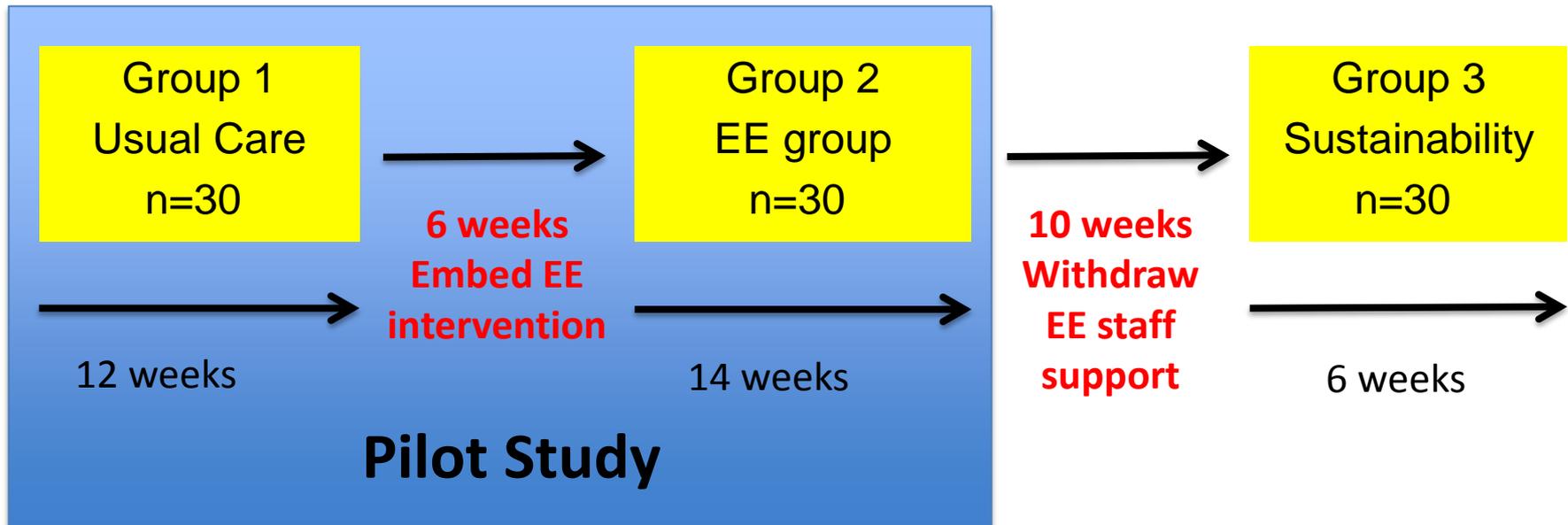
Determine if embedding an enriched environment in an Acute Stroke Unit can increase 'any', physical, social and cognitive activity levels in individuals with stroke

Secondary aims:

Investigate the effect of an enriched environment on functional outcomes, mood, secondary complications and length of stay and if effect could be sustained

Design

A controlled before – after pilot study with a follow up period



Monitored staffing levels across all groups

Baseline Data

- **Setting:** eight acute stroke beds in a 16 bed ward
- **Behavioural mapping:** percentage a participant is observed active in 'any', physical, social and cognitive activity: observations every 10 minutes from 7.30am till 7.30pm, data collected within 10 days after stroke, usual care and enriched group: Two weekdays and one weekend day, sustainability group: one random chosen day (Tues-Thurs- Sat)
- **Functional outcomes, mood, adverse events, length of stay:** initial assessment and discharge assessment in Acute Stroke Unit, three months follow up phone call

Key Changes Implemented

- **Usual care group:** majority were one-on-one interventions in patient room, therapy room in the unit, discipline specific therapy assistants, two small public areas
- **Enriched environment group:** stimulating physical, social and cognitive environment, communal areas for socialising, meal times and group activities, resources, change management strategies to facilitate staff to change work routine – interactive education, intervention protocol, nurse champions, reminders, newsletters, patient feedback, patient and family involvement – brochure, activity cards, displays
- **Sustainability group:** when pilot finished continued with stimulating environment – staff, family, patient involvement

Primary Outcomes: Activity Levels

*one way ANCOVA adjusted for covariates age, NIHSS and premorbid mRS

Mean % of observations \pm SD	Usual Care Group	Enriched Group	P value*
Any Activity	57.8% \pm 23.7	70.7% \pm 17.1	0.005
Total Physical Activity	22.3% \pm 10.1	32.9% \pm 11.9	<0.001
Total Social Activity	29.3% \pm 14.3	39.8% \pm 15.0	0.007
Total Cognitive Activity	44.7% \pm 21.1	59.3% \pm 16.5	0.002
Supine Position	68.0% \pm 16.7	44.9% \pm 22.0	<0.001
In Room	94.5% \pm 2.7	78.9% \pm 9.1	<0.001
Alone	58.9% \pm 13.9	51.0% \pm 13.8	0.035

Secondary Outcomes: Adverse Events and Length of Stay

*One way repeated measures ANCOVA adjusted for covariates age, NIHSS, Premorbid mRS

	Usual Care n=30	Enriched Group n=30	<i>P</i> value *
Participants with adverse events	N=16 40 events	N=7 11 events	<i>P</i> = 0.001
Participants with serious adverse events	N=10 30 events	N=4 16 events	<i>P</i> = 0.30
Number of falls	6 falls	3 falls	<i>P</i> = 0.48
Length of Stay (mean ±SD)	12.0 days ±7.4	9.7 days ±5.7	<i>P</i> = 0.02

Outcomes so far

- Significant positive effect on increasing activity levels
- Participants were significantly more outside their room, with someone else and not in supine position
- Trend towards fewer participants experiencing adverse events
- Length of stay was significantly shorter
- Activity levels were sustained 6 months post implementation of the intervention

Lessons Learnt

- Embedding an enriched environment in an Acute Stroke Unit increased activity levels
 - Results are in line with the positive effects found in the sub-acute inpatients setting; growing evidence that the enriched environment may have meaningful clinical application
 - More research required: to understand what the effect of activity is on neurobiology and how this contributes to neuroplasticity early after stroke, explore the generalisation to a variety of stroke units, investigate how the environment impacts on brain repair and recovery and incorporate the environment in the complete intervention package
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