

Project Title

Redesigning work processes to reduce Length of Stay for Post-Stroke Patients in an Inpatient Rehabilitation Facility

Project Lead and Members

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Organisation(s) Involved

Alexandra Hospital, National University Hospital

Healthcare Family Group Involved in this Project

Ancillary Care, Nursing

Applicable Specialty or Discipline

Occupational Therapy, Physiotherapy, Rehabilitation Therapy

Project Period

Start date: Jan 2022

Completed date: Jun 2022

Aims

To investigate and implement strategies to reduce the mean LOS for post-stroke rehabilitation patients in AH.

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Conclusion

See poster appended/ below

Project Category

Care & Process Redesign

Value Based Care, Discharge Planning, Length of Stay, Quality Improvement,
Workflow Redesign, Productivity, Cost Saving

Workforce Transformation

Informal Workforce Transformation, Caregiver

Keywords

Discharge, Caregiver Training, Equipment, Home Modification, Rehabilitation, Length
of Stay, Healthcare Costs

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Redesigning work processes to reduce Length of Stay for Post-Stroke Patients in an Inpatient Rehabilitation Facility

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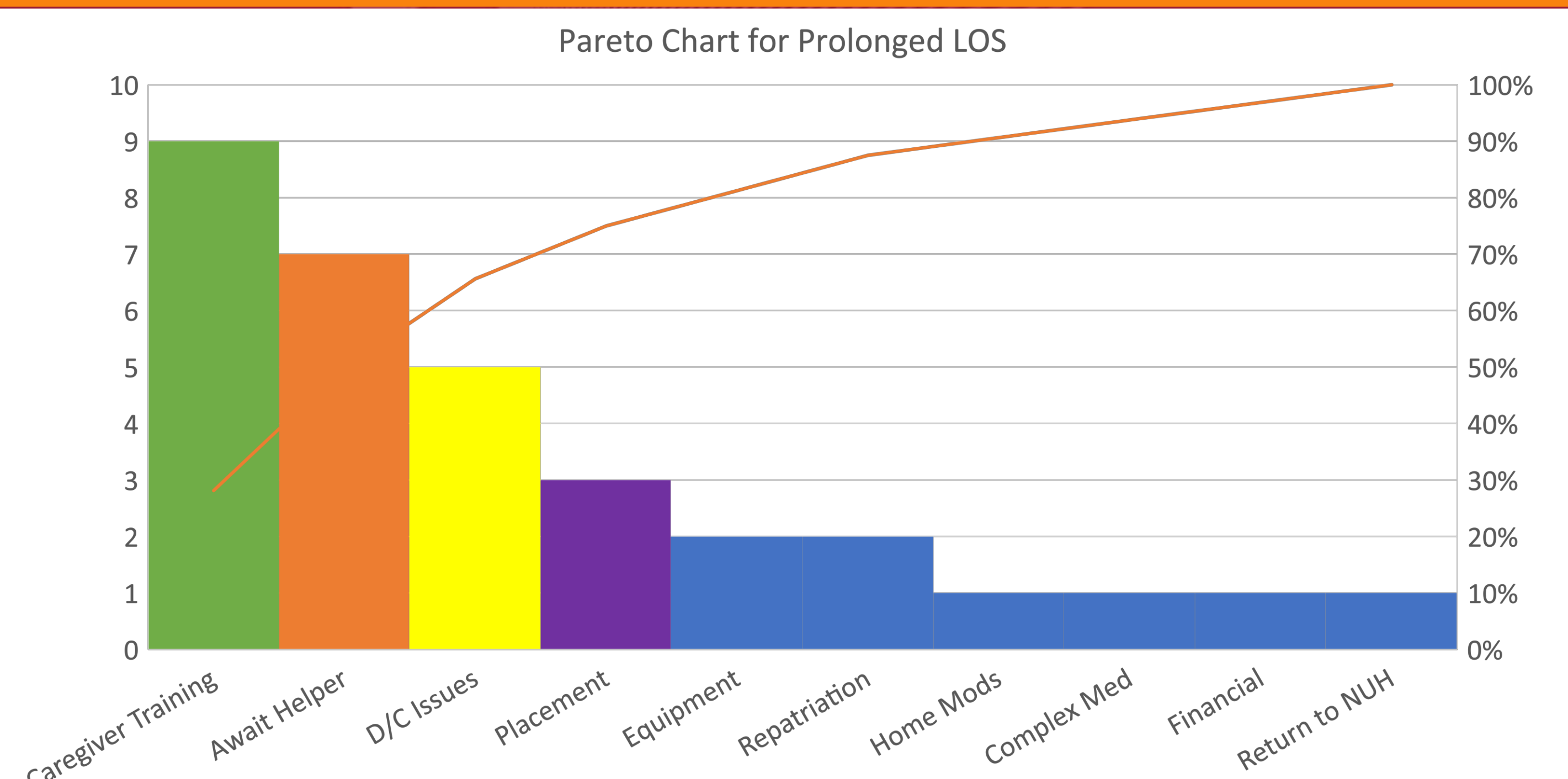
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INTRODUCTION

In Alexandra Hospital (AH), stroke patients with rehabilitation potential are accepted into Inpatient Rehabilitation Unit, Ward 3, from Acute Hospitals such as National University Hospital (NUH), to undergo further rehabilitation. On achieving their rehabilitation goals, patients will be discharged home after home modifications, equipment prescription and/or caregiver training (CGT) where applicable, with community rehab services. The most recent published data in a dedicated rehabilitation unit within a tertiary academic acute hospital in Singapore over a 5-year period between 2004 and 2009 published in 2016 showed that the mean rehabilitation length of stay (LOS) of all stroke patients was 18 ± 10 days.¹ However, post-stroke patients admitted to AH rehabilitation ward had a mean LOS of 31.3 days in 2021. As prolonged hospitalization increases risk of nosocomial infection, restricts bed availability, and increases utilization of healthcare resources contributing to rising healthcare costs (amounting to SGD 2410.83 as the total mean cost of the hospital stay),² it was pivotal to investigate and implement strategies to reduce the mean LOS for post-stroke rehabilitation patients in AH.

METHODOLOGIES

Root cause analysis identified 31 root causes which were further categorized into 5 themes namely: process, CGT duration, equipment/home modification, discharge issues and complex cases. A Pareto chart (Fig. 1) was further used to identify main causes of increased LOS. Main causes of prolonged LOS with the highest frequency were caregiver training, awaiting arrival of new caregiver, discharge issues (including patient or family's acceptance of their medical condition), awaiting institutional placement, equipment or home modifications, and repatriation. Focused group discussions were conducted to devise targeted interventions.

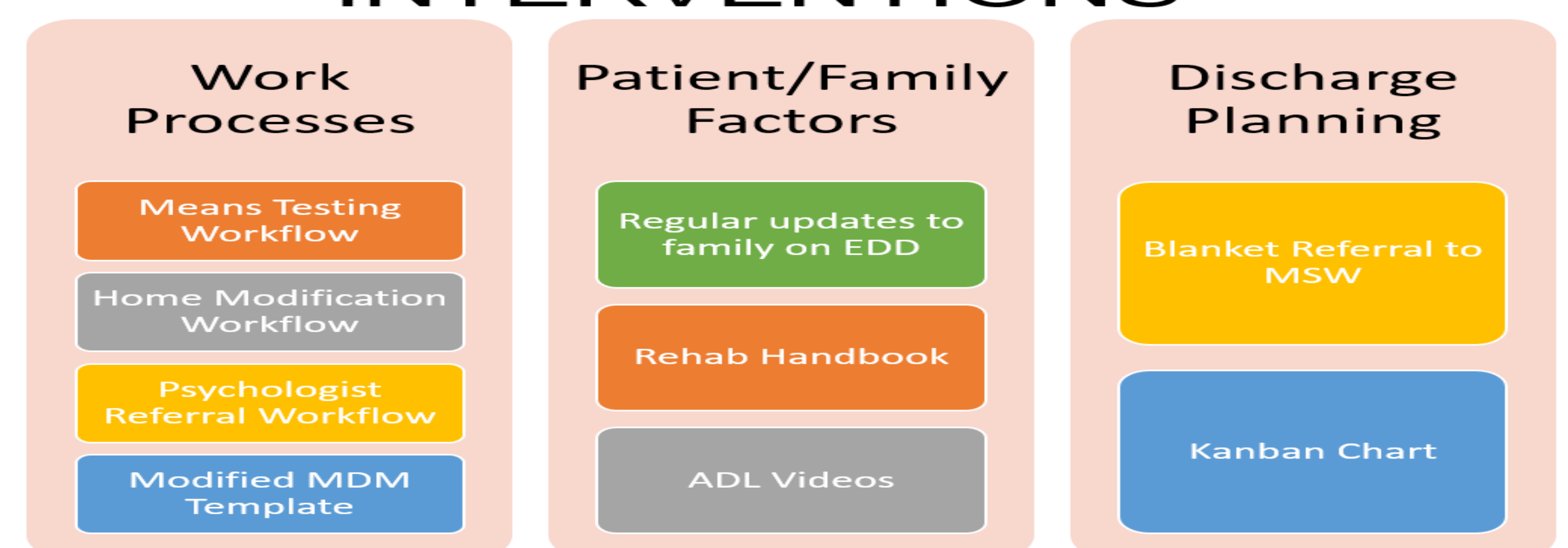


(Fig. 1)

INTERVENTIONS

Targeted interventions (Fig. 2) were implemented to address the main causes of prolonged LOS. These included (a) a standard workflow on means testing to alleviate the issues on delays related to equipment & home modification processes, (b) adjusting the psychologist referral criteria to allow early identification & referrals for patients and their family members, (c) Activities of Daily Living Videos to hasten CGTs, (d) visual aids, including checklist were put up to ensure adherence to standard workflow.

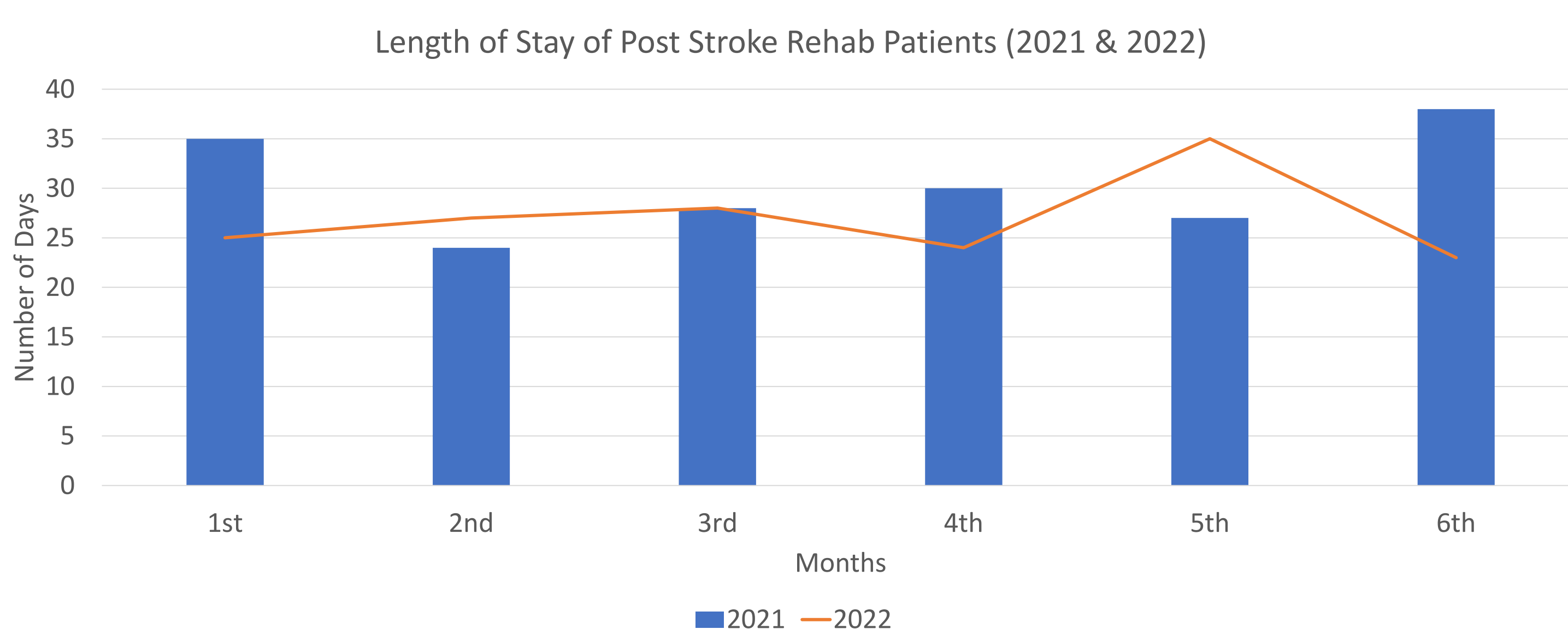
INTERVENTIONS



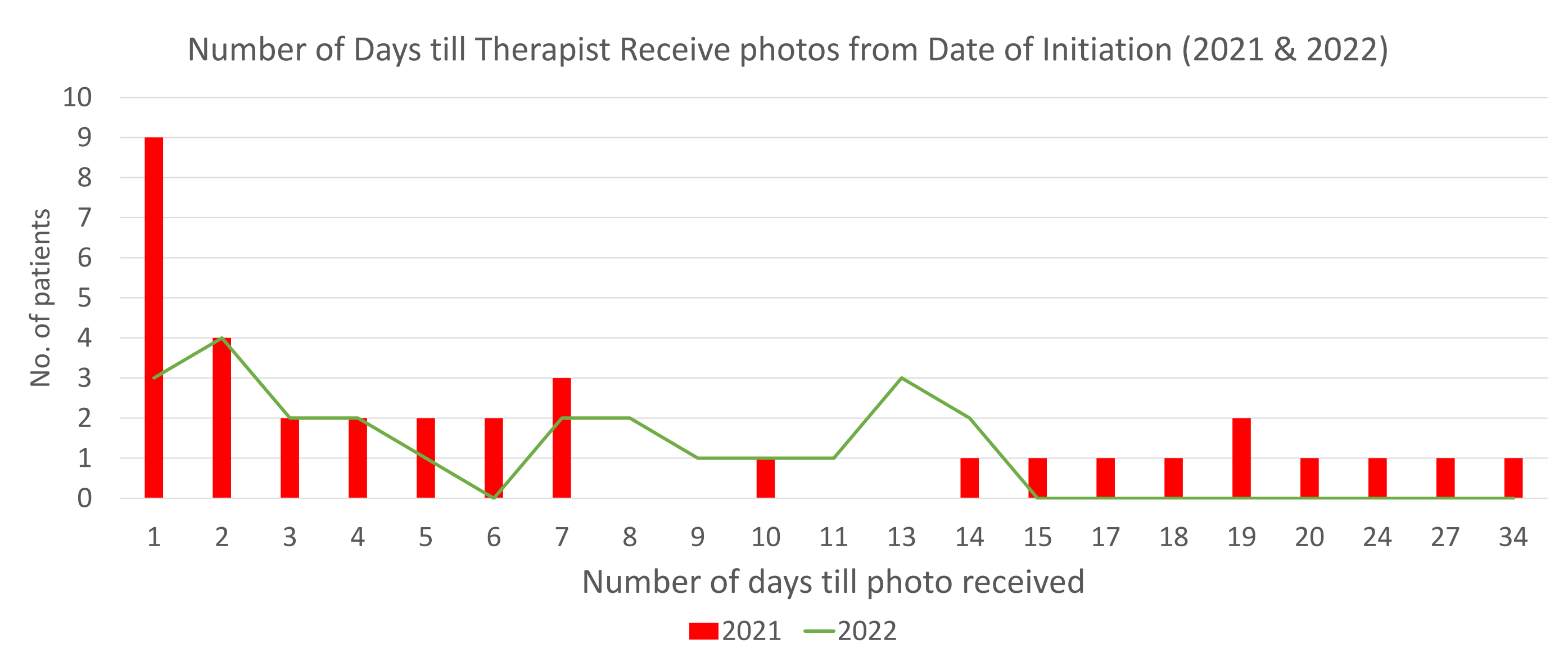
(Fig. 2)

RESULTS

There was a reduction in LOS for five of the 6-month intervention period from January to June 2022. Average LOS for Jan-June 2022 was 27.4 days in comparison to 30.5 from July-Dec 2021. (Fig. 3). With the improved home modification workflow, time taken to receive home photos reduced from 8.3 days to 6.5 days (Fig. 4).



(Fig. 3)



(Fig. 4)

CONCLUSION

The interventions utilized appear to be effective in reducing the length of stay to below 30 days. More studies may be required to evaluate the exact effectiveness of the interventions.

REFERENCES

- References**
 1 Ng YS, et al. Predictors of Acute, Rehabilitation & Total Length of Stay in Acute Stroke: A Prospective Cohort Study. *Ann Acad Med Singapore* 2016; 45:394
 2 Saxena SK, Ng TP, Yong D, Fong NP, Gerald K. Total direct cost, LOHS, institutional discharges and their determinants from rehabilitation settings in stroke patients. *Acta Neurol Scand* 2006; 114: 307-314