

The impact of the community Transitional Care (TC) program on hospital utilisation, mortality and cost

M.L. Ginting¹; C.W. Tew²; Y.H. Ang³; J.K.K Chin³; C. Liu⁴;
D.B. Matchar⁵; N.R. Sivapragasam⁵; C.H. Wong¹

1. Program in Health Services & Policy Research, Geriatric Education & Research Institute (GERI), Singapore
2. All Saints Home, Singapore
3. Department of Geriatric Medicine, Khoo Teck Puat Hospital, Singapore
4. ACCESS Health International, Inc.
5. Program in Health Services and Systems Research, Duke-NUS Graduate Medical School, Singapore



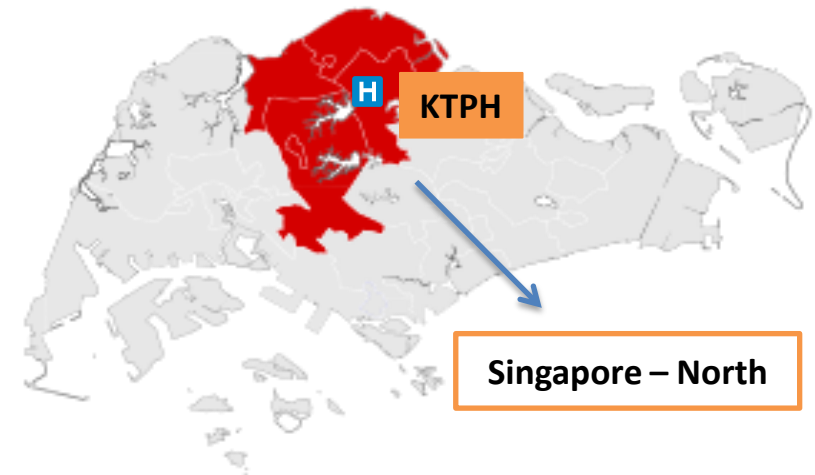
CONFLICT OF INTEREST DISCLOSURE

I have no potential conflict of interest to report

Introduction

- Aging population with **multiple comorbidity and disability** lead to increased hospital utilisation and **vulnerable to poor outcomes during transition** from hospital to home.
- **Aim:**
To evaluate the impact of a **3-month time limited** post-hospitalisation transitional care (TC) program on outcomes of 180 days post **hospital utilisation, mortality and cost.**

Study Site & Population



Total population (2014): ~520,730

Total population 60 years and above: ~65,040

Program Description and Study Flow

The TC Program



Post-discharge

Care manager
 First assessment
 Perform nursing
 procedure
 Chronic diseases
 management
 Patient education



Fulfill *at least one* of the following:

- Older adults with geriatric syndromes
- Complex medical problems
- Complex nursing needs
- Socially at-risk



Coordinate care

Inter-disciplinary team

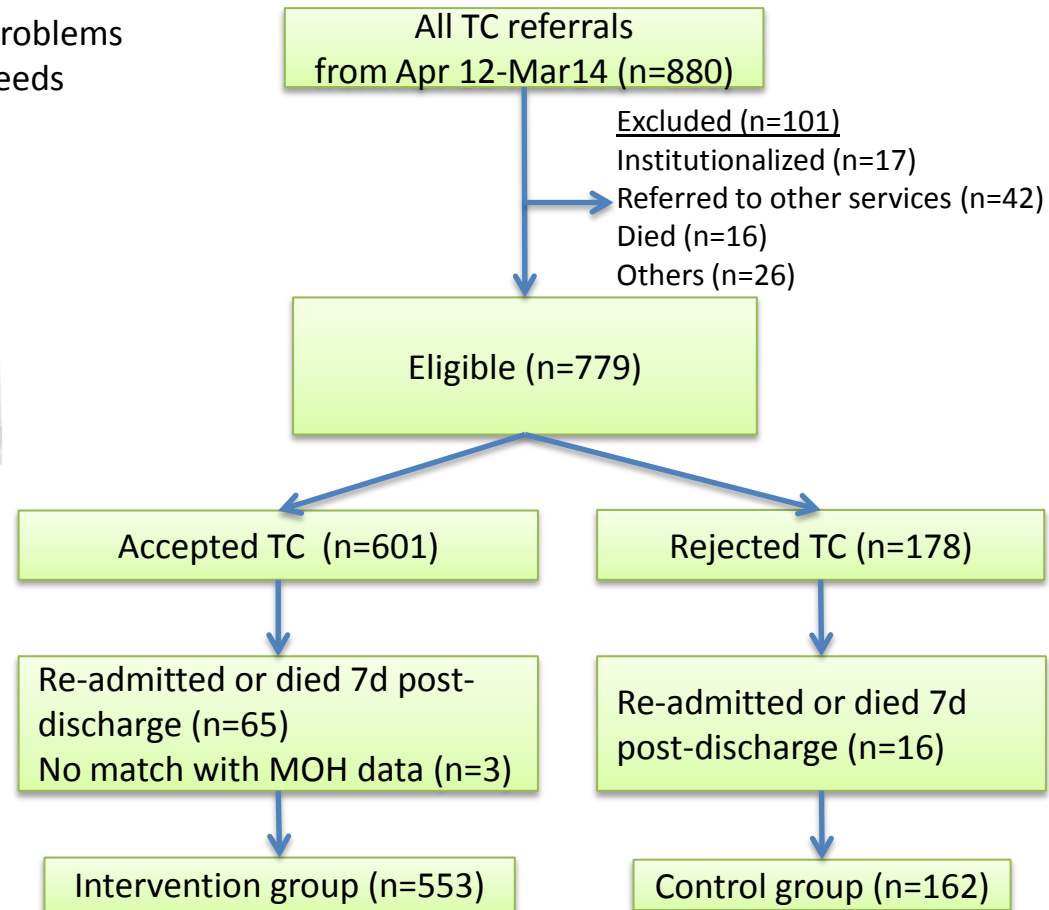


Doctor, PT, OT, speech therapist, MSW

Community and home help services



Study Flow Diagram



Methodology & Results

Study design: Quasi-experimental with Difference-in-difference analysis

Data source: retrospective cohort using hospital administrative data

Baseline: 180 days prior index hosp

Follow-up: 180 days after index hosp

Outcome measures:

number of hospitalisation; number of ED visits; hospital bed-days; hospitalisation (yes/no); ED visits (yes/no) and re-admission (yes/no); cost and mortality (yes/no)

Covariates: socio-demographic, index hospital bed-days, ADL, CCI, dementia, level of care and ward class

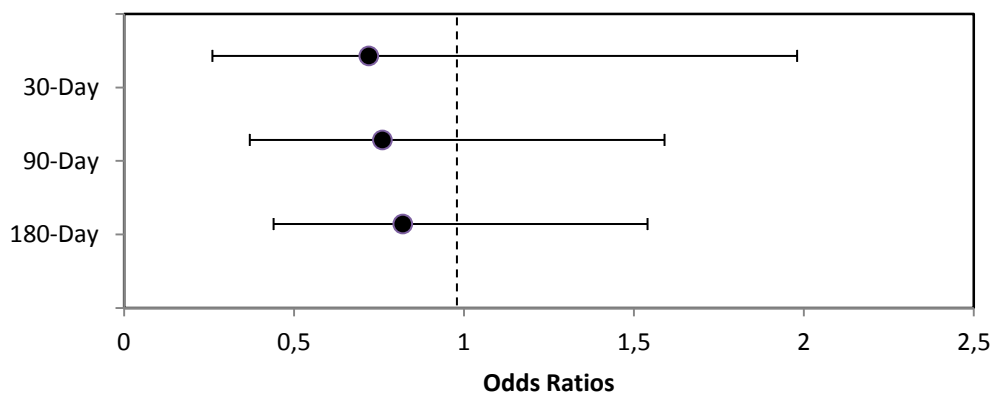
Baseline characteristics

Variable	Interventio n (n=533)	Controls (n=162)
Age, mean \pm SD	81.9 \pm 10.0	80.1 \pm 12.0*
Female, n (%)	346 (64.9)	109 (67.3)
ADL limitation (0-4), mean \pm SD	2.4 \pm 1.7	1.7 \pm 1.7***
CCI, mean \pm SD	6.2 \pm 2.2	6.0 \pm 2.5
Utilization pattern, mean \pm SD		
Number of hospital admissions	2.0 \pm 1.4	2.3 \pm 1.7
Number of ED visits	2.0 \pm 1.5	2.0 \pm 1.6
Index LOS	16.0 \pm 16.0	13.9 \pm 11.9
Total hospital bed- days	24.7 \pm 21.1	23.1 \pm 18.8

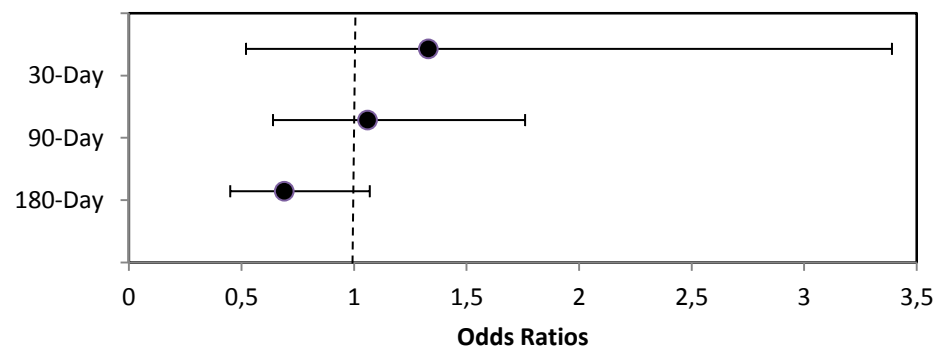
* $p < .05$; ** $p < .01$; *** $p < .001$ ADL= Activities Daily Living
 CCI= Charlson Comorbidity Index

Adjusted Odd Ratios between Intervention and Controls during Follow-up period

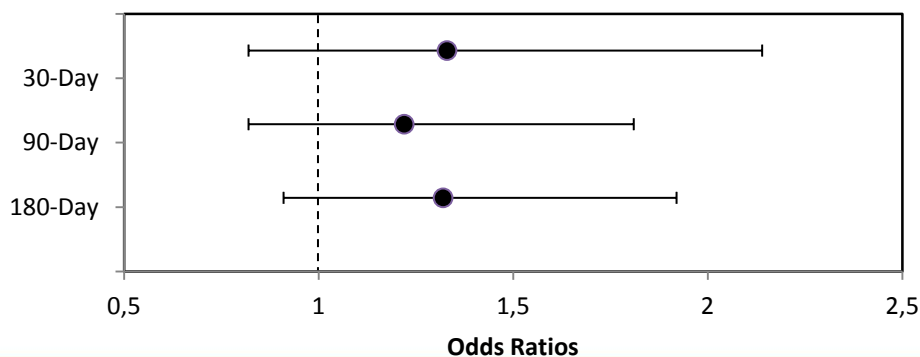
Re-admission with similar condition as index hospitalization (yes/no)



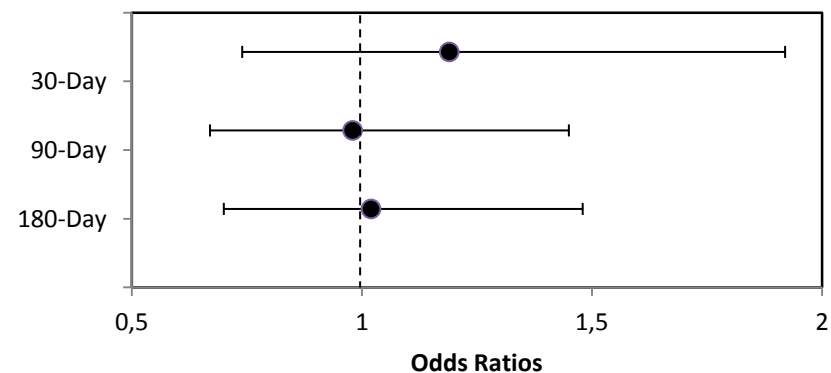
Mortality (yes/no)



Emergency department visit (yes/no)



Hospitalisation (yes/no)



Difference-in-Difference Estimates between Intervention and Controls at 180-day follow-up & Cost Analysis

Variable	Difference-in-Difference (95% CI)	
	Unadjusted	Adjusted
Number of hospital admission	0.04 (-0.3 , 0.4)	0.03 (-0.3, 0.4)
Number of ED visits	0.1 (-0.3 , 0.5)	0.1 (-0.2, 0.5)
Total hospital bed-days	-4.1 (-8.6 , 0.5)	-4.2 (-8.3 , -0.1)*

- At 180-day, the intervention had **4.2 less hospital bed-days/patient** compared to the controls (adjusted for socio-demographic, CCI, functional status, length of stay, ward class, dementia and level of care)
- For this cohort of patients, their total cost saving was analysed based on the sum of **inpatient and specialist outpatient clinic saving** amount minus the **total TC cost**, whereas:
 - Inpatient cost saving = adjusted DID hospital bed-days **X** average inpatient cost/day
 - TC cost = average visits **X** manpower normed cost
- The cost analysis showed an average cost savings of **€836/patient/year** among intervention group from **the societal perspective**, with cost saving for both the patient (**€529/patient/year**) and the government (**€307/patient/year**)

Discussion & Conclusion

- Although not statistically significant, patients in intervention group had higher odds of visiting ED, but it did not translate to higher odds of hospitalisation.
- Intervention group had a shorter length of stay; which could be due to early identification of medical, functional and social problems and early treatment in the community.
- TC is able to reduce hospital bed-days and cost among older patients with complex care needs.

THANK YOU