

## **Project Title**

Community Health Team (CHT) TeleHealth Enabled Management (THEME) Pilot

## **Project Lead and Members**

- Project lead: Ms Cao Wenping, Assistant Nurse Clinician, Community Health
- Project members: Ms Joey Yeo, Nurse Clinician, Community Health  
Dr Ravinder Singh Sachdev, Senior Consultant, Family Physician;  
Dr Chen Wei Ting, Advanced Practice Nurse  
CHT Telephonic and Triage team and Operations colleagues

## **Organisation(s) Involved**

Tan Tock Seng Hospital

## **Healthcare Family Group(s) Involved in this Project**

Nursing, Family Physician, Healthcare Administration

## **Applicable Specialty or Discipline**

Community Health Team (CHT)

## **Project Period**

Start date: 31/05/2021

Completed date: 11/04/2022

## **Aim(s)**

THEME aim to improve efficiency, accessibility and satisfaction of home care services for community dwelling older adults during the Covid-19 pandemic

## **Background**

See poster appended/ below

## Methods

See poster appended/ below

## Results

See poster appended/ below

## Lessons Learnt

1. THEME can be adopted as an added modality of care for community dwelling older adults with benefits of convenience, reduction in risk exposure to COVID-19. Nurses perceived THEME was able to aid in enhancing clinical assessment compared to phone call.
2. The study team identified mostly technical barriers in THEME implementation, including challenges in setting up, visual & network disruption. Which were subsequently overcome by providing clearer instructions to the caregivers and patients.
3. Results suggests THEME can be a feasible and affordable mode of home care delivery which can contribute to reduction in hospital utilization rate, length of stay, and have potential to impact on time and cost savings.

## Conclusion

See poster appended/ below

## Additional Information

Singapore Health & Biomedical Congress (SHBC) 2022: Best Poster Award (Nursing) (Posters category) – (Merit Award)

Sustainability of THEME is a challenge with gradual easing of Covid-19 restrictive measures. Further studies could explore remote vital signs monitoring and tele-collaboration to complement community care delivery and further evaluated for longitudinal impact on patient outcomes.

**Project Category**

Technology

Digital Health, Telehealth, Tele-monitoring

**Keywords**

Community Health Team, Telehealth (THEME)

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# Community Health Team (CHT) TeleHealth Enabled ManagEment (THEME) improves efficiency, accessibility and satisfaction of home care services for Community-dwelling older adults during the Covid-19 pandemic.

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## BACKGROUND/AIM

Community Health Team (CHT) conducts home and site visits to Central Health residents referred by inpatient, emergency department, clinics and/or community partners for health related issues identified to ensure care continuity and promote wellness at home and in the community.

Covid-19 pandemic impeded providence of home care services across Singapore with restrictive measures in place, home visits (HV) curtailment and reduction in face-to-face consultation<sup>(1)</sup> .

CHT Telephonic and Triage team was formed shortly after the circuit breaker to facilitate regular nursing reviews over telephone calls. Tele-Health Enabled ManagEment (THEME) was subsequently incorporated to include video consultation (VC) as an added modality of care. THEME aim to improve efficiency, accessibility and satisfaction for community-dwelling older adults during the Covid-19 pandemic in view of the absence of visual data limiting effective patient assessment.

## METHOD

### Research design

Retrospective Descriptive Study

### Sampling:

Care recipients were recruited via convenience sampling

### Inclusion:

1. CHT patients clinically stratified to L1 and L2 based on TTSH Community Health Team L1-L3 stratification and framework
2. Screened and identified to require caregiver training on simple procedures e.g.:
  - a. Medication review
  - b. Home monitoring on blood pressure and/or blood glucose level
  - c. Clinical procedures e.g.: sub-cutaneous injection, nasogastric Tube feeding, urinary indwelling catheter and/or simple wound dressing
3. Verbal consent obtained to receive THEME
4. Possess an electronic device and network that support video conferencing

### Data collection:

Data was collected on 39 CHT patients from May 2021 to April 2022.

Prior THEME

- Nurses explain services and obtain verbal consent via telephone call
- Care recipient receive relevant electronic caregiver training pamphlets and information sheet including zoom links via email
- THEME was conducted by nurses based on an aligned work guide

Post THEME

- Demographics and process indicators were collected
- A self-reported Care Recipient experience survey questionnaire (ESQ) was administered using form.sg link via email or mobile messaging application.
- Nurses were administered Nurse experience survey questionnaire (ESQ) via form.sg
- Hospital utilization rates e.g.: hospital readmission rate and length of stay 90 days pre and post THEME were collected

Data were tabulated into a Microsoft Excel spreadsheet and analyzed using simple descriptive statistics.

### Ethical consideration:

- Data was collected and analysed with no patient identifier.
- Participation of the survey was voluntary and anonymous.

## RESULTS

### Offer and Acceptance Rates

22 out of 39 care recipients provided consent to receive THEME, out of which, 2 subjects withdrew participation. Data was analysed on 20 care recipients who received THEME. (Table 1). Mean age is 77.6 years old, Clinical Frailty Score (CFS) ranges from 4 to 7.

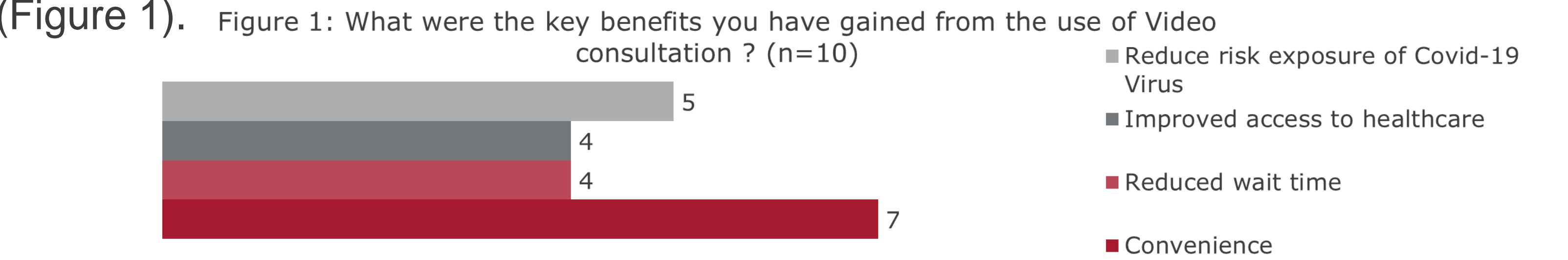
Table 1: Offer and Acceptance Rates (n=39)		
Category	Frequency	%
Offered and accepted	20	51.3%
Offered and rejected	17	43.6%
Dropped Out	2	5.1%

**Reference:**  
1.Ministry of Health Singapore. Continuation of essential healthcare services during period of heighten safe distancing measures. Available at <https://www.moh.gov.sg/news-highlights/details/continuation-of-essential-healthcare-services-during-period-of-heightened-safe-distancing-measures>  
2.Bashshur, R., & Shannon, G. W. (2009). History of telemedicine: evolution, context, and transformation (Vol. 2009). New Rochelle, NY: Mary Ann Liebert.  
3.Tan, L. F., Teng, V. H. W., Seetharaman, S. K., & Yip, A. W. (2020). Facilitating telehealth for older adults during the COVID-19 pandemic and beyond: Strategies from a Singapore geriatric center. Geriatrics & Gerontology International, 20(10), 993.

## RESULTS

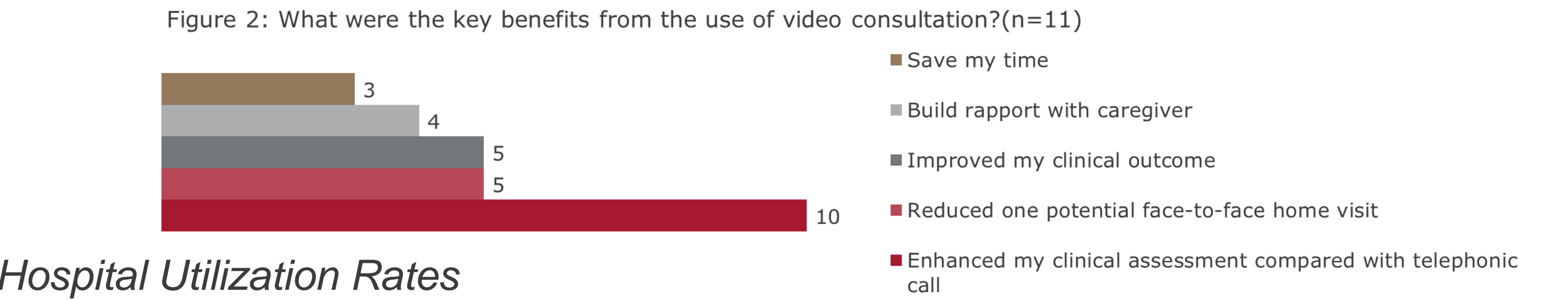
### Care Recipient experience survey questionnaire (ESQ)

Return response rates for the ESQ were 50% (n= 10) for care recipient. 100% reported satisfactory after usage of THEME and reported perceived key benefits as convenience, accessibility to care and reduction of risk exposure to Covid-19 (Figure 1).



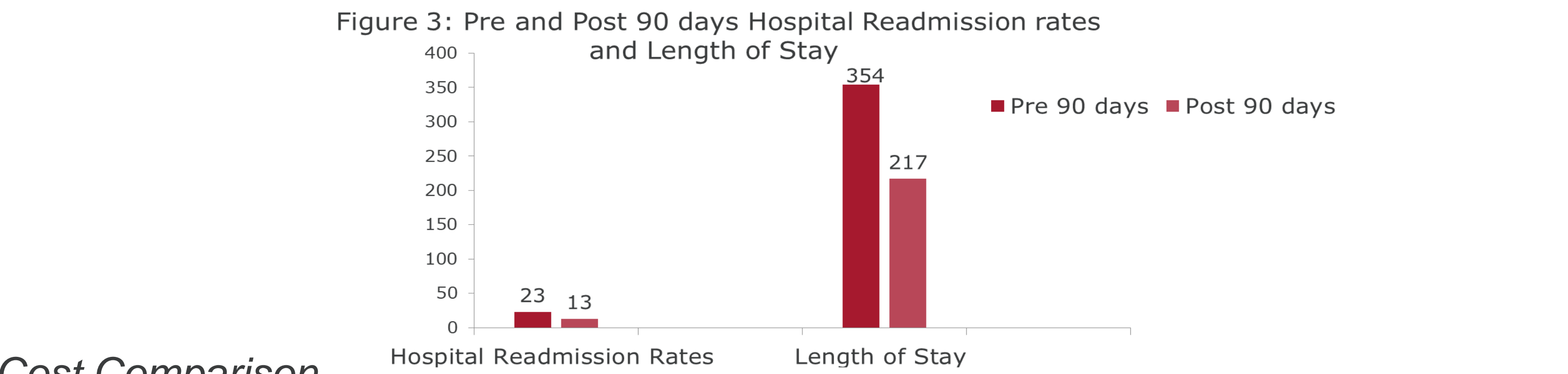
### Nurse experience survey questionnaire (ESQ)

Return response rates for the ESQ was 55% (n =11) for nurses . 100% of them reported satisfied after usage of THEME. 91% of nurses perceived THEME “enhances clinical assessment compared to telephonic call” and 45.5% of them perceived THEME “reduced one potential face-face home visit”. (Figure 2).



### Hospital Utilization Rates

A reduction in hospital admissions were reported from 23 admissions pre-90 days to 13 admissions post-90 days, hospital length of stay reduced from 354 days pre-90 days to 217 days post 90 days in comparison. (Figure 3).



### Cost Comparison

The average duration and cost comparison were 31.75 minutes for S\$27.51 for THEME, 100 minutes for \$100.67 for HV and 21 minutes for \$18.2 for standard nurse review phone call (Table 2)

Table 2: Cost Comparison of CHT Nurse Review: varied service modality			
Service Modality	THEME	HV	Standard Nurse Review Phone call
Mean Duration	31.75mins	100mins	21mins
Mean Cost	S\$27.51	S\$100.67	S\$18.2

## DISCUSSION

Acceptance rate of 51.3% for THEME was an encouraging start in embracing technological advancement in health services via VC. VC is relatively new and is certainly gaining traction with tech-savvy care recipients for today’s population: finding VC comparable to face to face consultations<sup>(2)</sup>.

Both care recipients and nurses reportedly embraced THEME with 100% satisfaction. Self reported benefits such as convenience, reduction in risk of exposure to COVID-19 scored the highest for care recipients and nurses reported THEME was able to aid in enhancing clinical assessment compare to standard telephone call and the virtual exchange in visual data could aid in clinical decision making and bridged care.

Reduction in hospital utilization rate, length of stay, mean duration and mean cost were equally reassuring and seem to suggest THEME was able to address care needs, improve efficiency and enable care recipients to remain in the community.

## LIMITATIONS/IMPLICATIONS

Barriers in THEME implementation recorded challenging issues e.g.: virtual background disrupting visual demonstration, care recipients facing difficulties setting up the VC or placing camera at angles that impede visual data retrieval. Study team also found particular services not recommended to conduct over VC e.g.: urinary catheter care to safeguard care recipient’s modesty.

With easing of COVID-19 restrictions, HV appear to be the more preferred modality of care compared to VC. VC had however proven to be an expedient care delivery modality and pliable option for community care and seem to garner benefits such as convenience and reduction in risk exposure to virus, service adoption can be further explored<sup>(3)</sup>.

Future studies could explore remote vital signs monitoring and tele collaboration between care providers to compliment community care management and further evaluated for longitudinal impact on patient outcomes.

**Acknowledgement:**  
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