## Project Title

Closing the Loop – Joining Up Care with Community Partners through "Central Health LinkUp (CHL)"

## Project Lead and Members

Project Lead: Darryl Kok Yi How

Project Members: Ms Loh Shu Ching, Adj A/Prof Ian Leong, Dr Wong Chia Siong, Ms Lim Sing Yong, Ms Elizabeth Pan, Ms Evelyn Tan, Muhammad Farhan Bin Buang, Ms Shermaine How, Mr Darryl Kok, Ms Ong Wee Ting, Ms Niew She En, Ms Monica Goh, Ms Cindy Yong, Ms Lee Cai Zhen

## Organisation(s) Involved

Tan Tock Seng Hospital

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

Healthcare Administration

## Applicable Specialty or Discipline

Community Operations

## Project Period

Start date: 2018

Completed date: Ongoing

## Aim(s)

To redesign care by tapping on IT innovations to collectively develop Central Health Link (CHL) – an automated e-trigger sent to collaborative partners to inform them on their clients (1) attendance to the Emergency Department, (2) admissions to inpatient and (3) discharges from inpatient.

## Background

See poster appended/ below

## Methods

See poster appended/ below

## Results

See poster appended/ below

## Lessons Learnt

Our healthcare ecosystem has many existing partners that offer opportunities to collaborate in sharing patient care management. In today's evolving healthcare landscape, a "do-it-alone" approach is not the best strategy. Institutions should pool resources to innovate and redesign care to achieve multiplier effects on the system and for our patients. The process of change management across multiple organisations adds another layer of challenge as organisations have their focus areas and different capability levels. To develop the speed of trust, we learnt to understand each organisation's strategic intent, to internalise their target deliverables, challenges, strengths, so as to customise our strategy while working to standardise processes across partners to achieve operational excellence.

## Conclusion

See poster appended/ below

## Additional Information

This project is related to a 2021 project titled 'Patient Care Collaboration with Community Partners using Central Health LinkUp (CHL)'.

**Key Milestones of CHL through the years**

| S/N | Year | Key milestones |
|---|---|---|
| **1** | 2018 | Development and Testing of CHL |
| **2** | 2018 | CHL Pilot with TSAO Foundation |
| **3** | 2019 | Refinement of CHL System |
| **4** | 2019 | Engagements with Other Community Partners |
| **5** | 2020 | On-boarding of Kwong Wai Shiu Hospital, St Luke's Elder Care, Thye Hua Kwan Moral Society, Fei Yue Community Services, Home Nursing Foundation and Peace Connect |
| **6** | 2021 | On-boarding of AWWA, Methodist Welfare Services, Care Corner, NTUC Health and TOUCH Community Services |

## Project Category

Care Continuum

Intermediate and Long Term Care & Community Care, Right-Siting

## Keywords

Collaboration, Community Partners, LinkUp

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**Community Operations, Population Health Office, Division for Central Health**

**Healthcare Intelligence, Digital & Smart Health Office, Centre for Healthcare Innovation**

Tan Tock Seng Hospital
National Healthcare Group

## Background

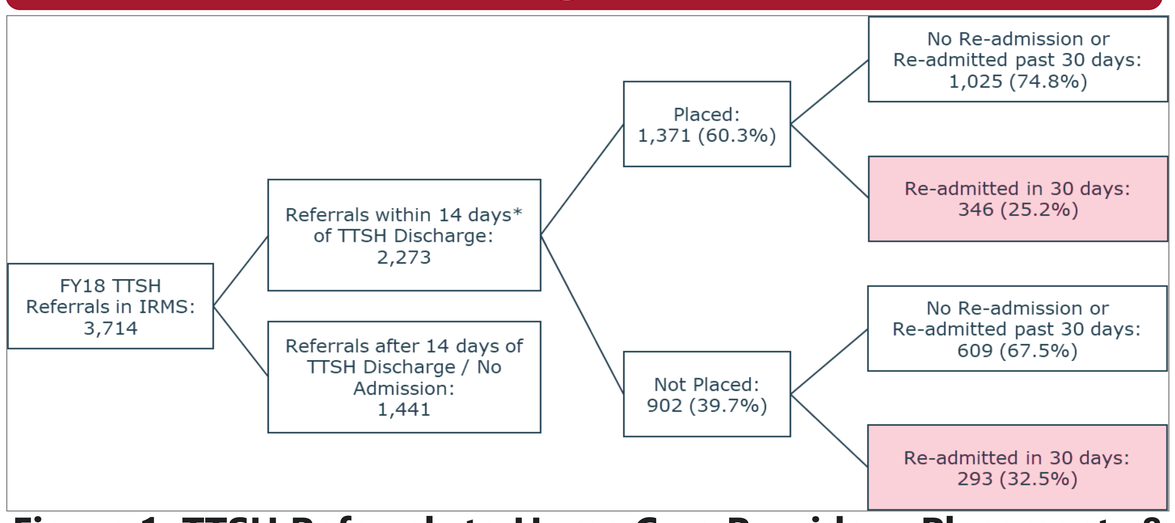


**Figure 1. TTSH Referrals to Home Care Providers, Placements & Readmissions (FY18)**

Based on FY18 data analysis on home care referrals (Figure 1), it is evident that successful home care placements reduce hospital readmissions. However, out of those who were placed, there was still a significant 25.2% of patients who were readmitted in 30 days. The team gathered feedback from various community partners, as shown below :

a) Unexpected TTSH admissions may render providers helpless as they were not promptly alerted of urgent acute care needs
b) Providers might only receive updates through patients' next-of-kin or might not have the necessary oversight at all which led to potentially futile planned visits
c) Disjointed care planning due to partners' lack of knowledge or oversight of the hospital episode
d) Delayed post discharge interventions should partners not be aware of their clients' discharges.

All these reveal potential communication lapses; and partners not being privy to their client's care needs and health plans that were assessed by TTSH care teams, which could attribute to patient readmissions. This brings about a greater need for communication among various providers in Central and Tan Tock Seng Hospital.

## Methodology

**Engagement with external stakeholders to achieve a common consensus on potential solutions**

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**Ensuring necessary data-sharing agreements are in place**

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**On-board partners provide client listings for TTSH team to upload into Healthcare Intelligence**

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**CHL send off e-triggers to the onboard partners periodically. PHO team to continue maintenance of client listing in the system**

↓

**Augmenting CHL by onboarding partners' staff onto TigerConnect and the administrative scheduling of joint case discussion sessions.**

**Figure 2: Total approach on the implementation of CHL with Community Partners**

To overcome these issues, a total approach was required to resolve the communication gaps between organizations and allow care providers to co-manage patients (Figure 2). Two elements were critical:

**1) Information promptly delivered**

CHL was developed to facilitate intel sharing, sparking timely communication between TTSH and community providers by triggering email alerts informing partners that their client(s),

a) Visited TTSH Emergency Department;
b) Were admitted to inpatient wards;
c) Were discharged.

## Methodology (Continued)


**2) Platforms to facilitate communication across care sectors**

CHL along with other complementary enablers to facilitate joined-up care – the issuance of TigerConnect accounts to our collaborative partners and joint case discussion platforms between hospital and community partners.

## Results

| | Inpatient Admissions | Inpatient LOS |
|---|---|---|
| 6 Months Pre-Post Reduction | 8% | 13% |
| 12 Months Pre-Post Reduction | 10% | 5% |

**Figure 3: 6/12 months Pre-Post Reduction rate in Inpatient admissions and LOS**

Till date, approximately 3,000 residents are on-board CHL. Using the benchmark of a 25% re-admission rate of home care patients back to TTSH, the team had aimed to reduce re-admissions by at least 5%, of the patients identified by CHL. With the implementation of CHL, an 8% reduction in inpatient admissions and 13% reduction in inpatient Length of Stay (LOS) were observed through a 6 months pre and post analysis of healthcare utilisation patterns (Figure 3). A further analysis 12 months pre and post analysis revealed a consistent 10% reductions in inpatient admissions, and 5% reductions in overall inpatient LOS.

| How has CHL complemented your organization's overall care model? | Percentage of responses |
|---|---|
| Prevent futile home/ centre-based visits as we're now better aware of patient's movement in/out of the hospital. | 45% |
| Better plan for post-discharge engagements/ follow-ups as we would receive triggers of patient's discharge | 36% |
| Establish contact with TTSH inpatient/ CHT teams to better understand patient care plans and to initiate discharge planning. | 18% |
| **Total score of usefulness of CHL to their organization (10 being super useful, 1 being not useful)** | **Average value = 8** |

**Figure 4: Partner's response to CHL**

Onboard partners have also complimented the usefulness of CHL in complementing their organization's model of care as shown in figure 4. In addition, partners gave praise to the benefits of the complementary enablers such as Pre-scheduled/Ad-hoc Joint Case Discussions (40%), Training programs/webinars held by TTSH (33%), and TigerConnect app (27%) in the continuity of care for their patients. Moving forward, the partners had indicated their ongoing interest in this partnership with our team via CHL, in collectively caring for our Central Health residents for the next 3(33%) to 5(67%) years.

## Conclusion

CHL has redefined the existing care delivery structure to bridge the gaps within the hospital-to-home system. It is important to create a self-sustaining ecosystem that is scalable, and can further benefit patients with post-discharge needs. Strengthened partnerships with community providers also ensure that care is delivered holistically and sustainably, as we move towards our nation's vision of "Beyond Hospital to Community, Beyond Healthcare to Health, Beyond Quality to Value".

Alongside other enablers, this project has automated the manual process of tracking patient's touchpoints in TTSH and facilitated the sharing of information through CHL to promote timely intervention.