Project Title

Enhanced Comprehensive Care Program@ NUH

Project Lead and Members

Project lead: Dr Loo Swee Chin (NUH), Principal Resident Physician

Project members:

- Dr. Terry Toh Kong Leong (NUH), Senior Consultant
- Dr. John Tshon Yit Soong (NUH), Consultant
- Dr. Arpana Ramanathan Vidyarthi (UCSF), Visiting Consultant
- Dr. Desmond Teo Boon Seng (NUHS), Consultant
- Dr. Norshima Nashi (NUHS), Associate Consultant
- Goh Jing Xian Ginny (NUH), Senior Staff Nurse
- Bushra Binte Habib Mohd (NUH), Research Coordinator
- Derek Chan Kam Weng (NUH), Patient Navigator
- Carol CL Cheah (NUH), Senior Manager

Organisation(s) Involved

National University Hospital

Project Period

Start date: Oct 2018

Completed date: Ongoing

Aims

To improve care for high-touch patients (i.e. frequent hospital admissions/ EMD visits) by reducing number of admission and hospital length of stay (LOS) by 10%

Background

See attached

Methods

See attached

Results

See attached

Lessons Learnt

1. Patient engagement is key to the success of program. We learned quickly that program pamphlet is easily lost and under-utilized by patient and family. Many older patients could not recall clinic number when they want to call. In turn, we entered ECCP's contact number directly into patients' hand phone such that they only need to press one button to reach the coordinator. In the process, we gained trusts and relationship building with patients and care giver.
2. We find it useful to have physicians with varied medical expertise/interests and spoken languages in the team. This allows us to tap on the medical expertise and language capability of individual provider and match to patient's care needs.
3. Team based care is valuable because:
    a. helpful to bounce idea off of each other, explore new perspective which translate into better care for patient
    b. less stressful as cross coverage is always available, and patient feels supported
4. Patient empanelment allows team to get to know patient really well and vice versa; higher trusts levels between doctor and patient

Conclusion

See attached

Additional Information

1. Be creative and proactive in problem solving and solution finding.

2. Relationship building with patient/care giver and team members are key to building a sustainable program.
3. Care must be holistic and patient centred especially for those with high care needs
4. We must be the ears and eyes for patients as they navigate the complex health system

Project Category

Care Redesign, Automation, IT & Robotics

Keywords

Care Redesign, Automation, IT & Robotics,

Name and Email of Project Contact Person(s)

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Enhanced Comprehensive Care Program (ECCP)

Organization	**National University Hospital (NUH)**
Team Leaders	Dr. Loo Swee Chin, Dr. Arpana Vidyarthi, Dr. John Tshon Yit Soong
Team Members	Dr. Terry Toh Kong Leong, Dr. Desmond Teo Beng Soon, Dr. Norshima Nashi, Goh Jing Xian Ginny, Bushra Binte Habib Mohd, Derek Chan Kam Weng, Carol CL Cheah

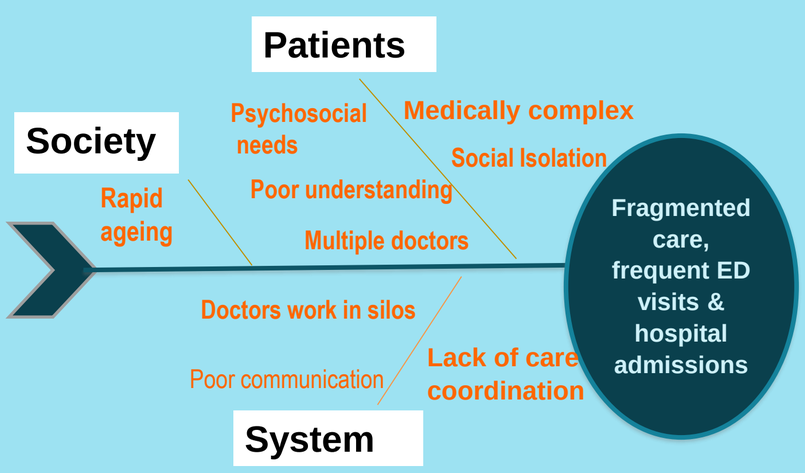
Defining the Problem

Singapore's rapidly ageing society results in some patients having multiple co-morbidity and social complexity. Existing healthcare systems effectively concentrate on rapid widespread access to urgent care polyclinics, with an emphasis on organ-specific specialty care. The current impact of this misalignment is increased acute care utilization, fragmented outpatient secondary care under multiple organ-specific specialty consultant physicians, episodic primary care under polyclinics and poorly integrated social care. Ultimately, patients experience decreased continuity of care and poor care-coordination, the consequences of which are poorer health outcomes and higher health care costs, often manifesting as high rates of non-elective hospital admission and ED attendance.

Project Goal

The project aimed to improve care for high-touch patients (i.e. frequent hospital admissions / EMD visits) by reducing number of admission and hospital length of stays (LOS) by 10%.

Problem Assessment and Cause Analysis



In order to better assess and understand the extent of the problem, our team did the following:

1) Reviewed operational data at NUH for potential volumes:
In 2017, under General Medicine (GM) discipline, 7,497 patients were admitted to NUH, out of which 347 patients (5.5%) had ≥3 hospitalizations. Of the 16,990 patients with clinic appointments under the Department of Medicine, 9,412 patients (24.9%) had ≥3 outpatient clinic visits in the year.

2) Patient survey: We interviewed 10 patients from an inpatient ward regarding their views surrounding patient-centred care design, with the following observations:
- Convenience and infrastructure are important factors
- Relationship with doctor is important
- Patient values continuity of care
- Some prefer specialist care
- Problems with seeing too many doctors
- Finances drive decisions
- Patient is conditioned to see multiple doctors
- Patient can self-manage with proper social structure
- Some fear of just having 1 doctor

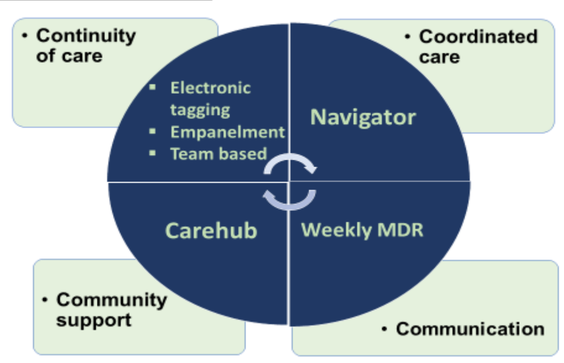
3) Adopted good practices from Nuka System of Care and Teamlet at Polyclinic:
- Relationships between patient and provider must be fostered to increase trust and confidence
- Emphasis on wellness of whole person
- Better collaboration with community provider
- Regular team huddle to improve care and communication

4) Carried out a collaborative international study trip to the University of Chicago to observe on the ground the principles and implementation of the Comprehensive Care Physician model.

Interventions & Action Plan

Problems	Interventions
A. Poor care continuity and overall accountability	1. Empanelment: patients are empaneled and cared for by a generalist physician with the support of a multi-disciplinary team. ECCP physician is accountable for overall care of patient. 2. Electronic tagging: Each patient is electronically tagged and flagged via text message to ECCP navigator for ED visit. In response, ECCP navigator, in consultation with ECCP physician on call, will determine if ED visit can be aborted by providing same day or next day ECCP clinic review.
B. Lack of care coordination	1. ECCP Navigator as the point of contact for any queries raised by patient or care giver 2. Dedicated ECCP phone line for care escalation and queries 3. Physician consolidates specialty inputs and reduce unnecessary SOC visits
C. Poor communication	1. Weekly multi-disciplinary round (MDR) to discuss challenging cases, ED visits, hospital admissions etc. Through MDR, the 3 physicians become familiarize with the "high utilizers" in the other physician's panel. 2. Focus on effective communication with patient and care-givers
D. Limited community support	1. Close collaboration with Care Hub for transitional care and community support 2. First ECCP clinic visit within 2 weeks of discharge from hospital after acute admission

ECCP Strategy for Change



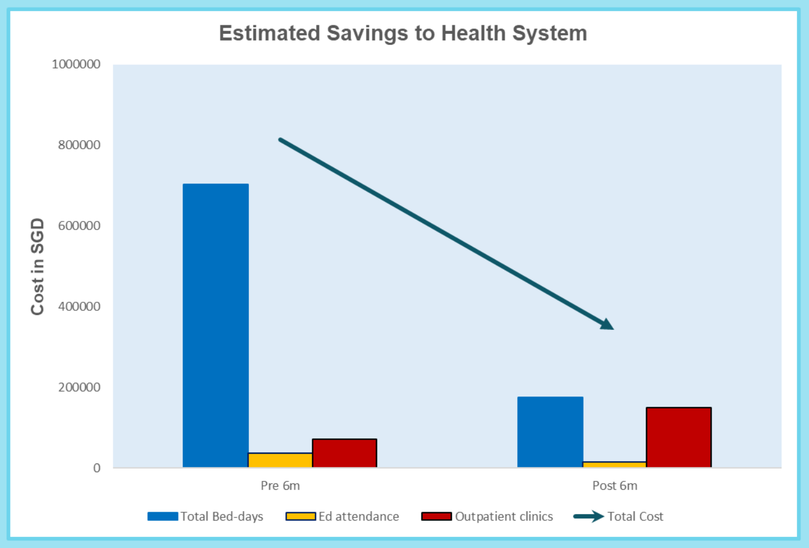
Patient Recruitment	
Inclusion Criteria	**Exclusion Criteria**
1 hospitalization or ED visit in the last 12 months plus	Lacks decision making capacity
1 sub-specialist appointment in the preceding or coming 6 months plus	Enrolled in a robust program under active management
Singapore citizen or PR plus	Active chemotherapy
Subsidized patient	Active pregnancy
	HIV, transplant patients
	Nursing home patients

Effects of Changes

A. Health Care Processes at 6 month	
Screened for vaccination (Flu and Pneumonia)	95.8%
Screened for osteoporosis	89.6%
Screened for colorectal cancer	77.0%
Introduction to Advanced Care Planning	68.8%

B. Patient Outcomes (N=47)	6 month pre	6 month post	P Value
Mean total bed days	8.30	2.08	P < 0.001

C. System Outcomes (N=47)	6 month pre	6 month post	P Value
Mean number of hospital admissions	1.92	0.58	P < 0.001
Mean number of ED attendances	1.96	0.77	P < 0.001
Number of outpatient clinic visits	3.19	6.67	P < 0.001
Estimated healthcare cost reduction	$471,403.90		



Conclusion

1. Patient engagement, enhanced communication, team-based care delivery, relationship building and holistic care are key elements in the design of ECCP intended to improve healthcare outcomes for patients with multiple comorbidities. This program was implemented in October 2018 and has been ongoing.
2. NUH have recognized ECCP as a priority within the Peaks of Excellence Strategy
3. This program forms a template for general internist physician program to deliver optimal care for their increasingly complex and chronically co-morbid patients.
4. Going forward, a HSR grant application has been submitted to conduct a randomized control study. If successful, the study will begin in mid 2020.