Continuous Quality Improvement for Excellence: Care Transition Practices Using an Acute Hospital – Community Hospital Care Bundle Approach



Defining Tomorrow's Medicine

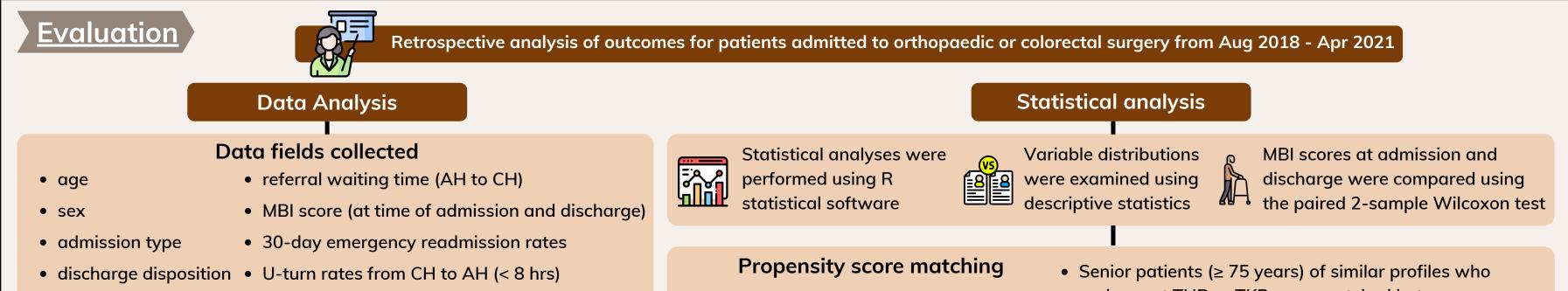
Singapore Healthcare Management 2022

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Collaboration between acute (AH) and community hospitals (CH) can help improve clinical



(2015 - 2017)

outcomes and service quality

Background Problem:



Singapore's healthcare system is confronted with bed shortages as one of the world's fastest ageing countries



Senior patients recovering from surgery often stay for prolonged periods in acute hospitals, placing a strain on the nation's limited healthcare resources

Solution:

An Acute Hospital - Community Hospital (AH-CH) care bundle has been developed to assist patients in postoperative rehabilitation

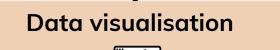


<u>Objective</u>

Patients are transferred out of acute hospitals when clinically recommended into community hospitals, where they can recieve more beneficial dedicated care to aid their recovery

Bed capacities are freed up in acute hospitals



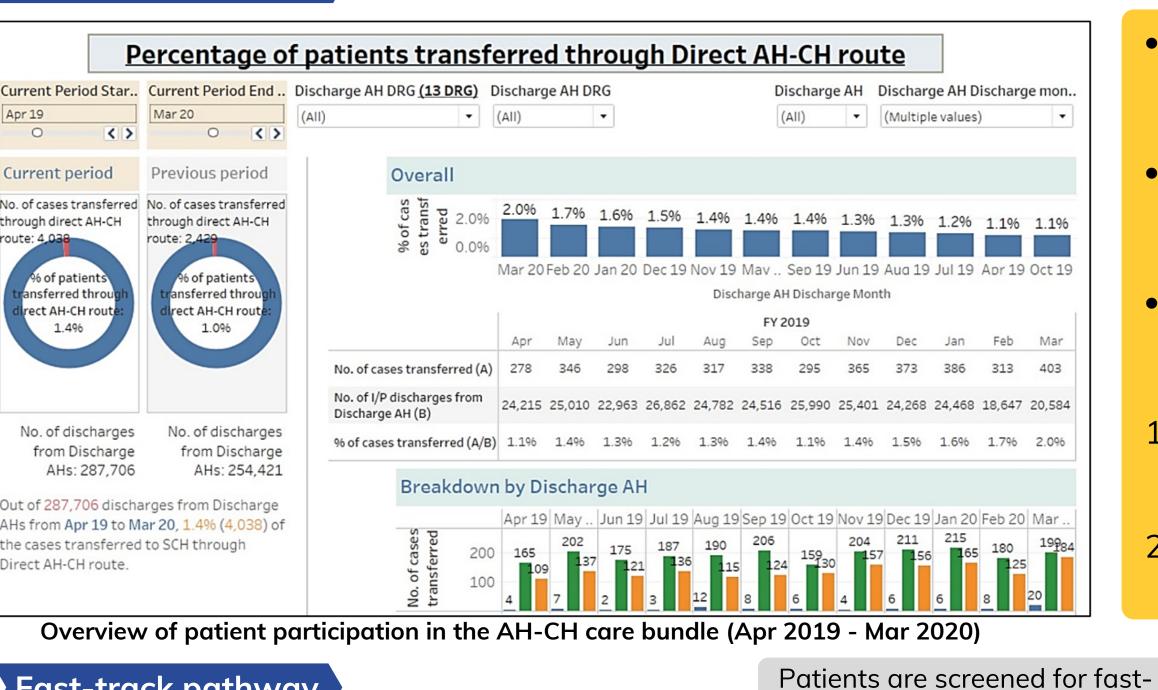


Data visualisation dashboards were developed via Tableau

- maintained on quarterly basis to track critical indicators
- Data is reviewable at quarterly intervals to identify outliers and implement improvements

<u>Analysis and Findings</u>

Dashboard overview



Fast-track pathway

matching based on age, sex, American Society of Anaesthesiologists (ASA) classification, and after care bundle before care bundle

(2018 - 2021)

underwent THR or TKR were matched between preand post-intervention groups to allow for a balanced comparison of the effects of the care bundle

AH LOS, average AH room charges & daily treatment fees were compared between the matched patient groups using the Mann-Whitney-Wilcoxon test

Inflation-adjusted cost of 2021 for health services in Singapore (MAS) was used S Cost analysis to compare the cost before and after the care bundle was implemented. Inflation rate was factored in for the comparison period to ensure a fair analysis

- Interactive dashboards enabled the care bundle to be monitored closely throughout its implementation
- Total number and percentage of patients transferred from AH to CH were tracked on a monthly basis
- Dashboards provided key information to initiate proactive changes:
- 1. Conduct advanced screening after surgery for seamless transitions from AH to CH
- 2. Coordinate with CH sites to shorten referral waiting time
 - Patients completed THR

- A quality improvement (QI) project sought to implement the AH-CH care bundle within Singhealth- the country's largest cluster of public healthcare instituitions
- To evaluate the care bundle's effectiveness in reducing acute hospital length of stay (AH LOS) and unfavourable patient outcomes in orthopaedic and colorectal surgery

Methods

Pre-



• 3-month retrospective audit was conducted between May and July 2018 to analyze and validate historical data from AH/CH sites and other stakeholders across Singhealth instituitions

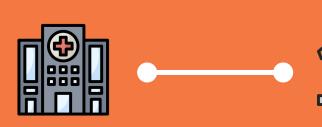


• A poll was created to ascertain current practices in postoperative care for orthopaedic and colorectal surgery



• Finance analytics team received educational sessions on data collection, analysis and interpretation

Key stakeholders



SGH

2 Singhealth Community Hospitals



Data was harvested quarterly from: (1) Singhealth eHINTs (2) participating sites

- senior management • clinical operations & specialty HODs • healthcare professionals
 - finance analysts & directors

Personnel

CH

• orthopaedic & colorectal surgery departments

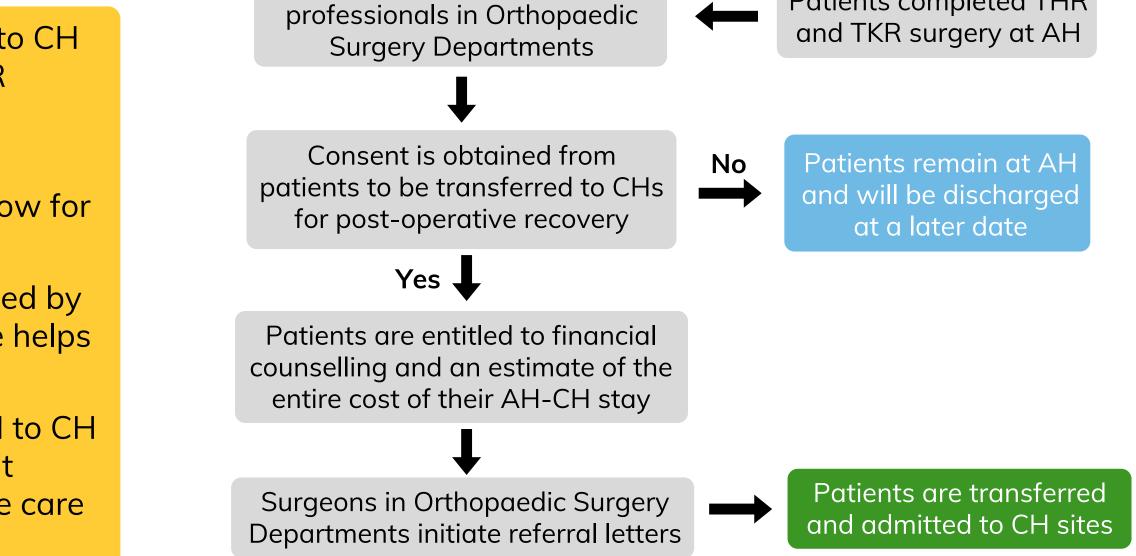
A Fast-track pathway from AH to CH was developed for THR and TKR patients

- standardization of reporting procedures and protocols allow for a smooth care transition
- integrated care plan developed by clinical care team in advance helps prevent delays in transfer
- streamlining of care from AH to CH helps reduce AH LOS without compromising post-operative care quality

<u>Improvements from care bundle intervention</u>

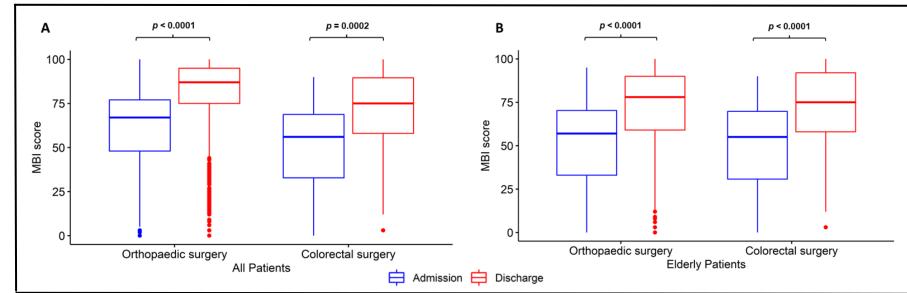
	THR		p-value	TKR			
	2015-2017	2018-2021	p-vulue	2015-2017	2018-2021	p-value	
Matched case	143	143		168	168		
Mean age (years)	79.2	79.5		78.6	78.2		
<u>Gender</u> Male Female	72 71	70 73		83 85	79 89		
<u>ASA</u>							
1	1	1		1	2		
2	102	100		144	137		
3	40	42		23	29		
Operational method							
Open	135	138		168	167		
Minimally invasive surgery (MIS)	8	5		0	1		
Median AH LOS (days)	7	6		6	5		
Mean AH LOS (days)	<u>8.85</u>	<u>7.42</u>	0.001	<u>6.48</u>	<u>5.34</u>	0.004	
Mean cost of room charges per case (S\$)	<u>4288.69</u>	<u>3640.52</u>	0.042	2559.45	2517.73	0.629	
Mean cost of daily treatment fee per case (S\$)	<u>2242.70</u>	<u>2031.54</u>	0.019	1226.51	1195.26	0.106	

Baseline characteristics and comparison of hospitalization outcomes between senior patients who underwent THR and TKR before and after the implementation of AH – CH care bundle



track transfer to CHs by nursing

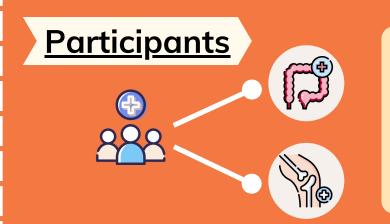
Fast-track pathway from AH to CH for THR and TKR patients



Comparisons of MBI scores between admission and discharge in patients receiving orthopaedic and colorectal surgery

	MBI Score									
	All Patients			Senior Patients						
	Admission	Discharge	p-value	Admission	Discharge	p-value				
rthopaedic surgery	59.94 ± 23.56	80.14 ± 18.06	< 0.0001	50.89 ± 23.94	71.86 ± 23.39	0.0002				
olorectal surgery	51.83 ± 25.74	70.41 ± 24.56	< 0.0001	51.80 ± 26.80	72.00 ± 23.84	< 0.0001				

Table of comparison of MBI scores between admission and discharge



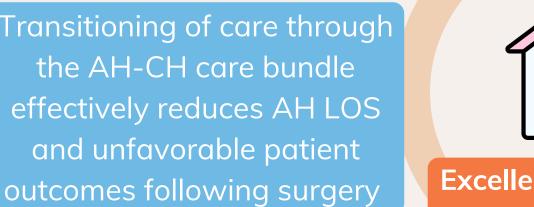
AH-CH care bundle components began to be implemented in <u>August 2018</u>. Patients who agreed to be transferred from AH to CH following orthopaedic (THRtotal hip replacement & TKR- total knee replacement) or <u>colorectal surgery</u> were enrolled in this QI project

- 143 and 168 pairs of matched senior patients who underwent THR and TKR respectively were used to evaluate the effect of the care bundle project
- There was a <u>statistically significant (p < 0.05) drop</u> in the mean AH LOS for both THR and TKR patients
- Cost savings were noted as a result of the decrease in AH LOS

- A clinically and <u>statistically significant (p <0.05) increase</u> in the average MBI score was observed in all patients enrolled in the care bundle project undergoing orthopaedic or colorectal surgery after being discharged from CH
- Increase in MBI score suggests that patients are able to perform daily living activities with a greater degree of independency, thus serving as an indicator of improved clinical outcomes



Data analytics and interactive dashboards are practical tools for improving clinical outcomes



A well-designed post-op rehabilitation programme can help prevent complications and enable patients to achieve the best functional outcomes

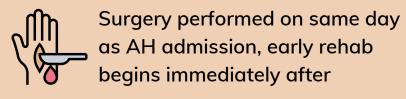


Excellence in care & service quality

Seamless transition from AH to CH

4-tiered Intervention

Diagnosis made at outpatient 우믤 specialist clinics prior to AH ÷ admission



Patient transferred to CH when ready for rehab via an integrated care plan

Fast-track pathway with improved outcomes for THR and TKR



Patients receiving THR and TKR are screened for fast-track transfer to CH sites after surgery by nursing professionals from the orthopaedic surgery department

Alignment of recovery expectations

Patients and their

clinical care team to

enhance recovery and

emotional well-being

families were involved in post-op decision making with the

Utilizing data

analytics to optimize processes to reduce patients' AH LOS Valuing therapy

hip surgery

surgery

Reducing LOS

(+)

and nursing care in CHs:

- rehabilitation after knee &
- subacute care after colorectal

Patients' ability were measured by the Modified Barthel Index (MBI) - a scoring method that measures activities in daily living (ADL)

• Increased scores suggest a gain in independence, while reduced scores suggest a decrease in independence

Enhancing physical ability

R

- Provides assessment of rehabilitation efficacy
- Generates insights to opitimize rehab capabilities

Conclusion

