



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



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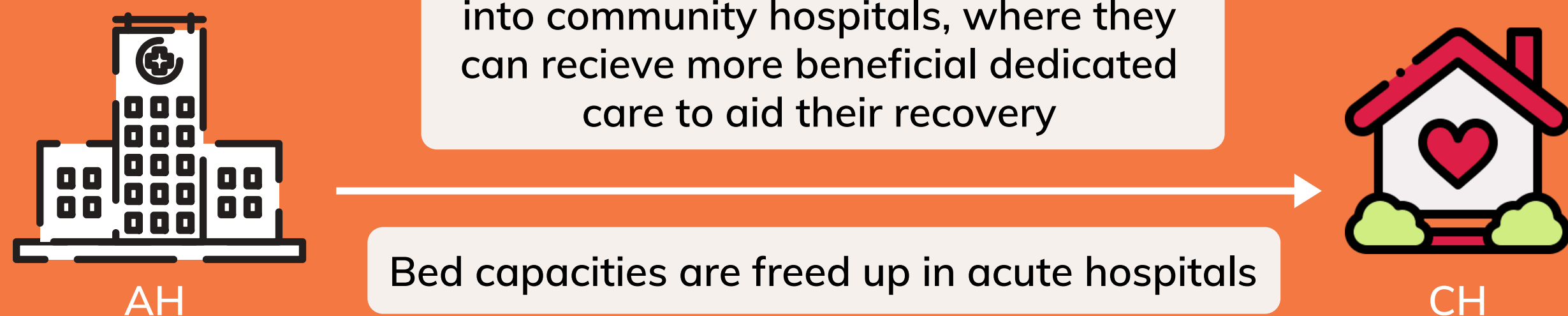
## Collaboration between acute (AH) and community hospitals (CH) can help improve clinical outcomes and service quality

### 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.

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

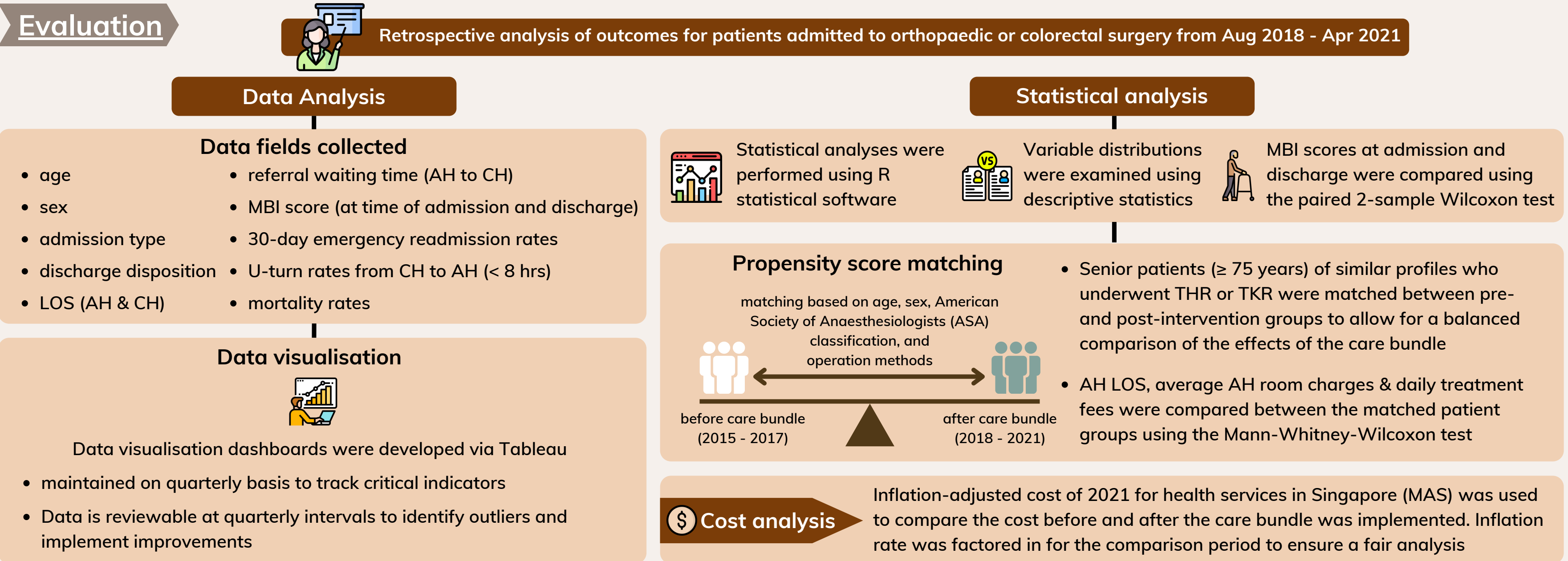
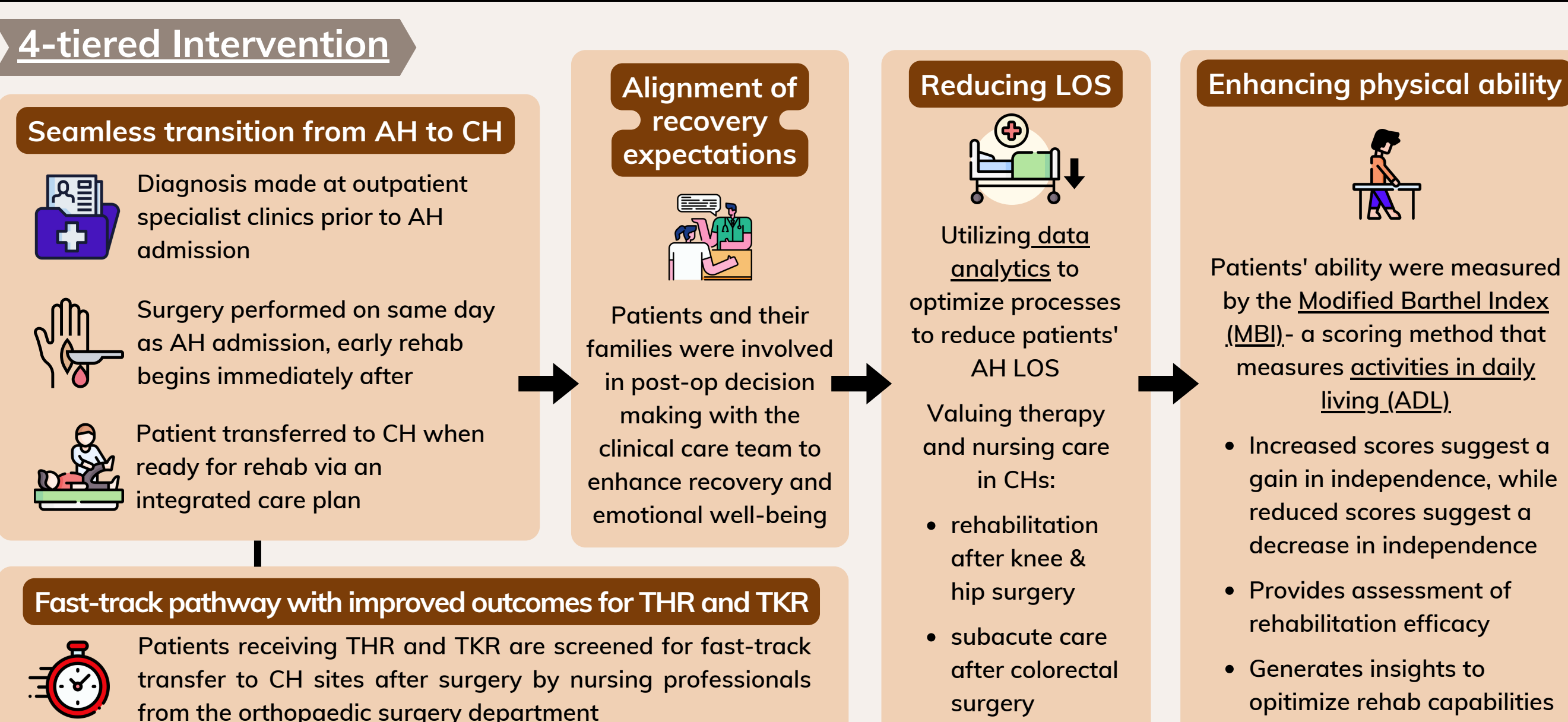
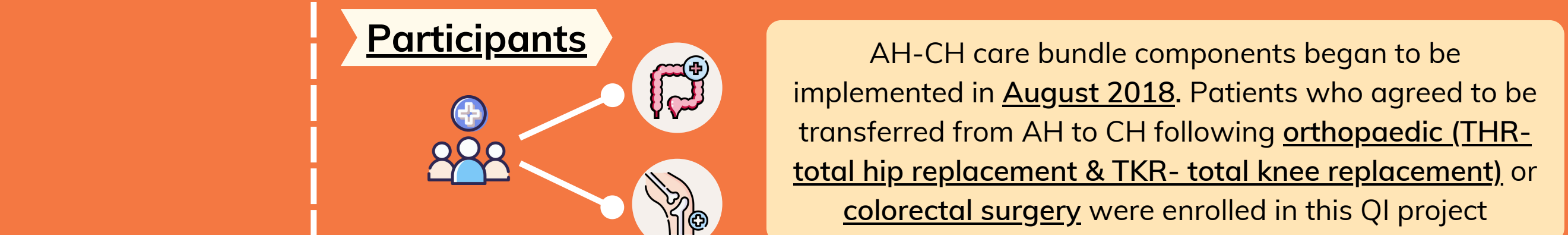
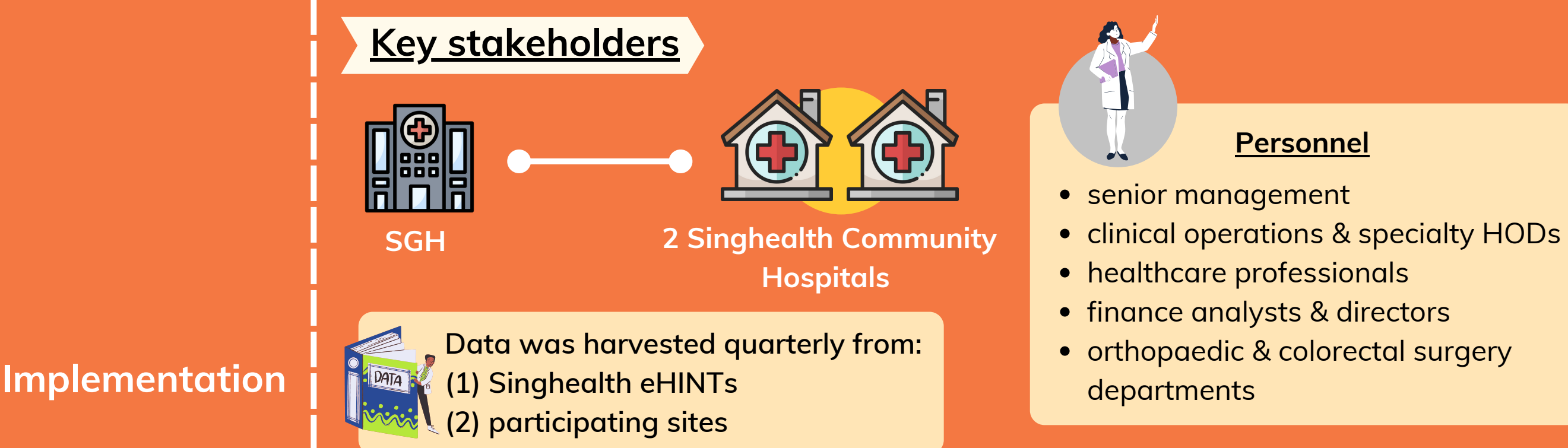


### Objective

- A quality improvement (QI) project sought to implement the AH-CH care bundle within Singhealth- the country's largest cluster of public healthcare institutions
- 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.

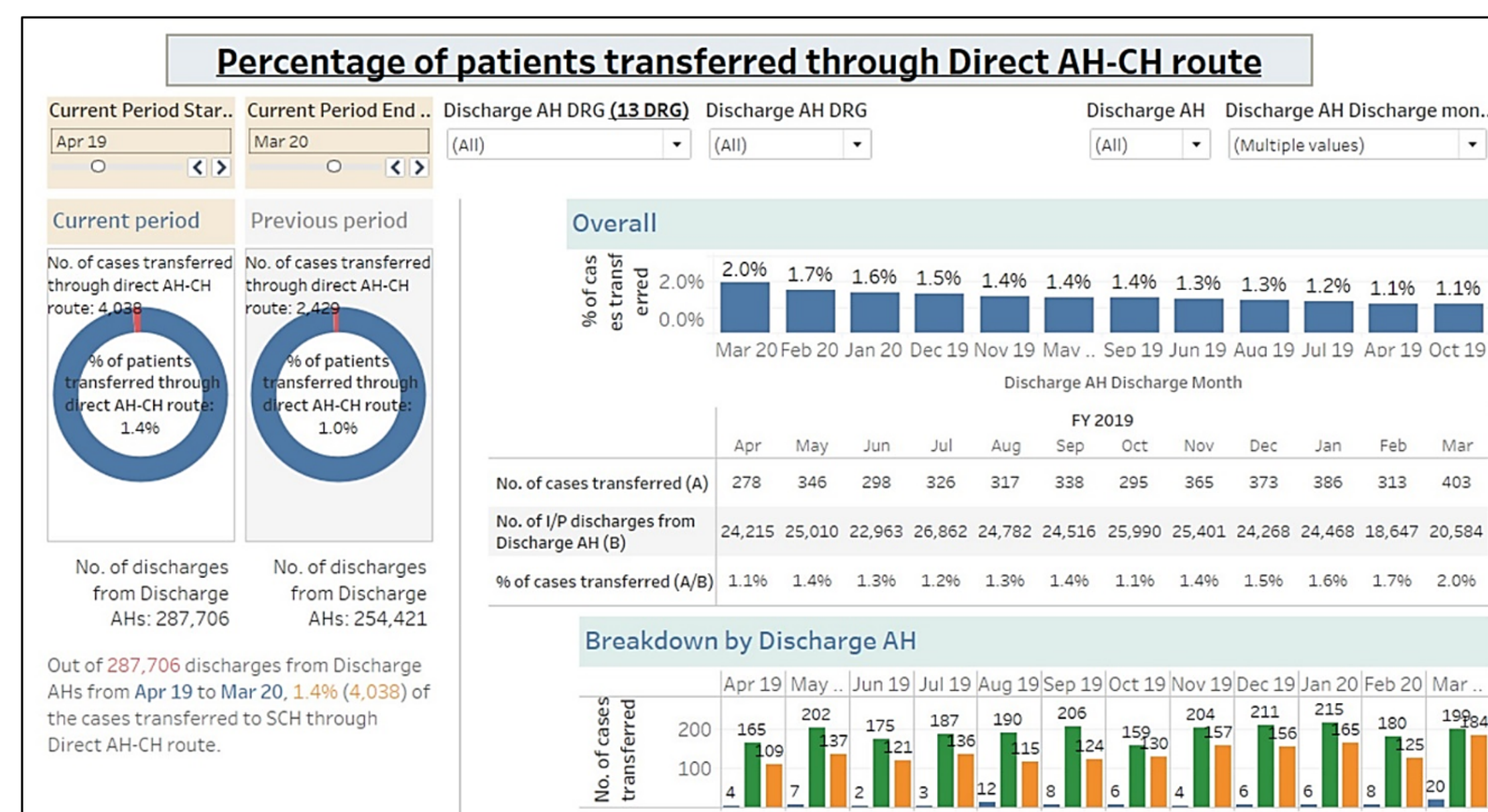
### Methods

- Pre-implementation**
- 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 institutions
  - 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



## Analysis and Findings

### Dashboard overview

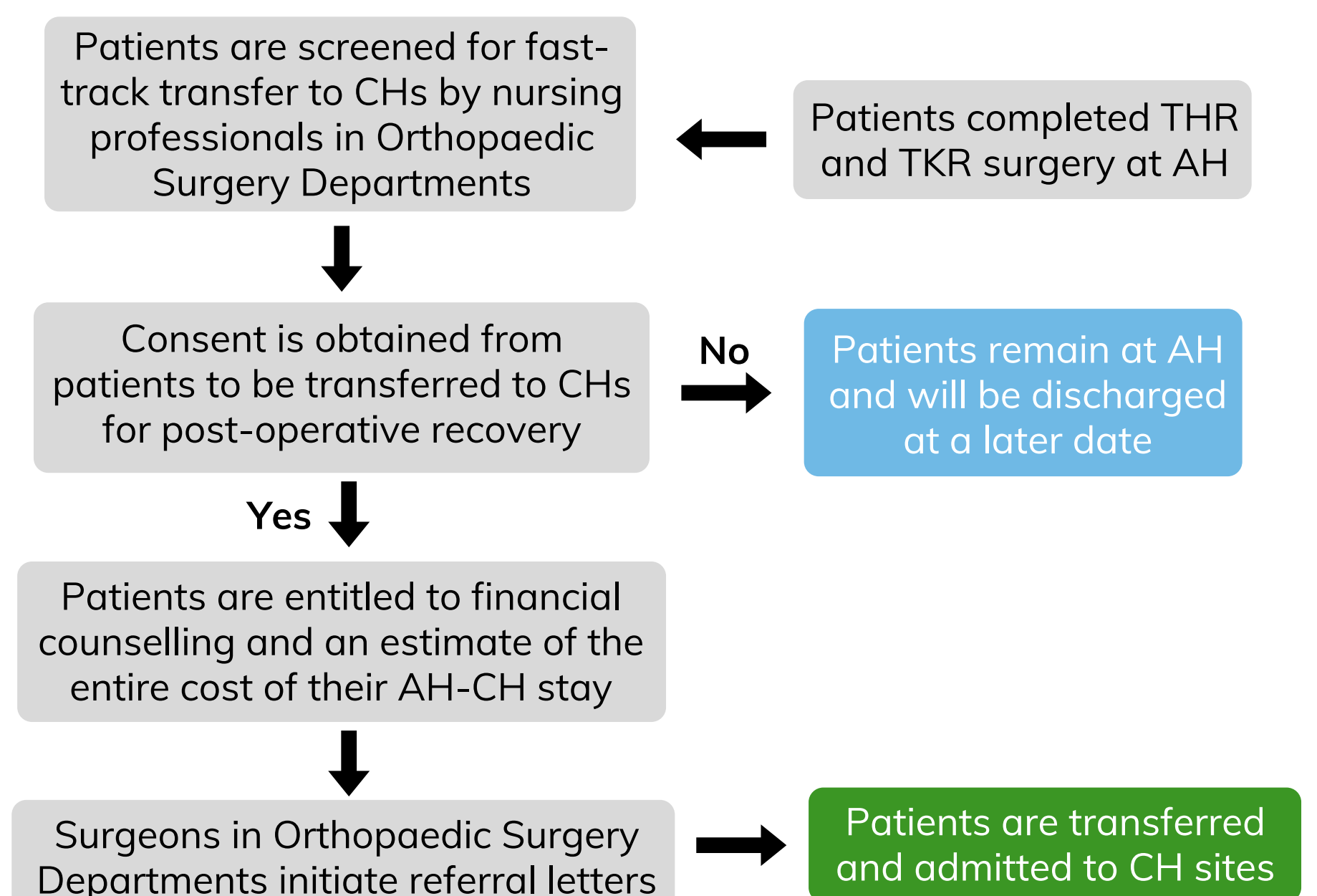


Overview of patient participation in the AH-CH care bundle (Apr 2019 - Mar 2020)

### Fast-track pathway

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

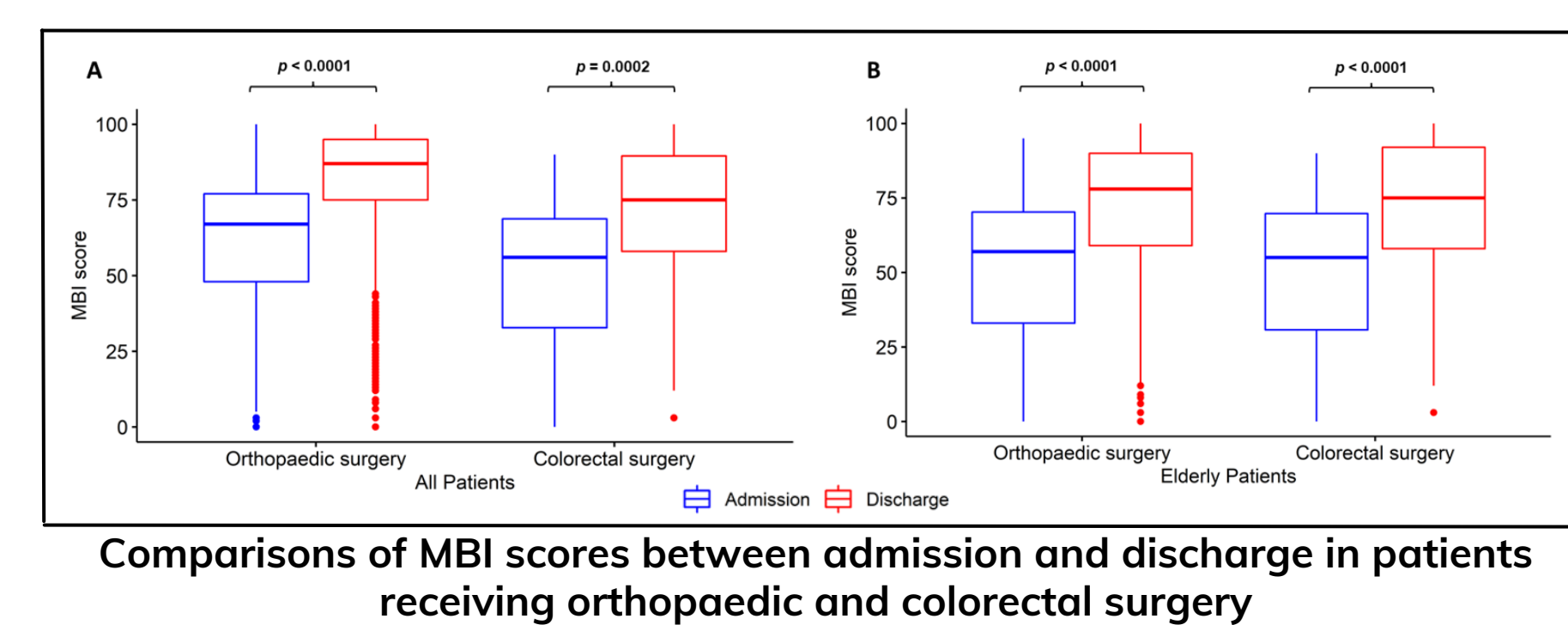


### Improvements from care bundle intervention

	THR		p-value	TKR		p-value
	2015-2017	2018-2021		2015-2017	2018-2021	
Matched case	143	143		168	168	
Mean age (years)	79.2	79.5		78.6	78.2	
Gender						
Male	72	70		83	79	
Female	71	73		85	89	
ASA						
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)	8.85	7.42	0.001	6.48	5.34	0.004
Mean cost of room charges per case (\$)	4288.69	3640.52	0.042	2559.45	2517.73	0.629
Mean cost of daily treatment fee per case (\$)	2242.70	2031.54	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

- 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 **statistically significant ( $p < 0.05$ ) drop** in the **mean AH LOS** for both THR and TKR patients
- Cost savings were noted as a result of the decrease in AH LOS



	MBI Score					
	All Patients		Senior Patients		p-value	
	Admission	Discharge	Admission	Discharge		
Orthopaedic surgery	59.94 ± 23.56	80.14 ± 18.06	50.89 ± 23.94	71.96 ± 23.39	0.0002	
Colorectal surgery	51.83 ± 25.74	70.41 ± 24.56	51.80 ± 26.80	72.00 ± 23.84	< 0.0001	

Table of comparison of MBI scores between admission and discharge

- A clinically and **statistically significant ( $p < 0.05$ ) increase** 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**

## Conclusion

