

Project Title

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

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Organisation(s) Involved

SingHealth Community Hospitals, Singapore General Hospital

Healthcare Family Group(s) Involved in this Project

Medical, Healthcare administration

Applicable Specialty or Discipline

Orthopaedic, Colorectal, Financial analytics

Project Period

Start date: May 2018

Completed date: Apr 2021

Aim(s)

- A quality improvement (QI) project sought to implement the AH-CH care bundle within Singhealth

- 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

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Conclusion

See poster appended/ below

Project Category

Care & Process Redesign

Quality Improvement, Workflow Redesign, Access To Care, Waiting Time, Turnaround Time, Valued Based Care, Patient Reported Outcome Measures, Functional Outcome, Length Of Stay, Discharge Planning

Keywords

Care Transition, Acute Hospital-Community Hospital (AH-CH) Care Bundle, Length Of Stay, Total Hip Replacement (THR), Total Knee Replacement (TKR), Colorectal Surgery, Fast-Track Carepath, Postoperative Rehabilitation

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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



Bed capacities are freed up in acute hospitals



Objective

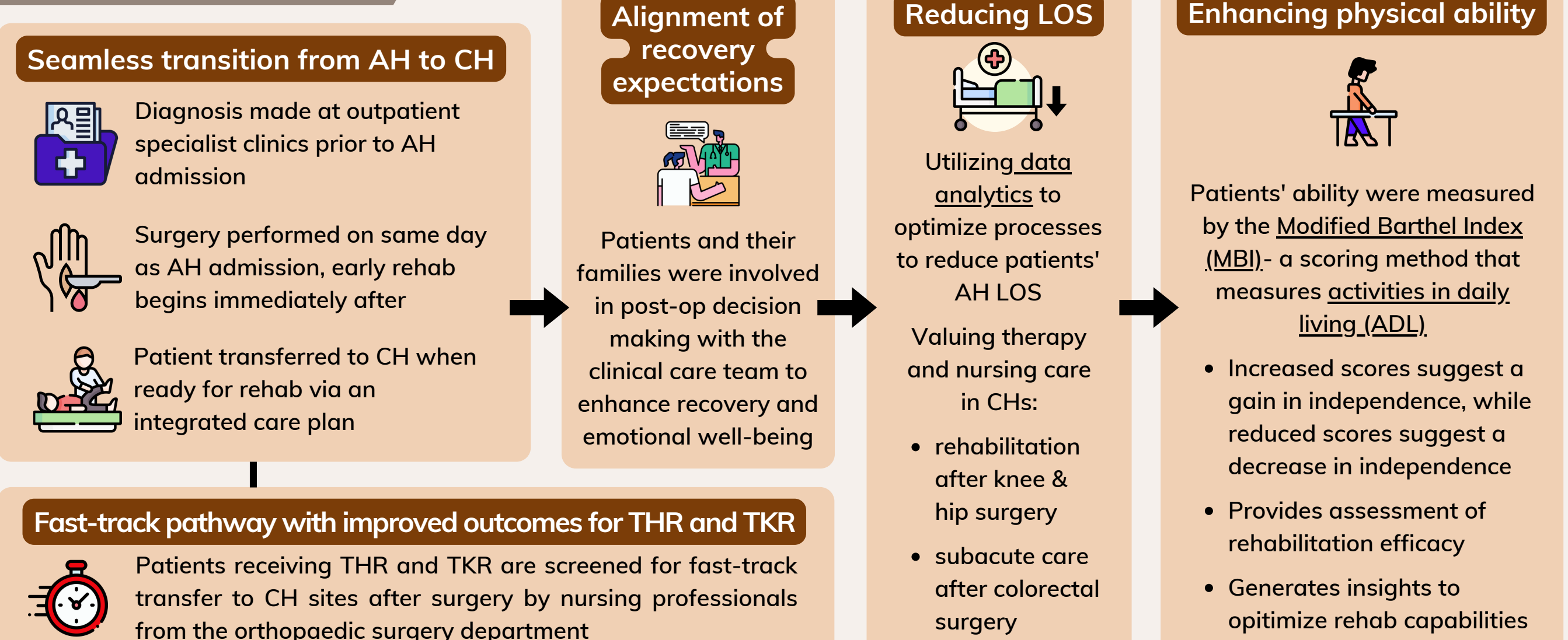
- A quality improvement (QI) project sought to implement the AH-CH care bundle within Singhealth- the country's largest cluster of public healthcare institutions
- To evaluate the care bundle's effectiveness in reducing acute hospital length of stay (AH LOS) and unfavourable patient outcomes in orthopaedic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

Methods

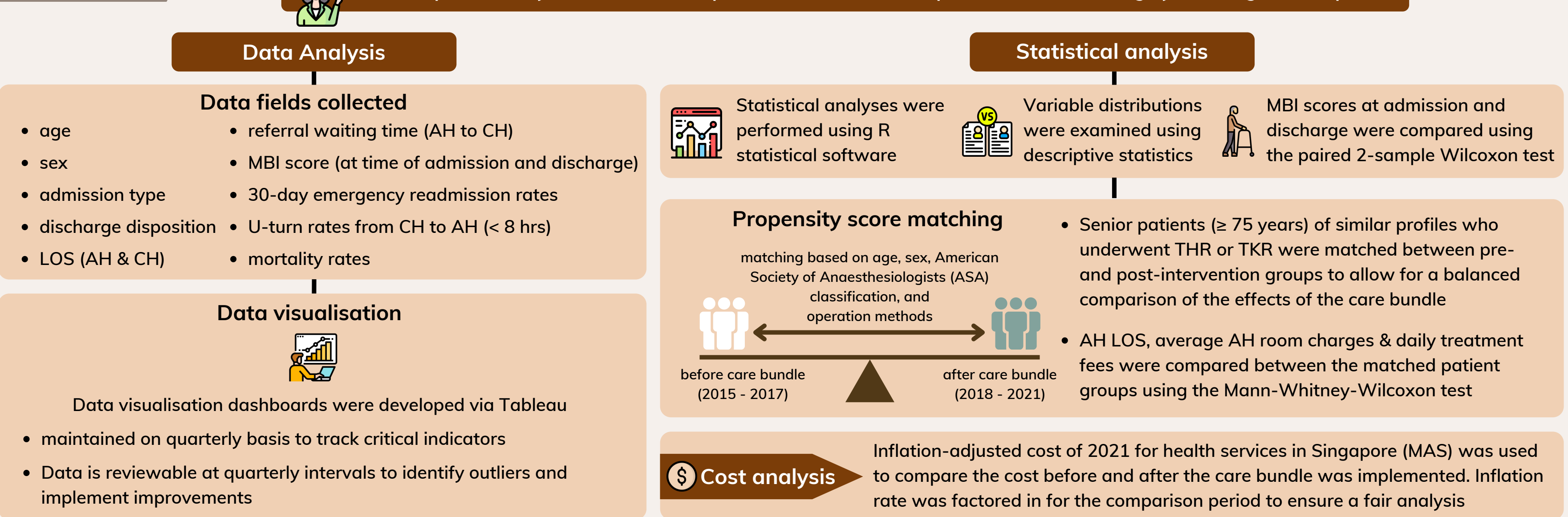
- Pre-implementation**
- 3-month retrospective audit was conducted between May and July 2018 to analyze and validate historical data from AH/CH sites and other stakeholders across Singhealth institutions
 - A poll was created to ascertain current practices in postoperative care for orthopaedic and colorectal surgery
 - Finance analytics team received educational sessions on data collection, analysis and interpretation
- Key stakeholders**
- SGH
 - 2 SingHealth Community Hospitals
- Personnel**
- senior management
 - clinical operations & specialty HODs
 - healthcare professionals
 - finance analysts & directors
 - orthopaedic & colorectal surgery departments
- Implementation**
- Data was harvested quarterly from:
- (1) Singhealth eHINTs
 - (2) participating sites

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

4-tiered Intervention

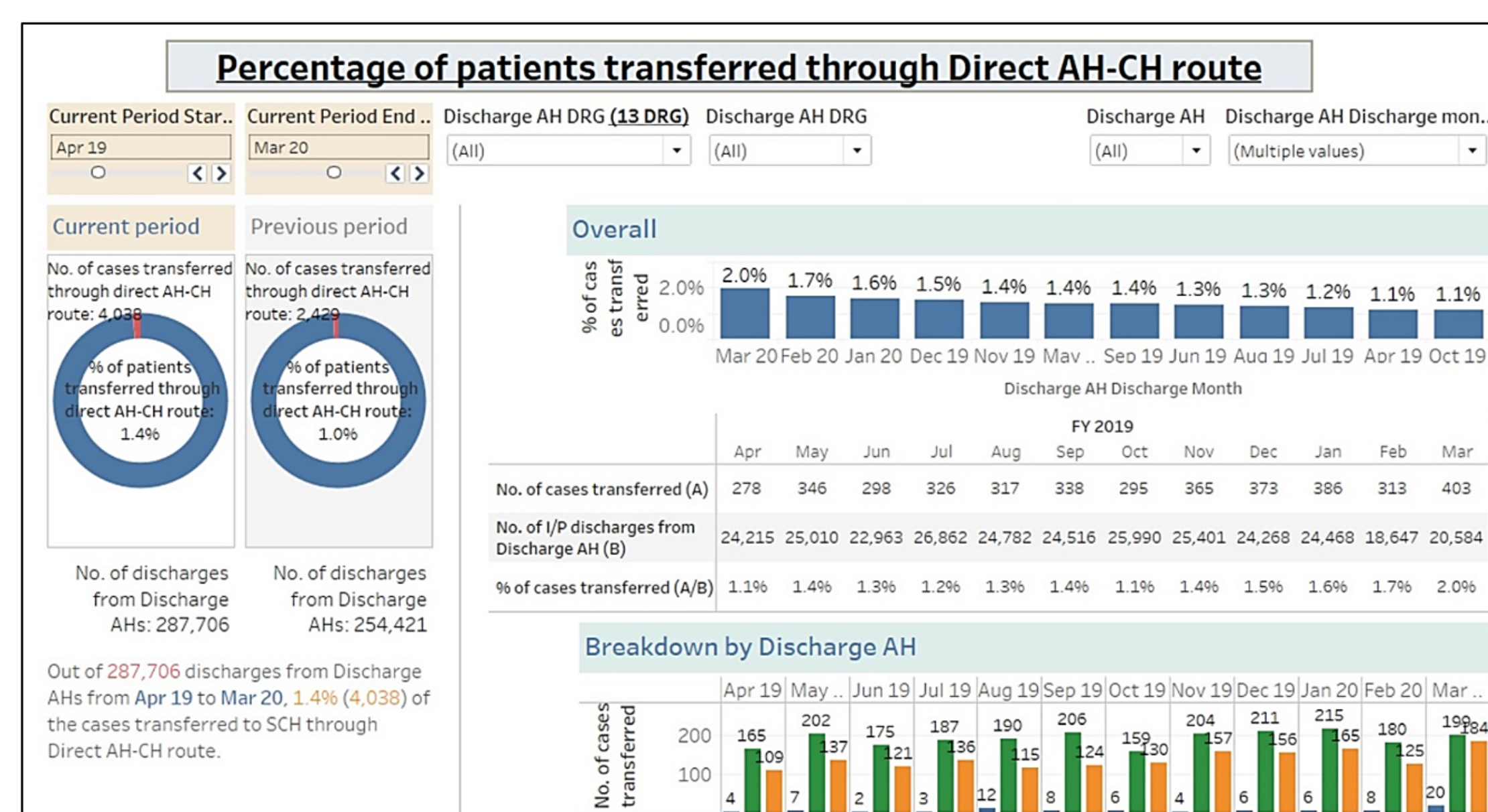


Evaluation



Analysis and Findings

Dashboard overview

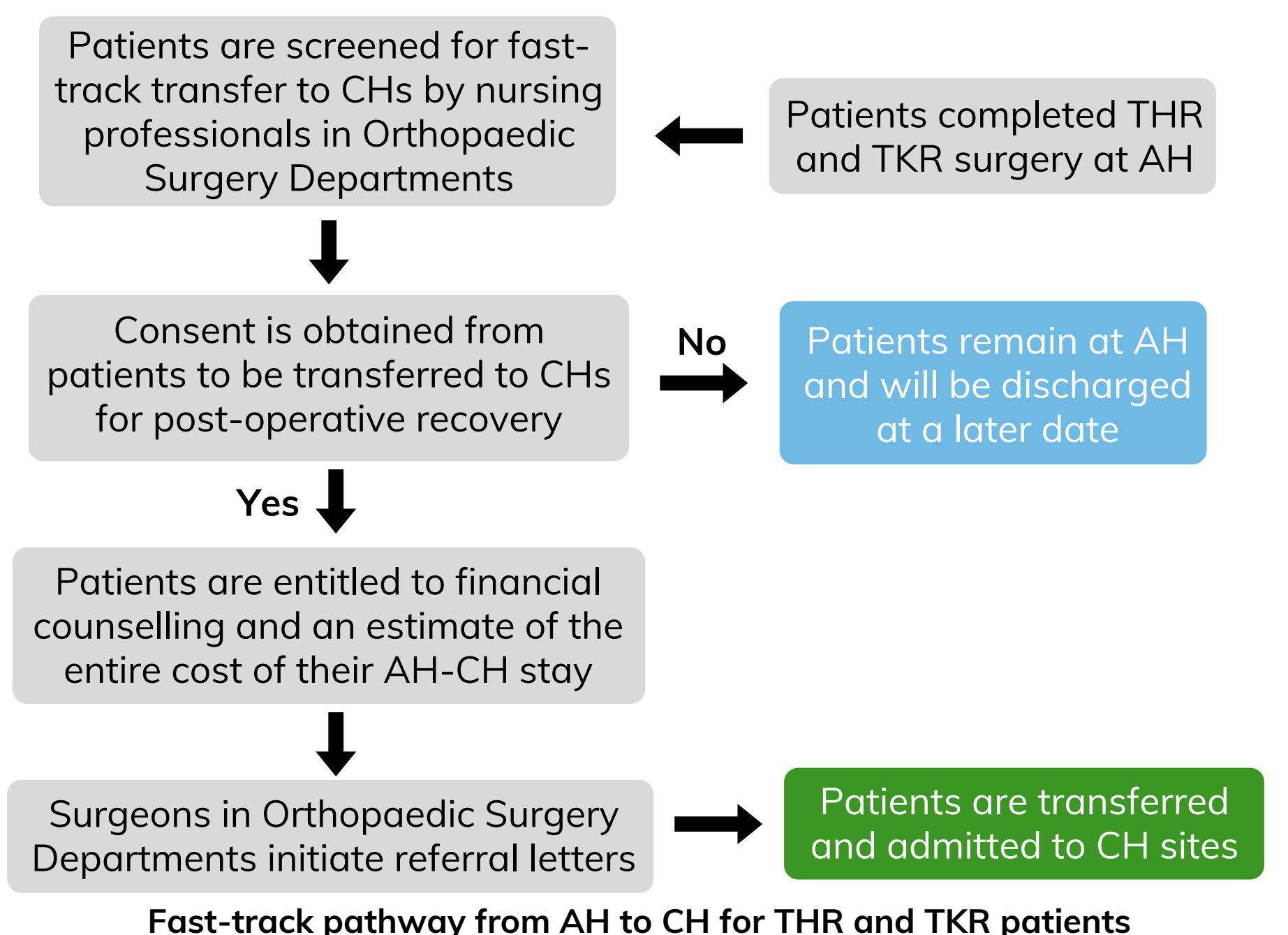


Overview of patient participation in the AH-CH care bundle (Apr 2019 - Mar 2020)

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

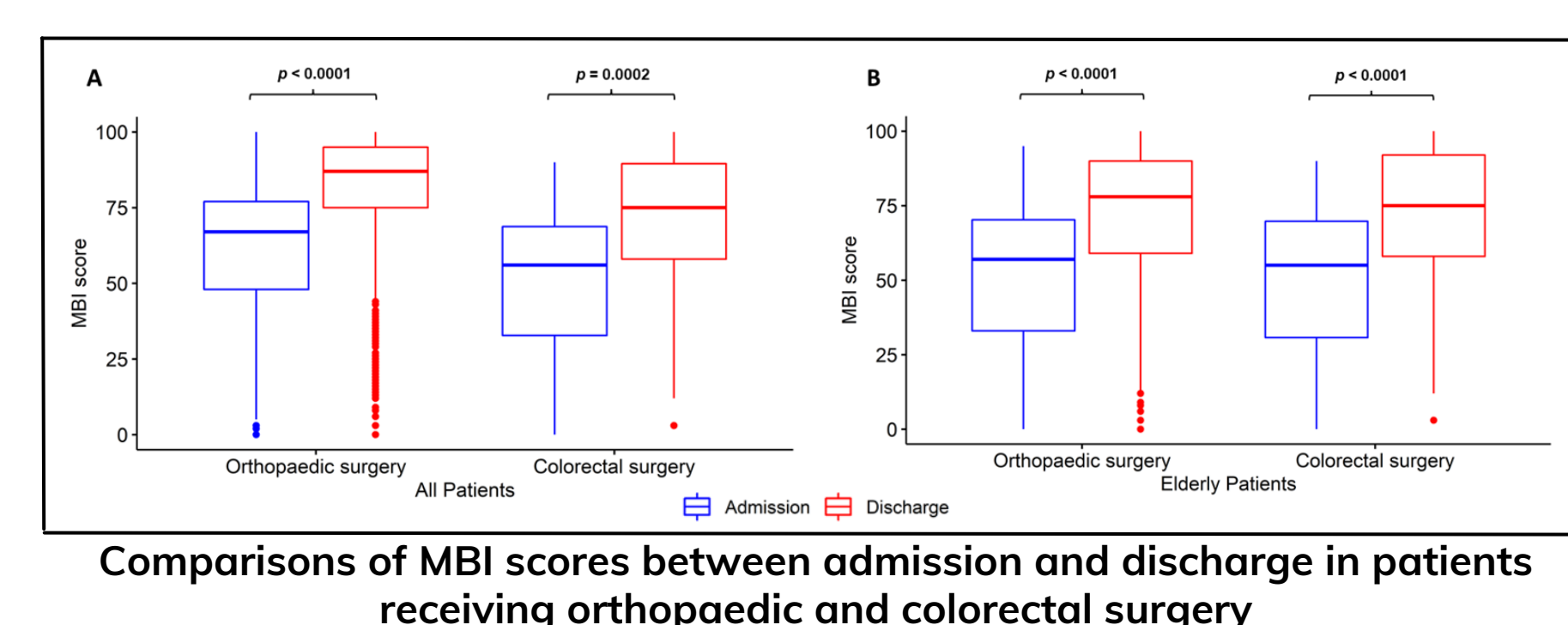


Improvements from care bundle intervention

| | 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 (\$S) | 4288.69 | 3640.52 | 0.042 | 2559.45 | 2517.73 | 0.629 |
| Mean cost of daily treatment fee per case (\$S) | 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

