

Project Title

Enhanced Recovery After Surgery in Total Knee Replacement Surgery

Project Lead and Members

Project lead: Adj A/Prof Wang Lushun

Project members: Dr Ashish R. Satapathy, Fione Gun, Matthew Neo, Lee Rui Chen, Ng Xian Fei, Tang Min Yee, Zarina Ahmad

Organisation(s) Involved

Ng Teng Fong General Hospital

Healthcare Family Group Involved in this Project

Medical, Nursing, Allied Health

Applicable Specialty or Discipline

Orthopaedic

Project Period

Start date: Nov 2019

Completed date: Jan 2020

Aims

We aim to compare the early outcomes of our TKR ERAS patients against TKR patients on Non-ERAS from Nov 19 to Jan 20. A total of 48 patients were enrolled in the pilot study, with complete data in 37 patients.

Background

See poster appended/below

Methods

See poster appended/below

Results

See poster appended/below

Lessons Learnt

- Early ERAS protocol results are encouraging. Despite the small pilot study, clinically relevant improvements in majority of outcomes were demonstrated in terms of Pain, Knee function and early discharge.
- Strong leadership, buy in and support from multidisciplinary team and a robust NGEMR TKR clinical pathway are key success factors of ERAS in TKR.

Conclusion

See poster appended/below

Project Category

Care & Process Redesign

Value Based Care, Patient Experience Measures, Functional Outcomes, Length of Stay, Productivity; Cost Savings

Keywords

Enhanced Recovery, Total Knee Replacement

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ENHANCED RECOVERY AFTER SURGERY IN TOTAL KNEE REPLACEMENT SURGERY

- SAFETY
 QUALITY
 PATIENT EXPERIENCE
- PRODUCTIVITY
 COST
 TEAMWORK
 COMMUNICATION

MEMBERS: ADJ ASST PROF WANG LUSHUN, DR ASHISH R. SATAPATHY, FIONE GUN, MATTHEW NEO, LEE RUI CHEN, NG XIAN FEI, TANG MIN YEE, ZARINA AHMAD, A/PROF FAREED KAGDA (SPONSOR)

Define Problem, Set Aim

Opportunity for Improvement

Enhanced Recovery After Surgery (ERAS) in elective TKR surgery has gained considerable traction in orthopaedics. It comprises of a set of evidence based interventions used in a multidisciplinary approach directed at reducing postoperative complications, shortening length of hospital stay, improving patient satisfaction and accelerating functional recovery (Frassanito et al., 2019).

These interventions are applied into the pre, intra and post operative phases of care. Key elements include patient education, prehabilitation, enhanced recovery protocols (anaesthesia, surgery and perioperative analgesia), early ambulation and preorganised discharged plans.

References
Frassanito, L., Vergari, A., Nestorini, R., Cerulli, G., Placella, G., Pace, V., & Rossi, M. (2019). Enhanced recovery after surgery (ERAS) in hip and knee replacement surgery: description of a multidisciplinary program to improve management of the patients undergoing major orthopaedic surgery. *Musculoskeletal surgery*, 1-6.

Aims

We aim to compare the early outcomes of our TKR ERAS patients against TKR patients on Non-ERAS from Nov 19 to Jan 20. A total of 48 patients were enrolled in the pilot study, with complete data in 37 patients.

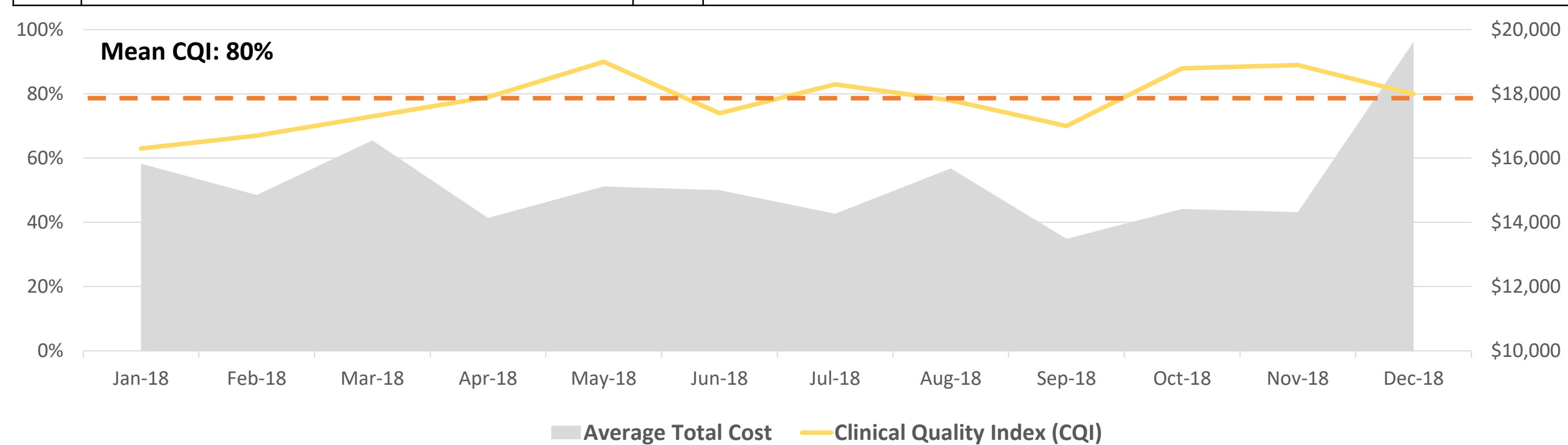
Establish Measures

Baseline Performance

An all-or-none composite indicator - Clinical Quality Index (CQI) and Costs for 2018 TKR Value Driven Outcomes (VDO) are tracked to determine performance prior to the implementation of ERAS TKR Pathway.

The 7 clinical quality indicators are:

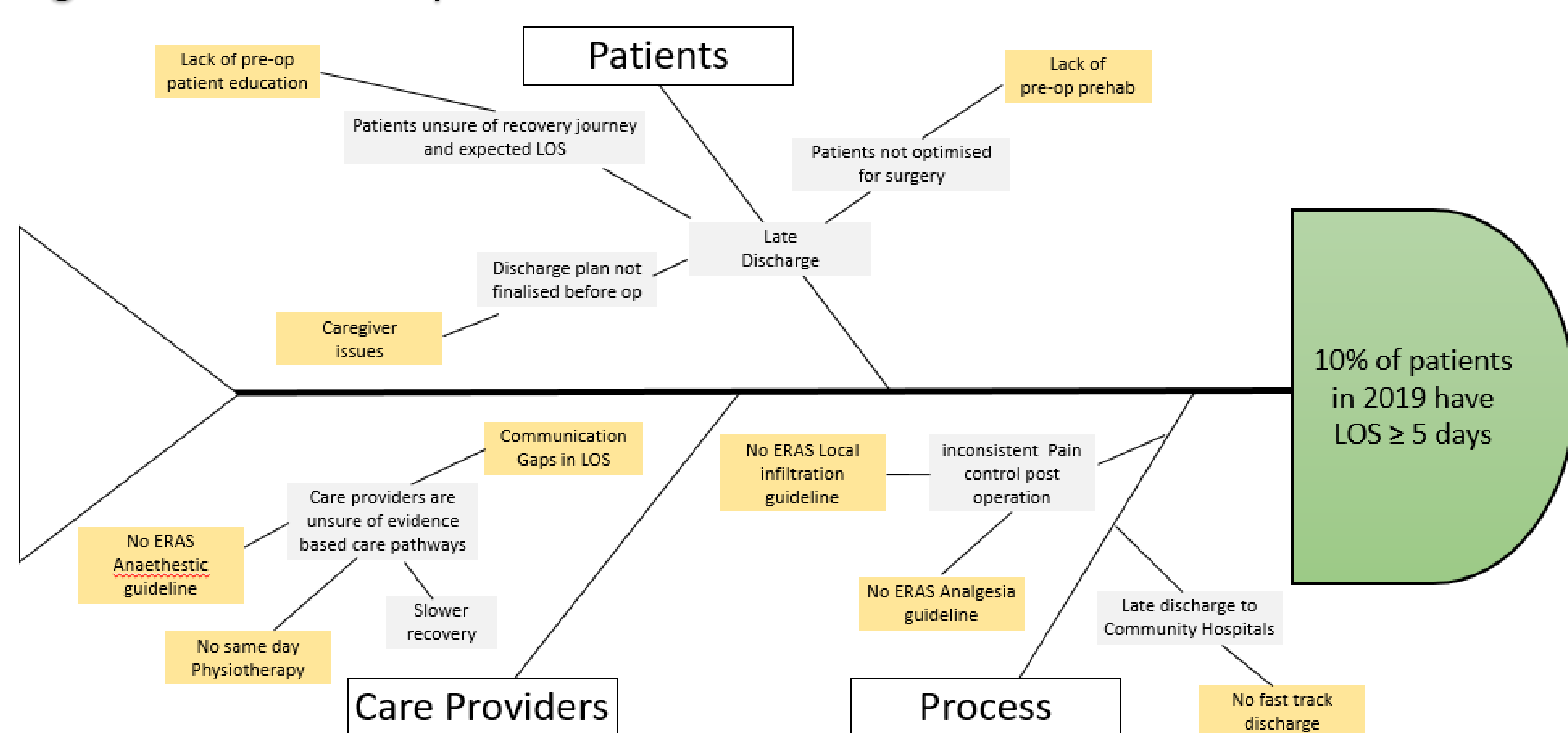
1. LOS ≤ 5 days	5. Deep Vein Thrombosis (DVT) Prophylaxis within 24 hours
2. (No) Inpatient Mortality	6. (No) Post-op complication within 30 days of discharge
3. (No) Readmission within 30 days	7. (No) Unscheduled Return to OT within 48 hours
4. (No) Blood transfusion	



Analyse Problem

Root Cause analysis

Targeted areas of improvement were:



Acknowledgements

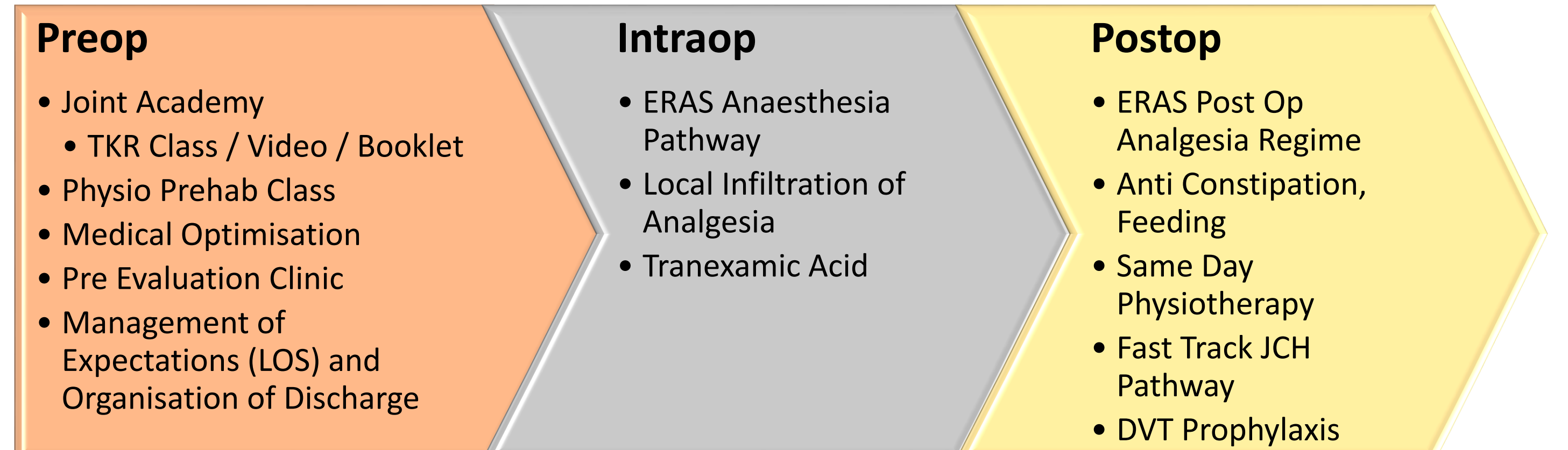
The authors would like to thank the contributions of the multidisciplinary team in the success of ERAS TKR surgery, without whom this would not have been possible.



Select Changes

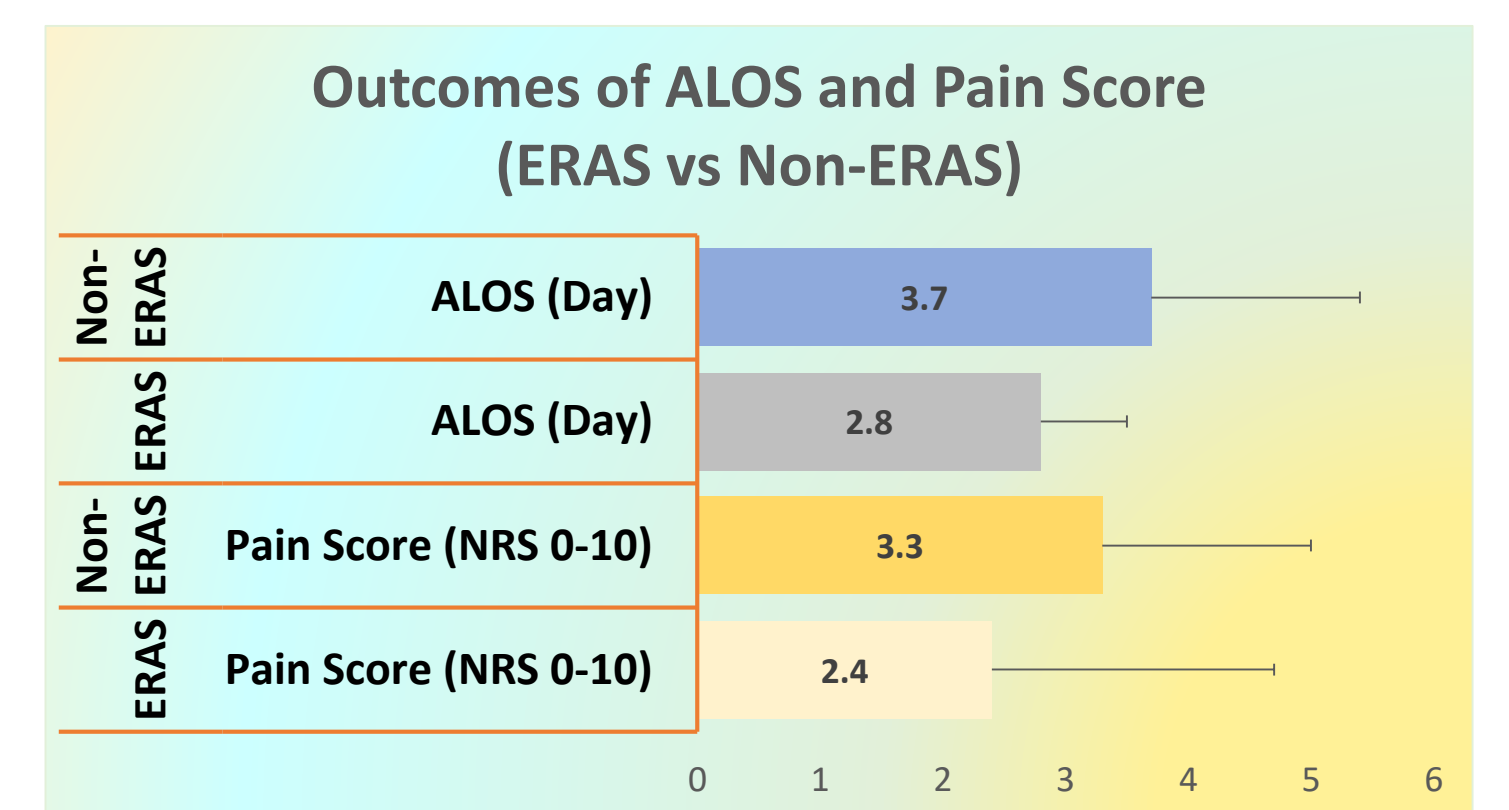
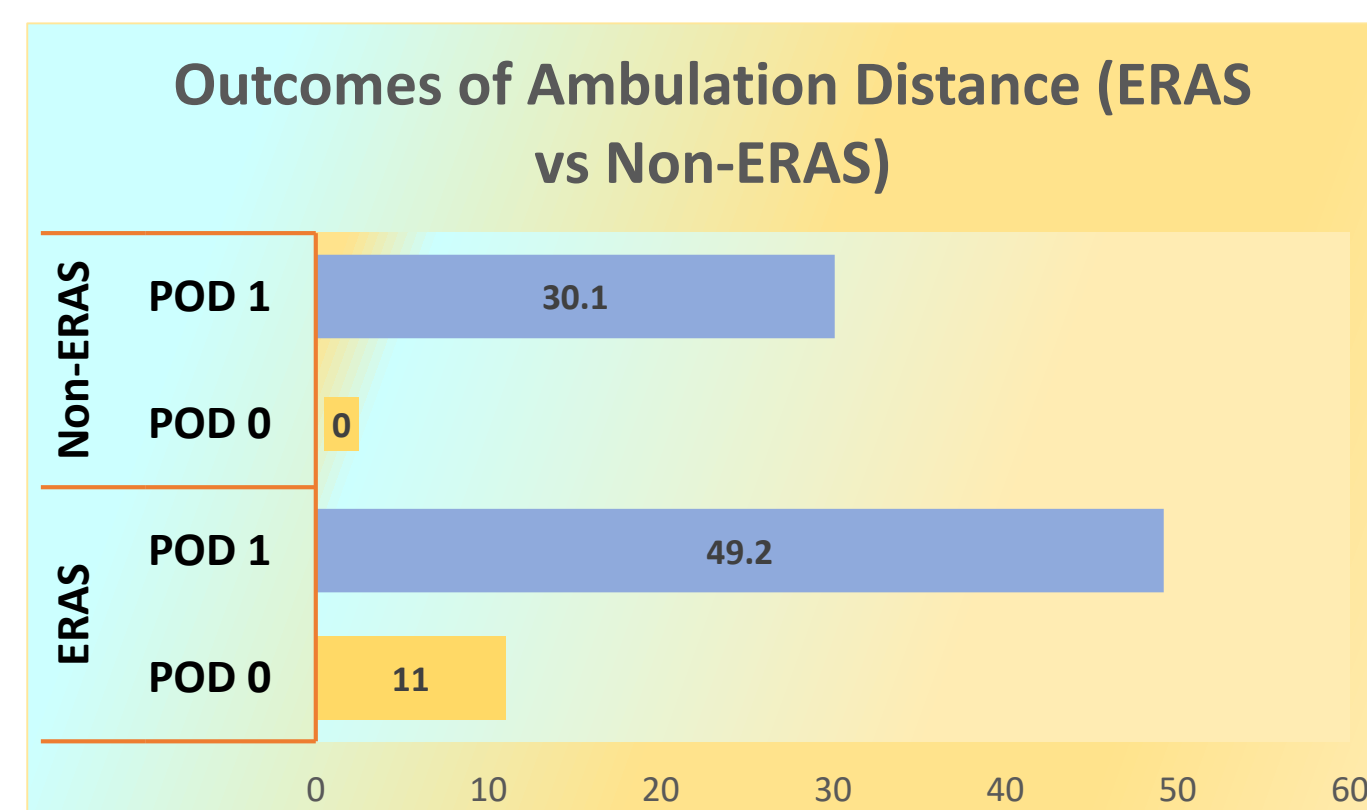
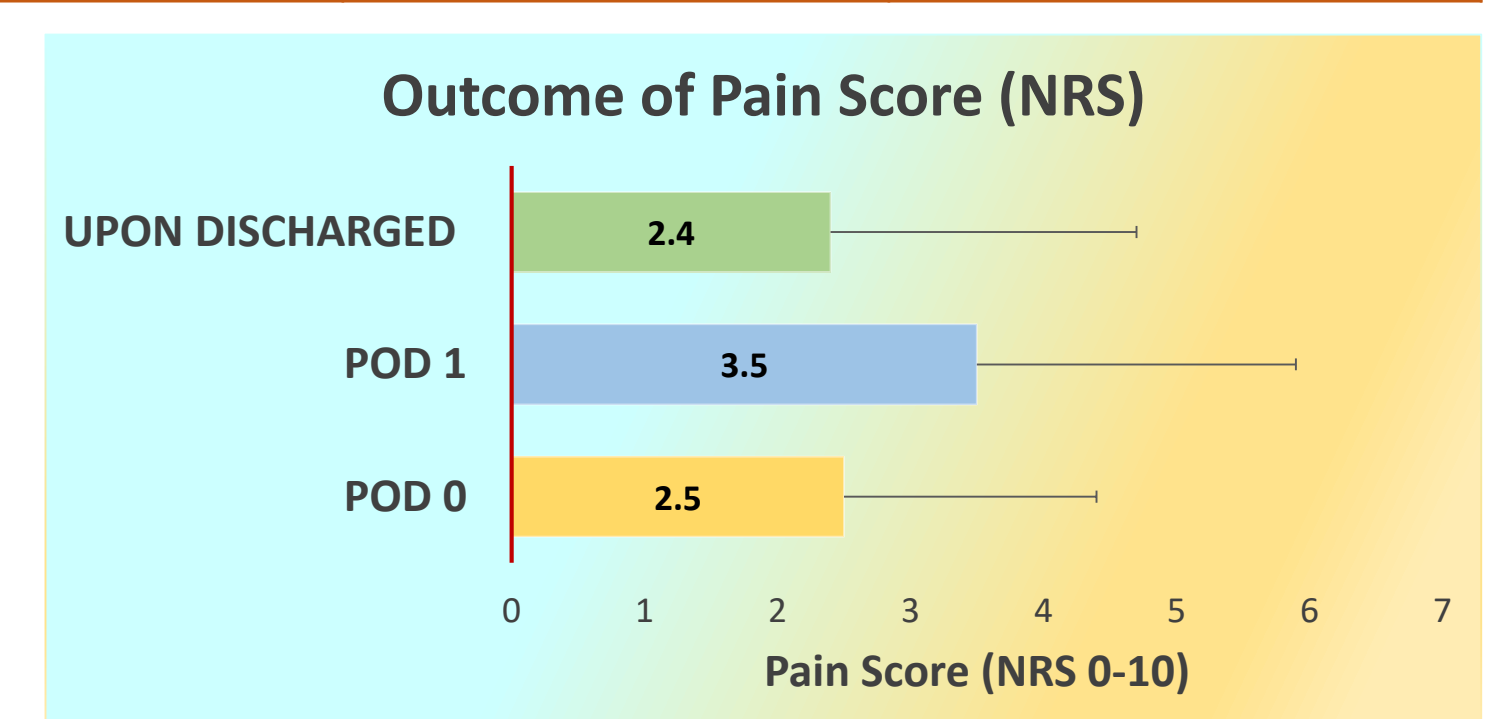
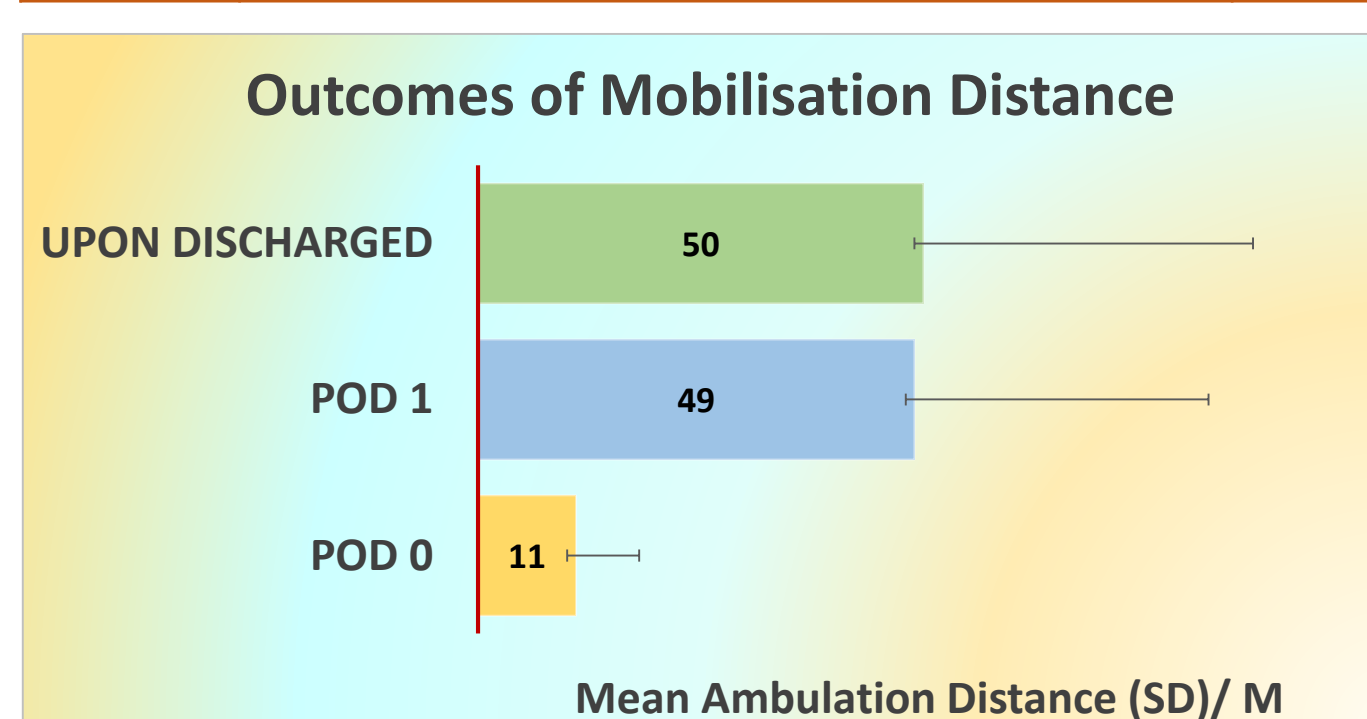
Probable Solution

ERAS protocols were established in a Multidisciplinary team and integrated into the TKR pathway.



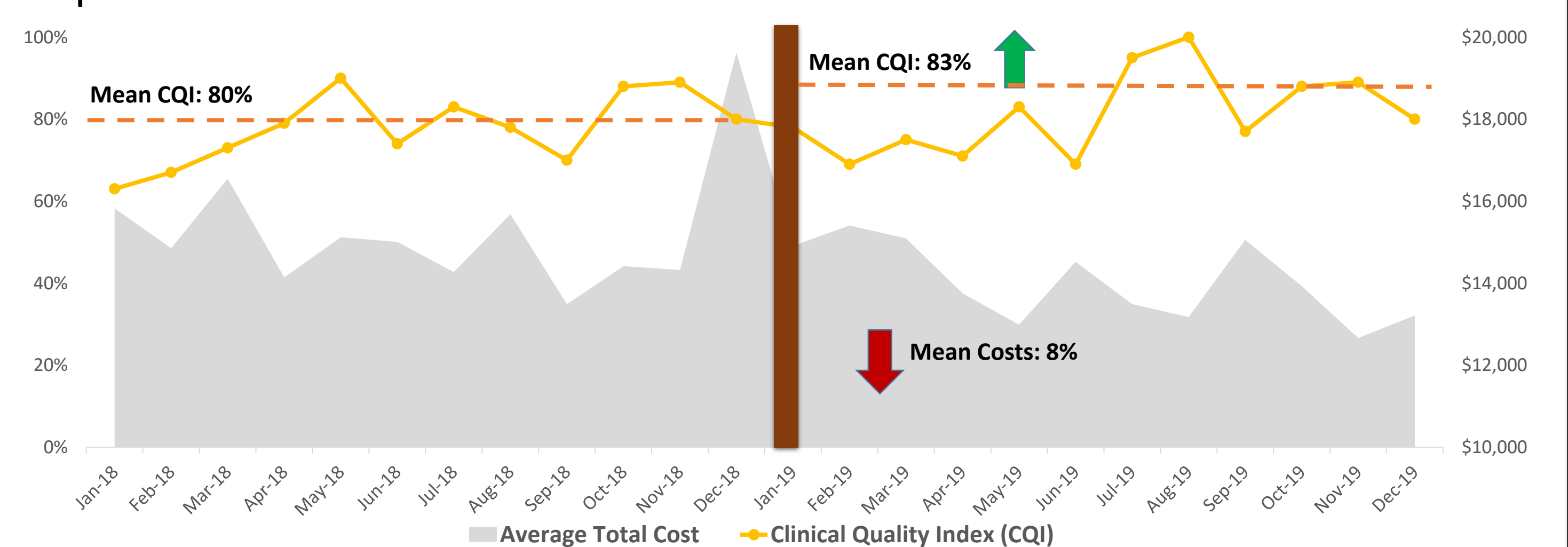
Test & Implement Changes

CYCLE	PLAN	DO	STUDY	ACT
1	Compare pre-operation patient education and prehabilitation before and after implementation	Protocol implemented in 2019	Improvement in performance and decrease in variance	Continue ERAS protocols and monitor performance
2	Compare post-operation early mobilisation, pain score and ALOS before and after implementation			



The early results of ERAS are encouraging with improvements in pain score, mobilisation distance and also reduces LOS. This has a direct beneficial impact on performance outcomes of TKR VDO. Post ERAS TKR implementation, ALOS for Nov and Dec 2019 improved by 10%.

CQI of TKR VDO has improved by 3% in 2019 when compared to 2018. We expect further year on year improvement with ERAS TKR due to expected reductions in LOS.



Spread Changes, Learning Points

Spread Change

- Emphasis on patient education helps improves patient journey and satisfaction.
- “Signing the same hymn” in a multidisciplinary approach sets patient’s expectation of LOS and preorganises discharge plans.

Learning Points

- Early ERAS protocol results are encouraging. Despite the small pilot study, clinically relevant improvements in majority of outcomes were demonstrated in terms of Pain, Knee function and early discharge.
- Strong leadership, buy in and support from multidisciplinary team and a robust NGEMR TKR clinical pathway are key success factors of ERAS in TKR.