A Value Driven Care framework to improve patient outcomes through data-driven change to clinical practice for Total Knee Replacement Surgery

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Background

• Ageing populations combined with increasing rates of obesity increase the prevalence of osteoarthritis (OA).¹
• Surgical treatment of Knee OA - Total Knee Replacement (TKR) - places a significant cost burden on the patient and healthcare system.² In Singapore, the number of TKR surgeries increased by 2.7x from 1999 to 2019.³
• Hence, there is an urgent need to provide quality care at a sustainable cost

Methodology

1. Target Specific Condition
   - Clinical Quality & Safety
   - Appropriateness
   - Patient Reported Outcomes
   - Patient Experience

2. Data Sharing
   - Clinical
   - Administrative
   - Medical

3. Gap Analysis
   - Clinical
   - Process
   - Measures

4. Value Measures
   - Clinical Quality & Safety
   - Appropriateness
   - Patient Reported Outcomes
   - Patient Experience

Patient Management

1. Blood Management
   • Pre-Admission Anaemia testing
   • Increase usage of Tranexamic Acid

2. Early Rehabilitation
   • Early physiotherapy and ambulation

Education

1. Staff Education
   • Requirement for VTE Prophylaxis
   • Appropriate data entry

2. Knee School
   • Pre-Admission education on TKR

Quality Outcomes

1. Clinical Indicators
   • No Emergency Readmission within 30 Days of discharge
   • No Unplanned return to Operating Theatre within Episode
   • Length of Stay (LOS) ≤ 5 days
   • Venous thromboembolism (VTE) Prophylaxis within Episode
   • No Blood Transfusion
   • No Inpatient Mortality
   • No Postoperative Complications within 30 Days of discharge

2. Patient Reported Outcome Measure
   • Knee Society Score
   • 36-Item Short Form Survey

3. Patient Experience Score

Cost of Care

• Room Charges
• Daily Treatment Fee
• Surgical Fee
• Treatment Services
• Consumables
• Implant
• Consultation Fee
• Investigations
• Medications

Result

• PROMs data showed improvement in the number of patients with score differences higher than the Minimal Clinically Important Difference (MCID) following surgery.
• Response rate for PES is significantly higher post-VDC with no significant difference in mean score.

Conclusion

• Utilisation of VDC framework significantly increases Quality Outcomes while effectively reducing the cost of care.
• Self reported data from patients showed significant improvement in Physical Function and Bodily Pain.
• VDC framework is an essential tool in the value based healthcare armamentarium as healthcare institutions strive to provide sustainable care.

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References