

Real-world data analysis to evaluate opportunities for hospital efficiencies for Total Knee Arthroplasty

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Objective: Elements of post-acute care with respect to Length of Stay (LOS) and discharge readiness and destination have an economic impact on the funding allocation for care bundles within Activity Based Funding. Total Knee Arthroplasty (TKA) is one of the most frequently performed acute procedures in Australia. Between 2003 and 2016, TKA procedures have grown by 130.4% [1]. Given the large number of primary TKA procedures, optimising post-acute care through decreased post-operative LOS, and appropriate discharge of patients can alleviate the challenges of growing waiting lists. This will reduce the overall financial burden within the public sector. Post-operative recovery is influenced by patient focussed variables and organisational factors such as hospital patient management protocols. Hence, a National Health and Medical Research Council ethics approved research study was pursued to describe the real-world hospital LOS and discharge disposition of TKA patients at Mater Misericordiae Hospital (Brisbane). Data was sourced from patient chart records.

Study Methods: This retrospective cohort study included hospital chart records of 106 out of 121 unilateral primary TKA patients (principal diagnosis for gonarthrosis, ICD-10-AM) between January 2013 and December 2015. Primary and secondary outcomes were LOS, discharge readiness and destination respectively. Discharge readiness measures were identified based on the hospital's discharge protocols. Baseline demographic and clinical events were captured from the chart records. Descriptive analyses are reported with means and standard deviations for continuous variables and frequency and percentage for categorical variables. The difference in actual LOS and discharge readiness was examined for factors that may affect this outcome.

Results: Provisional results included 106 TKA patients (median age 69.2 years; 82% obese, 94.4% ASA II-III). 65% of patients were female. Mean LOS was 6.0 days (SD: 2.8, 95% CI 5.5-6.6). 98% of the patients were discharged home with or without home care support. 31.1% of patients had rehabilitation. Mean days to achieve discharge readiness is 4.6 days (SD: 2.4, 95% CI 4.1-5.0). All patients achieved discharge readiness before actual discharge. Only 18% of patients were discharged on the same day they achieved discharge readiness. The analysis shows significantly longer days for actual discharge for patients having clinical events, such as transfusion or other procedures.

Conclusions: Our real-world study shows that while the hospital displayed a mean LOS within the national reported average, patients could achieve discharge readiness 1.5 days earlier. Noting patient clinical events could induce delays in actual

discharge. Alongside fast-track programs to optimise patient post-acute care path and costs, these real-world findings can support healthcare providers to further enhance recovery and potentially reduce LOS according to patient profiles. Hospitals can utilise real-world data to manage budget constraints by understanding how best to optimise efficiency gains.

References

[1] Australian Orthopaedic Association National Joint Replacement Registry 2016 Annual. Hip, Knee & Shoulder Arthroplasty. Available from <https://aoanjrr.sahmri.com/documents/10180/275066/Hip%2C%20Knee%20%26%20Shoulder%20Arthroplasty> [Accessed 30 Jan 2019]