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TECHNICAL BRIEF – QUICK RECOVERY SOLUTIONS

Hospital / Ambulatory Surgical Center Cost Savings: Total Knee Arthroplasty Instrument Tray Reduction

Presented at the 2022 Annual Meeting of the AAOS

QUICK FACTS

- 34 continuous, non-selected patients
- Prospectively studied all-comers. Comorbidities were tallied (avg: 2.6, range: 0-6)
- Common TKA-specific trays and instrument counts were assessed for processing cost comparisons at $0.51 per instrument.[1]
- Instrument tray systems processing cost estimates:
  - QRS Tray $55
  - Standard Tray Sets ranged $278-350
- Processing cost savings ranging $142 - $179 per TKA case.

We wish to thank Drs. Hanson and Daubs for their continued commitment and support!

INTRODUCTION

The cost-effectiveness of all aspects of surgical procedures is being closely scrutinized in our current value-based healthcare environment. Independent of the surgery type, instrument tray optimization has become a focus of cost-reduction strategies for hospitals, and ambulatory surgery centers (ASC). It has been shown that the total cost to process a single instrument is approximately $0.51.

PURPOSE

The purpose of this study is to introduce an intra-operative instrument tray reduction strategy specific to a primary total knee arthroplasty (TKA) system, and to report on the influence of the instrument tray reduction implementation on related facility cost reductions and patient outcomes through 1-year post-operatively.

METHODS

A retrospective, continuous series of 34 primary TKAs in 34 patients was performed by a single surgeon. All procedures were performed in an ASC and patients were discharged the same day as surgery. Patient demographics and follow-up through 90 days and 1-year were recorded and included clinical outcome and unscheduled office/hospital visits. Patient co-morbidities were tallied to show that this consecutive series was not selective and included all-comers. In addition, common TKA-specific trays and instrument counts will be assessed for processing cost comparisons. Descriptive statistics were applied to this cohort and the relationship between co-morbidities and adverse events/unscheduled visits were assessed.

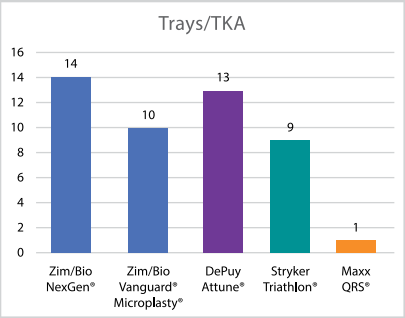
Figure 1: Traditional vs. Reduced Tray Set

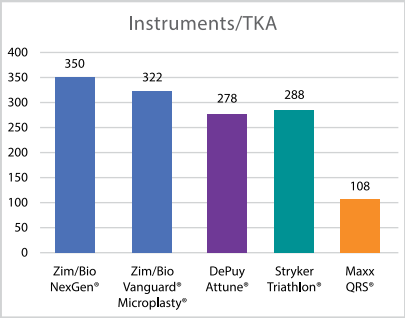
RESULTS

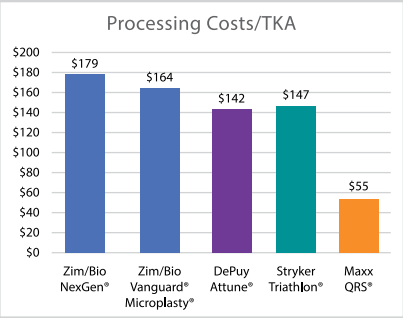
There were 34 patients studied. Our instrument tray reduction strategy utilized 1 tray and 108 TKA-specific instruments and all pre-operative templated size recommendations were the same as the intra-operative size used. We compared our tray to 4 common TKA systems which included 9 to 14 trays and 278 to 350 TKA specific instruments. The reduced instrument tray processing cost was calculated at $55 and was significantly less than the other four ranging from $142 to $179.

CONCLUSIONS

Chronically overstocking instrument trays for surgery is a common practice and is historically done to avoid missing instruments during a procedure. Our results have shown significant processing cost reductions for the proposed instrument tray processing costs compared to various competitive standard TKA specific instrument tray utilization (61% to 69%). Further study with larger numbers is necessary. In addition, application is warranted to study the impact on operative room efficiencies including room set-up, turn-over, and the cost per square footage of instrument tray storage.







REFERENCES

1. Mhlaba, et al: Surgical Instrumentation: The True Cost of Instrument Trays and a Potential Strategy for Optimization. *J Am Coll Surg*, 219(4):646-655, 2014.

Oral Presentation #514

Annual Meeting of the AAOS 2022, Chicago, IL Session: Adult Reconstruction Knee VII

Thursday, March 24th, 2022 - 3:30pm to 5:00pm