

Abstract: 3182

Safety/QA/QI Projects

## Mayo Clinic Orthopedic Surgery and Anesthesiology Surgical Improvement Strategies Project: Phase III Outcomes

Alexis Matrka, Hugh Smith, Adam Amundson, Sarah Bell, Julie Nickelson, Christopher Duncan, Adam Jacob, Robert Trousdale, Cory Couch, Joaquin Sanchez-Sotelo, Matthew Abdel

Mayo Clinic

### Introduction

Our institution previously initiated the Orthopedic Surgery and Anesthesiology Surgical Improvement Strategies (OASIS) project to improve quality and efficiency across the hospital episode of care for primary and revision hip and knee procedures through the creation of a perioperative surgical home [1, 2]. Phase I and II resulted in a decrease in mean LOS from 2.7 to 2.0 days, a decreased readmission rate from 3.0% to 1.6%, and an increased in surgical volume of over 22%. Phase III of this project aimed to (1) expand the perioperative surgical home to include primary total elbow and total shoulder arthroplasties; and (2) increase same day discharge of primary total joint arthroplasty (TJA) to 20%.

### Materials and Methods

A multidisciplinary team was organized to continue the improvement efforts of OASIS Phases I and II to further expand the perioperative surgical home to include upper extremity arthroplasty and focus on increasing same day discharge rates of primary TJA patients. In addition to an Executive Committee that met weekly, subcommittees were developed to align interventions within the following phases of care: 1) preoperative, 2) intraoperative and post-anesthesia care unit (PACU), and 3) postoperative.

Executive Committee members included administrators and providers from the Departments of Orthopedic Surgery and Anesthesiology and Perioperative Medicine, as well as a project manager and a health systems engineer from our institution's Management Engineering and Consulting (MEC) department. The Executive Committee met weekly from January 2021 through January 2022. Each subcommittee had tripartite representation from orthopedic surgery, anesthesiology and nursing with other inter-professional representation as required. These subcommittees met individually and with the Executive Committee on a weekly basis.

Following Institutional Review Board approval, we retrospectively evaluated all primary TJAs performed from January 1, 2019 to December 22, 2021 at one hospital in our institution by all upper and lower extremity surgeons. Patients younger than 18 years of age, revision procedures, and those receiving the Diagnosis Related Group designation of "Major joint replacement or reattachment of lower extremity with major complications and comorbidities" were excluded from analysis. January 21, 2021 marked the official launch of Phase III of the OASIS project. Thus, all patients from January 1, 2019 to December 31, 2019 served as our baseline population, and all patients from January 21, 2021 to December 21, 2021 represented our post-intervention cohort. The evaluated episode of care spanning from the

preoperative surgical consult visit through 30 days postoperative in those patients undergoing same day discharge after primary total hip, knee, elbow, and shoulder arthroplasty.

## Results/Case Report

Year-to-date same day discharge in the primary TJA patient population increased from 4% in 2019 to 22% in 2021, with an average hospital length of stay of 1.16 days (Figure 1). Overall, an increasing trend in same day discharge was seen throughout the project, and the most recent reported four-month period showed same day discharge of 31.5% with an average hospital length of stay of 0.79 days (Figure 2). 30-day readmission remained stable at 1.28% compared to 1.29% over the course of the project. Composite changes in surgical volume and cost reductions equaled a positive balance of \$6.7 million.

## Discussion

Application of health systems engineering tools and methods successful in phase I and II of the OASIS initiative enabled additional evolution of an orthopedic perioperative surgical home to encompass an even more diverse patient population while increasing both surgical volume and same day discharge rates[3]. As project tactics and practice changes were adopted and embedded within our institution, a same day discharge rate over 10% above goal was seen over the last four-month time frame, with an average length of stay less than one day. These changes were developed and implemented in a multidisciplinary fashion ensuring buy-in from all parties and the ability to address interdependencies and efficiencies impacting the entire service line. Our top priority of patient safety was successfully achieved, as our increase in same day discharge rate was seen with maintenance of 30-day readmission rates.

## References

1. Wyles, C.C., et al., Orthopedic Surgery and Anesthesiology Surgical Improvement Strategies Project-Phase II Outcomes. *J Arthroplasty*, 2021. 36(6): p. 1849-1856.
2. Wyles, C.C., et al., Orthopedic Surgery and Anesthesiology Surgical Improvement Strategies Project: Phase I Outcomes. *J Arthroplasty*, 2021. 36(3): p. 823-829.
3. Amundson, A.W., et al., Optimizing a Surgical Practice from Start to Finish. *Adv Anesth*, 2021. 39: p. 53-75.

## Disclosures

No

## Tables / Images



On Time Start %

78.3%

Avg. Turnover Time

30.40

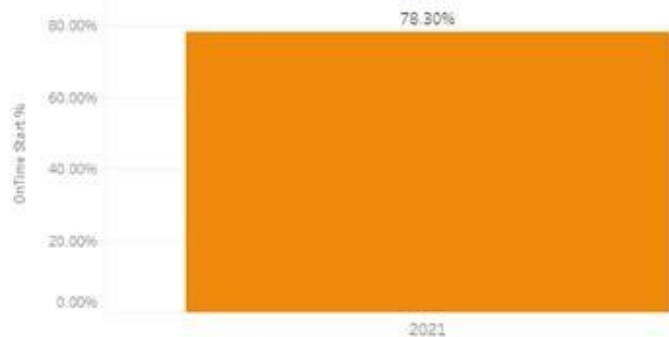
Same Day Discharge %

21.8%

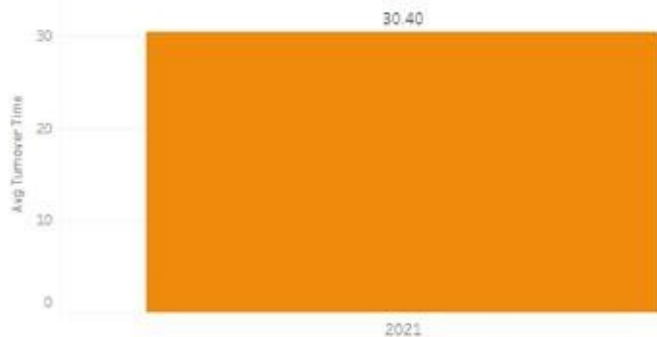
Avg. Hosp LOS

1.16

OnTime Start %



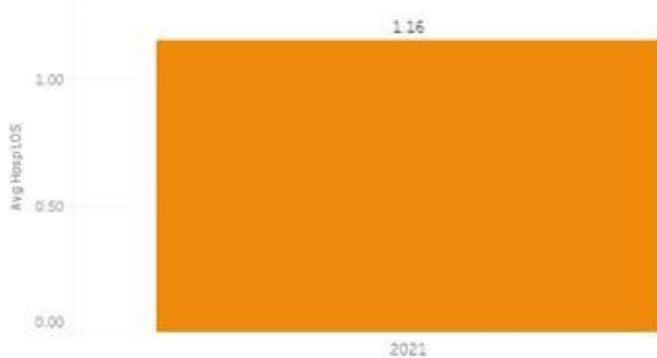
Average Turnover Time



Same Day Discharge %



Average Hospital Length of Stay (LOS)



On Time Start %

82.3%

Avg. Turnover Time

29.87

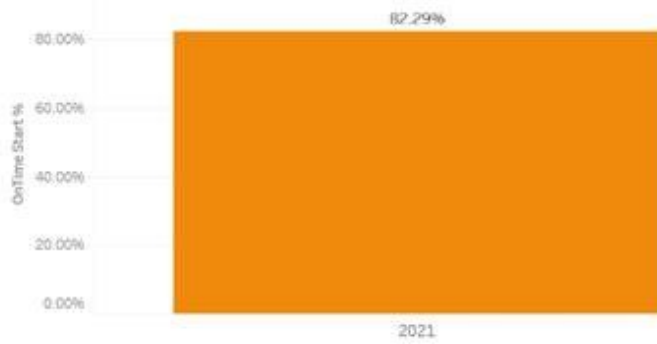
Same Day Discharge %

31.5%

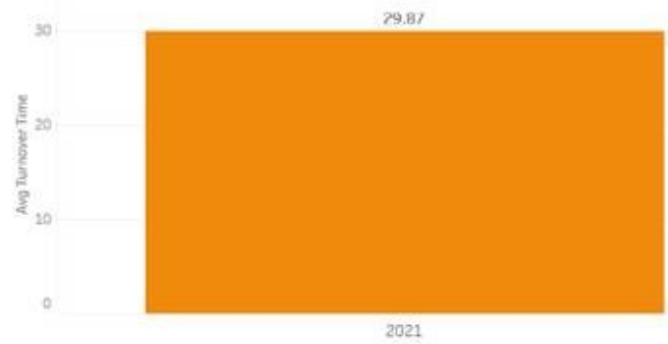
Avg. Hosp LOS

0.79

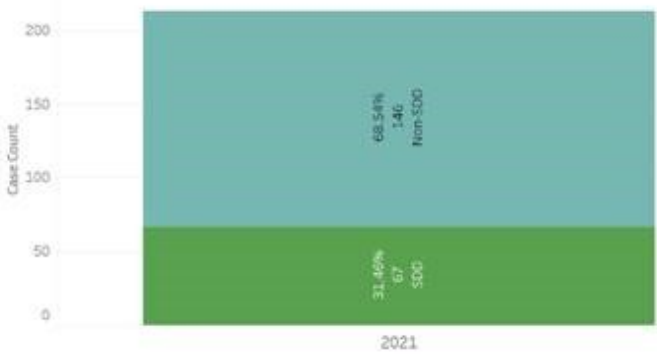
OnTime Start %



Average Turnover Time



Same Day Discharge %



Average Hospital Length of Stay (LOS)

