



# Mayo Clinic Orthopedic Surgery and Anesthesiology Surgical Improvement Strategies Project (OASIS): Implementation of an Outpatient Outcomes-Based Survey

Amrit K. Vasdev, M.D., M.H.I.,M.S.,<sup>1</sup> Hugh M. Smith, M.D., PhD.<sup>1</sup>, Becca L. Gas, M.S.<sup>3</sup>, Julie A. Nickelson, M.S.N., R.N.<sup>3</sup>, Paul A. Proshek APRN<sup>1</sup>, Carrie A. Anderson, R.N.<sup>3</sup>, Christopher M. Duncan, M.D.<sup>1</sup>, Adam K. Jacob, M.D.<sup>1</sup>, Joaquin Sanchez-Sotelo, M.D, PhD.<sup>2</sup>, Matthew P. Abdel, M.D.<sup>1</sup>, Adam W. Amundson, M.D.<sup>1</sup>  
Departments of <sup>1</sup>Anesthesiology and Perioperative Medicine, <sup>2</sup>Orthopedic Surgery, <sup>3</sup>Nursing Mayo Clinic, Rochester, MN

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MEDICINE



## Background

- In an aging population, the healthcare system will see an influx of orthopedic procedures<sup>1</sup>
- The Orthopedic Surgery and Anesthesiology Surgical Improvement Strategies (**OASIS**) project aims to improve quality and efficiency across the hospital arc of care of primary and revision hip, knee, and shoulder procedures through the creation of a perioperative surgical home.<sup>2,3</sup>
- Our previous phases I, II, & III demonstrated:**
  - Decrease in mean LOS to 0.9 days for primary TJA**
  - Decreased 30 day readmission rate**
  - Increased surgical volume**<sup>3,4</sup>
  - Increased same-day discharge from 4% to 37%**<sup>5</sup>

## Purpose

To utilize Qualtrics survey data to guide clinical practice and provide avenues for improvement in outpatient orthopedic surgeries

## Methods

IRB approval waived for quality improvement project

- Qualtrics surveys sent to outpatient primary and revision total hip, total knee, and total shoulder procedures on the morning of POD1
- Qualtrics survey included the QoR-15 Survey, questions regarding numeric pain rating scores (0-10), opiate consumption (number of pills) (tramadol, oxycodone, hydromorphone), and overall patient satisfaction (0-5)
- Demographic data, anesthesia and regional anesthesia choice extracted from EHR
- Data analysis utilized *R-Studio* software

## QoR-15 Survey

I am going to ask you a series of questions about the quality of your recovery and how you have been feeling in the past 24 hours. **On a scale from 0 to 10, where 0 = none of the time and 10 = all of the time**

None of the time 0 1 2 3 4 5 6 7 8 9 10 All of the time

- Able to breathe easily
- Been able to enjoy food
- Feeling rested
- Have had a good sleep
- Able to look after personal toilet and hygiene unaided
- Able to communicate with family or friend
- Getting support from hospital doctors and nurses
- Able to return to work or usual home activities
- Feeling comfortable and in control
- Having a feeling of general well being

Now we are switching the scale. **On a scale from 0 to 10, where 0 = all of the time (*things not going well*) and 10 = none of the time (*things going excellent*), have you had any of the following in the past 24 hours?**

None of the time 10 9 8 7 6 5 4 3 2 1 0 All of the time

- Moderate pain
- Severe pain
- Nausea or vomiting
- Feeling worried or anxious
- Feeling sad or depressed

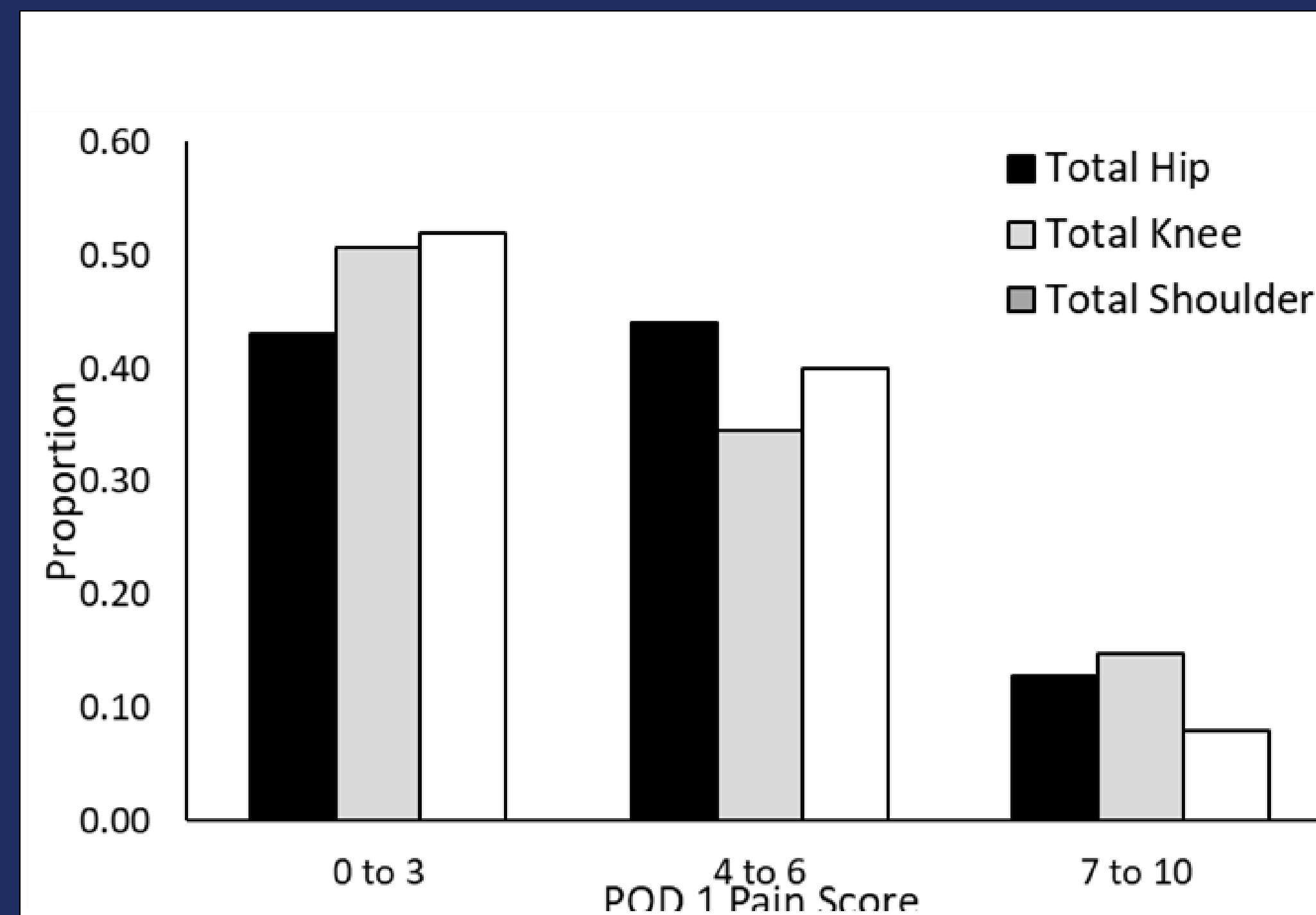
**Total score (\*\*\*/150):** \_\_\_\_\_

*The 11-point numerical rating scale leads to a minimum score of 0 (very poor recovery) and a maximum score of 150 (excellent recovery).*

## Demographic Data

| Characteristics |              | Total Hip<br>(N = 101) | Total Knee<br>(n=76) | Total Shoulder<br>(N = 25) | Overall (n=202) |
|-----------------|--------------|------------------------|----------------------|----------------------------|-----------------|
| Age             | Mean +/- SD  | 60.2 +/- 11.7          | 64.2 +/- 9.5         | 64.5 +/- 8.5               | 62.23 +/- 10.7  |
| ASA             |              |                        |                      |                            |                 |
|                 | I/II         | 81 (80.1%)             | 51 (67.1%)           | 18 (72.0%)                 | 160 (80.6%)     |
|                 | III/IV       | 20 (19.8%)             | 25 ( 31.3%)          | 7 (28.0%)                  | 52 (25.8%)      |
| Anesthesia      |              |                        |                      |                            |                 |
|                 | General      | 14 (13.8%)             | 7 ( 9.2%)            | 25 (100%)                  | 46 ( 22.8%)     |
|                 | Regional     | 87 (86.1%)             | 69 ( 91.8%)          | 0                          | 156 (77.2%)     |
| Block           |              |                        |                      |                            |                 |
|                 | Interscalene | 0                      | 0                    | 24 (96.0%)                 | 24 (11.8%)      |
|                 | Spinal       | 91 ( 90.1%)            | 24 (31.6%)           | 0                          | 115 (56.9%)     |
|                 | Adductor     | 0                      | 47 (61.8%)           | 0                          | 47 (23.2%)      |
|                 | Other/None   | 10 (9.9%)              | 5 (6.5%)             | 1 (4.0%)                   | 16 ( 7.92%)     |

## Results



\*The opiate consumption is time of discharge to 8 am the next morning, some patients did not consume any pain medications

**Overall:**  
**Mild (0-3): 47.5%**  
**Moderate (4-6) 39.6 %**  
**Severe (7-10): 12.9%**

**Opiate Consumption (n consumed >4 pills)\***  
**Total Hip: 41.2% (n=33)**  
**Total Knee: 32.3 (n=22)**  
**Total Shoulder: 44.4% (n=8)**

**QoR-15 Scores (Mean +/- SD)**  
**Total Hip: 112.3 +/- 18.7**  
**Total Knee: 112.7 +/- 23.0**  
**Total Shoulder: 113.3 +/- 23.8**

## Discussion

**Overall:** Implementation study was successful

- 635 survey were sent, 221 surveys were started, and 202 were filled in its entirety (91.4% completion rate)
- The average survey completion time (7 min)

**QoR-15 Survey Findings:**

- High Scoring: “Ability to breathe easily” (9.54 +/- 1.40) (QoR-15, #1)
- High Scoring: “Ability to communicate easily with family and friends” (9.67 +/- 1.11) (QoR-15, #6)
- Low Scoring: “Able to return to work or other usual activities” (3.02 +/- 3.0) (QoR-15, #8)
- Low Scoring: “Have a had good sleep” (6.25 +/-2.50) (QoR-15, #4)

**Conclusions:**

- This study demonstrated the ease and the feasibility of implementing a short Qualtrics survey highlighted by the QoR-15 assessment
- Provided insight into ways to improve the delivery of care. Post-operative pain control needs to be improved regardless of type of outpatient surgery.

**Future Directions:**

- Examine avenues of improving the moderate pain scores on POD1 through the evaluation of nerve catheter types and baseline pain scores
- Continue to improve patient outcomes and satisfaction scores through evaluation of outpatient orthopedic pain scores and opiate consumption

## References

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