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Opioid Prescribing Practices in the United States

The opioid epidemic has consumed the United States, with non-standardized surgical opioid prescribing practices largely contributing to its progression. Patients are often prescribed standardized quantities of opioids that far exceed what is necessary. Due to healthcare costs, productivity loss, addiction treatment, and legal costs, the CDC estimates the current economic burden of prescription opioid abuse to be roughly \$78.5 billion per year.¹ The number of opioids prescribed in the U.S. per capita reached as high as 782 morphine milligram equivalents (MMED) in 2010. From 2006 to 2015, the average course of an opioid prescription increased from 13.3 days to 17.7 days.² Unfortunately, current prescribing practices seem to conform to a standard "one-size-fits-all" method, without accounting for personalized patient characteristics.³ Due to generic prescribing protocols and lack of follow-up opioid use data, orthopedic surgery staff can be ineffective in tailoring postoperative opioid prescription directly to patient need.

Opioid Stewardship in Orthopedic Surgery

Orthopedic surgeons are estimated to be the third largest prescriber of opioids among any other surgical specialty. Orthopedic surgeons prescribed 7.7% of all opioid prescriptions in the U.S. in 2009.⁴

Opioid Stewardship at LVHN

Baseline data collected the duration of four months prior to the intervention revealed that more than 90% of THA and TKA patients were discharged with an average of 60 tablets totaling 100 morphine equivalent daily dose (MMED). Prior to the initiative, approximately 55% of pills prescribed following TKA and THA were not taken. On average, 55 pills with an average of 106 MEDD were prescribed per THA and TKA patient. Extrapolation of the data revealed that 72,146 pills went unused for Fiscal Year 2019.

Purpose

The purpose of the present study is to determine if encouraging the use of a standardized 7-day order set wean as well as providing real-time feedback data to orthopedic providers on opioid prescribing and patient use of post-operative pain medication reduces the volume of opioids prescribed to THA and TKA patients without increasing risk of refills or return visits to the emergency department in this patient population.

Problem Statement

To determine if providing **standardized EMR opioid order-set tapers** along with **real time prescribing and usage data** for postoperative TKA and THA patients will reduce the quantity of opioids prescribed without affecting opioid prescription **refills** or **return visits to the emergency department**

1. Team Assembled

A multi-disciplinary team including orthopedic surgeons, pharmacists, medical toxicologists, addiction medicine experts, and quality and patient safety leadership was established.

2. Pre-Intervention Measures

• Baseline Data Collected

Baseline postoperative data on opioid prescribing practices and patient-reported opioid use was obtained during a 4-month timeframe (February 2019 to June 2019).

• 7-day Opioid Order Set Wean Established as the Standard of Care

The order set consisted of one oxycodone 5 mg tablet every 4 hours on days 1 and 2, every 6 hours on day 3 and 4, and every 12 hours on day 5 and 6, and one tablet on day 7 (see table below).

• Dashboard Built to Track Provider-Specific Data

Vizient, a member-driven healthcare improvement company provided the technological infrastructure to track and present opioid prescribing data over the course of the initiative. Provider prescription data was collected via epic. Patient reported pill usage was collected via telephone call-backs to patient with LVPG primary care physicians by the Transfer of Care Team (TOC).

3. Intervention

• Institutional Intervention Established

Use of the 7-day opioid order-set was encouraged and pill prescriptions were capped at 30 pills.

• Educational Intervention Established

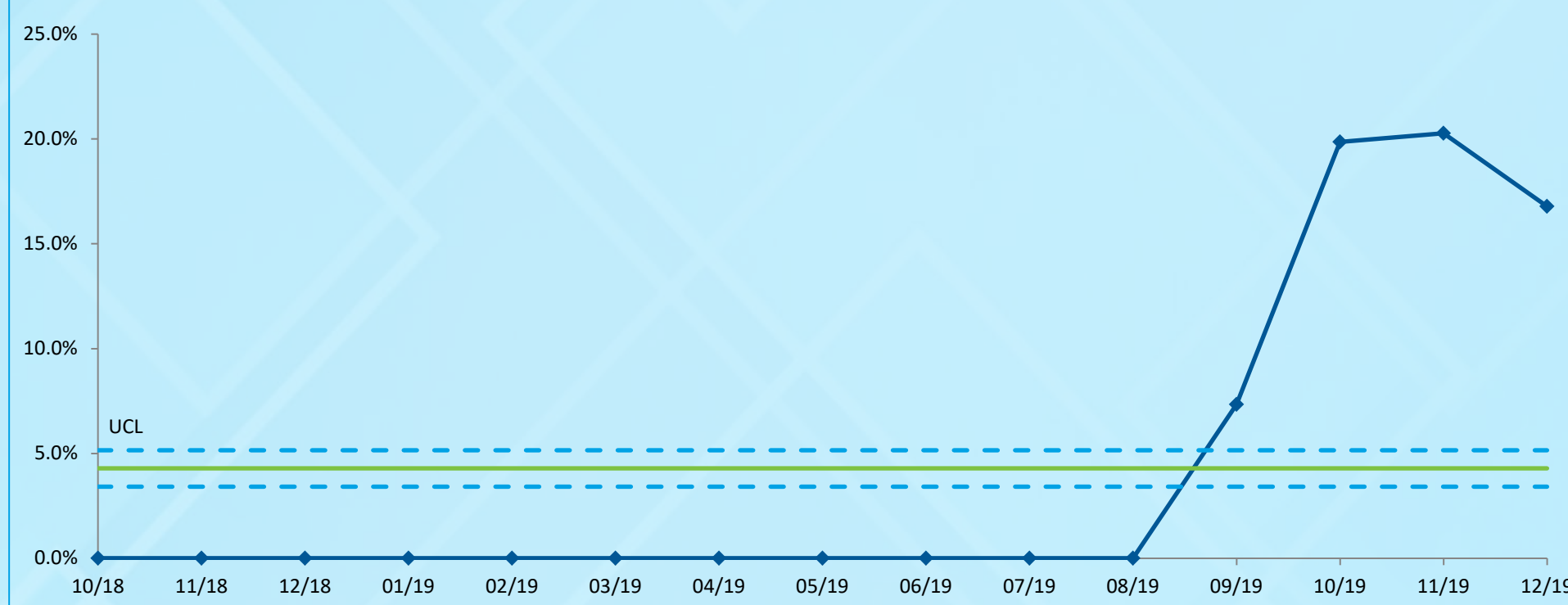
Provider specific data including number of arthroplasties performed, utilization of the standardized order set, MMED prescribed, number of pills prescribed, return visits to the emergency department (ED) for pain, and refills of prescribed opioids was tracked via a comprehensive data dashboard and presented to the orthopedic prescribers at various timepoints throughout the initiative. Average percentage of opioids taken by post-operative arthroplasty patients was shared with the orthopedic providers. Email feedback was provided over the course of 8 months.

7-Day Opioid Order Set Wean Schedule

Day	# of Pills / Day	mg/Day	MMED/Day
Day 1	6	30	45
Day 2	6	30	45
Day 3	4	20	30
Day 4	4	20	30
Day 5	2	10	15
Day 6	2	10	15
Day 7	1	5	7.5
Total	25 pills	125 mg	187.5 MMED

Order Set Utilization

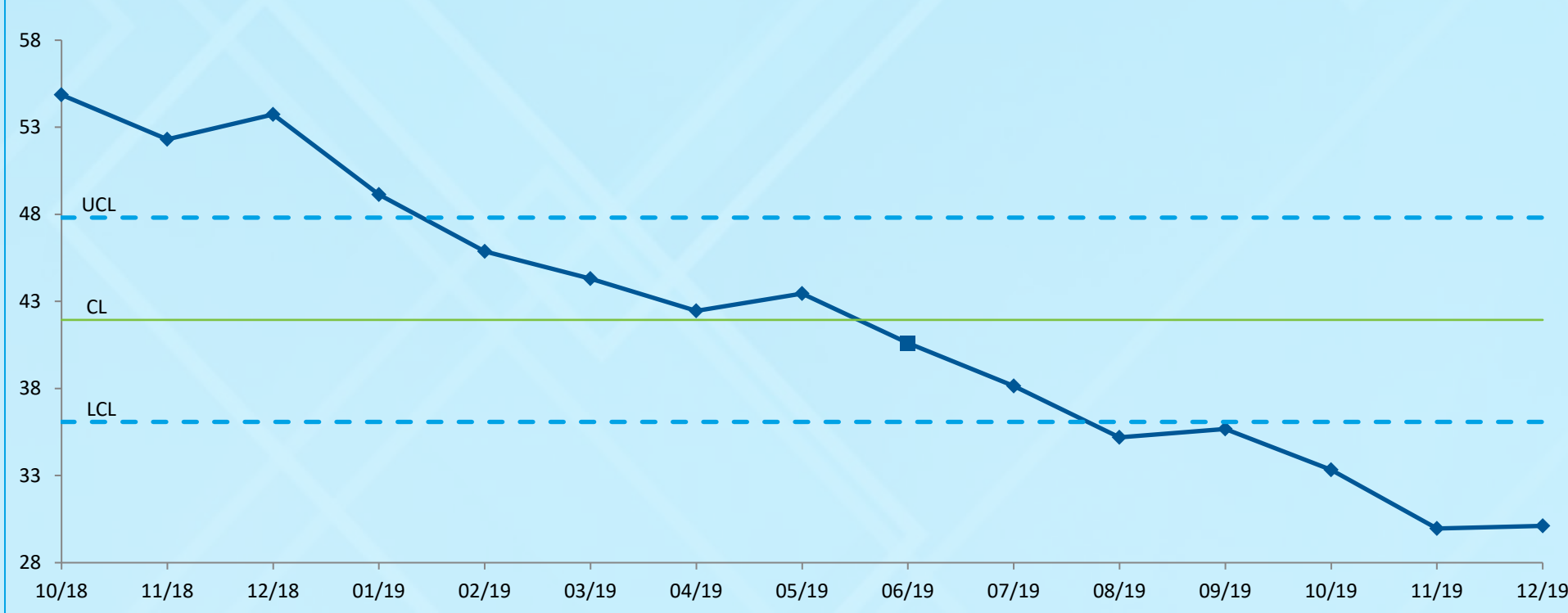
7 Day Wean Order Set Use



- 20% adoption for THA and TKA discharges

Prescription Quantity

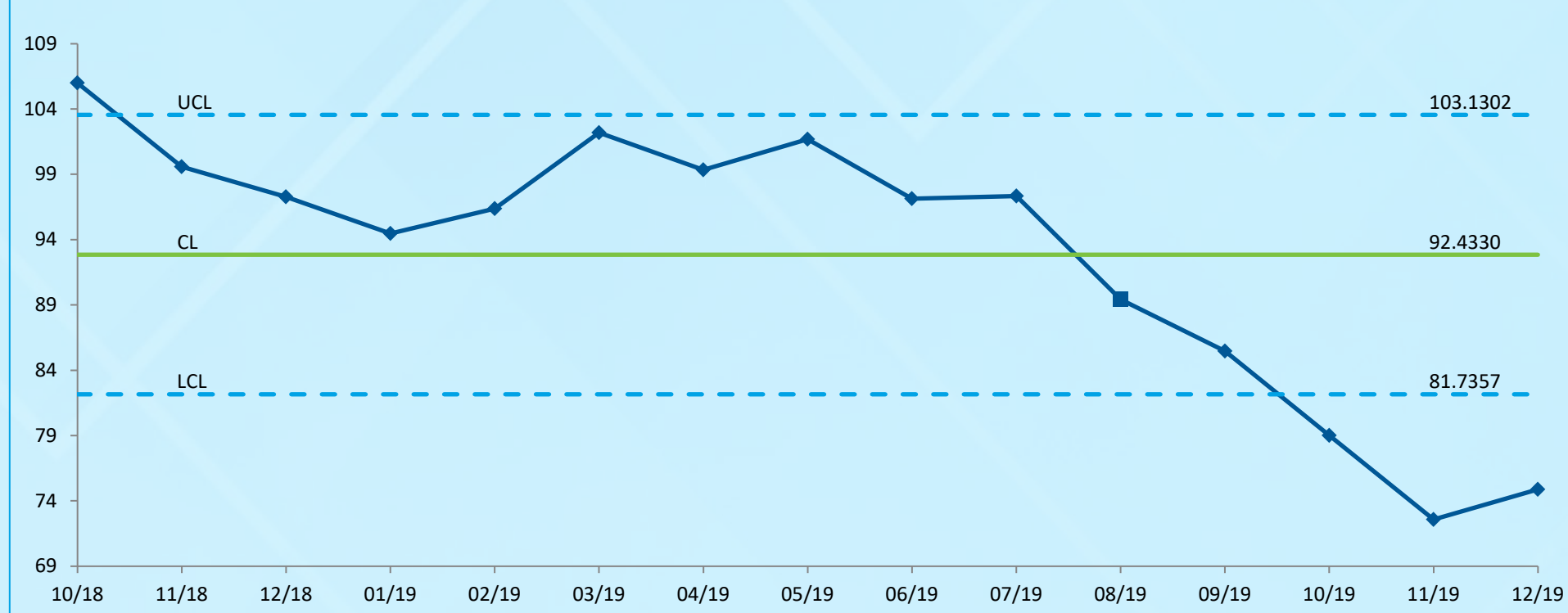
Average Pills per Prescription



- 55% reduction
- 55 tablets to 30 tablets

Prescription Dosage

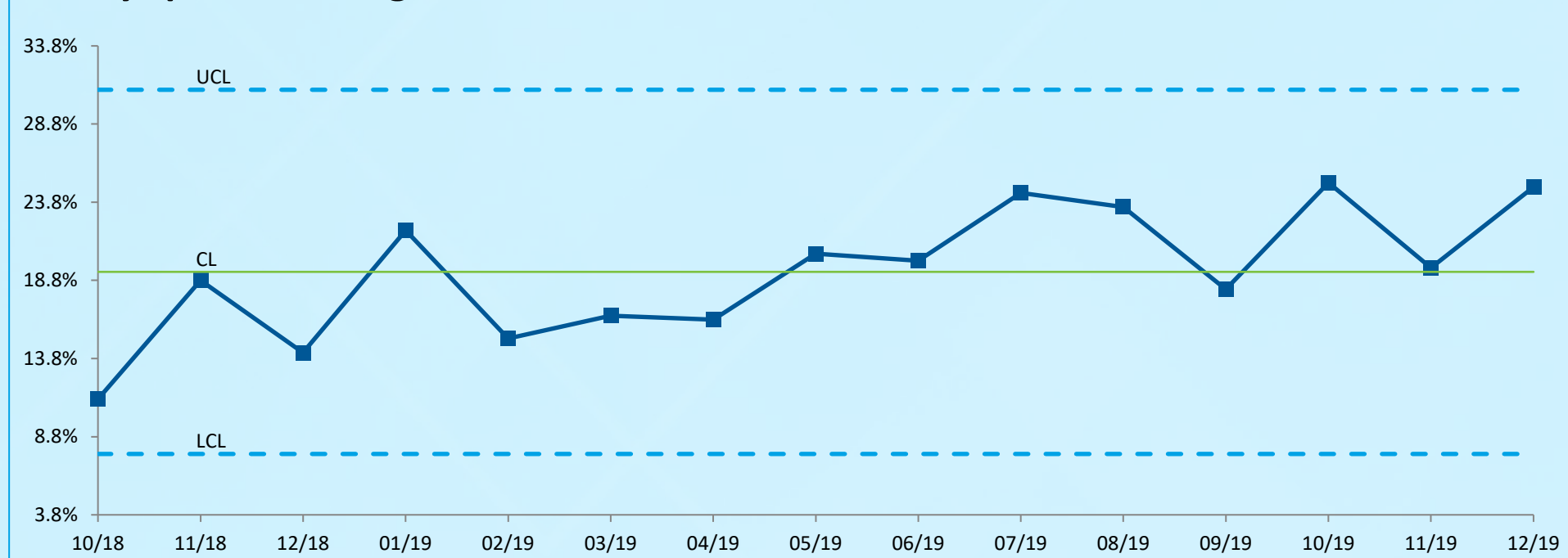
Average MEDD per Prescription



- 32% reduction
- 106 MEDD to 72 MEDD

Pain Visits

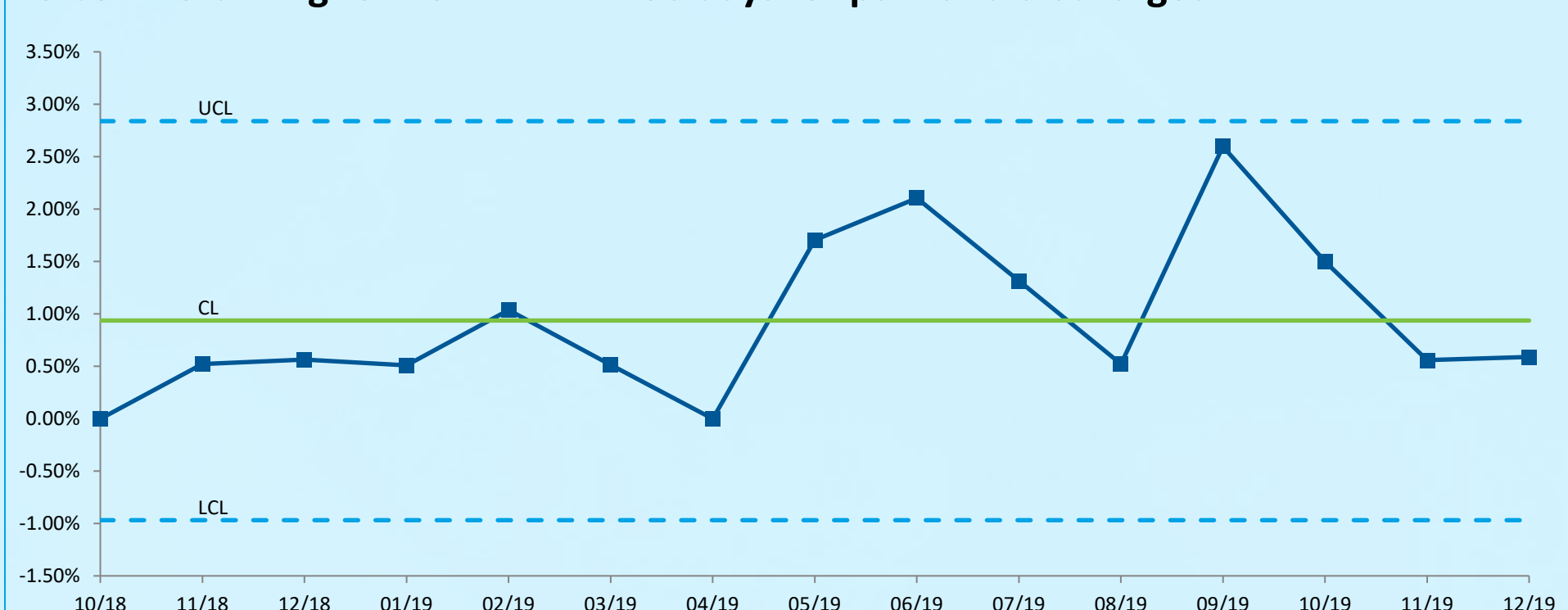
Percent of patients receiving an opioid refill from orthopedics within 30 days post-discharge



- No significant increase

Refills

Percent returning to the ED within 30 days for pain and discharged



- No significant increase

Scalable Internal Quality Rapid Cycle Approach

During the 2019 fiscal year, 59% of pills prescribed for THA and 51% of pills prescribed for TKA were reported by patients as unused. This amounted to an estimated total of 72,146 pills remaining. The multi-disciplinary working group was able to successfully implement a 7-day opioid wean order-set as the standard of care and provide real-time feedback to the Orthopedics Department at LVHN with metrics including tablet count, wean order set usage, MMED, 30-day refills, and 30-day ED returns. The results of this quality improvement implementation demonstrated a successful reduction in post-surgical opioid prescribing practices.

Institutional Collaboration and Education

The major implementation measures relied on institutional collaboration and education in order to improve post-surgical opioid stewardship practices. Previous studies have confirmed the success of quality improvement initiatives utilizing regulatory, consensus, and data education measures. The current study invokes each of these in its implementation. By partnering with the practice providers and surgeons in the department, we were able to achieve prescriber buy-in. Education on the new order-set workflow as well as providing up to date data on the status of the implementation via an accessible dashboard and monthly emails from the Chief Quality and Patient Safety Officer fostered acceptance, enactment, and maintenance.

SELECT Integration

Values-based patient centered care

The current intervention sought to personalize opioid prescribing practices, based on patient need, while maintaining the ultimate goal of establishing a minimalist prescribing approach

Health-systems

By ensuring the least number of pills were prescribed possible to maintain patient pain control, the intervention was able to significantly decrease the possibility of future patient opioid dependence and the development of dependence of others in the community. The implementation had robust implications from a health-systems perspective, cutting costs directly to the patient and expensive sequelae of systemic opioid reliance and overdose on the healthcare system, as well as improving quality, which is defined as the right care, for the right patient, at the right time

Leadership

The initiative was driven forward and maintained by a set of individuals exhibiting exceptional leadership. Dr. Matthew McCambridge as the lead in the patient safety and quality perspective exhibited leadership in his ability to aggregate a team of stakeholders and establish buy in. Dr. Eric Leiby, the chief of the Orthopedics Department, also demonstrated exemplary leadership by encouraging department improvement in light of suggestive preliminary data

- ❖ The present quality improvement initiative presents a successful scalable methodology to reduce post-operative opioid over-prescription
- ❖ The approach relies on a combination of standardized opioid wean order sets and real-time education of providers via data presentation of prescribing practices
- ❖ The approach lowers the overall prescription quantity while preserving apparent pain control
- ❖ Early data at this institution is promising to combat opioid over-prescription and should be applied to broader surgical patients in order to assess generalizability of the practice

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