Hartford HealthCare

# Connecticut Orthopaedic Institute

2024 CLINIC OUTCOMES REPORT

INSIDE

# Our Privilege to Serve You

At Hartford HealthCare, we are privileged to touch nearly 23,000 lives each day. As Connecticut's largest integrated care delivery system, our 37,000 colleagues are committed to providing high-quality, safe and innovative care close to home for our communities. Utilizing our culture of continuous improvement, our organization makes improvements each year to achieve the highest level of quality and safety for all we serve. Most recently, our efforts in improvement were recognized by the Leapfrog Group, the nation's leading independent watchdog for analyzing safety and quality data, which awarded all of Hartford HealthCare's acute care hospitals with an "A" grade. This recognition validates the efforts of all colleagues across our acute care hospitals and institutes to provide the safest standard of care and fosters an environment conducive to the best health outcomes for our patients.

A core component of Hartford HealthCare's care delivery is our institute model. The foundational idea was to organize specialties not around traditional academic siloes, but instead with a focus on the interdisciplinary needs of patients with specific conditions – one-stop shopping for healthcare consumers. Hartford HealthCare's institute model combines teams of expert sub-specialists that utilize advanced analytics to predict and mitigate barriers to patient care through disease management teams that drive the best patient outcomes. Our seven world-class institutes ensure Hartford HealthCare's clinical expertise is accessible throughout the state both in hospitals and outpatient clinics for services including neurosciences, cancer, heart and vascular, kidney and urology, orthopedics and digestive health.

The Connecticut Orthopaedic Institute (COI) at Hartford HealthCare delivers state-of-the-art, high-quality care to orthopaedic patients in two locations: MidState Medical Center (MMC) and St. Vincent's Medical Center (SVMC). Each location shares the same mission of improving the orthopaedic health, healing and quality of life of the people and community we serve. Our vision is to provide an exceptional patient.

Since the inauguration of COI at MMC in 2017, the team has completed more than 26,000 surgical cases. Two years later, COI expanded to include a second location at SVMC with an official inauguration in February 2021. At these two locations, COI has completed more than 38,000 surgical cases that include but are not limited to: total joint replacement, spine, orthopaedic trauma, podiatry and general orthopaedic cases. Each patient receives an exceptional experience as we provide coordinated care throughout their journey. To ensure each patient receives the same high-quality care, we have standardized our guidelines and order sets for total joint replacements and spine procedures.

**Established**

**2017** *at* **MMC** *and* **2021** *at* **SVMC**

- Located at MidState Medical Center and St.Vincent's Medical Center
- 100+ Providers

**Sub-Specialties Include**

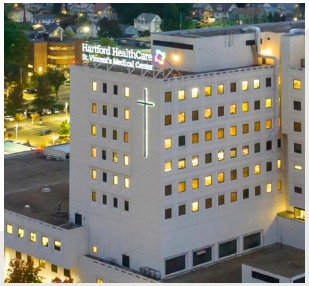
- Joint replacement surgery
- Spine surgery
- Robot-assisted surgery
- Sports medicine
- Podiatry
- Foot and ankle
- Hip fracture
- Trauma
- Upper extremity/ hand

# One Institute, Two Locations

Our approach has a proven track record of delivering patient care with exceptional outcomes. Hartford HealthCare and Connecticut Orthopaedic Institute are committed to being a national leader in patient outcomes through our care delivery model and growing into the premier healthcare destination center for world-class care. Our patients deserve nothing less than extraordinary care and our dedicated teams arrive daily ready to deliver world-renowned medicine, ensure patient safety and provide personalized coordinated care to improve health outcomes for all.

Connecticut Orthopaedic Institute


at MidState Medical Center
435 Lewis Avenue, Meriden




at St.Vincent's Medical Center
2800 Main Street, Bridgeport

# EXPERIENCED LEADERSHIP

**Jeffrey A. Flaks**
President & Chief Executive Officer
Hartford HealthCare

**Ajay Kumar, MD, MBA**
Executive Vice President & Chief Clinical Officer
Hartford HealthCare

**Stephanie Calcasola, MSN, RN-BC**
Vice President & Chief Quality Officer
Hartford HealthCare

**John McCallum, MD**
Physician-in-Chief
Connecticut Orthopaedic Institute

**Andrew Turczak, MHS, MBA, PA-C**
Vice President
Connecticut Orthopaedic Institute

**John F. Irving, MD**
Co-Medical Director
St. Vincent's Medical Center

**Gerard Girasole, MD**
Co-Medical Director
St. Vincent's Medical Center

**Glenn S. Russo, MD**
Medical Director
MidState Medical Center

**Adam Q. Ferguson, DO**
Associate Medical Director
MidState Medical Center

**Elizabeth Maselli, PA-C**
Director of Operations
St. Vincent's Medical Center

**Thomas Mangano, PA-C**
Director of Operations
MidState Medical Center

**Dianne Vye, MSN, RN, ONC**
Director
Orthopaedic Quality & Safety

THE BEST AT GETTING BETTER

# 2023 Quality & Excellence Highlights

**Advanced Certification**
Spine Surgery
*(first in the nation)*

**Advanced Certification**
Total Hip & Knee Replacement

**Certification**
Shoulder Replacement
*(MidState)*

**Certification**
Hip Fracture
*(SVMC)*

**Aetna Institutes of Quality®**
(IOQ)
Orthopaedic Care Facility for Total Joint Replacement & Spine Surgery Designation
*(MidState)*

**Aetna**
IOQ for Spine Surgery
*(SVMC)*

**Distinction+**
for Knee & Hip Replacement
*(MidState; SVMC Eligible)*

**Distinction+**
for Spine Surgery

**Five-Star Recipient**
for Total Knee Replacement & Spinal Fusion Surgery

**Premier Bundled Payment Collaborative Award Winner**
"Positive Savings & Excellent Quality" & "Most Improved"

**Women's Choice Award**
America's Best Hospitals for Orthopaedics

**CMS 5–Star Hospital**
*(MidState)*

**Comprehensive Care for Joint Replacement**
Quality Rating of "Excellent"

**National Association Orthopaedic Nurses (NAON)**
Orthopaedic Nursing Excellence Award

"We're proud of the many recognitions of COI's expertise and care."

**Andrew Turczak**
*VP, Connecticut Orthopaedic Institute*

CONNECTICUT ORTHOPAEDIC INSTITUTE

# Inside the Numbers

| | |
|---|---|
| Number of Clinicians | 126 *(97 MDs and 29 APPs)* |
| Number of collaborating private orthopaedic practices | 7 |
| Dedicated Beds (Inpatient) | 31 |
| Total Surgical Procedures | 8,232 |
| Average Length of Stay | 1.1 days |

PERCENTAGE OF TOTAL JOINT PATIENTS

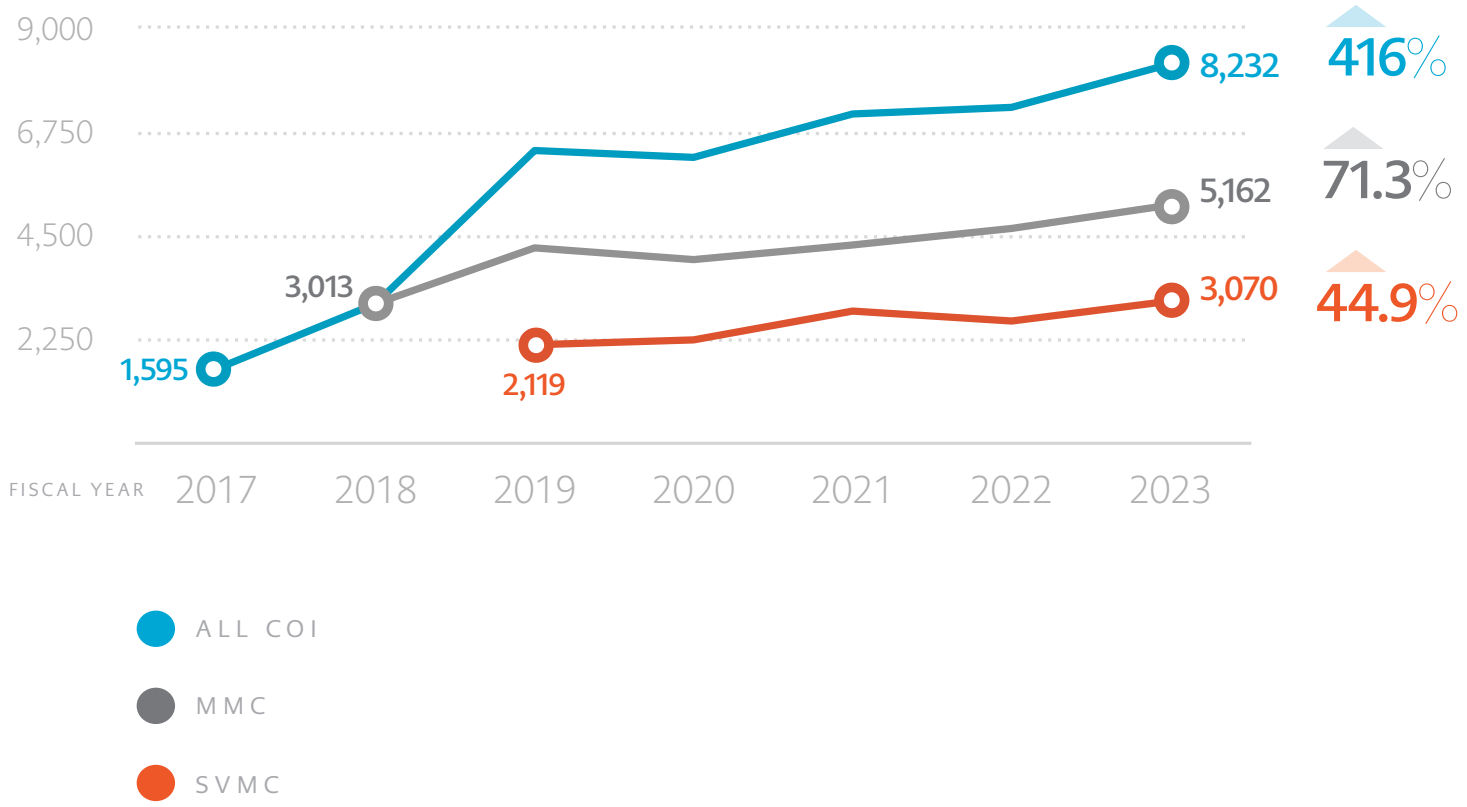
| | |
|---|---|
| *Transitioned Directly Home* | *97%* |
| *Going Home Same-day* | *25%* |

DISTRIBUTION OF SURGICAL PROCEDURES BASED ON FY23

| | |
|---|---|
| Joint Replacements | 4,333 |
| General Orthopaedics *(including Trauma)* | 2,180 |
| Spine | 1,318 |
| Podiatry | 401 |

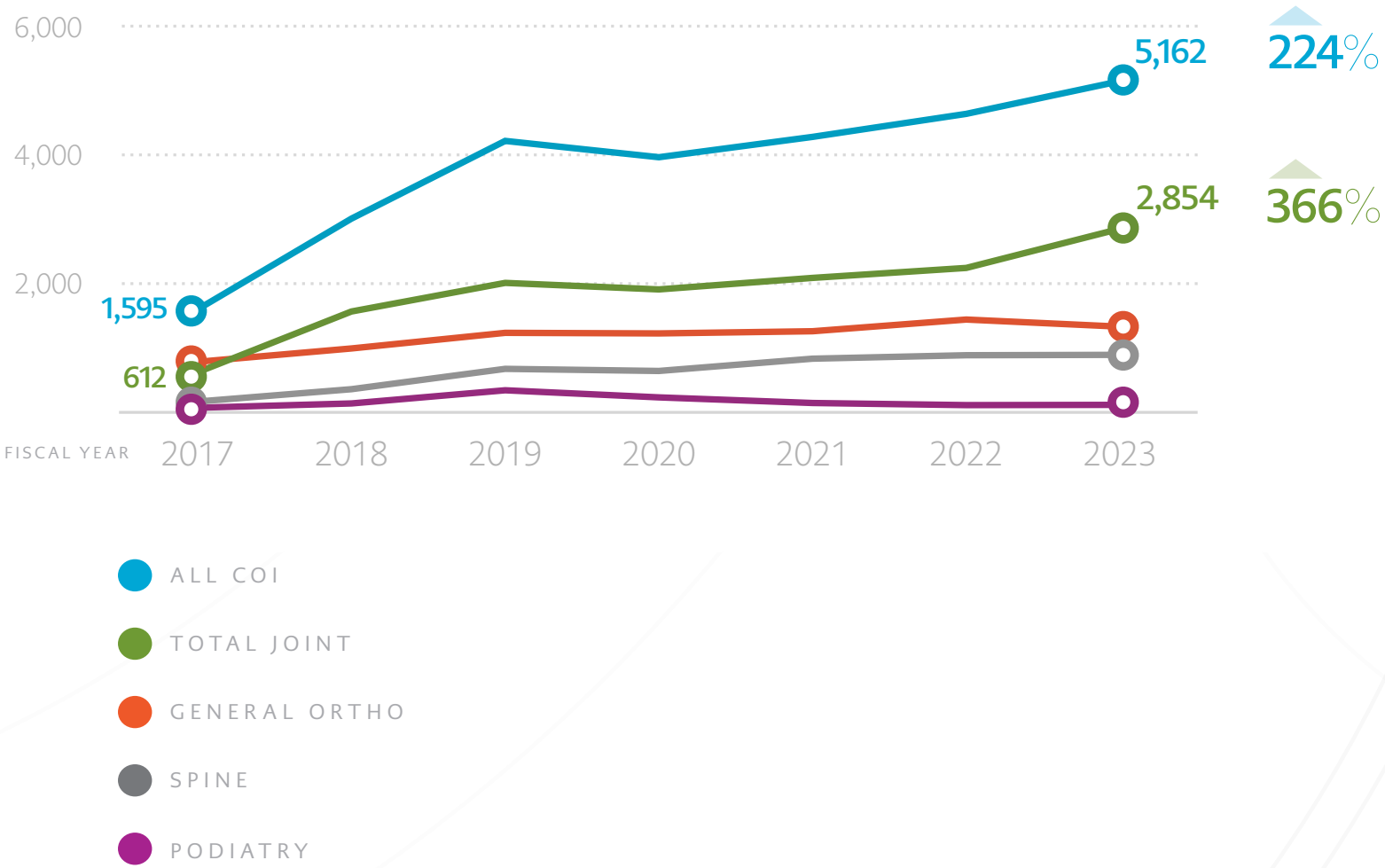
VOLUME BY SURGICAL PROCEDURE

# COI Growth – All



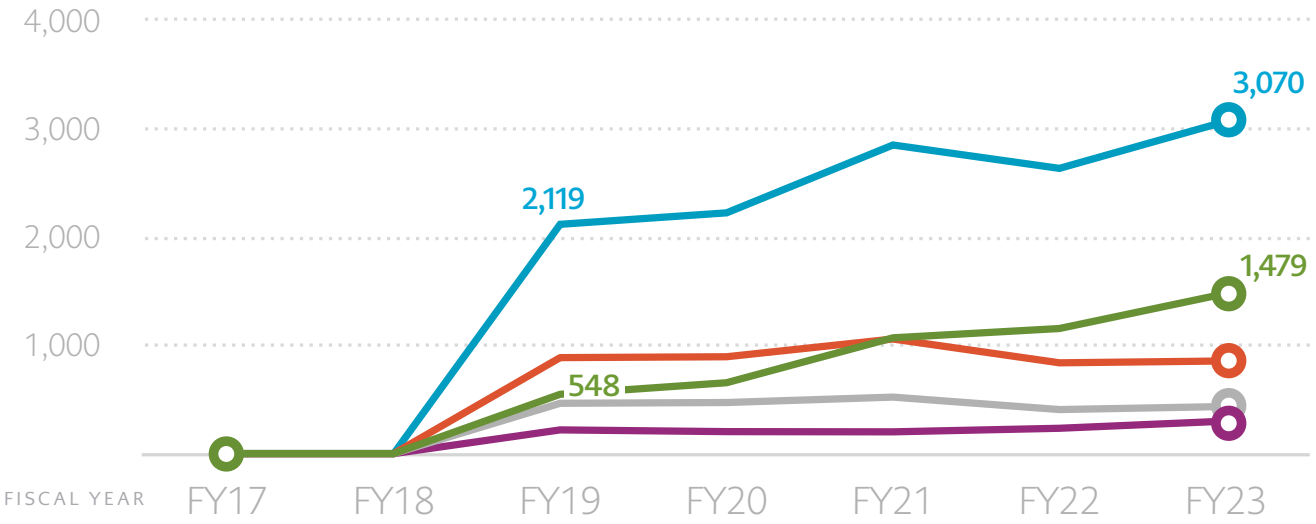
VOLUME BY SURGICAL PROCEDURE

# MidState Medical Center — COI Trended Growth



VOLUME BY SURGICAL PROCEDURE

# St. Vincent's Medical Center — COI Trended Growth




44.9%
FY19 – FY23

169%
FY19 – FY23

ALL COI

TOTAL JOINT

GENERAL ORTHO

SPINE

PODIATRY

# Team Focus Influences Change

CQI teams focus on continuously monitoring the surgical site infection (SSI) rate and successfully decreased the rate in the surgical spine population. Recognizing an increase in infections may lead to significant morbidity, mortality and associated healthcare costs for each patient, the team focused on contributing factors that were addressed to influence positive change.

The Quality Team's efforts tapped concepts of the Lean Continuous Improvement Cycle and Institute for Healthcare Improvement (IHI) Model for Improvement, Plan-Do-Study-Act (PDSA) methodology. This included consistent follow-up to sustain improvement, which yielded markedly improved outcomes over about three years.

After recognizing an increase in spine surgical site infections in June 2021, this multidisciplinary team was created to provide inclusive insight from many different specialties and all aspects of healthcare.

In response to identified opportunities, the team created small tests of change and formed a Plan-Do-Study-Act (PDSA) workgroup with an owner and target completion date for each step.

### Top Three Identified Opportunities:

1. Breach in aseptic technique/surgical site prep
2. Hygiene/scrubbing in
3. (Tie) Attire/jacket, OR traffic, sterile back table/instruments.

A hospital-wide kickoff was scheduled August 2, 2022, and weekly PDSA meetings to sustain and track improvements started. Impactful changes included: new flow of OR traffic; adding SSI audit including room traffic, vendors, attire, surgical prep and radiology; standardizing prep agents; creating data transparency for all OR staff with loop closure at huddles; and pre-operative review of CHG wipes vs CHG bottle.

The impact of this process is visible in data from July 2022 showing a 12-month period without any deep incisional primary (DIP) or organ space (OS) spine infection More recent data show only two DIP and OS infections in FY 2023. (refer to graph on pg. 12).

The project has yielded several new operations and procedures, including: formal education for pre-operative staff on "nose to toes" CHG patient bathing; a clipping update before patients go to the OR; use of UV lights for terminal cleaning; an update to surgical patient preparations; increased vigilance and diligence when performing blocks; a review of antibiotics administration prior to surgery; and review of the system surgical attire policy with updates and education.

This project aligns with our health system's goals for quality and hospital and system key performance indicators (KPIs) such as performing at the top decile for hospital-acquired infections (HAIs). It also aligns with the system's Balanced Scorecard initiatives to ensure a safe environment by eliminating HAIs and patient harm.

Our data, including spine readmission and surgical site infection, is reviewed monthly. This provides an opportunity for multidisciplinary case review and use of a standard template that provides evidenced-based practice guidelines highlighting opportunities or themes. The weekly and bi-weekly PDSA SSI workgroup sustains on-going SSI prevention work and the quarterly Perioperative Safety Meetings provide a high-level overview of the process. SSI is reported bi-annually to the Quality Assurance and Performance Improvement Committee (QAPIC) and the Board.

# Model for Improvement

## Team Aims

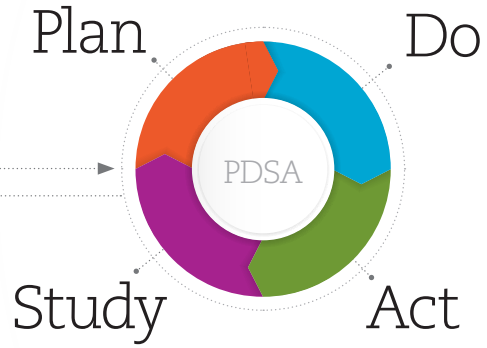
What are we trying to accomplish?

## Measurements

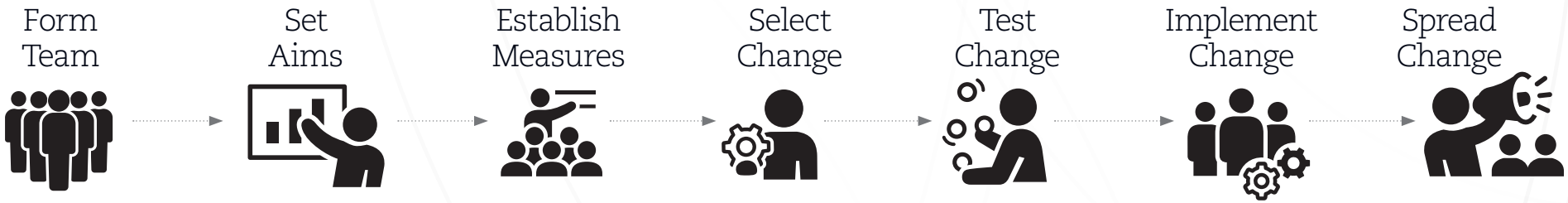
How will we know that a change is an improvement?

## Tests of Changes/ Interventions

What changes can we make that will result in improvement?




## STEPS FOR IMPROVEMENT



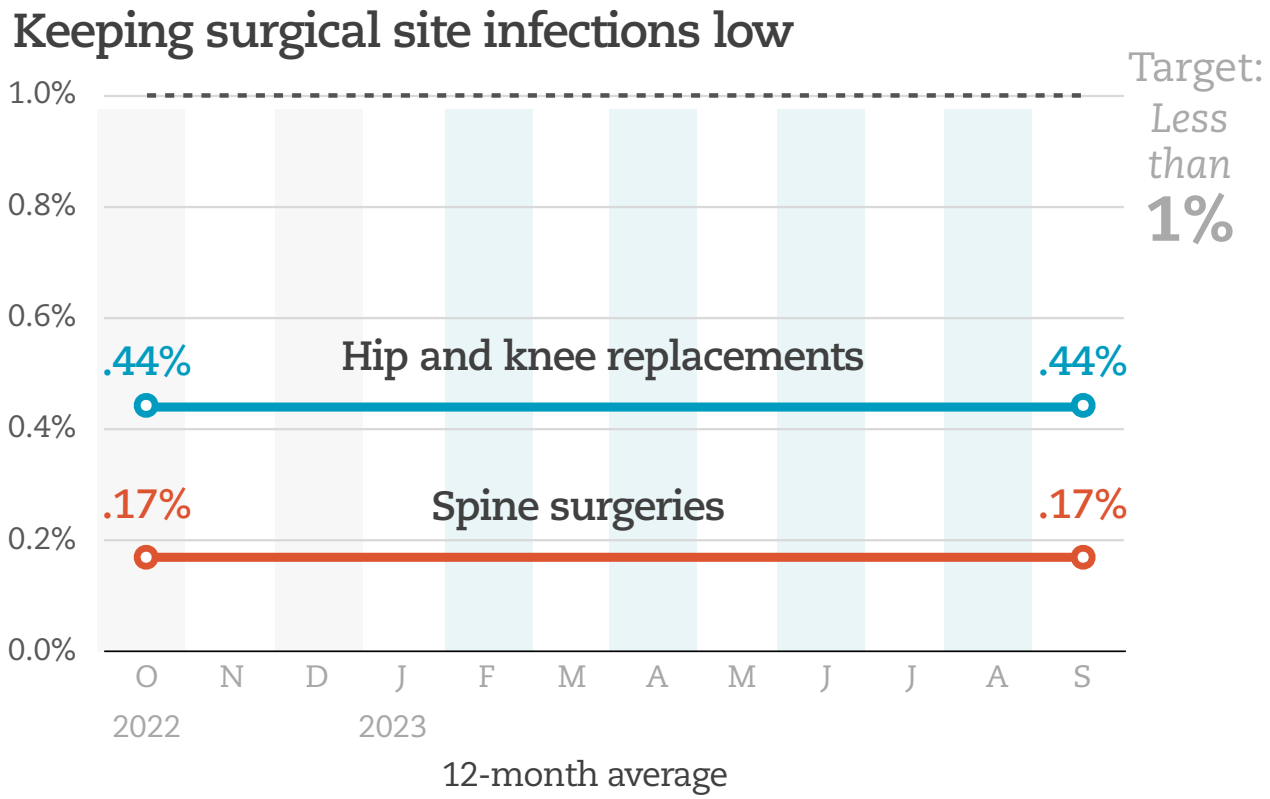
# Progress with Reducing Surgical Site Infections

| Fiscal Year *(Oct–Sept)* | 2021 | 2022 | 2023 |
|---|---|---|---|
| Total Number of Infections DIP & O/S | 0.59% | 0.90% | 0.19% |
| Standard Infection Ratio (SIR) Spine: Lami & Fusion | .725<br>1.310 | 1.485<br>2.357 | 0.647 LAMI<br>0.257 FUSN |
| National Goal/Aggregate Data (SIR) | <1.0 | <1.0 | <1.0 |

# Maintaining Excellence: Safer Surgeries, Fewer Infections

Surgical site infections can lead to significant problems — patient morbidity, increased length of stay, readmission, return to the OR and increased costs. Reduction and prevention are crucial to improving quality of care and patient outcomes.

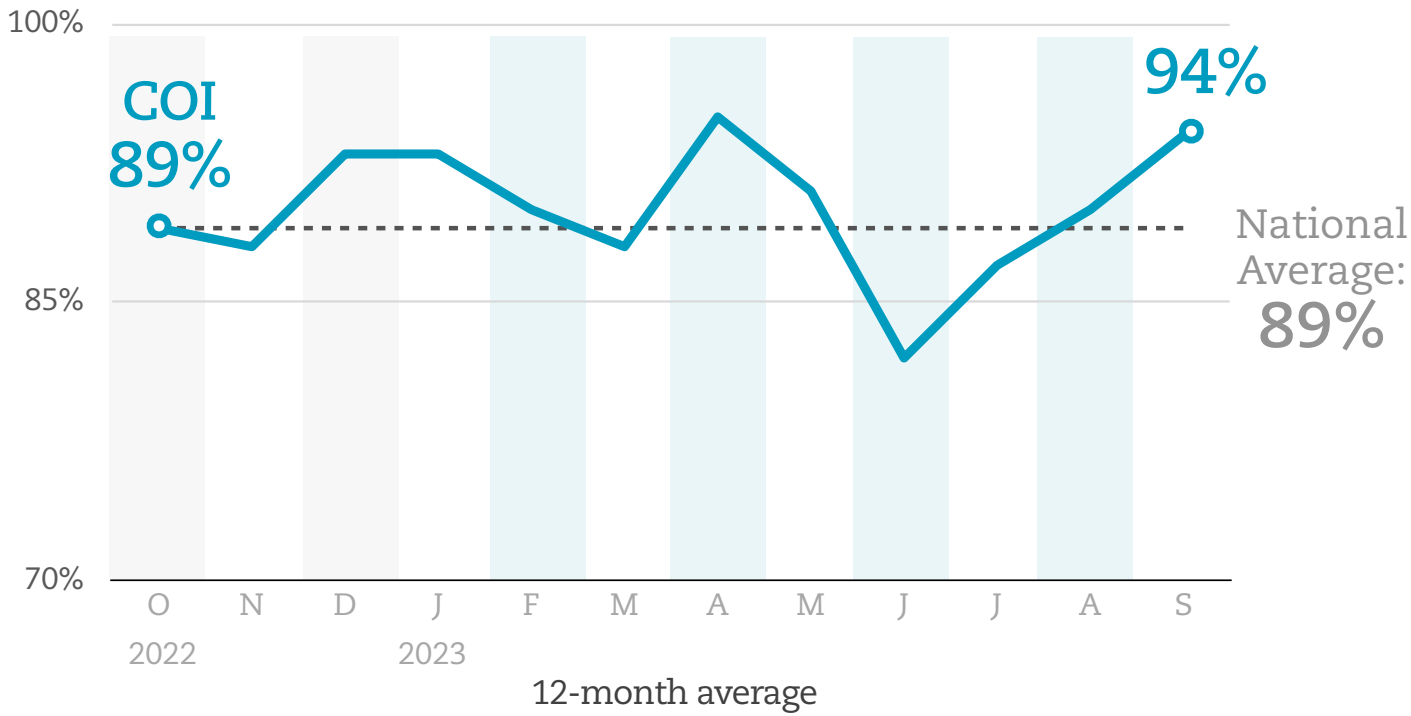
We continue to provide excellent surgical care, while remaining well below the benchmark for both hip and knee replacements and spine surgeries.



# Spine Surgeries: Better than the National Average

Our enhanced recovery model helps patients mobilize early and minimize complications, resulting in an overall reduced length of stay and sustaining a low readmission rate. Being able to go home early allows patients to be more comfortable in their recovery and return faster to their typical activities.

## More people headed home after surgery

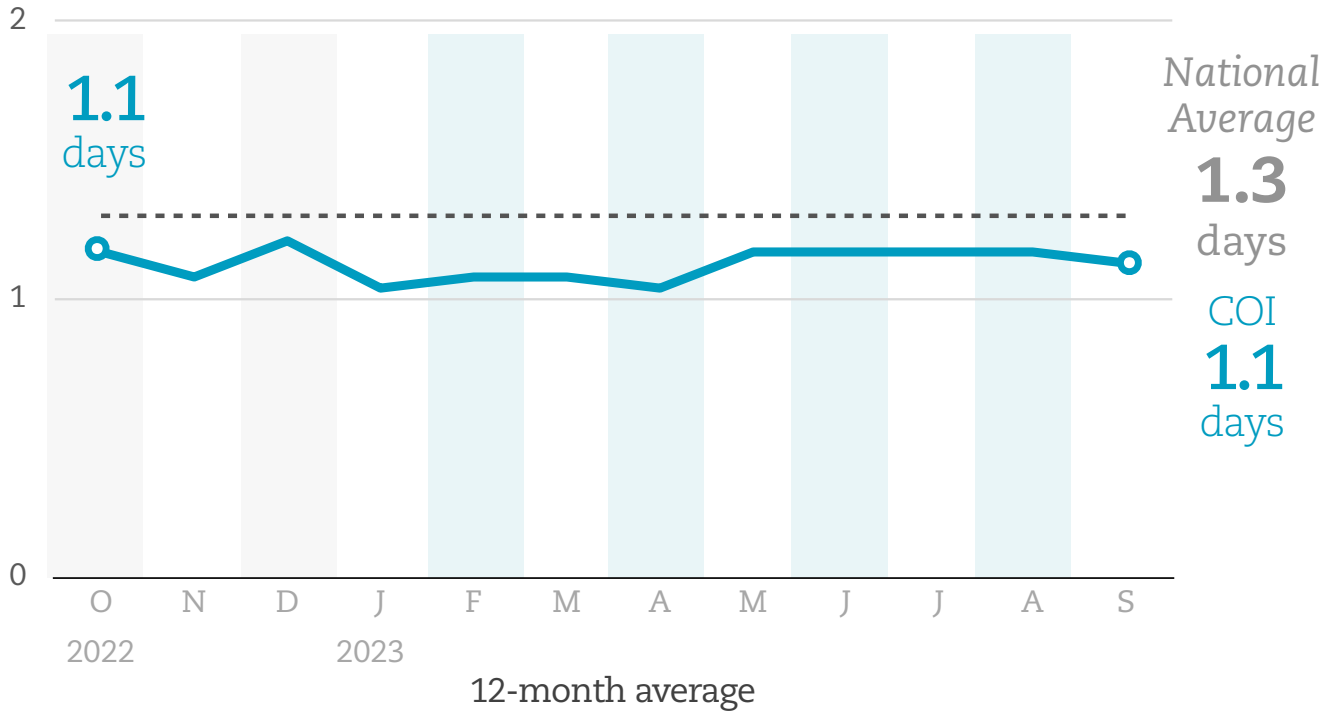


# Total Hip & Knee Replacements: Getting You Home Sooner

Our enhanced recovery model helps patients mobilize early and minimize complications, resulting in an overall reduced length of stay and sustaining a low readmission rate. Being able to go home early allows patients to be more comfortable in their recovery and return faster to their typical activities.

**Days in Hospital**
Our patients have gone home sooner in the past year.

## Shorter stays — over a long period of time



# Total Hip & Knee Replacements: 30-day Readmissions

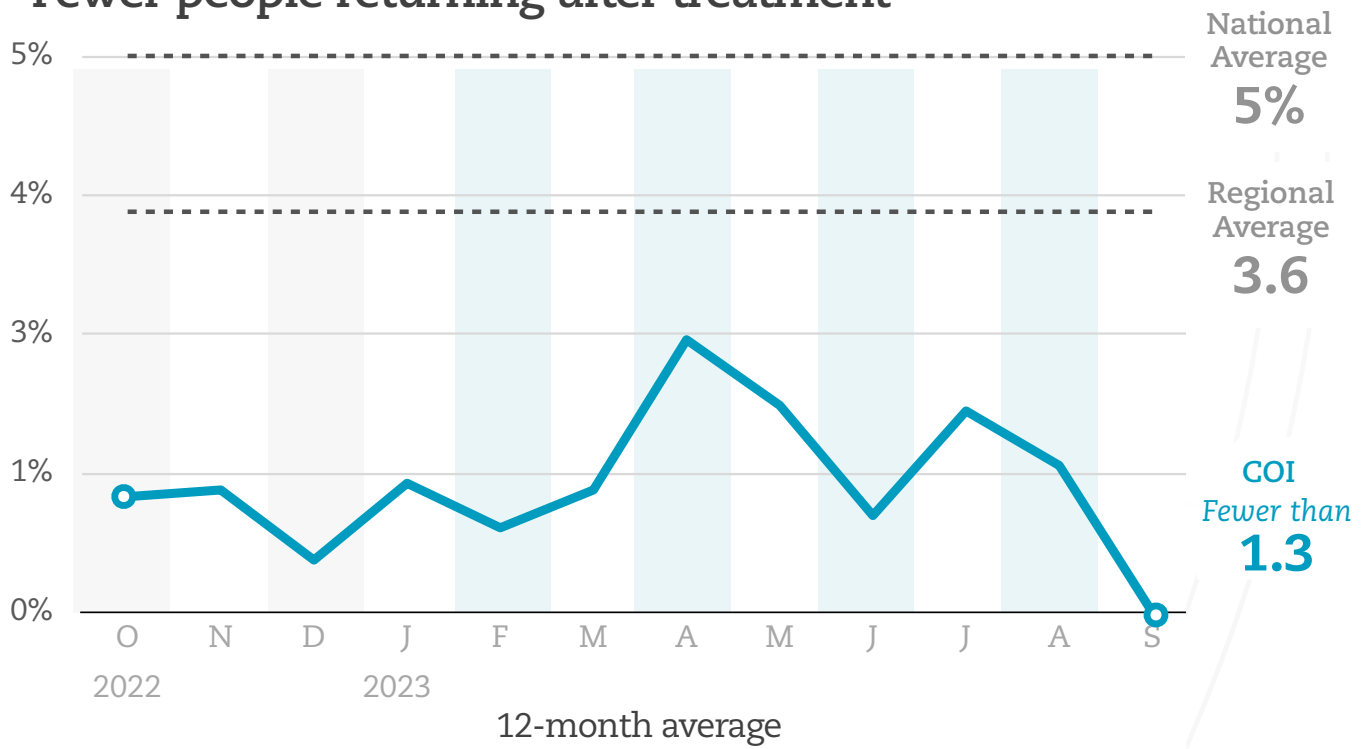
Our COI navigators play an integral role in communicating with and educating our patients. We continue to improve patient outcomes and experiences through enhanced communication and care team coordination, which helps reduce readmissions.

**Readmission Rates**
Much better than Average

COI
**1.3%**

National Average
**5%**

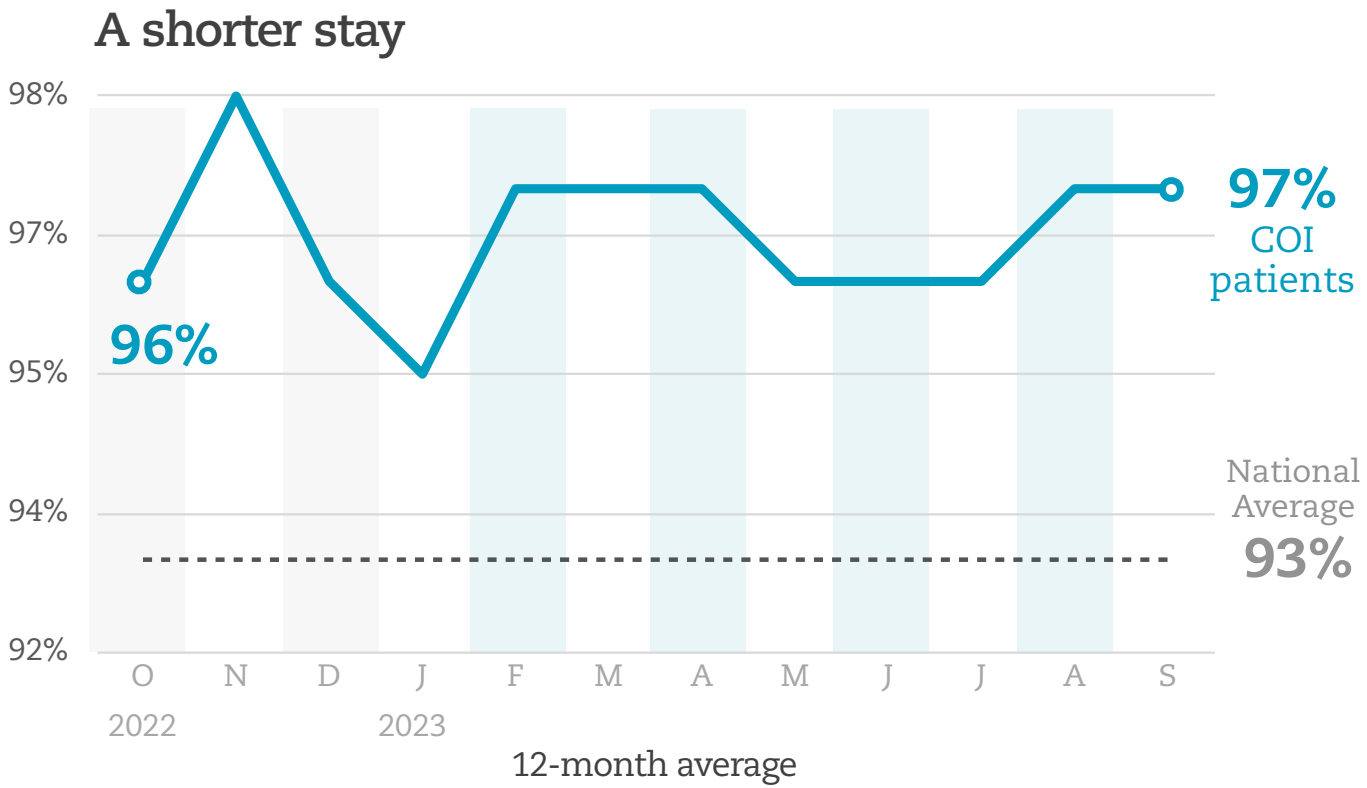
## Fewer people returning after treatment



# Total Hip & Knee Replacements: Transitioning to Home

About 97% of our hip and knee replacements patients went directly home after surgery.

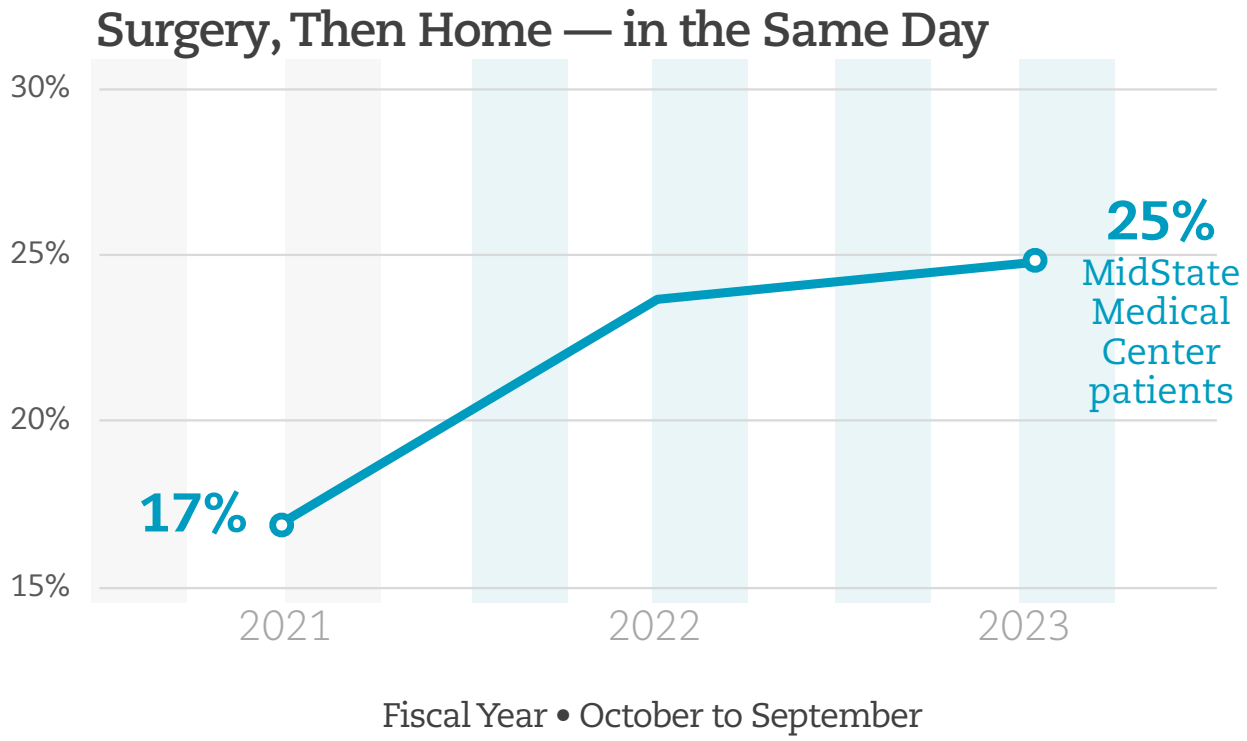
People who go home after surgery instead to skilled nursing facility often recover faster and experience decreased complications and readmissions.



# Total Hip & Knee Replacements: Going Home Same Day

With advances in surgical techniques and pain management, patients can recover successfully in the comfort of their own home without spending the night in the hospital.

Year over year, COI MidState Medical Center has increased the number of patients going home the same day as their surgery.



# Elevating Volume to Value

- The CMS Comprehensive Care for Joint Replacement (CJR) bundle payment model has required hospitals to evaluate care of the joint replacement patient.
- The goal of the model is to promote quality and financial accountability for care within the 90-day episode of care.
- The model began April 1, 2016 and runs through December 31, 2024.

The Connecticut Orthopaedic Institute (COI) at MidState Medical Center is the pioneer for Hartford HealthCare in value-based payment. The CMS CJR bundle payment model is an opportunity for elevating the elective orthopaedic surgical service line to highest clinical standards, quality outcomes, patient satisfaction and cost optimization.

The team identified opportunities in the elective orthopedic service line through evidence-based clinical care redesign to achieve success in the CJR bundle. A multidisciplinary approach across the care continuum resulted in improved quality outcomes.

Lessons from CJR implementations were valuable for Hartford HealthCare as a system. The goal is to provide the highest quality of care, improve clinical outcomes, patient satisfaction over eight years of CJR engagement and beyond.

The multidisciplinary teams designed and implemented best practices with a focus on excellence across the episode of care, beginning in the surgeon's office, and through the pre-operative, acute inpatient and post-operative phases of care.

As of result, the orthopedic programs have seen improved results for joint replacement patients through the entire episode of care.

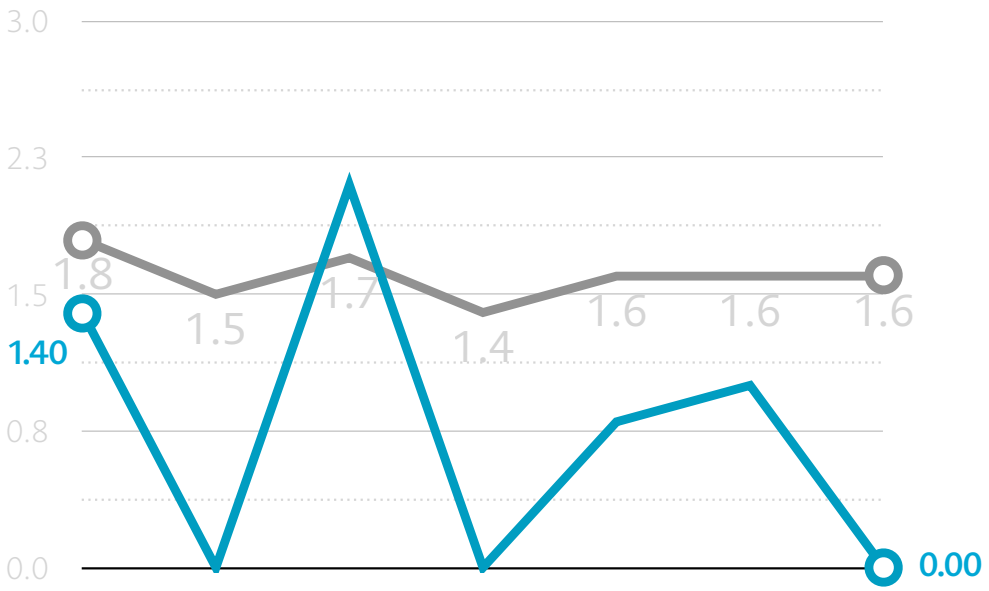

## The multidisciplinary team identified opportunities using the Premier Bundle Payment Intelligence Platform (BPIP), Premier, Epic and CMS data

- Standardizing pre-operative evaluation to identify and address co-morbidity early, optimizing the health of complicated surgical candidates.
- Engaging patients and setting expectations early in the pre-operative process.
- Implementing standardized best practice, evidence-based care to reduce the risk of complications and readmissions.
- Streamlining and improving utilization of post-acute care services.
- Increasing post-op follow-up intervals.

# Steady Improvements in the CJR Bundle Payment Model

| | |
|---|---|
| Quality of Care | Improved from below Acceptable to Excellent |
| Patient Satisfaction | Improved by 3 points (CMS)<br>HCAPHS in high 90% |
| Complications | Minimized<br>Established documentation & coding improvement process |
| LOS<br>*length-of-stay* | Reduced Year-over-Year |
| SNF Utilization<br>*skilled nursing facility* | Reduced from 90% at baseline to about 13% |

# CJR 90 Day Complication Rate

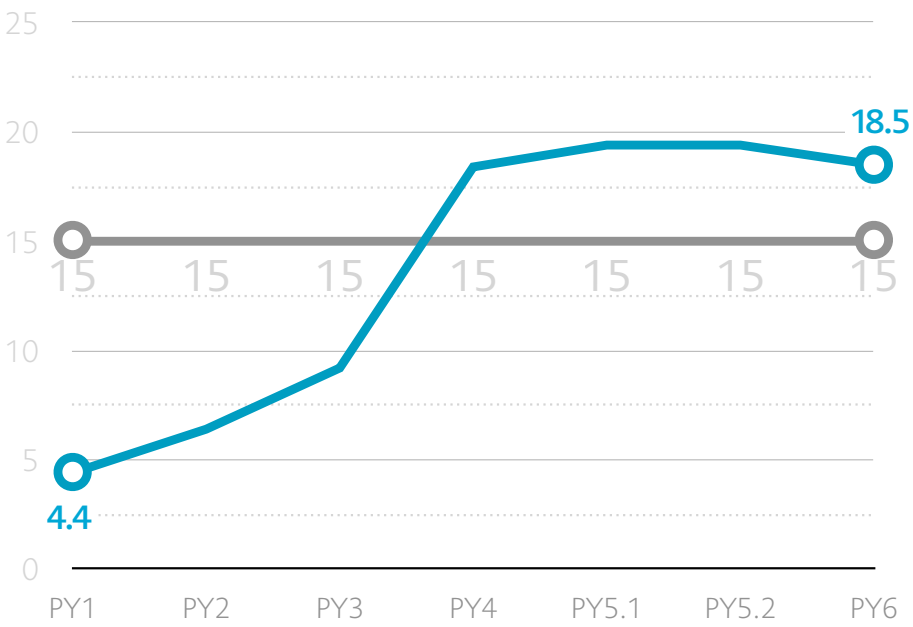



BENCHMARK AVERAGE

MIDSTATE MEDICAL CENTER

| BASELINE N=34 2012–2014 | N=50 PY1 | N=110 PY2 | N=117 PY3 | N=454 PY4 | N=238 PY5.1 | N=81 PY5.2 |
|---|---|---|---|---|---|---|

# CJR Composite Quality Score (CQS)




BENCHMARK TARGET

MIDSTATE MEDICAL CENTER

CQS <5 (BELOW ACCEPTABLE)
CQS >5 AND <6.9 (ACCEPTABLE)
CQS >6.9 AND < 15 (GOOD)
**CQS >15 (EXCELLENT)**

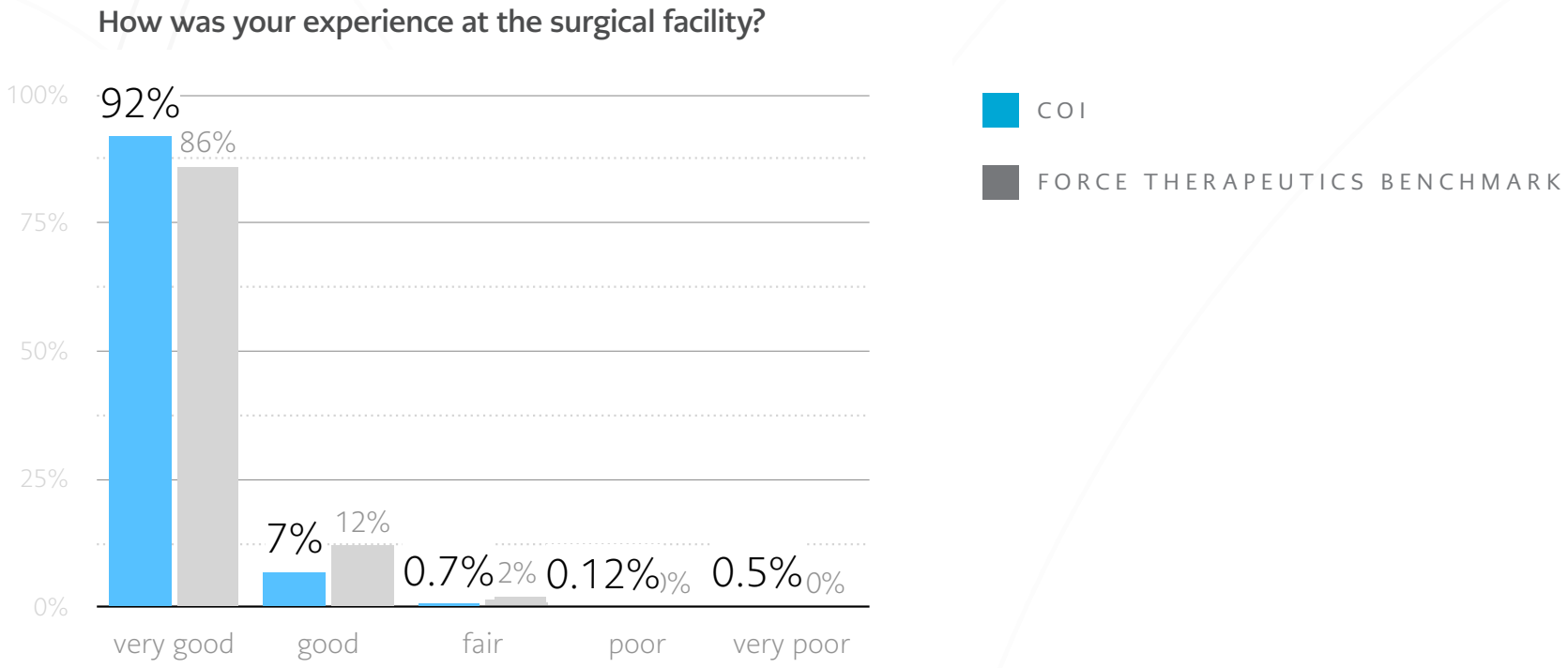
CJR COMPOSITE QUALITY SCORE(CQS) IS A SCORE BETWEEN 0-20 AND IS **MADE UP OF 3 PARTS:**

1. COMPLICATIONS
2. HCAHPS SURVEY
3. PATIENT-REPORTED OUTCOMES

# Patient Engagement Improves Care

## Reimaging Care Delivery – Patient Engagement Platform (FORCE Therapeutics)

- Patients automatically enrolled once surgery booked
- Patient education, virtual rehabilitation and collection of patient-reported outcome surveys (PROMS) throughout the continuum of care
- Enhance communication with the navigator/care team
- Multiple touchpoints with patient throughout surgical journey
- **82% Opt-in rate FY23 (Program Goal ≥ 80%)**



# Patient Touchpoints Mitigate Risks

## Performance Improvement Priorities

Hospital-level Total Hip Arthroplasty/Total Knee Arthroplasty Patient-Reported Outcome-Based Performance Measure (THA/TKA PRO-PM)

**Why it matters:**

- The goal of the hospital-level THA/TKA PRO-PM is to measure improvement in patients' self-reported pain and functional status before and after their elective, primary THA/TKA.
- CMS plans to implement the THA/TKA PRO-PM through phased implementation, with two voluntary reporting periods in 2025 and 2026, followed by mandatory public reporting in 2027.
- During mandatory reporting in 2027, successful submission of PRO data will impact hospital's Annual Payment Update (APU) in the IQR Program. CMS recommends hospitals collect and submit complete data on more than 50% of eligible patients to maximize the potential to be successfully meet the 50% IQR reporting requirement. Hospitals that fail to meet the reporting requirement will receive a reduction in their APU in fiscal year 2028.

**Who is included?**

The measure cohort includes patients who:

- Are enrolled in Medicare fee-for-service (FFS)
- Are age 65 years or older
- Underwent an elective, primary THA and/or TKA

**When is PRO data collected?**

- Hospitals need to collect PROs before and after elective, primary THA/TKA.
- Preoperative PRO data is collected 90 to 0 days before the procedure.
- Postoperative PRO data is collected 300 to 425 days after the procedure.

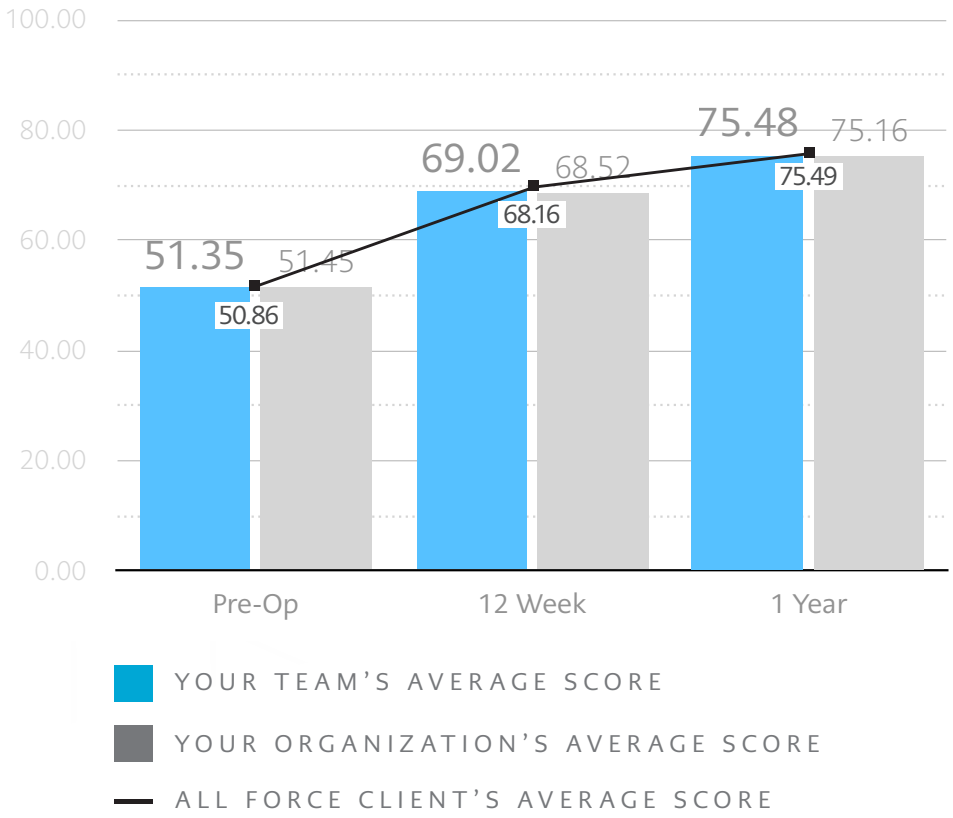
**What is the measure outcome?**

The measure outcome defines patient improvement as an outcome based on whether they met or exceeded the substantial clinical benefit (SCB) threshold on the joint-specific surveys.

The following are the SCB thresholds for the surveys used by the THA/TKA PRO-PM:

- HOOS JR: 22 points
- KOOS JR: 20 points

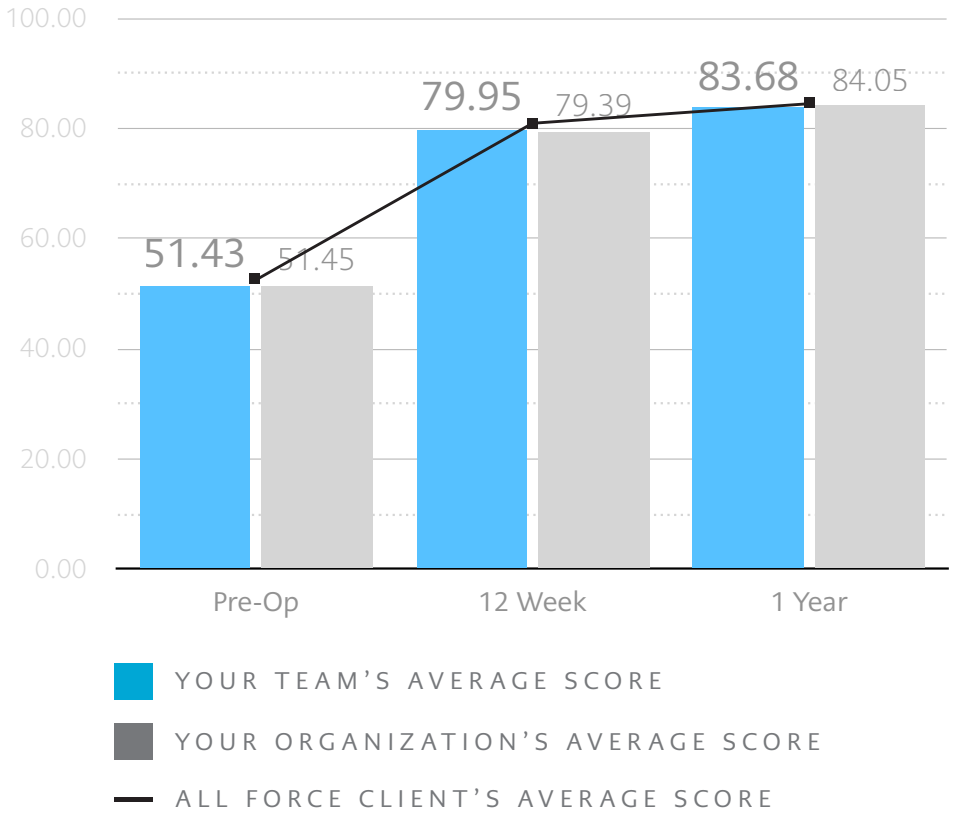
# Average KOOS JR Score (of all forms)




**2022–2023 patients SVMC and MMC Scores**

Graph shows the scores at pre-op to 1 year post-op intervals with more than 20 points improvement noted overall in the KOOS JR scores.

# Average HOOS JR Score (of all forms)




**2022–2023 patients SVMC and MMC Scores**

Graph show the scores at pre-op to 1 year post-op intervals with more than 20 points improvement noted overall in the HOOS JR scores.

As summarized by the graphs, the goal of capturing patient reported outcomes (Knee Injury and Osteoarthritis Outcome and Hip Disability and Osteoarthritis Outcome Score surveys) is to measure improvement in patients' self-reported pain and functional status before and after their elective, primary total hip/knee replacement. The interval score ranges from 0 to 100 where 0 represents total knee/hip disability and 100 represents perfect knee/hip health.

Per CMS, the measure outcome defines patient improvement based on whether they met or exceeded the substantial clinical benefit (SCB) threshold on the surveys.

Patients' functional status collected at the different intervals demonstrates continued progress with their mobility and ability to perform activities of daily living.

# Our Multidisciplinary Team Focus

## The impact of orthopedic-related care on quality of life and ability to function

1 Patient outcomes comparing computerized tomography (CT)-based robotic assisted MAKO system with cemented vs cementless fixation

There is not enough literature comparing clinical and patient-reported outcomes in patients undergoing total knee arthroplasty with cemented versus cementless fixation using the robotic-assisted MAKO system. As volume trends toward cementless fixation, it will be crucial to understand clinical and functional data on early to mid-term outcomes.

2 A retrospective review to identify patient characteristics associated with discharge to skilled nursing facility after total joint arthroplasty at Connecticut Orthopaedic Institute

Total joint arthroplasty represents the single largest procedural cost for the Centers for Medicare & Medicaid Services. Discharge to skilled nursing facility remains a primary driver of post-acute care costs. The Covid-19 pandemic decreased discharges to SNFs. Examining preoperative characteristics of patients admitted to SNFs despite cultural shifts since the pandemic may help providers identify which patients remain high-risk for facility discharge disposition.

3 Evaluation of post-operative pain management after primary total knee arthroplasty using a new FDA-approved local anesthetic.

Opioids have demonstrated efficacy and often are the choice for postoperative pain management. However, they are also associated with adverse effects including vomiting, pruritus, dizziness, somnolence, nausea and constipation. There is a strong need to develop new protocols to reduce opioid use after surgery. The goal of this navigator-led study was to evaluate a new pain management protocol using Zynrelef in comparison with gold standard "Exparel" liposomal bupivacaine.

* *Exparel and Zynrelef demonstrated comparable efficacy on most measures of post-operative pain and opioid intake. The investigation facilitated approval of Zynrelef on the formulary at HHC.*

## Recent Publications & Presentations

Accepted March 1, 2024
**Arthroplasty Today**
*Manuscript*
Cemented versus cementless robotic-assisted total knee arthroplasty yield similar short-term clinical outcomes

November 2023
**2023 American Association of Hip and Knee Surgeons annual meeting**
*Poster presentation*
A contemporary analysis of discharge disposition following total joint arthroplasty

October 2023
**27th Annual Nursing Research & Evidence-Based Practice Conference**
*Poster presentation*
FORCE Therapeutics online patient engagement platform helps to streamline navigator workflow and improve capture rate of patient-reported outcomes after total joint arthroplasty

*Poster presentation*
Orthopaedic navigator-led evaluation of post-operative pin management after total knee arthroplasty at the Hartford HealthCare Connecticut OrthopaedicInstitute

May 2023
**43rd Congress: National Association of Orthopaedic Nurses (NAON)**
*Podium presentation*
**HELP:** A new tool to help guide post-operative management after total joint arthroplasty

January 2023
**7th annual interdisciplinary conference on orthopaedic value-based care and the future of the musculoskeletal space**
*Poster presentation*
Leveraging clinical care redesign for success in comprehensive care for joint replacement (cjr) bundle payment model

*Poster presentation*
**HELP:** A new tool to help guide post-operative management after total joint arthroplasty

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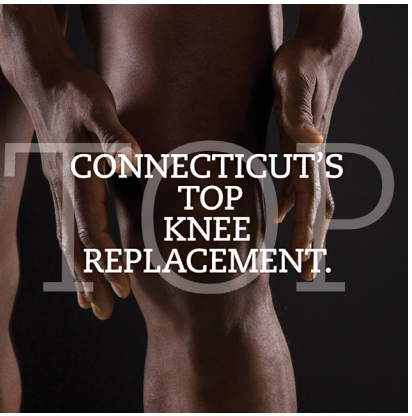






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