

Perioperative Orthopedic Quality & Safety Newsletter

A Newsletter from the Columbia Orthopedics Quality Team

Happy Spring from the Columbia Orthopedics team! We are excited to continue sharing our perioperative quality updates and reading list. We hope this issue serves as a useful tool in helping you provide the highest quality of care.

- Columbia Orthopedics Quality Team

Dr. William N. Levine, Chairman, Orthopedic Surgery

Dr. Michael G. Vitale, Vice-Chair, Strategy & Quality

Channing Hamilton, Quality & Performance Improvement Fellow

Meet Our Quality & Performance Improvement Fellows



The orthopedics team is fortunate to have a Quality & Performance Improvement (QPI) Fellow who works to support campus-wide perioperative quality initiatives. Our current QPI Fellow, Channing Hamilton (left), has been leading several initiatives across the hospital, including projects related to turnover time efficiency, preoperative call workflow, and perioperative efficiency improvement for our Allen orthopedic sport team. Recently, she has worked with Dr. Vitale (right) to create a spine quality dashboard to identify outcome trends and improve patient care.

We also want to extend a warm welcome to Joshua Choi, who will be joining our team in the summer. Joshua studied at Princeton University, where he received his Bachelor's degree in Molecular Biology. Following his undergraduate studies, he attended Columbia University, where he earned his Master of Health Administration. Before joining our team as a fellow, Joshua interned for North Shore University Hospital in the Department of Quality Management.



Joshua Choi

(Future QPI Fellow: 2025-2026)

Current Projects

Making Work Visible: A Quality Driven Approach to Tracking Surgical Spine Outcomes at The Allen Hospital

Spine surgeries are complex procedures with outcomes that can vary significantly depending on patient factors, surgery type, and other clinical variables. While adverse events such as Unplanned Returns to OR (UPRORs), Surgical Site Infections (SSIs), Deep Vein Thrombosis (DVTs), and readmissions are routinely tracked, traditional data reporting failed to provide actionable insights for our surgeons.

We recognized the need for a tool that could offer actionable data — allowing us to stratify by surgeon and procedure type. This would enable us to identify trends, pinpoint areas for improvement, and make timely, data-driven adjustments to improve clinical outcomes and patient experience.

The lack of a dynamic, interactive data source limited our ability to draw insights from the valuable data points we collect.



Our primary objective was to develop and implement an interactive Spine Quality Dashboard that tracks key surgical outcomes for spine procedures at The Allen Hospital with custom stratification. The dashboard was designed to provide near real-time monitoring of events, including UPRORs, SSIs, DVTs, and readmissions, while also capturing important demographic and procedural data. The goal was to empower clinical teams with custom stratified data that could inform decision-making, improve patient safety, and drive targeted quality improvement interventions across the hospital's spine surgery program.

In our February meeting we shared the dashboard with team members and many stakeholders and surgeons spoke to the benefits of utilizing filters to compare different patient and procedural groups. The continuous improvement of the data we collect, remains a key focus. We encourage staff to continuously identify areas for improvement and engage in solution-driven discussions so we can continue to use data to provide improved care for our spinal patients.

The Spine Quality Dashboard has proved to be an effective tool for event tracking and trend analysis of spine surgical outcomes. By providing actionable insights through stratified, granular data, the dashboard allows for timely identification of performance gaps, helping to drive targeted quality improvement efforts. This dashboard empowers surgeons, leaders, and quality teams to make data-driven decisions and implement interventions more quickly, ultimately improving patient safety and clinical outcomes.

Reading List

Journal of the American Academy of Orthopaedic Surgeons

[The Application of Artificial Intelligence in Spine Surgery: A Scoping Review](#)

This scoping review examined the current state of artificial intelligence (AI) applications in spine surgery. The review included 105 studies, focusing on AI's role in prognostication, diagnosis, medical image processing, and surgical assistance. Most studies utilized supervised learning on pre-labeled data sets, with deep learning methods predominantly used for medical image analyses. The review highlighted AI's potential to advance patient-specific diagnosis, management, and surgical execution, while also noting challenges such as the need for larger, multicenter data sets and standardized data collection practices. Despite these challenges, the integration of AI into spine surgery is seen as inevitable and promising for improving clinical outcomes and patient safety.

Journal of the American Association of Hip and Knee Surgeons

[Predictive Factors for Return to Driving After Lower Limb Arthroplasty](#)

This study aimed to identify clinical factors that predict when patients can return to driving after total hip arthroplasty (THA) and total knee arthroplasty (TKA). In a single-center retrospective observational study, patients were reviewed at 6 weeks post-surgery. Factors such as patient demographics, driving status, timed up and go (TUG) test, self-reported walking time (SRWT), walking aid use, and pain scores were collected.

Results showed that 60% of patients were driving by 6 weeks post-surgery. Predictors for driving inability included the use of walking aids and slower TUG test times. Female patients generally took longer to return to driving compared to male patients. Faster TUG test times and longer SRWT were positive predictors for driving return.