ANNUAL DIVISION QUALITY COMMITTEE REPORT

DIVISION: ORTHOPAEDIC SURGERY

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Please describe your Divisional performance over the last 12 months as it contributed to support the hospital in achieving its strategy. Please include a high-level description of the work that your department did to support on-going quality activities and initiatives you are leading. Where possible incorporate objective corporate performance measurements. (500 words).

The Division of Orthopaedic Surgery continues to strive to improve the quality of patient care it provides with a strong focus on Patient Safety and Quality Improvement.

Performance Scorecards

During the 2024 year, we have built on previous years' initiatives. All surgeons in each Clinical Practice Unit (CPU) within the Division were provided with individual performance metrics by way of scorecards relating to primary elective procedures at the inpatient campuses as well as all satellite sites. We are in the process of expanding the reporting program to include trauma cases. To accomplish this, patient data was extracted from the Divisional Quality Database (ConEHR) and linked with data obtained from Health Records and the Data Warehouse at The Ottawa Hospital (TOH) and affiliated campuses (Kemptville District Hospital (KDH) and Hawkesbury General Hospital (HGH)). These annual performance metrics are carefully monitored as a means of identifying potential at-risk areas.

The following variables were provided to each surgeon for all primary (non-urgent) cases:

- 7-day post-operative Emergency Department visits
- 30- and 90-day post-operative readmission rates
- Superficial and deep infection rates
- Revision and reoperation rates

To highlight our largest CPU, hip and knee arthroplasty, see Table 1 for a comparison of 2022 and 2023 performance metric results (note that the previous year's data is reported due to the time lag of adverse presentation and availability of data).

Table 1: Arthroplasty CPU pooled results

	Index Cases	ED Visits (%)	Deep Infection (%)	Overall Infection (%)	30D ReAdmit Other (%)	30D ReAdmit PJI + Other (Overall) (%)	31to90D ReAdmit - Other (%)	31to90D ReAdmit PJI + Other (Overall) (%)	Joint Reoperation - Other (%)	Overall Joint Reoperations PJI + Other (Overall) (%)
2022 Total Cases	**976**	**6.4**	**2.3**	**NA**	**3.6**	**NA**	**1.4**	**NA**	**1.1**	**NA**
2023 Total Cases	**1862**	**4.03**	**1.18**	**1.40**	**1.56**	**2.74**	**1.18**	**2.36**	**1.02**	**2.2**

Given the higher-than-expected infection rate, we plan to initiate twice-annual analysis and reporting of results in this CPU. Twice-annual reports will also help to evaluate the effectiveness of initiatives aimed to mitigate infection.

Surgical Site Infection

In 2023, a root-cause analysis identified a number of patient factors that were associated with infection including poor glycemic control and high BMI. Other known modifiable risk factors for prosthetic joint infection (PJI) include anemia and malnutrition. Until May 2023, the mean time of a pre-operative assessment unit (PAU) visit at TOH was 7 days prior to surgery, leaving insufficient time for patient optimization.

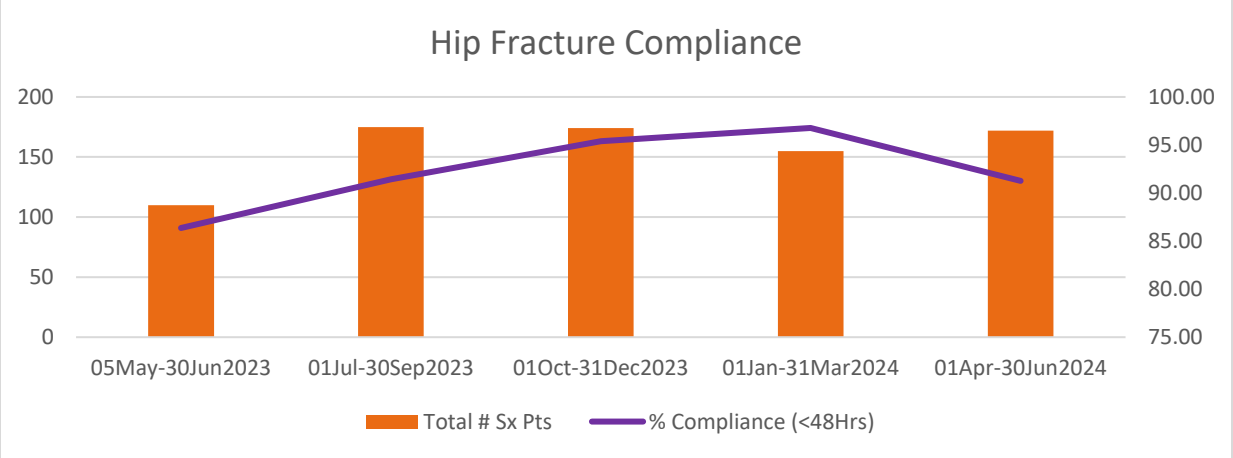
A quality improvement initiative was devised to optimize patients in these three main domains: anemia, poor glycemic control, and nutritional counselling for high BMI patients to address paradoxical malnutrition. Over the 2024 year, we worked closely with our surgical office staff, Anesthesia, and the PAU managers and PAU physician leaders to initiate earlier PAU visits (goal of 8 weeks prior to surgery), in addition to early screening at the time of surgical consultation, to allow adequate time for optimization of these factors. This initiative began on June 24th 2024 and will continue into 2025. Preliminary results indicate that this intervention has been highly successful with patient assessments occurring a mean of 21.64 days prior surgery (~209% improvement). We will continue to build on this in 2025, with an aim to decrease our infection rate by December 2025 from ~2% to 1%.

An additional initiative aimed at addressing the risk of PJI involves operating room traffic. Increased OR traffic volume (and specifically the number of times the OR door opens during a case) is associated with increased particulate matter on operating room instruments which in turn is thought to be a risk factor for PJI. We are currently conducting an audit of OR traffic volumes and association with operating room air particles. Interventions to decrease operative room traffic will follow completion of data collection and analysis.

Hip Fracture Care and Compliance

Another aim in 2024 was to build on the goal of improving hip fracture care at TOH.

In late 2022, the Canadian Institute for Health Information published national rankings for a series of quality metrics including timing of hip fracture surgery once admitted to hospital. TOH ranked last place (11/11) in Canada for the time-to-operating room (OR) metric. The national standard is 90% compliance for time-to-OR within 48 hours of admission, and TOH was at 75% compliance for this metric based on our audit in 2023. We developed a QI pilot project to prioritize hip fracture cases as D-priority the morning after admission in an effort to improve these outcomes. The pilot began in May 2023 and continued through to May 2024. Overall, compliance improved to 92.6%. We have now locked in the D conversion case prioritization as standard care for this patient population at TOH.



Venous Thromboembolism (VTE) Prophylaxis in Hip Fracture Patients

Inconsistent VTE prophylaxis dosing was identified as a possible risk factor for post-operative deep vein thrombosis (DVT) following hip fractures. We continued close collaborations with Pharmacy and Thrombosis, created a Divisional Standardized Operating Procedure (SOP) for VTE prophylaxis in hip fracture patients, and performed a subsequent audit. Our most recent audit consisted of a sample of 100 patients admitted to orthopaedic services across TOH over a 6-month period. Results showed that 6% patients received an inappropriate enoxaparin dose according to their weight and renal function, 1% inappropriately received no VTE prophylaxis, 5% had their VTE prophylaxis dosed based on an outdated weight (>months), 9% received a standard dose of 40mg once daily despite without having a measured weight, and 10% were assessed for VTE prophylaxis despite having no serum creatinine measured. In all cases, no documented rationale was available on patients' charts to understand the appropriateness of the selected dose.

VTE prophylaxis continues to be inconsistently and/or incorrectly administered. In an effort to address this issue, we provided two grand rounds education sessions with Pharmacy and Thrombosis to discuss these challenges, and guidance on appropriate medication ordering. We have also established a regular QI meeting in collaboration with Pharmacy on a quarterly basis to ensure all issues are discussed and addressed in a timely manner. Further, we submitted an admission order set change request for patients admitted to hospital for the VTE prophylaxis medications. The goal is to standardize orders in Epic to facilitate correct VTE prophylaxis dosing. The order-set update is still in the process of being approved. We plan to perform another audit in 2025 following implementation of the order set changes in Epic.

Patient-Reported Outcome Measures (PROMs) + ConEHR

Orthopedics is unique amongst surgical specialties in that surgical outcomes can be assessed with validated patient-reported outcomes measures (PROMS). The Division closely tracks PROMS for the five most common condition groups in each CPU using a Quality database, ConEHR. In October 2024, we marked the first phase of integration of ConEHR with Epic, allowing surgical case bookings to be automatically linked with our database to minimize the need for manual case entry. The second phase of integration, which is not anticipated to begin for another 1-2 years, will link adverse events including reoperations with ConEHR. This will allow us to internally monitor our surgical outcomes in a more timely fashion. We continue to use this platform to administer and track PROMs in each CPU prospectively.

X-Ray Delays at the General Campus

Wait times for patients of ambulatory orthopedics clinics for radiographs are currently in excess of 90 minutes, making overall clinic wait times a significant time burden on patients. This in turn contributed significantly to patient dissatisfaction with the outpatient clinic experience given the associated impacts on clinic flow. Working with Medical Imaging, we initiated a single-surgeon pilot in May 2024 to create a scheduling grid, allowing patients to have pre-booked x-ray times prior to their clinic visit. Since initiation, the average wait for x-ray was decreased to approximately 16 minutes. We are in the process of capturing patient experience/satisfaction data, and plan to expand the pilot to involve other surgeons.

Final Notes

We continue to prioritize regular internal and multidisciplinary Patient Safety and Quality Improvement meetings, allowing for discussion and review of patient feedback, adverse events, and ongoing initiatives. We will continue to regularly review Patient Safety Learning Systems (PSLS) events and adverse events to improve patient care. Finally, we continue to foster and build our multidisciplinary collaborations with members across the hospital, with a common goal of providing best patient care.

We continue strive to improve patient care through high-impact quality projects, in an effort of providing the best possible care for patients both now and in the future. This is done in conjunction with collaborative efforts in terms of policy development, process improvement, and improvements in communication.

Please identify the major threats to patient safety for the patients you treat based on your interpretation of information arising from routinely collected performance data and incidents reported within the Patient Safety Learning System, Serious Incident Reviews, and Morbidity and Mortality rounds, where available (500 words)

Patient Safety Learning System (PSLS)

The QI team has reviewed 202 incidents reported within the Patient Safety Learning System in the 2024 calendar year. In addition, 59 adverse events have also been reviewed as a group during our regular divisional Patient Safety and Quality Improvement meetings. These incidents were reviewed, and findings or change items were discussed with care team members, and at our quarterly multidisciplinary meetings.

Common themes reported among serious incidents are similar to previous years and include the following:

1. Medication ordering issues (incorrect or inappropriate order, missed order, delay in orders)
    - Discussion with division members on a case-by-case basis, in addition to two education sessions division-wide with Pharmacy on challenges, barriers, and solutions for ordering medication in EPIC.
    - SOP created for anticoagulation in hip fracture patients
2. Communication related incidents (missing or incomplete notes)
    - Discussion with members on the importance of clean on-call handovers (instituted regular meetings for discussion), regular communication with members of care team and patients/patient family members, and timely and complete notes entered in EPIC.
3. Operating room equipment-related malfunctions (broken drill-bits, timing of draping)
    - Moderate rate of occurrence, however typically associated with minimal harm
    - Instituted new process to ensure correct implants are being opened, including (1) Active surgeon oversight, (2) reviewing a 3-point checklist to ensure the correct implant: size, manufacturer, and system for specified case, (3) Nurses to review the whole stack of boxes.
    - Future steps: work with Epic to implement warning to flag when incompatible implants are scanned into Epic for a case.

Morbidity + Mortality (M+M) Rounds

Minor and major serious adverse events are flagged for in-depth review and formal presentation at CPU-specific and Division-wide rounds. These presentations are delivered using the OM3 model, and involve a thorough analysis and discussion to provide opportunities to identify problems and improve future patient care.

During the 2024 calendar year, a total of 17 M+M rounds were completed within the division:

- 2 Division Wide
- 2 Trauma
- 2 Joint Reconstruction (hip + knee)
- 2 Upper Extremity (shoulder + elbow)
- 2 Foot + Ankle
- 1 Hand + Wrist
- 2 Oncology
- 2 Knee Preservation (sports/arthroscopy)
- 2 Spine

One example of the many themes extracted from M+M sessions is the use of appropriate medications or dosages prescribed pre-operatively and post-operatively. Another example includes inappropriate and/or inconsistent dosing of post-operative VTE prophylaxis in hip fracture patients.

Please describe the extent to which your clinical services are meeting the expectations of your patients based on: (1) your interpretation of information arising from patient feedback (example patient concerns, Post Visit phone calls, surveys, focus groups), and (2) the requirements of the Elizabeth and Matthew Policy. (500 words)

Patient Feedback Letters

We receive a number of patient feedback letters. A large proportion of our feedback letters are positive patient experiences which we pass along to the care team.
For patients that report a poor experience, we review their care and communicate with our team and other hospital areas (as appropriate) for future improvement. If the situation warrants, we also work with Patient Advocacy who assist with managing the situation, and will often communicate directly with the patient. Feedback may also be used to implement change by bringing our attention to challenges we may have otherwise been unaware of.

Negative patient experiences are commonly related to displeasure with prolonged and unknown wait times to surgery, or lack of communication at the bedside for inpatients waiting for urgent surgery. We continue to stress the importance of clear and transparent communication with patients in an effort to minimize potential negative experiences.

Additional surgeries on Saturdays through the Academic Orthopedic Surgical Associates of Ottawa (AOAO) program are underway. This program started on February 2023 as a means of improving surgical wait times. We continue to receive positive feedback on this initiative from patients, providing us with an overall satisfaction level of 9.6/10.

Satisfaction Surveys

We administer the Canadian Patient Experience Survey (CPES), using our divisional quality database platform 'ConEHR'. Our goal is a 70% completion rate. In addition to this, the hospital has initiated sending out the CPES to all surgical patients, and provide results for day surgery and ambulatory care through Qualtrics, for department of surgery, and the results appear to be comparable.

Across the division, approximately 80% of patients respond, with the average satisfaction level is in the "excellent" category.

Multidisciplinary Quarterly Meetings

We meet on a quarterly basis with colleagues from Diagnostic Imaging, Anesthesia, Emergency Department, and now Pharmacy, to ensure we are promoting collaboration and communication for any outstanding items. Patient safety incidents, patient feedback, and ad hoc issues are discussed. Any outstanding items are brought to our divisional Patient Safety and Quality Improvement meetings for further discussion when necessary.

The Elizabeth + Matthew Policy

The Elizabeth + Matthew policy was created in 2011 to improve communication between patients and health care providers, and is applied by members in our division on an ongoing basis. We encourage ongoing communication among healthcare team members and with patients and their families, as well as complete and accurate documentation of care plans in the patient chart.

Our Comprehensive Orthopaedic Service (COS) ensures that inpatients are assessed daily by a staff orthopedic surgeon. Through COS, urgent cases are admitted under a Most Responsible Physician (MRP), and this surgeon rounds on these patients on a daily basis. The responsible COS staff rotates each week and is in close contact with the site physician assistant and/or hospitalist and nurses to ensure optimal patient care.

Regular handover between staff is completed at minimum at the start and before the end of each shift to ensure consistent, communication amongst team members regarding care plans. In addition, team handover has been implemented via online (TEAMS) meetings at the beginning and end of each week between outgoing and incoming COS teams and on-call surgeons to ensure care plans are shared.

A dedicated prosthetic joint infection (PJI) service has been established to ensure optimal care of this complex patient population.

Data received via the PROMs, including the Canadian Patient Experience Survey are reviewed and used as a guide for patient experience in the hospital.

As previously noted, regular review at our divisional and collaborative Patient Safety and Quality Improvement meetings of patient feedback letters, patient safety incidents, and communication issues flagged and discussed, and corrective actions are taken.

Exceptionally complex cases are further discussed as a group via M+M rounds, which are held on a regular basis in each CPU.

Grand Rounds sessions are also held for larger scale education and discussion.

Describe and justify Divisional priorities for quality in the next 12 months based on your answer above. Please identify three priorities in descending order. (500 words)

Our divisional priorities for the 2025 calendar year include:

1. Improve Prosthetic Joint Infection Care and Prevention
    - Continue evaluation of hip and knee arthroplasty PJIs
    - Twice-annual review of performance metrics
    - Early pre-operative optimization for patients to mitigate infection risk
        - Eventual goal of establishing a post-consult orthopaedic pre-optimization clinic for patients, prior to PAU appointment
    - OR traffic and air particle count evaluation and management
2. Improve Medication Administration, Review, and Ordering
    - Perform another audit to assess the impact of divisional education sessions, SOP
    - Ongoing communication with Pharmacy to manage EPIC errors and educate on solutions
    - Revise certain order-sets to assist with medication review and order decision-making
3. Streamline Stable Non-Operative Pelvic Fractures to Rehabilitation
    - Work with Bruyère to streamline patients via expedited referrals, to a rehabilitation program, similar to the previous PATH4HIP initiative
        - This will clear beds faster, while providing patients with best care
4. X-Ray Wait Times (General Campus)
    - Expand early x-ray appointments outside of the clinic appointment to other surgical practices
    - Evaluate implementation on x-ray and clinic wait-times, in addition to patient experience / satisfaction
5. Walking Wounded Case Booking
    - Analyze data collected from 2017-2022 for seasonal variance, and initiate potential discussion of incorporating flexible surgical booking if appropriate to ensure all cases have access to surgery in <5 days