Quality Improvement: Achieving Quality Outcomes in Surgical Episodes and Disease Teams

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Introduction

While surgical teams understand quality improvement generally, we needed to incorporate formal language and structure to build quality and safety into patient care. We have morphed from focus on hip and knee arthroplasty episodes of care at Penn Presbyterian Medic Center (PPMC), to Musculoskeletal Rheumatology (MSKR) disease teams working across the University of Pennsylvania Health System (UPHS.)

Training the next generation is a key component of quality work. When our residents enter practice, they will be expected to be competent in methods to improve quality and cost. To this end, we developed a patient safety committee and curriculum with our residents.

Early Experience: Achieving Quality Outcomes in Surgical Episodes

The first formal efforts based on quality started with our Risk Stratification Tool (RST). UHC data, now Vizient, demonstrated the importance of a focus on hospital mortality for hip and knee arthroplasty patients. The proxy of unplanned ICU admissions was used for Plan-Do-Check-Act (PDCA) process-improvement (PI) cycles. Preoperative screening identified patients who would benefit from planned ICU admission, then later led to developing PAMP (Post Arthroplasty Monitoring Protocol). Our RST, optimized over four PDCA cycles, recommends postoperative care location and has reduced hospital mortality and both planned and unplanned ICU admissions.

We developed preoperative disease mitigation aimed at reducing readmissions. Readmission reduction, a prime metric of quality, prepared us to start BCPI (CMS Bundle Payment Care Initiative) and Independence Blue Cross (IBC) bundle work. The variability in IBC bundle cost (Figure 1) informed opportunities to develop postoperative care processes such as Home Safely and Hot Joint. Data showed that patients who are discharge directly to home have a lower readmission rate, and identified medical risk factors to manage before admission (e.g., diabetes, anemia, malnutrition). We are addressing smoking cessation and opioid usage before admission. "Penn Addressing the Opioid Crisis" in this UPOJ outlines these efforts more completely.

Our physician champion and a quality-trained administrator initially focused efforts on the PPMC hip and knee arthroplasty bundle initially, then extended to Pennsylvania Hospital (PAH,) and have now transitioned to MSKR service line Disease Teams across UPHS.

Achieving Quality Outcomes Through the Work of Disease Teams

Much of the quality improvement work is through the work of disease teams within the MSKR Service Line. Our disease teams are made up of focused work groups that address efficiency and value for specific care pathways within a given disease or injury. The current MSKR disease team structure is shown in Figure 2. Each fiscal year, five of the pathway teams are given the opportunity to set a goal that, if achieved, earns an incentive payment that can be reinvested into the disease teams to fund pilot projects, purchase material resources, and contribute to programmatic development and growth. Incentivized disease teams for FY19's are highlighted in blue in Figure 2.

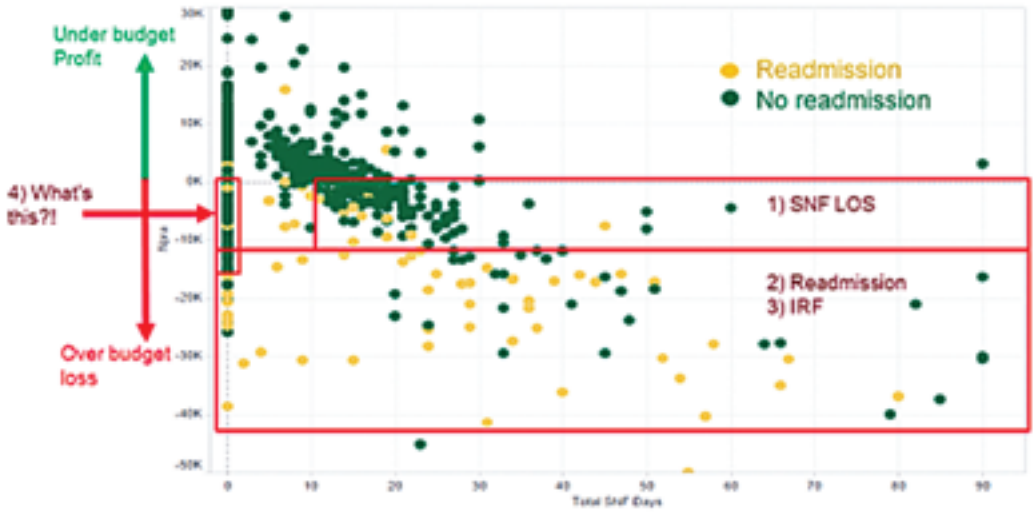

Figure 1. IBC Bundle Over- or Under-Budget Data. Cost variability demonstrates impact of readmissions, IRF, SNF, LOS.

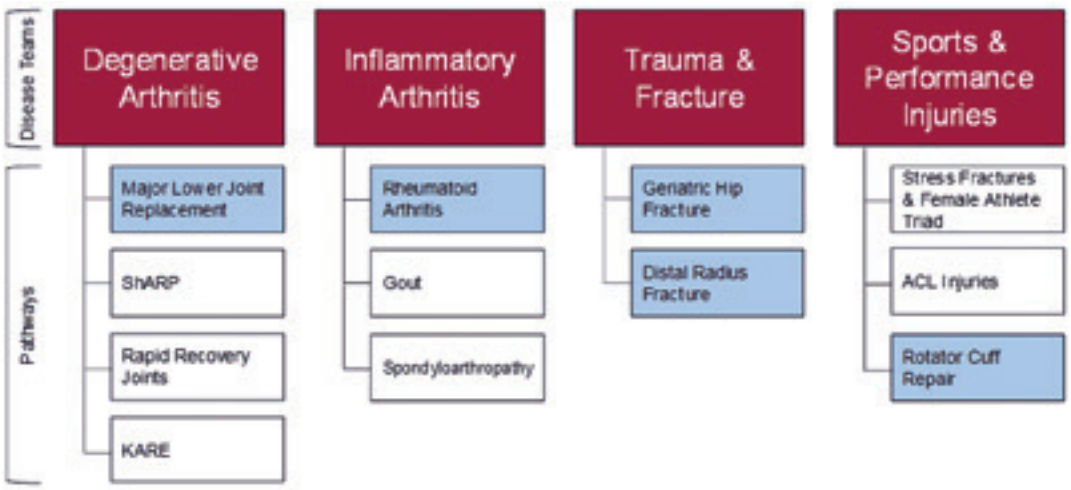

Figure 2. MSKR Disease Team Structure

Disease Team: Degenerative Arthritis
Pathway: Major Lower Joint Replacement
Goal: Increase percentage of patients discharged to home by 5%

Given the increased enterprise focus on performance in bundled payments and episodes of care, the major lower joint replacement (MLJR) care pathway team chose to focus their effort on increasing the percentage of patients who are discharged to home. Patient expectations prior to surgery are a key driver of postoperative discharge location. As such, several projects were implemented to ensure that expectations for discharge to home were being communicated clearly throughout the episode.

Pre-acute care: Focus was placed on patient education with improvements in our joint education class and development of educational videos distributed by email, OCR cards, and a smart phone app created in partnership with Comcast Connected Health, now Quil Health. A Shared Decision Making (SDM) module was introduced to inform patients deciding between surgical or non-surgical treatment.

Acute care: We launched a PennChart MLJR Pathway at PAH and PPMC to decrease care variability to improve patient outcomes, to provide clinical decision support for providers, and to improve value for the health system.

Post-acute care: Home safely continues to be our focus. We enabled PennChart communication of preoperative Risk Assessment and Prediction Tool (RAPT) scores to the inpatient team and continue to work with home health care and Skilled Nursing Facilities (SNF.) Our nurse navigator has lowered readmission rates. We just completed "Home Connect+" with the Penn Center for Healthcare Innovation utilizing nudge language to provide guidance and monitor pain and activity with wearables and smartphones. Finally, we are initiating the My Mobility Project using iOS wearable and smartphone devices to track outcomes.

Disease Team: Inflammatory Arthritis
Pathway: Rheumatoid Arthritis
Goal: Increase Patient reported Outcome (PRO) capture rate by 20%

The American College of Rheumatology has made recommendations regarding the collection of a patient-reported functional assessment for some inflammatory arthritic conditions. Rheumatology at Penn Medicine University City (PMUC) introduced tablets in FY18 to collect PRO data while patients were in the waiting room. In addition to these tablets, PMUC sent the PRO survey to patients prior to appointments, and allowed patients to complete the survey directly in PennChart while waiting for the provider in the exam room. The combination of these three collection methods led PMUC to a 92% capture rate, however, the other three main clinic sites (Penn Center for Advance Medicine, Cherry Hill, and Radnor) finished the year at 13%. The service line invested in tablets to capture PROs at PCAM, Cherry Hill, and Radnor, and engaged the providers to collect PROs to inform patient care, both individually and in aggregate.

Disease Team: Trauma and Fracture
Pathway: Geriatric Hip Fracture
Goal: Decrease Average Length of Stay (ALOS) by 17%

In FY18, the geriatric hip fracture care pathway teams from PPMC, PAH, and Chester County Hospital (CCH) began tracking data in alignment with the International Geriatric Fracture Society (IGFS). IGFS provides metrics, benchmarks, operational definitions, and inclusion criteria to support best-practices geriatric hip fracture care. A premier-level certification is already held at Lancaster General Hospital (LGH.) PPMC, PAH, and CCH are moving toward achieving this certification by 2021. PPMC, PAH, and CCH are already performing well for IGFS benchmarks: readmissions, time to surgery, in-hospital mortality, length of stay (LOS), medical co-management, and osteoporosis education. Co-management improves clinical outcomes for this vulnerable population.

Disease Team: Sports and Performance Injuries
Pathway: Outpatient shoulder surgery
Goal: Unchanged pain PRO score 6-weeks post-op

The department of Orthopaedic Surgery has been focused on increasing the rate of PRO capture since July 2016 to inform an evaluation of a multimodal pain protocol. This multimodal

pain protocol was previously developed in the division of Shoulder and Elbow Surgery. Through the work of the care pathway team, all patients who undergo outpatient shoulder surgery, whether under Shoulder and Elbow or Sports Surgery, are receiving the same, proven effective pain protocol, which notably contains a minimal number of opioid pills per script. The effectiveness of this protocol from the patient's point of view will be tracked using their six week postoperative pain score. The goal is to avoid worsening of patient's reported pain score while lowering opioid use.

Disease Team: Trauma and Fracture
Pathway: Distal Radius Fracture
Goal: 70% utilization of updated hand pain protocol

The introduction of the Integrated Hand Service in FY18 allowed for the creation of a new care pathway under our Trauma and Fracture disease team: Distal Radius Fracture care. This care pathway, which was developed by surgeons from both Orthopaedic Surgery and Plastic Surgery, seeks to standardize care delivery regardless of service.

As their first project, the team standardized the discharge to include existing multimodal pain management alternatives and to lower number of opioid pills per script. This protocol prompted modifications to the existing hand pain panel, making the overall panel safer and more effective for pain control.

Achieving Quality Education for Residents

Resident education and involvement surrounding safety and quality improvement processes is a growing focus for the department. Knowledge and skills in these domains are required to actively engage in 21st-century health care.

Our interns have specific educational sessions dedicated to quality improvement methodology. This early exposure introduces fluency in the language of quality and safety and facilitates involvement in the department, hospital, and health system.

Interns put the methods into practice by developing a quality improvement project. With the guidance of senior residents and faculty mentors, the interns work through the QI methodology to improve patient care. Past examples have included improving the communication among nursing, physical therapy, case management, and the physician team for discharge planning, and improving the physical inpatient work environment.

At our quarterly Quality Improvement Grand Rounds, speakers with experience in QI offer lessons learned from QI projects in different venues. Many speakers come from within UPHS, and this year, Javad Parvizi gave a superb presentation about infection prevention. We also discuss departmental data and initiatives, gather feedback, and plan next steps. Finally, our residents present their QI projects to the department to update their progress and to receive feedback to assist in optimizing their efforts.

UPHS also participates in a national program, "Pursuing Excellence in Clinical Learning Environments," with eight other university hospitals. The goal is translation of the clinical learning environment into a culture of patient safety. The institutional focus is on early learners, especially first- and second-year residents, new fellows and new advanced providers at Penn. Within this effort, we are developing a formal interdisciplinary patient safety huddle process with members of the Department of Anesthesia to discuss collaborative patient care and safety issues.

Conclusion

We have widely broadened our quality and safety improvement efforts using formal quality structure of MSKR disease team model. We have transitioned from episodes of care at individual hospitals, to MSKR disease teams working across UPHS. Understanding and managing variability with data has been a core component.

Training the next generation is another key component of our work. We developed a resident safety committee and a curriculum starting with half-day seminar during Intern Boot Camp. Resident participation in quality and safety work is key for their education toward future expectations of them in their careers, for patient safety, and for MSKR quality work.