

# Orthopedic Surgery

## Claims Data Snapshot

2023



# Introduction

INTRODUCTION | KEY POINTS | GENERAL DATA ANALYSIS | CONTRIBUTING FACTORS | FOCUSED DATA ANALYSIS | CASE EXAMPLES | RISK MITIGATION

**This publication begins with insight into frequency and financial severity profiles by specialty. Then follows an analysis of aggregated data from clinically coded cases opened between 2012-2021 in which Orthopedic Surgery is identified as the primary responsible service.**

## **Keep in mind...**

A clinically coded malpractice case can have more than one responsible service, but the “primary responsible service” is the specialty that is deemed to be most responsible for the resulting patient outcome.

Our data system, and analysis, rolls all claims/suits related to an individual patient event into one case for coding purposes. Therefore, a case may be made up of one or more individual claims/suits and multiple defendant types such as hospital, physician, and other healthcare professionals.

Cases that involve attorney representations at depositions, State Board actions, and general liability cases are not included.

This analysis is designed to provide insured doctors, healthcare professionals, hospitals, health systems, and associated risk management staff with detailed case data to assist them in purposefully focusing their risk management and patient safety efforts.

# Specialty benchmarking

Specialties have different frequency and financial severity profiles which combine to produce differing risk levels.

<b>Severity Tier</b>	<b>High</b>	Hematology/Oncology, Pathology, Pediatrics	Anesthesiology, Neurology	Emergency Medicine, Neurosurgery, OB/GYN
	<b>Medium</b>	Family Medicine, Nephrology, Physiatry, Urgent Care	Cardiology, ENT, Gastroenterology, Internal Medicine	Cardiovascular Surgery, General Surgery, Orthopedic Surgery, Radiology, Urology
	<b>Low</b>	Allergy, Dermatology, Occupational Medicine, Psychiatry, Rheumatology	Ophthalmology, Plastic Surgery, Pulmonology	Hospitalists
		<b>Low</b>	<b>Medium</b>	<b>High</b>
		<b>Frequency Tier</b>		

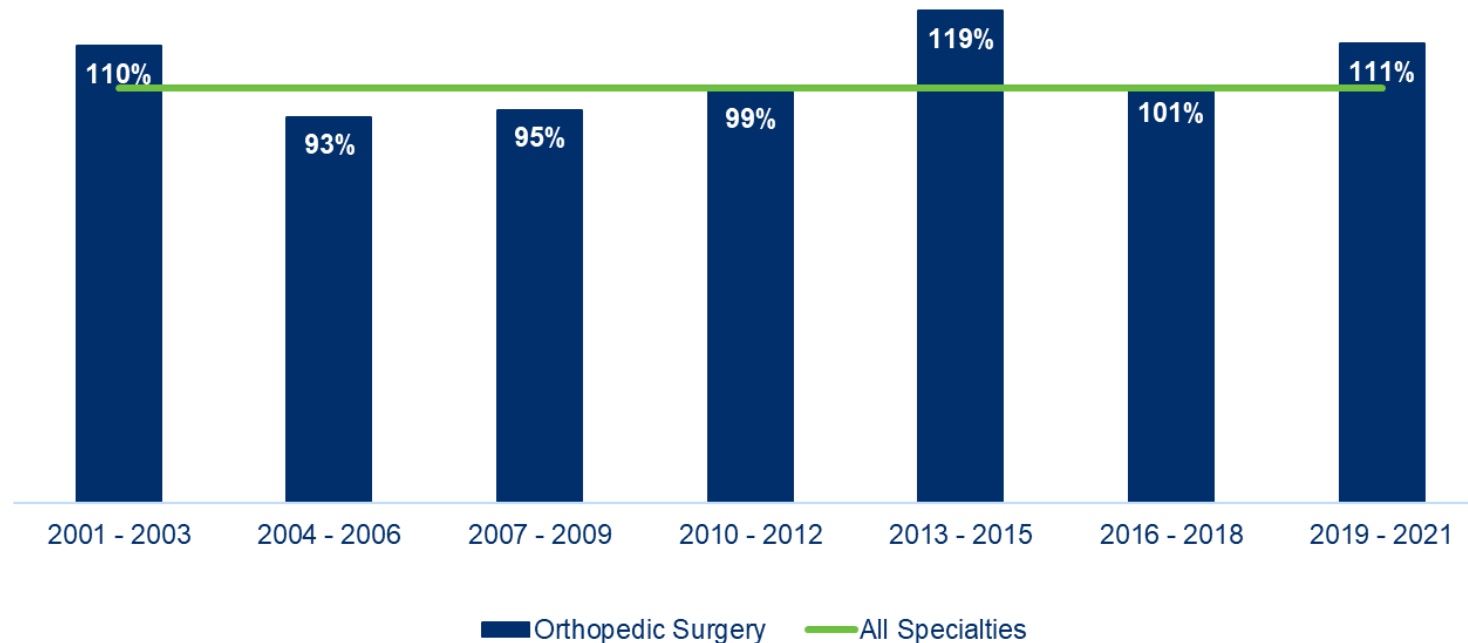
Source: MedPro Group Physician & Surgeon Claim Experience & Analysis

# Specialty trends – Orthopedic Surgery

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Orthopedic Surgery has an average financial severity per case and a higher claim frequency compared to all specialties.

Average Severity - Orthopedic Surgery Relative to All Specialties



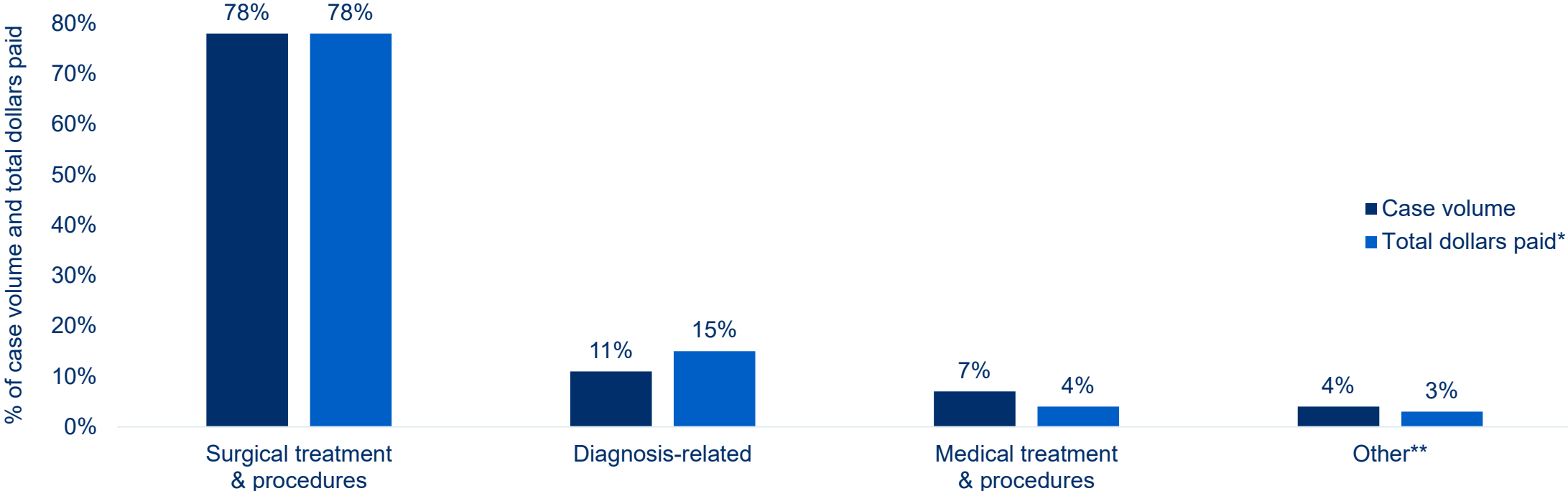
# Key Points - Clinically Coded Data

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- **Surgical allegations account for more than three-fourths of Orthopedic Surgery case volume and half of total dollars paid\***. Performance-related allegations account for half of those, with the majority involving hip and knee replacements/repairs. **Cases involving the management of surgical patients, including pre-, intra-, and post-operatively**, are often related to the surgeon's response to developing complications. While complications of procedures may have been the result of procedural error, the failure to timely recognize and/or monitor/manage the issue prevents the opportunity for early mitigation of the risk of serious adverse outcome.
- **Diagnosis-related allegations** account for 11% of Orthopedic Surgery case volume. These most commonly reflect missed/delayed diagnoses of post-operative complications and infections. **These cases commonly reflect breaks in the diagnostic process of care**, most often including inadequate assessment and evaluation of patient symptoms, a narrow diagnostic focus, delays or failures in ordering diagnostic testing, delays in obtaining consults or referrals, and sub-optimal communication among providers on the patient's care team.
- Medical allegations account for 7% of Orthopedic Surgery case volume. **Spinal epidurals and other injections account for the majority of the medical procedure-related case volume**.
- **Contributing factors, which are multi-layered issues or failures in the process of care that appear to have contributed to the patient's outcome**, and/or to the initiation of the case, provide valuable insight into risk mitigation opportunities. Clinical judgment factors, including the selection of the most appropriate procedure for the patient's condition and those related to diagnostic decision-making, technical skill factors including recognition/management of known complications and poor procedural technique, and suboptimal communication, are key drivers of both clinical and financial Orthopedic Surgery case severity.

# Major Allegations & Financial Severity

Each case reflects one major allegation category. Categories are designed to enable the grouping and analysis of similar cases and to drive focused risk mitigation efforts. The coding taxonomy includes detailed allegation sub-categories; insight into these is noted later in this report.



MedPro Group + MLMIC cases opened 2012-2021, Orthopedic Surgery as responsible service (N=2484); \*Total dollars paid = expense + indemnity; \*\*Other includes allegations for which no significant case volume exists

# Clinical Severity\*

Clinical Severity Categories	Sub-categories	% of case volume	<p><b>Typically, the higher the clinical severity, the higher the indemnity payments are, and the more frequently payment occurs.</b></p>
<b>LOW</b>	Emotional Injury Only	<b>2%</b>	
	Temporary Insignificant Injury		
<b>MEDIUM</b>	Temporary Minor Injury	<b>61%</b>	
	Temporary Major Injury		
	Permanent Minor Injury		
<b>HIGH</b>	Significant Permanent Injury	<b>37%</b>	
	Major Permanent Injury		
	Grave Injury		
	Death		

MedPro Group + MLMIC cases opened 2012-2021, Orthopedic Surgery as responsible service (N=2484); \*Severity codes reflect National Association of Insurance Commissioners (NAIC) injury severity scale

# Claimant Type & Location



**Ambulatory**  
**56%**



**Inpatient**  
**42%**



**Emergency**  
**2%**

Top Locations	% of case volume
Inpatient surgery	39%
Office/clinic	30%
Ambulatory surgery	17%
Patient room	8%



# Contributing Factors

“Contributing factors reflect both provider and patient issues. They denote breakdowns in technical skill, clinical judgment, communication, behavior, systems, environment, equipment/tools, and teamwork. The majority are relevant across clinical specialties, settings, and disciplines; thus, they identify opportunities for broad remediation.”

## Despite best intentions, processes designed for safe patient outcomes can, and do, fail.

**Contributing factors** are multi-layered issues or failures in the process of care that appear to have contributed to the patient's outcome, and/or to the initiation of the case, or had a significant impact on case resolution.

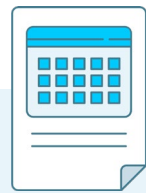
**Multiple factors are identified in each case** because generally, there is not just one issue that leads to these cases, but rather a combination of issues.



Administrative



Behavior-related



Clinical environment



Clinical judgment



Clinical systems



Communication



Documentation



Supervision



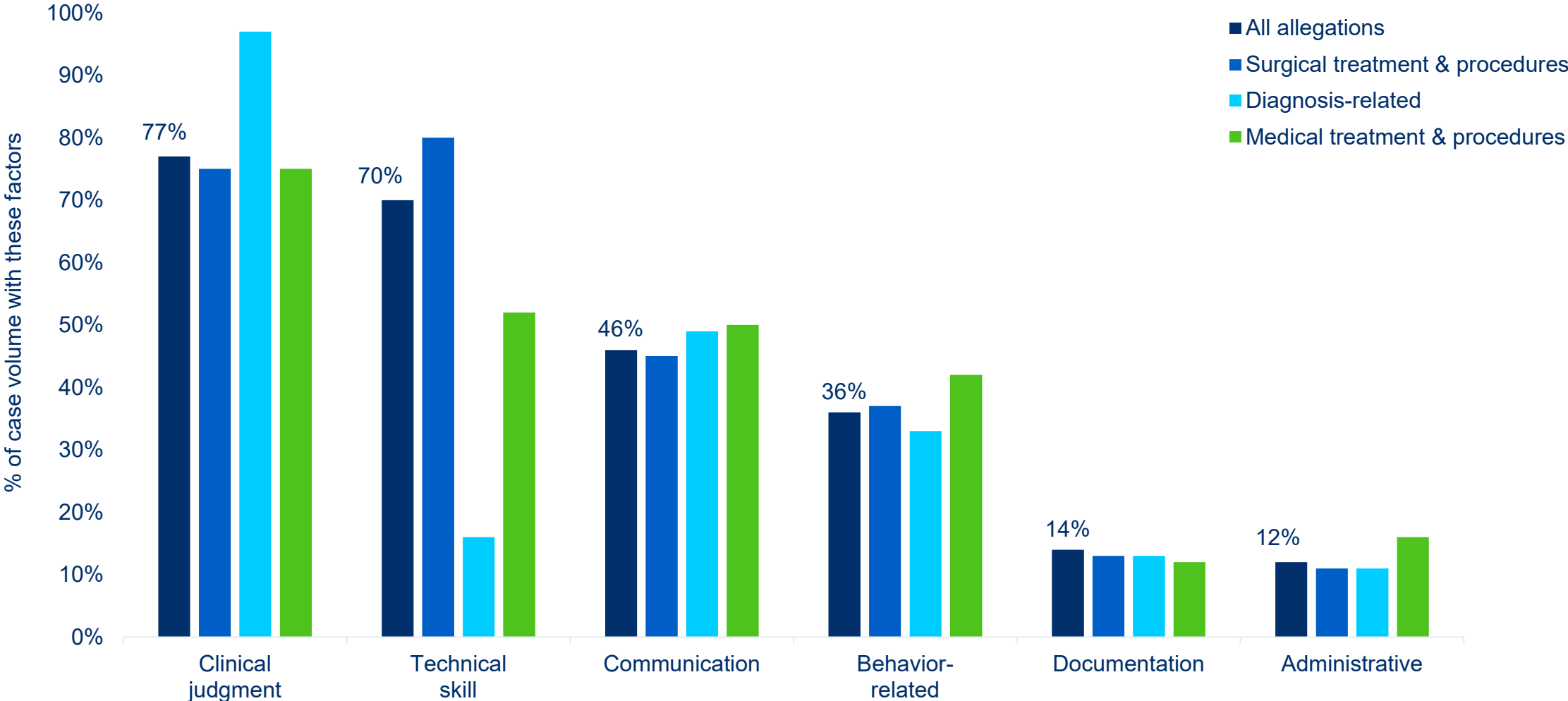
Technical skill

# Contributing Factor Category Definitions

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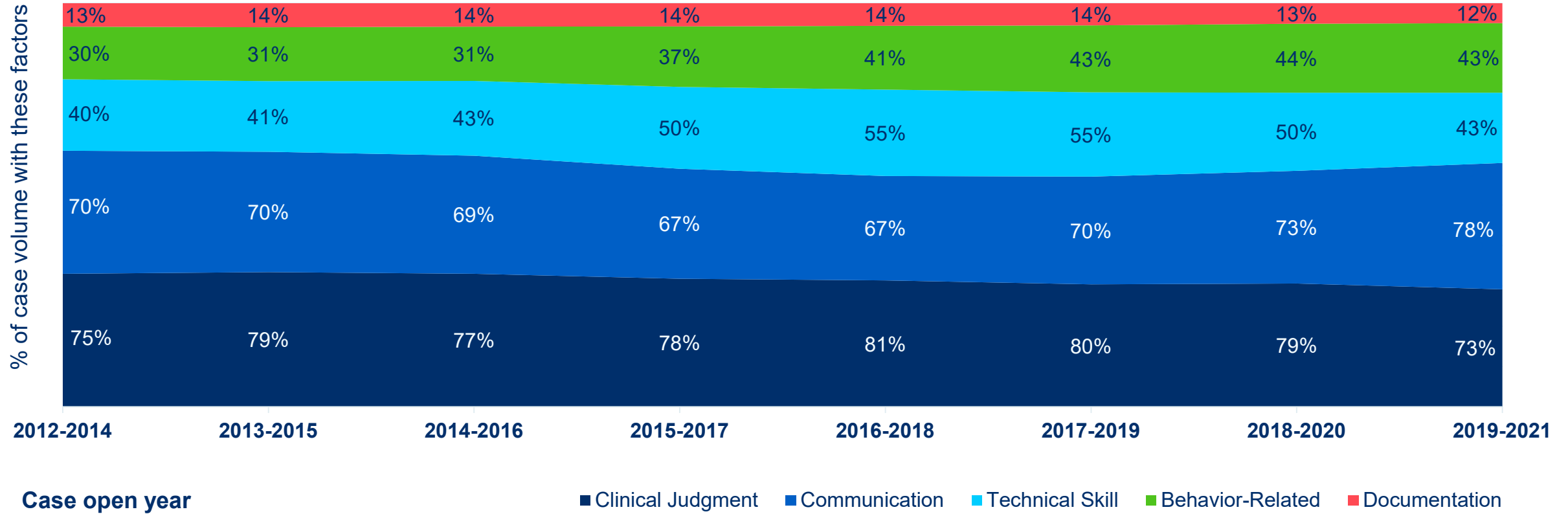
Administrative	Factors related to medical records (other than documentation), reporting, staff, ethics, policy/protocols, regulatory
Behavior-related	Factors related to patient nonadherence to treatment or behavior that offsets care; also provider behavior including breach of confidentiality or sexual misconduct
Clinical environment	Factors related to workflow, physical conditions and “off-hours” conditions (weekends/holidays/nights)
Clinical judgment	Factors related to patient assessment, selection and management of therapy, patient monitoring, failure/delay in obtaining a consult, failure to ensure patient safety (falls, burns, etc), choice of practice setting, failure to question/follow an order, practice beyond scope
Clinical systems	Factors related to coordination of care, failure/delay in ordering test, reporting findings, follow-up systems, patient identification, specimen handling, nosocomial infections
Communication	Factors related to communication among providers, between patient/family and providers, via electronic communication (texting, email, etc), and telehealth/tele-radiology
Documentation	Factors related to mechanics, insufficiency, content
Supervision	Factors related to supervision of nursing, house staff, advanced practice clinicians
Technical skill	Factors related to improper use of equipment, medication errors, retained foreign bodies, technical performance of procedures

# Most Common Contributing Factor Categories by Allegation



MedPro Group + MLMIC cases opened 2012-2021, Orthopedic Surgery as responsible service (N=2484); More than one factor per case, therefore totals >100%

# Distribution of Top Five Factor Categories Over Time



While the distribution of these top (most common) factors across rolling three-year timeframes is relatively consistent, take note of even slight increases over time as indicators of emerging risk issues.

# Focus on Most Common Drivers of Clinical and Financial Severity

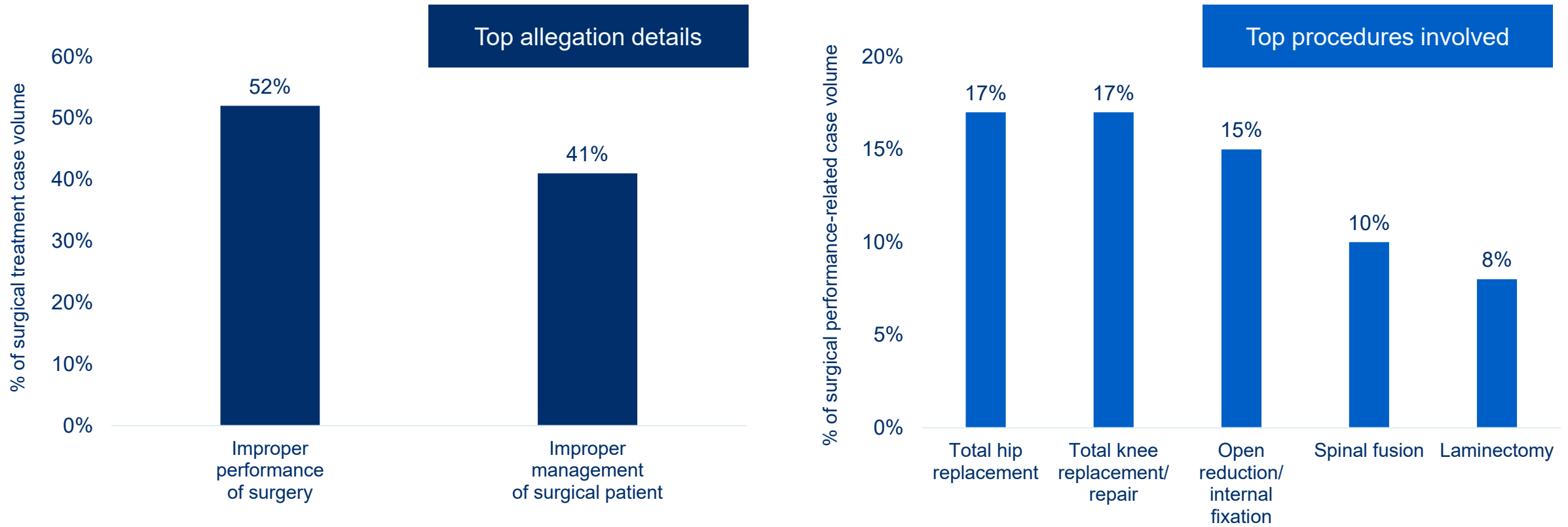
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Factors associated with high clinical severity outcomes	(CJ) selection/management of most appropriate surgical procedure (53%)	% of high severity case volume
	(TS) recognition/management of known complications (41%)	
	(CJ) failure to appreciate/reconcile signs/symptoms/test results (31%)	
	(TS) poor procedural technique (21%)	
	(CJ) failure/delay in ordering diagnostic test (17%)	
Factors associated with the costliest indemnity payments	(CJ) narrow diagnostic focus – failure to establish differential diagnosis (47%)	% more expensive than the average indemnity payment*
	(CO) suboptimal communication among providers about patient condition (35%)	
	(CJ) failure/delay in obtaining consult/referral (33%)	
	(CJ) failure to appreciate/reconcile signs/symptoms/test results (31%)	
	(CJ) inadequate assessments/history & physical (28%)	

Clinical judgment factors, including the selection of the most appropriate procedure for the patient’s condition and those related to diagnostic decision-making, technical skill factors including recognition/management of known complications and poor procedural technique, and suboptimal communication, are key drivers of both clinical and financial Orthopedic Surgery case severity.

# Focus on Surgical Treatment Allegations

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Cases involving the management of surgical patients, including pre-, intra-, and post-operatively, are often related to the surgeon's response to developing complications. While complications of procedures may have been the result of procedural error, the failure to timely recognize and/or monitor/manage the issue prevents the opportunity for early mitigation of the risk of serious adverse outcome.

# Focus on Diagnosis-Related Allegations

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Diagnosis-related allegations encompass wrong diagnoses, failures/delays, and misdiagnoses. See below for the top diagnoses\* noted in these cases.

## Musculoskeletal & connective tissue disorders (20%)

Missed/delayed diagnoses  
arthritis, joint disorders,  
skeletal deformities

## Complications (19%)

Primarily post-operative  
infections; also device  
complications

## Fractures (14%)

Missed/delayed diagnoses of  
multiple fracture types



# Focus on Diagnosis-Related Allegations

Diagnosis-related allegations encompass wrong diagnoses, failures/delays, and misdiagnoses. Note the key opportunities to reduce diagnostic errors along the diagnostic process of care\* below.

## Phase 1

<b>Initial diagnostic assessment</b>  <b>89%</b> of cases	Patient notes problem & seeks care
	History & physical
	Patient assessed, symptoms evaluated
	Differential diagnosis established
	Diagnostic testing ordered

## Phase 2

<b>Testing and results processing</b>  <b>25%</b> of cases	Performance of diagnostic tests
	Interpretation of diagnostic test results
	Test results transmitted to/received by ordering provider

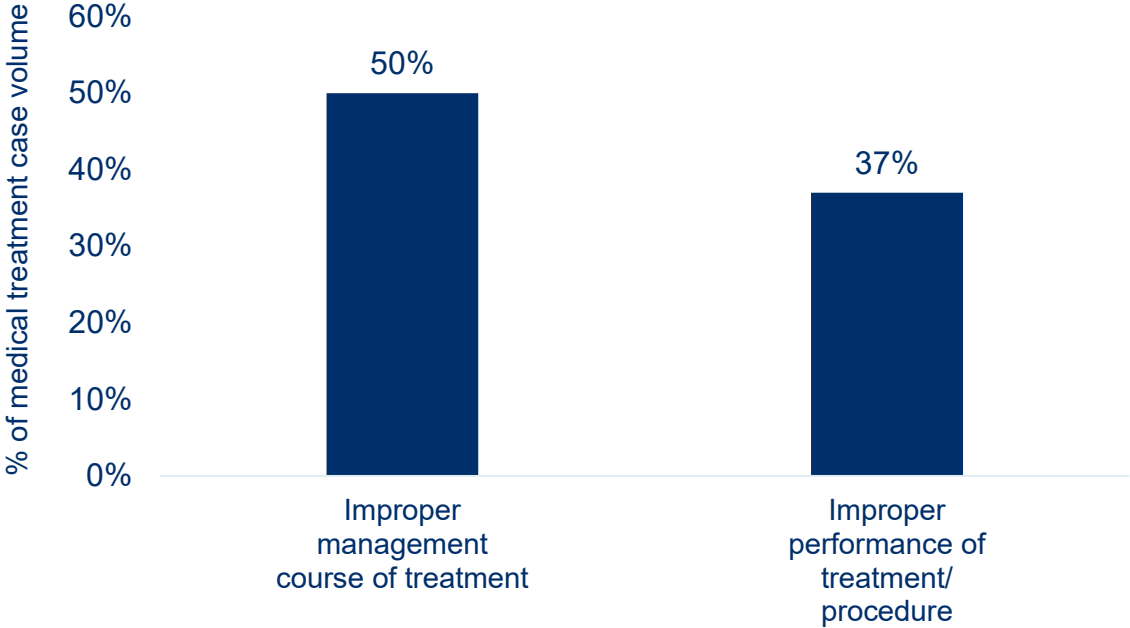
## Phase 3

<b>Follow-up and coordination</b>  <b>57%</b> of cases	Physician follows-up with patient
	Referrals/Consults
	Patient information communicated among care team
	Patient compliance with follow-up plan

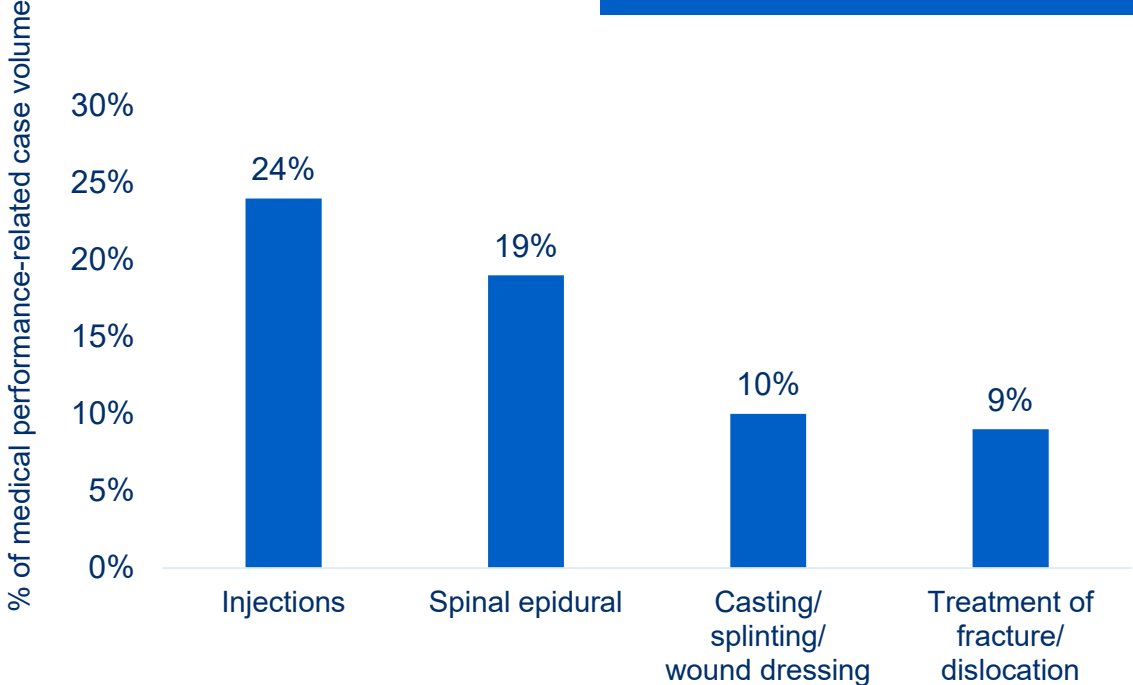
MedPro Group + MLMIC cases opened 2012-2021, Orthopedic Surgery as responsible service (N=2484); \*each step reflects a combination of contributing factors; diagnostic process of care algorithm courtesy of Candello, a division of CRICO Strategies

# Focus on Medical Treatment Allegations

Top allegation details



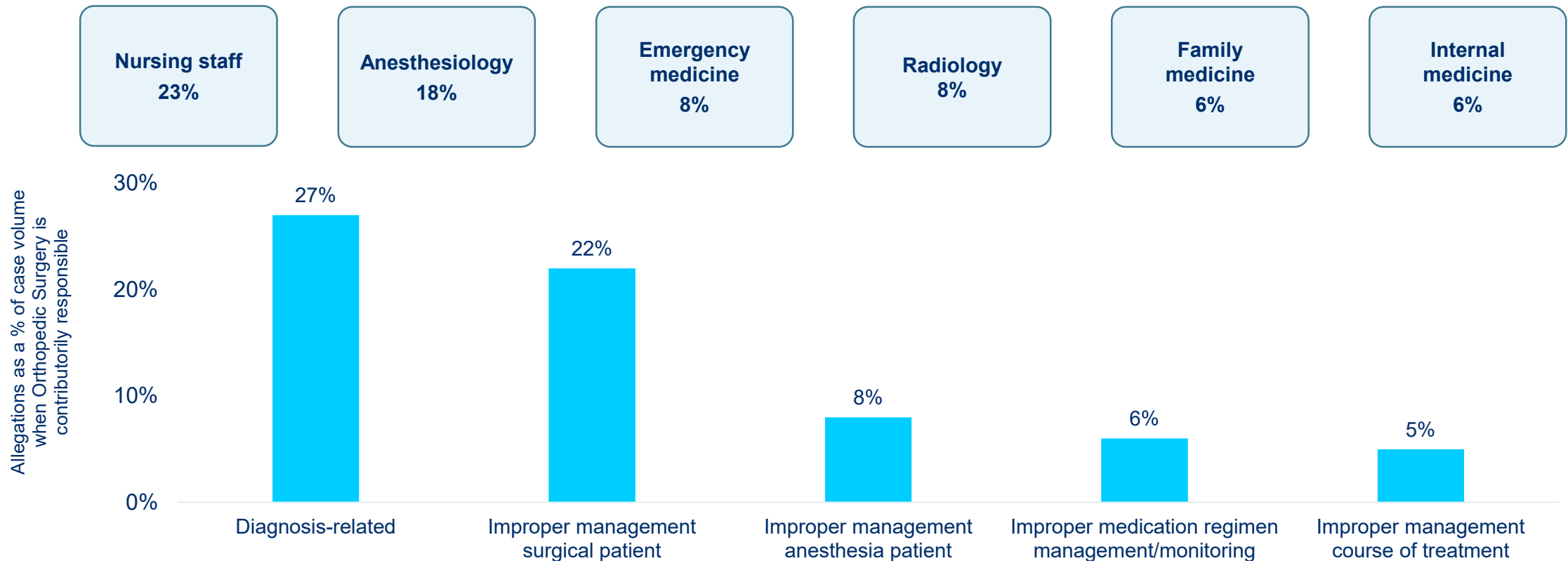
Top procedures involved



Procedural performance cases can be impacted by delayed recognition of complications, while management cases most often reflect issues with selection of the most appropriate course of treatment for the patient, and appreciating and reconciling symptoms and test results.

# Contributorily Responsible

Although this analysis is focused on cases reflecting Orthopedic Surgery as the primarily responsible service, another 580 cases identify Orthopedic Surgery as contributorily responsible. The primary services in these cases are varied, reflecting the myriad of providers who care for patients along the healthcare continuum. The most common primary services, and a comparison of top allegation categories, are shown below.





**The following stories are reflective of the allegations and contributing risk factors which drive cases brought against Orthopedic surgeons.**

**We're relaying these true stories as lessons** to build understanding of the challenges that you face in day-to-day practice. Learning from these events, we trust that you will take the necessary steps to either reinforce or implement best practices, as outlined in the section focused on risk mitigation strategies.

# Case Examples

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SETTLED

**\$1.0M**

CONTRIBUTING FACTORS

Clinical judgment

Selection/management of most appropriate surgical procedure for the patient's condition

Technical skill

Procedural inexperience

Poor procedural technique

IMPROPER PERFORMANCE OF SPINAL SURGERY RESULTING IN NERVE DAMAGE

A 57 year-old male **presented to an orthopedic surgeon with coccyx pain**. The orthopedic surgeon documented the patient's lengthy history, including multiple neck and lumbar surgeries. Prior radiographic studies were obtained; **the surgeon noted coccygeal displacement with rectal encroachment, and disc bulges at L4-5 and L5-S1**.

**The patient underwent a lumbar laminectomy at L4-5, a transforaminal lumbar interbody fusion at L4-5, pedicle screw placement at two segments, insertion of biomechanical device and a coccygectomy.** Instruments used included pedicle screws and a spinal spacer to address spinal stenosis. While attempting placement of the spacer, **the top portion of device bent backwards or malfunctioned before it could be fully inserted into the disc space**. Due to the malfunctioning, the bent spacer came in contact with or traumatized one or more of the L4-5 nerve roots **causing the neuro-monitoring system to activate, suggesting a potential nerve root injury**. The surgeon left the end plates in, but removed the spacer itself.

In his operative report, **the surgeon documented that the spacer malfunction was not a surgical issue**, and that he used a bone graft to pack the disc space and pedicle screws which were locked into position. The surgeon's physician assistant said the surgeon used a mallet or hammer to attempt to force the spacer. The surgical device representative present during surgery said that the surgeon attempted to place an 11mm spacer into a 9mm disc space when the device malfunctioned.

**The orthopedic surgeon took the patient back to surgery the following day** at a regional hospital where he performed re-do laminectomies at L4-5, L5-S1. A post-operative MRI showed adhesive arachnoiditis (cause indeterminate). Ultimately, **there was no dispute that the L4-5 nerve root was injured during the initial surgery**. The patient now requires ambulatory devices, splints to adjust for foot-drop and an internal spinal cord stimulator. **The device engineer concluded deformation and breakage was consistent with attempting to assemble the spacer in an undersized space or in a partially fused disc space.**

# Case Examples

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SETTLED

**\$800,000**

## CONTRIBUTING FACTORS

### Clinical judgment

Premature discharge from care  
(to rehab)

Failure to appreciate/reconcile  
relevant sign/symptom/test  
results

Failure/delay in ordering  
diagnostic test (wound culture)

Failure to order medication  
(antibiotics)

Failure/delay in ordering  
infectious disease consult

### Technical skill

Poor procedural technique

## IMPROPER PERFORMANCE OF TOTAL HIP REPLACEMENT FOLLOWED BY POST-OPERATIVE INFECTION

A 73 year-old male, with multiple co-morbidities including hypertension and non-Hodgkin's lymphoma, had been conservatively treated by an orthopedic surgeon for right hip pain. The patient was diagnosed with lordosis of the spine (excessive inward curve). He was noted to be non-compliant with his home exercise program. The surgeon also noted back pain due to hip flexion contractures, and prescribed home exercises and physical therapy.

One year later, **the patient presented to the emergency department with complaints of hip pain, left greater than right, impacting his ability to walk.** He was diagnosed with degenerative bilateral arthritis in his hips. During a consult with the orthopedic surgeon, options for surgery and possible complications were discussed. **The patient opted for a left total hip replacement.** During the 8 ½ hour surgery, the hip components dislocated easily; the surgeon felt this was due to “varus of stem, osteophytes and cup position”, and noted that it was difficult to get clear intra-operative X-rays. Hip tension during extension was noted, but the surgeon felt that it would stretch over time. Post-operatively, the patient was admitted to ICU. **Five days later, a left hip series revealed intact hardware and no subluxation/dislocation. The wound was noted to be draining; no culture was ordered, nor were antibiotics prescribed and the patient was discharged to an inpatient rehab center.**

Two weeks later, the patient was admitted with an upper GI bleed, gastritis and ulcerative esophagitis. **He was also diagnosed with a left hip wound infection,** which was treated with antibiotics and a wound vac; the hip component was noted to be migrated/dislocated. **He continued with a stormy post-operative course, including multiple surgeries.** Noted complications included a left hip dislocation; the acetabular cup was upside down and the acetabulum posterior wall eroded/surgically absent. Also diagnosed was a subacute fracture of the iliac spine. **Ultimately, the surgeon removed infected hardware,** however the patient had developed dementia and is now living in a skilled nursing facility, unable to independently ambulate. **Expert review indicated that the super gluteal neurovascular bundle had been lacerated during the first surgery, contributing to many of the complications.**

# Risk Mitigation Strategies

- **Ongoing evaluation of procedural skills and competency with equipment is critically important.**
- **Conduct a thorough assessment of the patient pre-operatively.**
  - Ensure that all testing and specialty evaluations are available for review prior to induction; in an ambulatory setting, these details might not always be as readily available as in the inpatient setting.
  - Maintain a consistent post-procedure assessment process.
  - Update and review medical and family history at every visit to ensure the best decision-making.
  - Maintain problem lists.
- **Communicate with each other.**
  - Focus on care coordination if other specialties are involved, including next steps and determining who is responsible for the patient.
  - Elicit a comprehensive patient history and conduct a thorough informed consent with the patient.
  - Give thorough and clear patient instructions.
- **Engage patients as active participants in their care.**
  - Consider the patient's health literacy and other comprehension barriers.
  - Recognize that patient satisfaction with treatment outcomes can be influenced by a thorough informed consent and education process.
- **Document.**
  - The operative record is critically important for detailing the pre-operative patient assessment, intra-operative steps, and post-operative sequence of events. Discrepancies or gaps in the details/timing make it much more difficult to build a supportive framework for defense against potential malpractice cases.

# MedPro Group & MLMIC Data

**MedPro and MLMIC are partnered with Candello**, a national medical malpractice data collaborative and division of CRICO, the medical malpractice insurer for the Harvard-affiliated medical institutions.

**Derived from the essence of the word candela**, a unit of luminous intensity that emits a clear direction, Candello's best-in-class taxonomy, data, and tools provide unique insights into the clinical and financial risks that lead to harm and loss.

**Using Candello's sophisticated coding taxonomy to code claims data**, MedPro and MLMIC are better able to highlight the critical intersection between quality and patient safety and provide insights into minimizing losses and improving outcomes.

**Leveraging our extensive claims data**, we help our insureds stay aware of risk trends by specialty and across a variety of practice settings. Data analyses examine allegations and contributing factors, including human factors and healthcare system flaws that result in patient harm. Insight gained from claims data analyses also allows us to develop targeted programs and tools to help our insureds minimize risk.



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