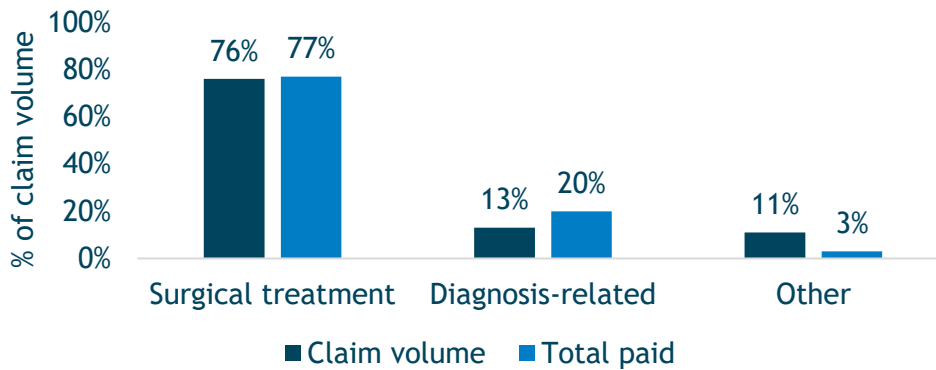


Analysis of Neurosurgery Risks



Surgical and diagnostic-related allegations are the two most frequent case types involving neurosurgeons. Of lesser frequency and severity were medication-related and general medical management allegations.

Figure 1. Major Case Types & Dollars Paid



Diagnostic allegations include delays and missed diagnoses of spinal abscesses, cancers and post-operative complications. While on average, diagnostic

cases tend to be slightly more severe in terms of clinical patient outcomes, we will focus here on the surgical cases.

Figure 2. Top Surgical Allegation Sub-Categories and Clinical Severity

	Claim volume	Total paid	% of high clinical severity outcomes*
Surgical performance	56%	56%	52%
Management of surgical patients	31%	35%	61%
Delays in surgery	5%	7%	89%

*Death & significant permanent injuries

Procedures

More than two-thirds of the cases involve spinal procedures. Other procedures noted include craniotomies, brain biopsies, and ventriculoperitoneal shunting.

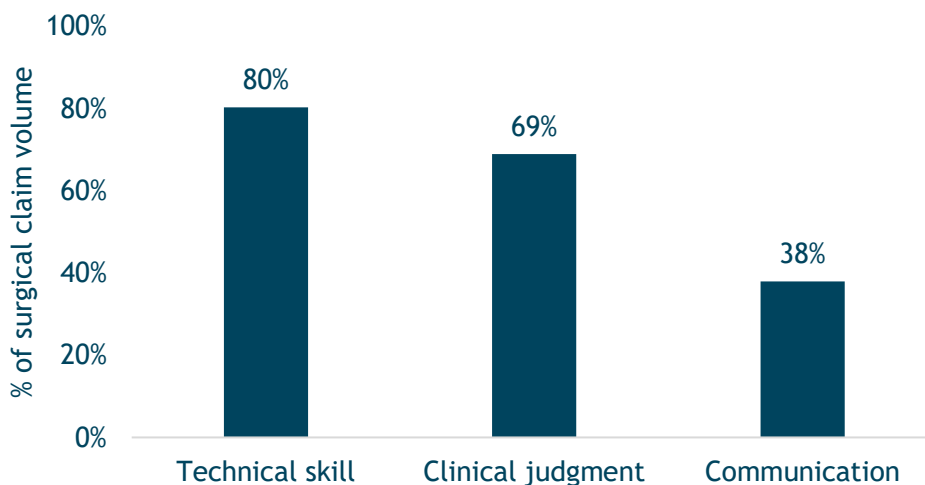
Setting

More than three-fourths (82%) of surgical allegations originated in an inpatient setting, which includes the OR suite and inpatient units. Patient management cases, involving the assessment of and timely response to evolving clinical presentations, were almost evenly distributed between the OR and patient rooms.

The Intersection of Events

Adverse neurosurgical patient outcomes rarely arise from a single cause; clinical decision-making, procedural complications and ineffective communication between members of the surgical team might all contribute to an adverse outcome.

Figure 3. Top Risk Factor Categories



Analysis of risk factors identified in these cases aids in the understanding of process of care deficiencies in neuro-surgical cases. Most cases involve more than one risk factor, and all categories noted in

Figure 3 consist of several sub-categories.

Notwithstanding instances of poor surgical technique, technical skill factors most frequently indicate the development of known surgical complications and the surgeon’s recognition of and response to those complications. A robust informed discussion that includes consent is key to mitigating the potential for a future medical malpractice claim. In the majority of neurosurgery cases where a recognized surgical complication occurred, an inadequate

informed consent process failed to adequately prepare the patient for possible outcomes and helped stoke a patient's dissatisfaction with care received.

Case example: Recognized Complication, Inadequate Informed Consent

Conservative pain management didn't resolve the patient's low back pain, so surgical intervention was recommended with placement of hardware. Several months post-operatively, symptoms of nerve compression were noted, which were not alleviated with pain management techniques. One year later, removal of hardware was deemed necessary by the neurosurgeon. Despite removal, the patient sustained permanent nerve injury at L5-S1, and alleged that the risk of nerve compression with this procedure was never addressed during the pre-operative informed consent process. The surgeon's record was silent as to whether or not this risk was discussed with the patient.

Focus on Clinical Judgment Sub-Factors

Every surgical treatment plan reflects the surgeon's clinical decision-making, and it is the rare malpractice case that doesn't include at least one clinical judgment issue. In neurosurgery cases, inadequate patient assessment was noted most frequently - specifically, surgeon failure to recognize the significance of and respond to evolving symptoms/test results. Failure to pursue timely diagnostic testing was also observed.

Case example: Worsening symptoms, delayed orders

On post-op day one following a hemilaminectomy and foraminotomy, the patient developed bladder incontinence, increased back pain, tingling sensations in her feet and difficulty ambulating. A message was left with the neurosurgeon's office staff. Six hours later, upon evaluation of the patient, the neurosurgeon did not feel that new orders or a change in the plan of care were warranted. By early the next day, the patient's symptoms had become increasingly severe, and a CT was ordered. Development of a massive epidural hematoma was discovered and the patient was returned to emergent surgery. The patient ultimately did regain some motor function of her lower extremities, but is completely dependent on others for her care.

Focus on Communication Sub-Factors

About one-third of all surgical malpractice cases involve a break in the line of communication - be it between members of the surgical team, with consulting physicians, with post-operative nursing staff, or during discussions between surgeons and their patients. Neurosurgery cases are no different, but when analyzed at a deeper level, some specific issues emerge.

Unmet post-operative patient expectations and inadequate informed discussions are most common. But it's the provider-to-provider failures related to communication of the patient's clinical condition details which stand out in these cases. In almost every case where this factor was identified, the failure to adequately communicate pertinent clinical information had a significant direct impact on the surgical outcomes of patients.

Detailed Case Illustration: A Perfect Storm of Events

Intermittent bilateral hand numbness and progressing left thigh paresthesia occurring over the past two years brought the patient, who was in his mid-50's, to the Emergency Department. An MRI revealed cord compression at C4-5 due to spondylosis, and the consulting neurologist recommended a neurosurgical consult. The patient was admitted, and decompression surgery was scheduled for the following week. (Of note, the patient was on aspirin, but this medication was not noted by the surgeon.)

During the week leading up to surgery, the patient developed transient left-sided facial paralysis. The neurosurgeon saw the patient, but the chart did not reflect this newly reported symptom. He did note spastic quadriparesis, and ordered the start of steroid therapy pre-operatively. The patient was also seen by the neurologist, who ordered Plavix in response to the facial paralysis. Surgery was delayed due to the initiation of Plavix, which was then switched to Heparin; both the consulting hematologist and cardiologist cleared the patient for surgery. The patient was moved to a skilled nursing floor for monitoring prior to surgery.

The neurosurgeon performed a bilateral decompressive laminectomy from C3-C6, and was assisted by a first year orthopedic resident. During the surgery, the patient was seated in a "beach chair" position (later criticized by experts due to the potential for decrease in spinal cord perfusion). Intraoperative neurological monitoring was not utilized. Hypotension (<90) was noted for over an hour, but the anesthesiologist failed to tell the surgeon.

The patient was able to move all extremities in the immediate post-operative period, but none of the treating providers authored a post-operative note detailing the patient's condition. The first post-operative note was not entered until the next day, and then by the orthopedic resident who had assisted. She noted no voluntary movement of the patient's extremities. Three days later, the neurosurgeon transferred the patient's care to an orthopedic surgeon who discovered severe spinal cord compression at C4/5, and significant signal changes in the cord from C3 down. A second spinal surgery was performed, but the patient is now quadriplegic.

The case was settled in the seven-figure range.

- **Allegations:** improper performance of surgery (primary); improper management of surgical patient (secondary)
- **Responsible service:** neurosurgery (primary); anesthesiology (contributing)
- **Risk factors:**
 - Clinical judgment: inadequate patient assessment during the history & physical phase; failure to appreciate and respond to evolving symptoms; procedure selection; inadequate patient monitoring; delay in obtaining consult/referral
 - Communication: several missed opportunities to consult with and verbally discuss pertinent details between members of the patient's team of providers
 - Technical skill: incorrect body position during surgery

Resources

- [Checklist: Risk Management Considerations in Surgical Practice](#)
- [Risk Management Basics for Informed Consent](#)

Data Source

MedPro Group closed claims data, 2008-2017

This document should not be construed as medical or legal advice. Because the facts applicable to your situation may vary, or the laws applicable in your jurisdiction may differ, please contact your attorney or other professional advisors if you have any questions related to your legal or medical obligations or rights, state or federal laws, contract interpretation, or other legal questions.

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