

# Triaging Spine Surgery in the COVID-19 Era

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As a result of the Coronavirus Disease 2019 (COVID-19) outbreak and the projected financial and workforce burden it will place on most health care systems, we intend to outline basic guidelines that may help hospital systems and specifically spine departments. Our aim is to provide a fluid framework with which surgeons and hospital staff can triage spinal surgical candidates. While most spine procedures are theoretically “elective” in that the patient was evaluated in an office setting and later provided an operative appointment date—many cases are not truly elective. For many spine patients, a significant delay in care may result in a progression of extremity weakness and pain with possibly less predictable improvements after surgery. Furthermore, in many conditions, such as myelopathy, delaying surgical decompression may allow for neurological deterioration and irreversible patient harm. In this current era of uncertainty, there is not a reliable timeline for the normalization of elective surgical scheduling, which might take months or years.

Although there is little debate regarding the need to perform spine surgery for acute trauma, epidural abscess, or tumors, there is a need to clarify and set initial guidelines for spinal conditions with associated myelopathy, radiculopathy, and motor deficits. We acknowledge that the dissemination of the COVID-19 and management and utilization of hospital resources are of the utmost importance and recognize that postoperative complications

in the form of respiratory distress from COVID-19 infection should also be a concern for all patients. Respiratory issues are only one medical risk that should be considered during the preoperative patient optimization and weighed against the risks of continued nonsurgical management of progressive conditions. To this end, we provide a framework for institutions and spine

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**TABLE 1.** Rothman Institute Guidelines for Spine Surgery in the COVID-19 Era

Level	Surgical Spine Pathologies	Recommendation
Level 1	Cervical or thoracic myelopathy (symptomatic; disk herniations, infections, tumor burden) Acute spine trauma (requiring decompression and/or stabilization) Oncology (metastatic spine lesions; primary spine tumors) Epidural abscess Cauda equina or severe nerve root compression (leading to progressive neurological deterioration or intractable pain)	Proceed with surgical intervention at hospital location
Level 2	Acute or subacute lumbar disk herniations (up to 6 wk) with intractable pain Cervical radiculopathy with intractable pain Acute hardware failure (postoperative complications such as screw cap loosening, screw pull-out, rod fracture, cage migration) Lumbar adjacent segment disease	Proceed with surgical intervention at ambulatory surgical center (ASC) versus consider at hospital facility if low COVID-19 census
Level 3	Compression fracture (without neurological deficits) Odontoid fracture (in elderly patients) Adult degenerative scoliosis Lumbar degenerative stenosis (including chronic muscle weakness or with claudicatory symptoms) Proximal junction kyphosis Axial back pain (with or without mobile spondylolisthesis)	Defer surgery or reconsider risks versus benefits of continued conservative management Consider course of steroid therapy (injection or oral) Odontoid fractures in elderly will be managed conservatively, with option of treating symptomatic nonunion surgically in future

departments that may help guide practices to provide a strategy to continue essential surgical spine care. Below are some key points of consideration that should be considered with the understanding that modifications may be necessary given the dynamic nature of the pandemic:

- Real-time and evolving assessments regarding the current state of the hospital and the COVID-19 census. There should be daily updates of the hospital's ability to rapidly transition care toward increasing respiratory support capacity and directing operative staff to support these endeavors including floor/ward nurse support.
- The urgency of surgical intervention for each patient should be agreed upon by members of the spine department. We encourage a department meeting or to review the urgency of cases for the proceeding 2 weeks initially and then subsequently on a weekly basis. The included guidelines can be used to supplement a discussion (Table 1). This will allow an assessment of

the current surgical necessity and provide a sense of cohesiveness and uniformity of surgical urgency to the hospital staff about on-going spine cases.

- It should not be assumed surgical delays will be for a short time period. The risk of postponing a spine surgery should be assessed, understanding the eventual surgery may occur in 3–4 months from the present. Patient quality of life and the risk of neurological deterioration should be considered over this time frame with frequent follow-up utilizing telemedicine if necessary.
- For spine surgeries that cannot be postponed, alternative surgical plans and less invasive options may be considered depending on hospital bed availability. Surgeons and nursing staff should emphasize minimizing postoperative length of stay through measures such as early rehabilitation, intraoperative technique, and pain management.