Lumbar spine surgery length of stay

see also Spine surgery length of stay

It is estimated that hospitalization costs for spine surgery increased nearly threefold between 1992 and 2003 [1) 2)]

Hospitalization costs are significant and should not be underestimated. In order to define value-based healthcare for spinal illnesses, it is crucial to determine the precise length of stay. Ensuring that patients are not kept in the hospital for longer than necessary is an important goal. An analysis conducted by Boylan and colleagues on the costs associated with adolescents' scoliosis surgery found that each additional day of hospitalization costs in excess of 1100 USD in insurance expenditures and in excess of 5200 USD in terms of hospital charges [3)]

Decompression of the lumbar spine is one of the most common procedures performed in spine surgery. Hospital length of stay (LOS) is a clinically relevant metric used to assess surgical success, patient outcomes, and socioeconomic impact. A study aimed to investigate a variety of machine learning and deep learning algorithms to reliably predict whether a patient undergoing decompression of lumbar spinal stenosis will experience a prolonged LOS [4)].

Salas-Vega et al. sought to distinguish among the clinical and nonclinical drivers of patient length of stay (LOS) in the hospital following elective lumbar laminectomy-a common spinal surgery that may be reimbursed using bundled payments-and to understand their relationships with patient outcomes and costs.

Patients ≥ 18 years of age undergoing laminectomy surgery for degenerative lumbar spinal stenosis within the Cleveland Clinic health system between March 1, 2016, and February 1, 2019, were included in this analysis. Generalized linear modeling was used to assess the relationships between the day of surgery, patient discharge disposition, and hospital LOS, while adjusting for underlying patient health risks and other nonclinical factors, including the hospital surgery site and health insurance.

A total of 1359 eligible patients were included in the authors' analysis. The mean LOS ranged between 2.01 and 2.47 days for Monday and Friday cases, respectively. The LOS was also notably longer for patients who were ultimately discharged to a skilled nursing facility (SNF) or rehabilitation center. A prolonged LOS occurring later in the week was not associated with greater underlying health risks, yet it nevertheless resulted in greater costs of care: the average total surgical costs for lumbar laminectomy were 20% greater for Friday cases than for Monday cases, and 24% greater for late-week cases than for early-week cases ultimately transferred to SNFs or rehabilitation centers. A Poisson generalized linear model fit the data best and showed that the comorbidity burden, surgery at a tertiary care center versus a community hospital, and the incidence of any postoperative complication were associated with significantly longer hospital stays. Discharge to home healthcare, SNFs, or rehabilitation centers, and late-week surgery were significant nonclinical predictors of LOS prolongation, even after adjusting for underlying patient health risks and insurance, with LOSs that

were, for instance, 1.55 and 1.61 times longer for patients undergoing their procedure on Thursday and Friday compared to Monday, respectively.

Late-week surgeries are associated with a prolonged LOS, particularly when discharge is to an SNF or rehabilitation center. These findings point to opportunities to lower costs and improve outcomes associated with elective surgical care. Interventions to optimize surgical scheduling and perioperative care coordination could help reduce prolonged LOSs, lower costs, and, ultimately, give service line management personnel greater flexibility over how to use existing resources as they remain ahead of health care reforms [5)].

Reducing length of stay (LOS) in a safe manner has the potential to save significant costs for the care of patients undergoing elective lumbar spine surgery. Due to the relative absence on weekends of staff required for discharging patients to rehabilitation or nursing facilities, Sivaganesan et al. hypothesized that patients undergoing lumbar surgery later in the week have a longer LOS than their counterparts.

Patients undergoing surgery for lumbar degenerative disease were prospectively enrolled in the multicenter quality and outcomes database registry. A multivariable proportional odds regression model was built with LOS as the outcome of interest and patient and surgical variables as covariates.

A total of 11 897 patients were analyzed. Among those discharged home, the regression analysis demonstrated significantly higher odds of longer LOS for patients undergoing surgery on Friday as compared to Monday ($P < .001$). Among those discharged to a facility, there were significantly higher odds of longer LOS for patients undergoing surgery on Wednesday ($P < .001$), Thursday ($P < .001$), and Friday ($P = .002$) as compared to Monday.

The findings of this study suggest that lumbar patients undergoing fusions and those discharged to a facility have longer LOS when surgery is later in the week. Scheduling these patients for surgery earlier in the week and ensuring adequate resources for patient disposition on weekends may lead to LOS reduction and cost savings for hospitals, payers, and patients alike [6)].

TLIF Prolonged Length of Stay Calculator

https://spine.shinyapps.io/TLIF_LOS/

ASA Score Physical Status Classification System.

Oswestry Disability Index.

Charlson Comorbidity Index

Functional Status

Estimated Blood Loss

1)
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