

National Incidence and Patient Predictors of Quality of Care Metrics in the Adult Spinal Deformity Population

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Introduction

The Centers for Medicare and Medicaid Services (CMS) characterize adverse quality events in the inpatient setting as patient safety indicators (PSI). CMS uses the incidence of PSI (measured using administrative data and ICD-9-CM codes) to determine hospital reimbursement. The incidence of PSI has not been quantified in the adult spinal deformity (ASD) population and the association of patient level covariates with PSI incidence is unknown. As the U.S. healthcare system transitions toward value-based reimbursement, it is important to establish a national benchmark of the quality of care metrics used by CMS to measure healthcare quality following surgery for adult spinal deformity.

Methods

Nationwide Inpatient Sample (NIS) data were queried using ICD-9-CM codes for all cases of inpatient lumbar fusion for a diagnosis of ASD in 2013. Patients younger than 18 years old and patients with vertebral fractures or malignancies were excluded. Incidence of adverse patient safety events (PSI) was determined using publicly available lists of ICD-9-CM diagnosis codes. Logistic regression models were used to determine the association between patient characteristics and the incidence of PSI in this population. Covariates included patient demographics, comorbidities, and hospital characteristics.

Results

Among patients with ASD, 5,862 adult lumbar fusion procedures were recorded in the NIS in 2013. The national incidence of PSI in this population was 4.69%. After adjusting for patient demographics, comorbidities, and hospital characteristics, privately insured patients did not have significantly different odds of experiencing one or more PSI during the inpatient episode relative to Medicaid/self-pay patients (OR 1.08 95% CI 0.53 – 2.22). Coagulopathy, electrolyte imbalance, obesity, and pulmonary circulatory disease were all significantly associated with increased risk of experiencing one or more PSI during the inpatient episode.

Conclusions

The national incidence of PSI among ASD patients was higher than has been reported in other surgical populations. CMS uses the incidence of adverse quality events (measured using PSI) in part to determine hospital reimbursement. As value-based payment becomes more widely adopted in the United States, initiatives designed to eliminate and reduce PSI incidence can benefit vulnerable patient populations, physicians, and hospital systems.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Identify the role of health care quality (and in particular patient safety indicators) in determining hospital reimbursement, 2) Quantify the national incidence of PSI in adult spinal deformity patients and use this benchmark when measuring the quality of care at their institutions, and 3) Discuss the role of value-based purchasing and reimbursement in the care of adult spinal deformity patients.