
Association Between State Medical Malpractice Environment and Postoperative Outcomes in the United States



Christina A Minami, MD, MS, Catherine R Sheils, BA, Emily Pavey, MA, Jeanette W Chung, PhD, Jonah J Stulberg, MD, PhD, MPH, David D Odell, MD, MMSc, Anthony D Yang, MD, MS, FACS, David J Bentrem, MD, MS, FACS, Karl Y Bilimoria, MD, MS, FACS

BACKGROUND: The US medical malpractice system assumes that the threat of liability should deter negligence, but it is unclear whether malpractice environment affects health care quality. We sought to explore the association between state malpractice environment and postoperative complication rates.

STUDY DESIGN: This observational study included Medicare fee-for-service beneficiaries undergoing one of the following operations in 2010: colorectal, lung, esophageal, or pancreatic resection, total knee arthroplasty, craniotomy, gastric bypass, abdominal aortic aneurysm repair, coronary artery bypass grafting, or cystectomy. The state-specific malpractice environment was measured by 2010 medical malpractice insurance premiums, state average award size, paid malpractice claims/100 physicians, and a composite malpractice measure. Outcomes of interest included 30-day readmission, mortality, and postoperative complications (eg sepsis, myocardial infarction [MI], pneumonia). Using Medicare administrative claims data, associations between malpractice environment and postoperative outcomes were estimated using hierarchical logistic regression models with hospital random-intercepts.

RESULTS: Measures of malpractice environment did not have significant, consistent associations with postoperative outcomes. No individual tort reform law was consistently associated with improved postoperative outcomes. Higher-risk state malpractice environment, based on the composite measure, was associated with higher likelihood of sepsis (odds ratio [OR] 1.22; 95% CI 1.07 to 1.39), MI (OR 1.14; 95% CI 1.06 to 1.23), pneumonia (OR 1.09; 95% CI 1.03 to 1.16), acute renal failure (OR 1.15; 95% CI 1.08 to 1.22), deep vein thrombosis/pulmonary embolism (OR 1.22; 95% CI 1.13 to 1.32), and gastrointestinal bleed (OR 1.18; 95% CI 1.08 to 1.30).

CONCLUSIONS: Higher risk malpractice environments were not consistently associated with a lower likelihood of surgical postoperative complications, bringing into question the ability of malpractice lawsuits to promote health care quality. (*J Am Coll Surg* 2017;224:310–318. © 2017 by the American College of Surgeons. Published by Elsevier Inc. All rights reserved.)

Disclosure Information: Nothing to disclose.

Support: Dr Bilimoria has received support from the National Institutes of Health, Agency for Healthcare Research and Quality, American Board of Surgery, American College of Surgeons, Accreditation Council for Graduate Medical Education, National Comprehensive Cancer Network, American Cancer Society, Health Care Services Corporation, Northwestern University, the Robert H Lurie Comprehensive Cancer Center and Northwestern Memorial Hospital and honoraria from hospitals and professional societies for clinical care and quality improvement research presentations. Research for this project was done while Dr Minami was a National Research Service Award postdoctoral fellow at the Center for Education in Health Sciences under an institutional award from the Agency for Healthcare Research and Quality, T-32 HS 000078 (PI: Jane L Holl, MD, MPH). Dr Yang has received support from the American College of Surgeons.

Disclaimer: None of these funding sources had any role in the design and conduct of the study; collection, management, analysis, and interpretation

of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

Received October 23, 2016; Revised December 1, 2016; Accepted December 2, 2016.

From the Surgical Outcomes and Quality Improvement Center (SOQIC), Department of Surgery (Minami, Sheils, Pavey, Chung, Stulberg, Odell, Yang, Bentrem, Bilimoria), Center for Healthcare Studies in the Institute for Public Health and Medicine (Minami, Stulberg, Odell, Yang, Bilimoria), Feinberg School of Medicine, Northwestern University, Chicago, IL; and the University of Rochester School of Medicine, University of Rochester, Rochester, NY (Sheils).

Correspondence address: Karl Y Bilimoria, MD, MS, FACS, Surgical Outcomes and Quality Improvement Center (SOQIC), Department of Surgery and Center for Healthcare Studies, Feinberg School of Medicine, Northwestern University, 633 N St. Clair St, 20th floor, Chicago, IL 60611. email: kbilimoria@nm.org

Abbreviations and Acronyms

AAA	= abdominal aortic aneurysm
ARF	= acute renal failure
CABG	= coronary artery bypass grafting
DVT	= deep vein thrombosis
MI	= myocardial infarction
NCSL	= National Conference of State Legislatures
OR	= odds ratio
PE	= pulmonary embolism
SSI	= surgical site infection
TKA	= total knee arthroplasty

Classic tort deterrence theory comprises one of the main theoretical struts of the US medical malpractice system. According to this rationale, the threat of medical litigation should heighten physician vigilance and lower negligent care. It follows that quality of care and patient outcomes should be better in higher liability environments.^{1,2} Medical malpractice litigation is especially relevant to surgical specialties, which garner a disproportionate number of malpractice claims.³ In addition, surgeons appear to be well aware of their malpractice risk because their perceived threat of malpractice suits has been shown to be the highest across medical and surgical specialties.⁴

Critics of this system often argue that the threat of malpractice results in “defensive medicine,” or the ordering of tests, procedures, or visits, and avoidance of high-risk patients or procedures primarily out of concern for malpractice liability,⁵ leading to a preponderance of studies on this “unintended” consequence of medical liability.⁶ How medical malpractice environments affect the quality of care, however, is less clear.⁷ Previous studies of the association between malpractice environment and surgical outcomes have been limited by scope, including a focus on individual surgical subspecialties, unique procedures or diseases, and disparate measures to characterize malpractice environments.⁶ Furthermore, studies of the association between malpractice environment and patient outcomes have not demonstrated consistent results. A number of studies found evidence of deterrence⁸⁻¹¹; others documented no evidence of an association between malpractice environment and health care quality.^{6,7,12-19} Therefore, there is a need for further assessment of the effect of malpractice environment on surgical quality.

Our objective was to determine whether state malpractice environment is associated with postoperative complications in patients undergoing a range of surgical procedures. We hypothesized that there would be no significant consistent associations between malpractice environment and the likelihood of postoperative complications.

METHODS

Data sources and study sample

The study cohort was constructed using Centers for Medicare and Medicaid Services Medicare 2009 to 2010 fee-for-service data for patients undergoing 1 of 11 operations: colon, rectal, lung, esophageal, or pancreatic resection, total knee arthroplasty (TKA), craniotomy, gastric bypass, abdominal aortic aneurysm (AAA) repair, coronary artery bypass grafting (CABG), or cystectomy. The operations were determined by searching the Medicare Provider Analysis and Review principal surgery field for *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD9) procedure codes. All patients must have had continuous coverage at the time of the procedure and for at least 30 days post-procedure. All patients were 65 or older at the time of the procedure. Because malpractice environment metrics from Washington DC and US territories were unavailable, beneficiaries treated in these regions were excluded (n = 3,488). Hospital characteristics were obtained from the 2010 American Hospital Association Annual Survey data. This observational study did not require review by the Northwestern University Institutional Review Board because it involved pre-existing, de-identified data.

Outcomes measures

Outcomes measures included 30-day readmission, prolonged length of stay (defined as being in the top quartile of length of stay), and several 30-day postoperative complications: sepsis, myocardial infarction (MI), pneumonia, surgical site infection (SSI), acute renal failure (ARF), respiratory failure, deep vein thrombosis (DVT) or pulmonary embolism (PE), gastrointestinal bleed, hematoma/hemorrhage, and mortality.²⁰ The AHRQ patient safety indicators were used as guidelines in determining the 30-day complications for sepsis, DVT or PE, hemorrhage or hematoma, and respiratory failure, applying exclusion criteria as necessary.²¹ The *International Classification of Diseases, Ninth Revision* (ICD9) codes used in previous studies were used to determine MI, pneumonia, ARF, SSI, and gastrointestinal bleed, as well as incorporating some of the standard patient safety indicator guidelines.²⁰ For each complication, the Medicare Provider Analysis and Review, inpatient claims, and outpatient claims were searched. A patient was considered to have a postoperative complication if it occurred either during the inpatient stay or post-discharge, within 30 days of the procedure.

Measures of state-level malpractice environment

Similar to our previous work in this area,¹⁹ data on general surgery malpractice premiums were drawn from the 2010

Download English Version:

<https://daneshyari.com/en/article/5733145>

Download Persian Version:

<https://daneshyari.com/article/5733145>

[Daneshyari.com](https://daneshyari.com)