

Medical Malpractice Claims Within Cardiology from 2006 to 2015



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With increasing healthcare costs and the high cost of spending driven by “defensive medicine,” shedding light on recent litigation trends is critical for understanding current tort patterns, especially in the field of cardiology, a specialty with higher rates of malpractice suits than average. Understanding the characteristics of these liability claims and common types of patient injuries can aid cardiologists in mitigating malpractice risk and better patient care. Thus, the objective of this study was to characterize current malpractice trends in the field of cardiology and common sources of patient injury. An analysis of malpractice litigation claims from 2006 to 2015 in cardiology was performed on a database of nationwide professional liability insurers, health systems, and community hospitals. Both the total number of claims and annual indemnity payments in cardiology have seen an overall increase from 2006 to 2015. Of the 1,538 claims observed, the leading allegations were improper medical treatment and diagnostic error. However, despite the large number of claims, most cardiology claims during this decade were either decreased, denied, or dismissed (68%) and the plurality of the remainder was settled outside of court (30%). In conclusion, from 2006 to 2015, rates of cardiology malpractice claims and amount paid in compensation have increased substantially in the United States. Further understanding of the characteristics of these lawsuits can aid cardiologists in avoiding common sources of injury to improve patient care. © 2018 Elsevier Inc. All rights reserved. (Am J Cardiol 2019;123:164–168)

As healthcare costs increase at an alarming rate, a significant portion of the crisis has been attributed to the amount paid through the medical malpractice system and the increase of “defensive medicine.”^{1,2} The steady growth in average physician malpractice payments follows the trend of increasing healthcare costs.³ Beyond direct payment costs, the perception of liability risk is closely related to the high medical care costs associated with practicing defensive medicine.^{4,5} In turn, defensive medicine affects the accessibility of care for certain patient groups and increases unnecessary medical testing, leading to a significant decrease in the quality of national healthcare.⁶ There is a paucity of publications that detail trends and allegations which lead to torts in the field of cardiology, which has one of the highest liability claim rates and malpractice risks.^{7,8} Shedding additional light on the causes behind these malpractice claims can help physicians avoid common sources of patient injury and decrease liability risk. To address the gap in knowledge, the purpose of this study is twofold: (1) to provide an updated summary of current trends in cardiovascular malpractice claims for the past decade; and (2) to present a detailed analysis on high-risk patient populations and common injuries that result in lawsuits.

Methods

Physician-level data of malpractice cases from the previously validated Controlled Risk Insurance Company’s Comparative Benchmarking Systems (CBS) database were used in the analysis.^{9,10} The CBS database consists of more than 350,000 medical malpractice cases, a subset of over 40% of medical claims in the United States. Cases from the CBS originate from over 550 hospitals and healthcare entities, representing over 177,500 physicians covered by commercial and captive insurers from all 50 states in the United States.^{9,10} The organizations that participate in the CBS database provide care across a continuum of healthcare settings, including academic medical centers, community hospitals, private practice clinics, and various external insurers. Each case is systematically reviewed by physician experts as part of the case defense and coded with the proprietary, expert-created Clinical Coding Taxonomy by trained Clinical Taxonomy Specialists who ensure consistent interpretation of both legal and medical aspects of each case. This Clinical Coding Taxonomy is overseen by a Taxonomy Governance Committee comprised of patient safety, analytic, and legal experts, which ensures that the taxonomy system is consistently updated to cover current developments in medical malpractice risk.

Patient diagnoses were established by International Statistical Classification of Diseases and Related Health Problems-9 codes recorded during the medical visit.¹¹ The criteria for injury severity were defined by the National Association of Insurance Commissioners 9-level injury severity scale, which are emotional injury (no physical injury), insignificant injury (minor injury with no treatment required), minor temporary injury (injury that requires

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temporary treatment), major temporary injury (injury that leads to temporary severe treatment), minor permanent injury (permanent injury that does not affect daily life), significant permanent injury (injury that affects daily activities), major permanent injury (severe injury that affects daily function), grave injury (injury that severely limits cognitive and/or physical function), and death. Alleged errors were characterized in 8 general categories: improper medical treatment, diagnostic error, medication-related error, improper surgical treatment, failure in communication, safety and monitoring failure, equipment malfunction, and other. The other category included anesthesia-related error, breach of confidentiality, violation of hospital policy and procedures, management of care, patient monitoring, and violation of patient rights.

A retrospective analysis of the CBS database was performed to identify all closed malpractice claims between 2006 and 2015 with cardiology as the department responsible for service of the claimant. Cases with missing data were excluded from the specific analyses on those specific variables but still included in the overall analyses. Graphical models were developed to visualize litigation trends between 2006 and 2015. Number of closed claims by year was overlaid with total indemnity payment by year to illustrate the temporal development of malpractice cases in the past decade. Descriptive statistical methods were used to characterize the distribution of cardiology malpractice claims across claimant age group by deciles, case outcomes, injury severity, defendant entity, patient care setting, and reason for allegation. Cases were categorized and proportional frequencies were computed from raw number of cases for various defendant entities. Frequencies for

number of cases were depicted as a histogram across the range of claimant age groups to illustrate the general distribution of claimant demographics. A similar visualization was used to graph the distribution of total indemnity paid across claimant age group and map malpractice costs from claimants of each age group decile. Statistical analyses were performed to determine total and average paid per case for each of the patient care setting categories. Relative proportions were computed for type of allegation, severity of injury, and outcomes by total raw number of cases. A frequency table was constructed from claim observations by allegation type and injury severity. Graphical proportion mapping techniques were used to further demonstrate comprehensive percentages for case trials outcomes across total cardiology cases during the interval of the study. Statistics were performed using STATA version 12.1 (Stata Corporation, College Station, Texas) and R version 3.4.4 (R Foundation for Statistical Computing, Vienna, Austria).

Results

From 2006 to 2015, a total number of 1,538 closed cardiology claims were collected in the CBS database. **Figure 1** displays the trends in cardiovascular closed claims and total indemnity payments by year from 2006 to 2015. The number of closed claims shows an overall increase over the past decade. Total indemnity paid per year has also shown general growth, closely mirroring the upward trend observed in case count. A dip was observed in 2015 for the number of closed cardiology cases, yet the total indemnity continued to increase from previous years.

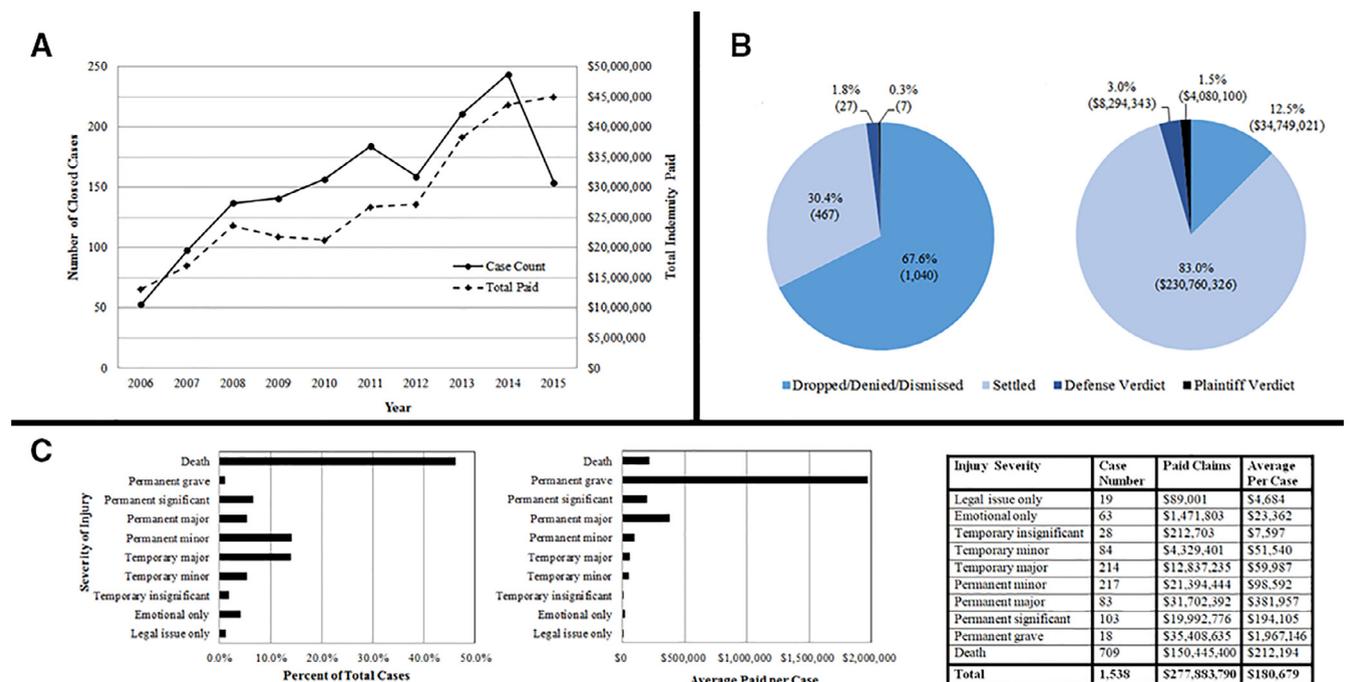


Figure 1. Trends and outcomes in cardiovascular malpractice claims from 2006 to 2015. (A) Growing numbers of closed cardiology cases and indemnity paid per year. (B) Court trial outcomes. *Left*: Raw count and proportion of total number of cases by outcome. *Right*: Proportion and monetary total sum of payments by outcome category. (C) Injury severities for closed cardiology claims.

A two-thirds majority of cardiology closed litigation claims resulted in a decreased, denied, or dismissed outcome, which was followed by slightly less than one-third of cases being settled. Defense and plaintiff verdicts were rarely observed as case outcomes. As expected, the majority of litigation payments, 83%, were from settled cases followed by those that were decreased, denied, or dismissed (13%, Figure 1). There was a wide spectrum of patient injury severities that led to malpractice claims. Patient death accounted for almost half of the injuries that resulted in lawsuits in cardiology. Permanent minor and temporary minor patient injuries were tied at approximately 13% each. Predictably, the average paid per claim across injury severity was much higher in patients who sustained death or permanent grave injuries than other causes and decreased overall with diminishing injury severities (Figure 1).

There was roughly a normal distribution observed across the age groups of claimants, with a peak in the fifth decade at 395 (25.7% of 1,538 cases). The total indemnity paid across age groups followed a similar distribution (Figure 2). Claimants in the fourth decade of life had the largest total amount of indemnity paid, more so than the 51 to 60 and 61 to 70 age group claimants who had a larger total number of cases. These results suggest that mean indemnity payments

per case for those in the 41 to 50 age category (\$293,373 per case) may be the highest overall, including that of those in the 51 to 60 and 61 to 70 age ranges (\$186,400 and \$157,422 per case, respectively). Defendants in the majority of closed claim cases (65%) were physicians; the majority of these physicians were staff physicians and only a small fraction were physicians in training. The second most common defendants were medical organizations, comprising of almost a third of cases. Medical center employees along with advanced practice providers including physician assistants and nurse practitioners were faced with a much smaller risk of liability claims (Table 1).

The greatest proportion of malpractice cases in cardiology stem from activities in the inpatient care setting followed closely by the ambulatory care setting (Table 2). Although there were a significantly smaller number of emergency cases that led to cardiology claims, the average indemnity for torts stemming from emergency care settings was the largest, followed closely by torts associated with inpatient stays. The most common tort allegation was improper medical treatment with the indemnity paid of cases resulting from improper medical treatment alone totaled over \$110 million in the 10-year period (Table 3). Diagnostic errors were the second most common source of torts, accounting for around a fifth of closed claims, followed by medication-related errors and improper surgical treatment. Other primary reasons for malpractice claims were observed in <5% of cardiovascular litigations, including miscommunication, safety and monitoring issues, and equipment malfunctions (Table 3).

Discussion

In analyzing medical malpractice rates from the CBS database, current concerns of increasing trends in litigation claims and malpractice costs seem well founded.^{12,13} From the current study, the raw counts of cardiology claims closed in 2015 demonstrated an increase of 91% from 2006. Additionally, the total annual liability paid also demonstrated a sharp 142% growth in the intervening 10 years. Previous analyses have revealed a similar increase in malpractice payments since 1992, a growth that has been observed to continue throughout the past decade, as demonstrated in this study from the CBS dataset.¹⁴ Although not reflected here, beyond liability payments, invisible overhead costs of each litigation, despite outcomes, also contribute significantly to total malpractice costs across the United States.¹⁵

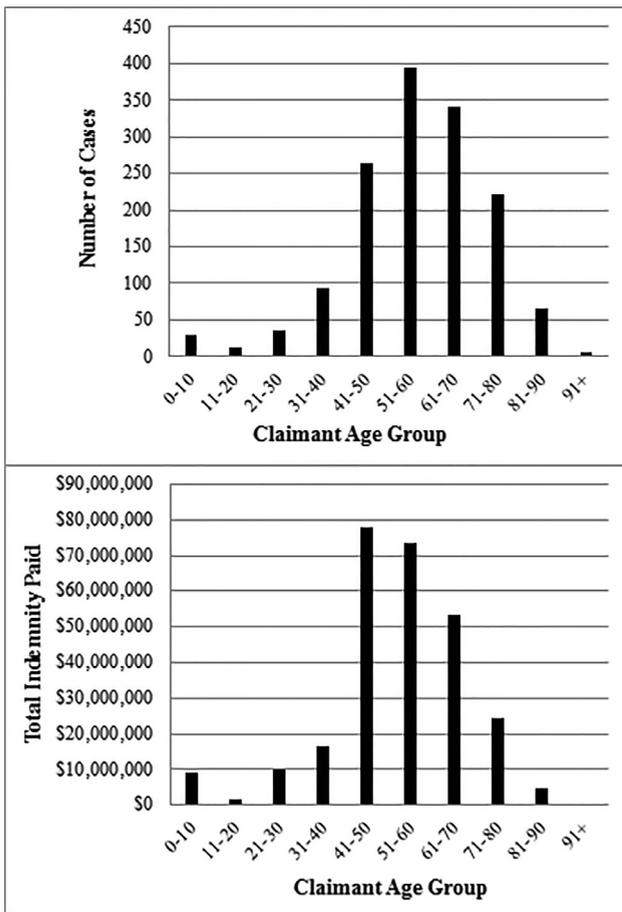


Figure 2. Total number of closed claims and total indemnity paid across claimant age groups for 1,538 cardiology cases from 2006 to 2015. Number of closed claims and total indemnity paid by patient age group are highest in claimants within the 41-70 age range.

Table 1
Malpractice defendant entity in cardiovascular claims from 2006 to 2015

Defendant	Number of cases
Staff physician	1717 (58.3%)
Medical organization	913 (31.0%)
MD resident	103 (3.5%)
MD fellow	90 (3.1%)
Medical center employee	60 (2.0%)
Nurse	45 (1.5%)
Physician assistant	8 (0.3%)
Nurse practitioner	8 (0.3%)

Table 2

Patient care setting and resulting number of cases and indemnity for cardiology cases from 2006 to 2015

Patient care setting	Cases	Total indemnity	Average paid per case
Inpatient	855	\$173,883,796	\$203,372
Ambulatory	617	\$93,083,061	\$150,863
Emergency	44	\$9,462,243	\$215,050
Other	22	\$1,454,691	\$66,122

Previous studies have revolved around litigation claims directed against physicians yet little is known about claims being made against hospital systems (i.e., medical organizations). Along with presenting the characteristics of physician-level litigation, this study also identifies that a significant percentage of claims are made against medical organizations (Table 1). Further studies are necessary to develop a better understanding of medical organization malpractice, and how these claims may be contributing to growing malpractice costs.

The characteristics of claimants involved in cardiovascular malpractice lawsuits are of particular interest, especially for understanding best practices to avoid injury to specific patient groups. The patient age distribution reveals that the majority of cardiology claims originated from patients who were in the fifth and sixth decades of their lives at the time of their claim, which closely aligns with the growing general demographic of middle-aged cardiology patients with heart disease.¹⁶ Additionally, as expected, the majority of cardiovascular claims are from inpatient care settings. However, a significant proportion of cases also arise from ambulatory and emergency department conditions as well. Of note, across these 3 medical settings, average total indemnities per case were comparable (Table 2). This trend is of particular interest due to the different nature of patients who visit these distinct healthcare settings. Further study is required to determine dissimilarities in the allegation types that arise from each medical setting.

Injuries that are most common in cardiology medical malpractice claims include death, permanent minor, and temporary major harm. The largest total amount of claim payments was attributable to patient deaths, over 4 times greater than the second highest in total payment, permanent

grave injuries. Despite this, the average payment per case was highest for those with permanent grave outcomes. Beyond poor clinical outcomes, improper medical treatment and diagnostic error were leading causes of cardiology claims. Previous studies have shown that risk of malpractice lawsuits are strongly related to patient complaints and quality of care.^{17,18} It is alarming to note that, armed with this data, one could infer that clinicians are still at high risk for liability claims if proper diagnostic evidence is not collected or appropriate therapy is not delivered, regardless of the final clinical outcome. However, drawing these conclusions must be done with great care given the lack of patient-level data in the CBS database. Finally, as aforementioned, the total cost of malpractice is increasing.^{1,19} The growth in total monetary amount of medical liability payments is a cause for concern, especially since the rates of court-settled claims favoring the plaintiff have been decreasing, which insinuates that compensation amounts are increasing.¹⁴ There are many potential solutions to this off-politically charged issue.²⁰ Mello et al²¹ and Sage et al²² provide some unique bipartisan solutions including administrative compensation systems, communication-and-resolution programs, negotiations directed by judges, and legislative changes, which may provide some relief to this issue. Many states have also attempted their own political solutions; however, there is certainly no panacea to the problem and more research is required to further understand what behavioral changes may be required to fully disrupt these concerning trends in malpractice claims.²³

It is important to note the limitations of the current study. Although a large sample of claims was drawn from a database representative of around 40% of the total number of cardiology claims in the United States from 2006 to 2015, the information represented in the CBS dataset is limited to the affiliations of the group and provides an oversampling of academic institutions, perhaps not fully reflecting the nature of claims from community clinics. Further, the CBS dataset lacks location-specific variables. Thus, regional disparities in the types and number of cardiovascular allegations were not studied. Because individual state laws play a role in the quantity and characteristics of malpractice lawsuits filed through policies such as compensation caps, future analysis may focus on regional differences in the nature of allegations filed.²⁴ Despite standards set by the CBS in training Clinical Taxonomy Specialists to code and ensure the validity of the data, reliability of variables analyzed from the dataset is limited by the consistency of the data collection methods because the study is retrospective in nature. Although the CBS is a major database used widely for assessment of national litigation trends, the registry is still constrained by the uniformity and accuracy of reporting data. Previous studies demonstrate similar limitations from using major databases including the LexisNexis and the Physician Insurers Association of America datasets.^{19,25}

In conclusion, these estimates for cardiovascular litigation trends, allegations, and outcomes provide a glimpse onto the characteristics of medical malpractice claims from 2006 to 2015. These data can be used to contextualize the discussion for tort reform in an environment of growing defensive medicine practices and exponentially increasing

Table 3

Allegation types for cardiology cases from 2006 to 2015

Type of allegation	Number of cases	Total paid
Improper medical treatment	666 (43.4%)	\$110,909,365
Diagnostic error	421 (27.4%)	\$77,829,889
Medication-related error	182 (11.9%)	\$53,741,230
Improper surgical treatment	171 (11.1%)	\$29,536,826
Failure in communication	28 (1.8%)	\$1,366,129
Safety and monitoring failure	33 (2.1%)	\$2,502,837
Equipment malfunction	11 (0.7%)	\$147,237
Other	26 (1.7%)	\$1,850,278
Total	1,538	\$277,883,790

Bold figures refer to total values.

costs of healthcare.³ Further knowledge of the characteristics of malpractice claims may improve physician understanding on how to avoid common sources of patient injury, decrease risk of medical liability, and provide guidance on areas of focus for liability reforms and improvement in hospital policies.

Disclosures

The authors have no conflicts of interest to disclose.

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