Claims, Errors, and Compensation Payments in Medical Malpractice Litigation


ABSTRACT

BACKGROUND
In the current debate over tort reform, critics of the medical malpractice system charge that frivolous litigation — claims that lack evidence of injury, substandard care, or both — is common and costly.

METHODS
Trained physicians reviewed a random sample of 1452 closed malpractice claims from five liability insurers to determine whether a medical injury had occurred and, if so, whether it was due to medical error. We analyzed the prevalence, characteristics, litigation outcomes, and costs of claims that lacked evidence of error.

RESULTS
For 3 percent of the claims, there were no verifiable medical injuries, and 37 percent did not involve errors. Most of the claims that were not associated with errors (370 of 515 [72 percent]) or injuries (31 of 37 [84 percent]) did not result in compensation; most that involved injuries due to error did (653 of 889 [73 percent]). Payment of claims not involving errors occurred less frequently than did the converse form of inaccuracy — nonpayment of claims associated with errors. When claims not involving errors were compensated, payments were significantly lower on average than were payments for claims involving errors ($313,205 vs. $521,560, P = 0.004). Overall, claims not involving errors accounted for 13 to 16 percent of the system’s total monetary costs. For every dollar spent on compensation, 54 cents went to administrative expenses (including those involving lawyers, experts, and courts). Claims involving errors accounted for 78 percent of total administrative costs.

CONCLUSIONS
Claims that lack evidence of error are not uncommon, but most are denied compensation. The vast majority of expenditures go toward litigation over errors and payment of them. The overhead costs of malpractice litigation are exorbitant.
The debate over medical malpractice litigation continues unabated in the United States\textsuperscript{1} and other countries.\textsuperscript{2-4} Advocates of tort reform, including members of the Bush administration, lament the burden of “frivolous” malpractice lawsuits and cite them as a driving force behind rising health care costs.\textsuperscript{5,6} (A frivolous claim is one that “present[s] no rational argument based upon the evidence or law in support of the claim.”\textsuperscript{7}) Plaintiffs’ attorneys refute this charge, countering that contingency fees and the prevalence of medical errors make the pursuit of meritless lawsuits bad business and unnecessary.\textsuperscript{8,9}

Previous research has established that the great majority of patients who sustain a medical injury as a result of negligence do not sue.\textsuperscript{10,11} However, the merit of claims that are brought, and the ability of the malpractice system to resolve them appropriately, remain much more controversial.\textsuperscript{1,12-14} If frivolous claims are common and costly, they may be a substantial source of waste in the health care and legal systems.

We investigated the merits and outcomes of malpractice litigation using structured retrospective reviews of 1452 closed claims. The reviews included independent assessments of whether the claim involved injury due to medical error. Our aim was to measure the prevalence, costs, outcomes, and distinguishing characteristics of claims that did not involve identifiable error.

\section*{Methods}

\subsection*{Study Sites}

Five malpractice insurance companies in four regions of the United States (the Northeast, Mid-Atlantic, Southwest, and West) participated in the study. Collectively they covered approximately 33,000 physicians, 61 acute care hospitals (35 of them academic and 26 nonacademic), and 428 outpatient facilities. The study was approved by ethics review boards at the investigators’ institutions and at each review site (i.e., the insurer or insured entity).

\subsection*{Claims Sample}

Data were extracted from random samples of closed-claim files at each insurance company. The claim file is the repository of information accumulated by the insurer during the life of a claim (see the Supplementary Appendix, available with the full text of this article at www.nejm.org). We also obtained the relevant medical records from insured institutions for all claims included in the sample.

Following the methods used in previous studies, we defined a claim as a written demand for compensation for medical injury.\textsuperscript{15,16} Anticipated claims or queries that fell short of actual demands did not qualify. We focused on four clinical categories — obstetrics, surgery, missed or delayed diagnosis, and medication — and applied a uniform definition of each at all sites. These are key clinical areas of concern in research on patient safety; they are also areas of paramount importance to risk managers and liability insurers, accounting for approximately 80 percent of all claims in the United States and an even larger proportion of total indemnity costs.\textsuperscript{17-19}

Insurers contributed claims to the study sample in proportion to their annual volume of claims. The number of claims by site varied from 84 to 662 (median, 294). One site contributed obstetrics claims only; another site had claims in all categories except obstetrics; and the remaining three contributed claims from all four categories.

\subsection*{Review of Claim Files}

Reviews were conducted at insurers’ offices or insured facilities by board-certified physicians, fellows, or final-year residents in surgery (for surgery claims), obstetrics (for obstetrics claims), and internal medicine (for diagnosis and medication claims). Physician investigators from the relevant specialties trained the reviewers, in one-day sessions at each site, with regard to the content of claims files, use of the study instruments, and confidentiality procedures. Reviewers were also given a detailed manual. Reviews lasted 1.6 hours per file on average and were conducted by one reviewer. To test the reliability of the process, 10 percent of the files were reviewed again by a second reviewer who was unaware of the first review.

Staff members at the insurance companies recorded administrative details of each claim, and clinical reviewers recorded details of the patient’s adverse outcome, if any. Physician reviewers then scored adverse outcomes on a severity scale that ranged from emotional injury to death.\textsuperscript{20} If there was no identifiable adverse outcome, the review
was terminated. For all other claims, reviewers considered the potential contributory role of 17 “human factors” in causing the adverse outcome.

Next, in the light of all available information and their decisions about contributing factors, reviewers judged whether the adverse outcome was due to medical error. We used the definition of error of the Institute of Medicine: “the failure of a planned action to be completed as intended (i.e., error of execution) or the use of a wrong plan to achieve an aim (i.e., error of planning).”21 Reviewers recorded their judgments using a 6-point confidence scale in which a score of 1 indicated little or no evidence that an adverse outcome resulted from one or more errors and a score of 6 indicated virtually certain evidence that an adverse outcome resulted from one or more errors. Claims that received a score of 4 (“more likely than not that adverse outcome resulted from error or errors; more than 50–50 but a close call”) or higher were classified as involving an error.

Reviewers were not blinded to the outcome of litigation because it was logistically impossible to censor this information in the files. However, they were instructed to ignore this outcome and exercise independent clinical judgment in rendering determinations with regard to injury and error. Training sessions stressed both that the study definition of error is not synonymous with the legal definition of negligence and that a mix of factors extrinsic to merit influences whether claims are paid during litigation.

STATISTICAL ANALYSIS

The data forms, which had been filled out by hand, were electronically entered into a database and verified by a professional data-entry vendor and then sent to the Harvard School of Public Health in Boston for analysis. Analyses were conducted with the use of the SAS 8.2 and Stata SE 8.0 statistical software packages. To compare characteristics of claims with and claims without errors, we used Fisher’s exact tests (for analyses involving the sex of the plaintiff, specialty of the defendant, severity of injury, type of claim, and litigation outcomes), t-tests (for analyses involving the age of the plaintiff and filing and closure periods), and Wilcoxon rank-sum tests (for analyses involving indemnity and defense costs). All reported P values are two-tailed.

The total cost of claims in the sample was calculated and apportioned between claims with and those without errors. The analysis addressed the direct costs of the litigation, not the indirect costs, such as those associated with the practice of defensive medicine.22 We refer to the patient who allegedly sustained injury as the plaintiff, even though some claims were brought by third parties. We used kappa scores to measure the reliability of the determinations of injury and error.23

Results

Characteristics of the Plaintiffs

Sixty percent of the plaintiffs were female (Table 1). The median age of the plaintiffs was 38 years; 19 percent were newborns, and 12 percent were 65 years of age or older. Obstetrician-gynecologists were the most frequently sued physicians in the sample (19 percent), followed by general surgeons (17 percent) and primary care physicians (16 percent).

In 37 of the claims (3 percent), no adverse outcome from medical care was evident. For example, one claim alleged that substandard care had caused the plaintiff to acquire methicillin-resistant Staphylococcus aureus, but there was no evidence of infection in the medical record or claim file. An additional 52 claims (4 percent) involved psychological or emotional injury, and 9 (<1 percent) contained only allegations of breaches of informed consent. The remaining claims involved physical injury, which was typically severe. Eighty percent of claims involved injuries that caused significant or major disability (39 percent and 15 percent, respectively) or death (26 percent).

Eighty-three percent of the claims were closed between 1995 and 2004; 62 percent were closed in 1998 or later. The average length of time between the occurrence of the injury and the closure of the claim was five years.

Fifty-six percent of the claims received compensation, at an average of $485,348 (median, $206,400) per paid claim. Fifteen percent of the claims were decided by trial verdict. The awards in verdicts for the plaintiff on average were nearly twice the size of payments made outside of court ($799,365 vs. $462,099). However, plaintiffs rarely won damages at trial, prevailing in only 21 percent of verdicts as compared with 61 percent of claims resolved out of court. Administrative (or overhead) costs associated with defending the
claims averaged $52,521 per claim, with the mean administrative costs for claims that were resolved by trial ($112,968) nearly three times those for claims resolved out of court ($42,015).

**Relation between Error and Compensation**

Sixty-three percent of the injuries were judged to be the result of error (Fig. 1). Most claims involv-
ing injuries due to error received compensation (653 of 889 [73 percent]), and most claims that did not involve errors (370 of 515 [72 percent]) or injuries (31 of 37 [84 percent]) did not. Overall, 73 percent (1054 of 1441) of all claims for which determinations of merit were made had outcomes concordant with their merit. Discordant outcomes in the remaining 27 percent of claims consisted of three types: payment in the absence of documented injury (6 of 1441 [0.4 percent of all claims]), payment in the absence of error (10 percent), and no payment in the presence of error (16 percent). Thus, nonpayment of claims with merit occurred more frequently than did payment of claims that were not associated with errors or injuries. All results hereafter relate to the subsample of 1404 claims that involved injuries and for which determinations of error were made.

**Characteristics of Claims Not Involving Error**

With respect to characteristics of the litigant, severity of the injury, and type of claim, there were few differences between claims that did not involve error and those that did (Table 2). However, the outcomes of litigation among claims not associated with error (non-error claims) and those associated with error (error claims) differed significantly. Non-error claims were more likely to reach trial than were error claims (23 percent vs. 10 percent, P<0.001). Non-error claims were also much less likely to result in compensation, whether they were resolved out of court (34 percent vs. 77 percent, P<0.001) or by verdict (9 percent vs. 43 percent, P<0.001). In addition, when non-error claims were paid, compensation was significantly lower on average ($313,205 vs. $521,560, P=0.004).

**Total Expenditures**

The claims in the study sample cost more than $449 million, with total indemnity costs of more than $376 million and defense costs of almost

---

**Figure 1. Overview of the Relationship among Claims, Injuries, Errors, and Outcomes of Litigation.**

For claims classified as involving dignitary injury only, a breach of informed consent was the only injury alleged in the claim. Five of these claims resulted in payment.
Non-error claims accounted for 16 percent of total system costs, 12 percent of indemnity costs, and 21 percent of administrative costs. With the exclusion of the 85 claims in which the reviewers’ judgment that the claim did not involve error was a close call, non-error claims accounted for 13 percent of total expenditures.

RELIABILITY AND SENSITIVITY ANALYSES
Reliability testing was performed on the basis of 148 pairs of reviews. Kappa scores were 0.78 (95 percent confidence interval, 0.65 to 0.90) for the determination of injury and 0.63 (95 percent confidence interval, 0.12 to 0.74) for the judgment that error occurred, but scores for the latter varied across the clinical categories (surgery, 0.80; medication, 0.76; obstetrics, 0.56; and diagnosis, 0.42).

The exclusion of claims in which the primary reviewer classified the determination of error as a close call substantially boosted the overall reliability (kappa score, 0.80; 95 percent confidence interval, 0.32 to 0.88) and category-specific reliability (surgery, 0.94; medication, 0.90; obstetrics, 0.67; diagnosis, 0.63) of the error judgments. In this smaller sample of claims, the proportion that did not involve error increased slightly, to 40 percent (430 of 1065), and changes with regard to the magnitude and significance of the various differences between the two types of claims (as shown in Table 2) were trivial. Our main findings were also robust when a sensitivity analysis was performed that excluded the obstetrics claims and diagnosis claims, the two clinical categories with the lowest levels of reliability.

DISCUSSION
We found that only a small fraction of claims lacked documented injuries. However, approximately one third of claims were without merit in the sense that the alleged adverse outcomes were not attributable to error. Claims without merit were generally resolved appropriately: only one in four resulted in payment. When close calls were excluded, claims without evidence of injury or error accounted for 13 percent of total litigation costs.

Several previous studies have investigated the relationship between the merits and outcomes of malpractice claims.24-30 The findings vary widely, with 40 to 80 percent of claims judged to lack merit and 16 to 59 percent of claims without merit receiving payment. Each of the studies also has important weaknesses: they involved the use of small numbers of claims27,29; they focused on a single hospital,26 insurer,25 specialty,24,30 or type of injury27; they involved the use of very limited information in the determination of merit26; or they relied on the insurer’s view of the defensibility of the claim as a proxy for merit rather than on independent expert judgments.25,28,30 Our study was designed to avoid these limitations. Cheney and colleagues analyzed 1004 claims involving the use of anesthesia that were closed at 17 insurers in the 1970s and 1980s and found that approximately 40 percent of the claims did not involve substandard care, of which 42 percent received payment.24 We detected a similar proportion of claims that did not involve error, but much fewer of them resulted in compensation.

We found stark differences in the outcomes of litigation for claims that did and those that did not involve errors: non-error claims were more than twice as likely as error claims to go to trial; they were nearly one third as likely to result in compensation; and when the plaintiffs received compensation, payments averaged 60 percent of the amount paid for error claims. Otherwise, non-error claims had few distinguishing characteristics. Economic theories regarding litigants’ behavior31 suggest that two characteristics will
mark such claims: close calls in terms of whether an error has occurred and relatively serious injury. Neither characteristic was borne out in our analyses. The profile of non-error claims we observed does not square with the notion of opportunistic trial lawyers pursuing questionable lawsuits in circumstances in which their chances of winning are reasonable and prospective returns in the event of a win are high. Rather, our findings underscore how difficult it may be for plainiffs and their attorneys to discern what has happened before the initiation of a claim and the acquisition of knowledge that comes from the investigations, consultation with experts, and shar-

<table>
<thead>
<tr>
<th>Table 2. Characteristics of Claims Involving Error and Those Not Involving Error.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td><strong>Litigants</strong></td>
</tr>
<tr>
<td>Female plaintiff — no. (%)*</td>
</tr>
<tr>
<td>Mean age of plaintiff — yr</td>
</tr>
<tr>
<td>Physician specialty — no. (%)†</td>
</tr>
<tr>
<td>Ophthalmology</td>
</tr>
<tr>
<td>Neurosurgery</td>
</tr>
<tr>
<td>Urology</td>
</tr>
<tr>
<td>Nurse — no. (%)‡</td>
</tr>
<tr>
<td>Facility codefendant — no. (%)</td>
</tr>
<tr>
<td><strong>Severity of injury — no. (%)</strong></td>
</tr>
<tr>
<td>Psychological or emotional</td>
</tr>
<tr>
<td>Minor physical</td>
</tr>
<tr>
<td>Significant physical</td>
</tr>
<tr>
<td>Major physical</td>
</tr>
<tr>
<td>Death</td>
</tr>
<tr>
<td><strong>Type of claim — no. (%)</strong></td>
</tr>
<tr>
<td>Surgery</td>
</tr>
<tr>
<td>Obstetrics</td>
</tr>
<tr>
<td>Missed or delayed diagnosis</td>
</tr>
<tr>
<td>Medication</td>
</tr>
<tr>
<td><strong>Outcome of litigation</strong></td>
</tr>
<tr>
<td>Resolved by verdict — no. (%)</td>
</tr>
<tr>
<td>Indemnity paid — no. (%)</td>
</tr>
<tr>
<td>Out of court — no. (%)§</td>
</tr>
<tr>
<td>By verdict — no. (%)§</td>
</tr>
<tr>
<td>Mean payment levels — $</td>
</tr>
<tr>
<td>All payments§</td>
</tr>
<tr>
<td>Verdicts for plaintiffs§</td>
</tr>
<tr>
<td><strong>Other</strong></td>
</tr>
<tr>
<td>Mean defense costs (all claims) — $</td>
</tr>
<tr>
<td>Mean time from injury to filing of claim — yr</td>
</tr>
</tbody>
</table>

* Percentages were calculated with the use of available data (507 claims not involving error and 869 involving error).
† Only significant subcategories are shown.
‡ This category includes registered nurses, advanced-practice nurses, and licensed practical nurses.
§ Percentages were calculated within subcategories.
ing of information that litigation triggers. Previous research has described tort litigation as a process in which information is cumulatively acquired.32

Our findings point toward two general conclusions. One is that portraits of a malpractice system that is stricken with frivolous litigation are overblown. Although one third of the claims we examined did not involve errors, most of these went unpaid. The costs of defending against them were not trivial. Nevertheless, eliminating the claims that did not involve errors would have decreased the direct system costs by no more than 13 percent (excluding close calls) to 16 percent (including close calls). In other words, disputing and paying for errors account for the lion’s share of malpractice costs. A second conclusion is that the malpractice system performs reasonably well in its function of separating claims without merit from those with merit and compensating the latter. In a sense, our findings lend support to this view: three quarters of the litigation outcomes were concordant with the merits of the claim.

However, both of these general conclusions obscure several troubling aspects of the system’s performance. Although the number of claims without merit that resulted in compensation was fairly small, the converse form of inaccuracy — claims associated with error and injury that did not result in compensation — was substantially more common. One in six claims involved errors and received no payment. The plaintiffs behind such unrequited claims must shoulder the substantial economic and noneconomic burdens that flow from preventable injury.33,34 Moreover, failure to pay claims involving error adds to a larger phenomenon of underpayment generated by the vast number of negligent injuries that never surface as claims.10,11

In addition, enthusiasm about the precision of the malpractice system must be tempered by recognition of its costs. Among the claims we examined, the average time between injury and resolution was five years, and one in three claims took six years or more to resolve. These are long periods for plaintiffs to await decisions about compensation and for defendants to endure the uncertainty, acrimony, and time away from patient care that litigation entails.

In monetary terms, the system’s overhead costs are exorbitant. The combination of defense costs and standard contingency fees charged by plaintiffs’ attorneys (35 percent of the indemnity payment) brought the total costs of litigating the claims in our sample to 54 percent of the compensation paid to plaintiffs. The fact that nearly 80 percent of these administrative expenses were absorbed in the resolution of claims that involved harmful errors suggests that moves to combat frivolous litigation will have a limited effect on total costs. Substantial savings depend on reforms that improve the system’s efficiency in the handling of reasonable claims for compensation.

Our study has four main limitations. First, the sample was drawn from insurers and involved clinical categories that are not representative of malpractice claims nationwide. Academic institutions and the physicians who staff them were over-

---

**Table 3. Apportionment of Total Expenditures between Claims Involving Error and Those Not Involving Error.**

<table>
<thead>
<tr>
<th>Costs</th>
<th>All Claims (N=1441)*</th>
<th>Claims Involving Error</th>
<th>Claims Involving No Error</th>
<th>Claims Involving No Error, Excluding Close Calls†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
<td>percent</td>
<td>$</td>
<td>percent</td>
</tr>
<tr>
<td>Total system‡</td>
<td>449,090,663</td>
<td>84</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>Indemnity</td>
<td>376,473,069</td>
<td>88</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Administrative</td>
<td>204,383,168</td>
<td>78</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>Defense</td>
<td>72,617,594</td>
<td>61</td>
<td>39</td>
<td>48</td>
</tr>
<tr>
<td>Plaintiff§</td>
<td>131,765,574</td>
<td>88</td>
<td>12</td>
<td>9</td>
</tr>
</tbody>
</table>

* The total number of claims excludes 11 for which judgments regarding neither injury nor error were available.
† The 85 excluded claims were those for which the reviewer recorded a confidence score of 3 (“less likely than not that adverse outcome resulted from error or errors; more than 50–50 but a close call”).
‡ Total system costs are the sum of indemnity costs and defense administrative costs. Including plaintiff administrative costs in the sum would result in double counting because these form a percentage of indemnity costs.
§ Plaintiff administrative costs are estimated on the basis of a contingency fee of 35 percent on indemnity payments.
represented, as were claims that fell within our clinical categories of interest. Although it is difficult to make comparisons with other samples of closed claims, both the proportion of claims receiving payments and the average amount of the payments appear to be high according to national standards, which probably reflects the preponderance of severe injuries in our sample.

Second, the reliability of judgments that error had occurred was moderate overall; agreement was especially difficult to obtain among claims involving missed or delayed diagnoses. Third, whether claims had merit was determined by reference to national standards, which probably reflects the preponderance of severe injuries in our sample.

Fourth, reviewers’ awareness of the litigation outcome may have biased them toward finding errors in claims that resulted in compensation, and vice versa. The difference. Fourth, reviewers’ awareness of the litigation outcome may have biased them toward finding errors in claims that resulted in compensation, and vice versa. To the extent that such hindsight bias was a factor, its likely effect would be to pull the rate of non-error claims (37 percent) toward the payment rate (56 percent), resulting in an overestimate of the prevalence and costs of claims not associated with error.

Frivolous litigation is in the bull’s-eye of the current tort-reform efforts of state and federal legislators. The need to constrain the number and costs of frivolous lawsuits is touted as one of the primary justifications for such popular reforms as limits on attorneys’ fees, caps on damages, panels for screening claims, and expert precertification requirements. Our findings suggest that moves to curb frivolous litigation, if successful, will have a relatively limited effect on the caseload and costs of litigation. The vast majority of resources go toward resolving and paying claims that involve errors. A higher-value target for reform than discouraging claims that do not belong in the system would be streamlining the processing of claims that do belong. Supported by grants from the Agency for Healthcare Research and Quality (HS01886-03 and K02HS11285, to Dr. Studdert), and the Harvard Risk Management Foundation. No potential conflict of interest relevant to this article was reported.

We are indebted to Allison Nagy for her assistance in compiling the data set; to Karen Lifford, Tom McLraith, and Martin November for their assistance with the obstetric component of the study; to Selwyn Rogers for his assistance with the surgical component; to Eric Thomas and Eric Poon for their assistance with the mediation and diagnostic components; and to John Ayanian, Arnold Epstein, John Orav, and Charles Silver for their valuable comments on an earlier draft of the manuscript.

REFERENCES

SPECIAL ARTICLE


Copyright © 2006 Massachusetts Medical Society.