An Epidemiologic Study of Closed Emergency Department Malpractice Claims in a National Database of Physician Malpractice Insurers

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Abstract

Objectives: The objective was to perform an epidemiologic study of emergency department (ED) medical malpractice claims using data maintained by the Physician Insurers Association of America (PIAA), a trade association whose participating malpractice insurance carriers collectively insure over 60% of practicing physicians in the United States.

Methods: All closed malpractice claims in the PIAA database between 1985 and 2007, where an event in an ED was alleged to have caused injury to a patient 18 years of age or older, were retrospectively reviewed. Study outcomes were the frequency of claims and average indemnity payments associated with specific errors identified by the malpractice insurer, as well as associated health conditions, primary specialty groups, and injury severity. Indemnity payments include money paid to claimants as a result of settlement or court adjudication, and this financial obligation to compensate a claimant constitutes the insured's financial liability. These payments do not include the expenses associated with resolving a claim, such as attorneys' fees. The study examined claims by adjudicatory outcome, associated financial liability, and expenses of litigation. Adjudicatory outcome refers to the legal disposition of a claim as it makes its way into and through the court system and includes resolution of claims by formal verdict as well as by settlement. The study also investigated how the number of claims, average indemnity payments, paid-to-close ratios (the percentage of closed claims that resolved with a payment to the plaintiff), and litigation expenses have trended over the 23-year study period.

Results: The authors identified 11,529 claims arising from an event originating in an ED, representing over $664 million in total liability over the 23-year study period. Emergency physicians (EPs) were the primary defendants in 19% of ED claims. The largest sources of error, as identified by the individual malpractice insurer, included errors in diagnosis (37%), followed by improper performance of a procedure (17%). In 18% of claims, no error could be identified by the insurer. Acute myocardial infarction (AMI; 5%), fractures (6%), and appendicitis (2%) were the health conditions associated with the highest number of claims. Over two-thirds of claims (70%) closed without payment to the claimant. Most claims that paid out did so through settlement (29%). Only 7% of claims were resolved by verdict, and 85% of those were in favor of the clinician. Over time, the average indemnity payments and expenses of litigation, adjusted for inflation, more than doubled, while both the total number of claims and number of paid claims decreased.

Conclusions: Emergency physicians were the primary defendants in a relatively small proportion of ED claims. The disease processes associated with the highest numbers of claims included AMI, appendicitis, and fractures. The largest share of overall indemnity was attributed to errors in the diagnostic process. The financial liability of medical malpractice in the ED is substantial, yet the vast majority of claims resolve in favor of the clinician. Efforts to mitigate risk in the ED should include the diverse clinical specialties who work in this complex environment, with attention to those health conditions and potential errors with the highest risk.

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The emergency department (ED) is a unique setting, where multiple complex factors contribute to making this health care environment conducive to potential error. Clinicians in the ED must make rapid decisions, often based on incomplete or imperfect information, in a setting characterized by high acuity, high demand, and multiple interruptions and distractions within a narrow time window.[1] The adverse outcomes that result from medical errors are associated with a significant number of medical malpractice claims and financial liability.[2,3] Prior studies have found that the ED contributes to a substantial share of preventable adverse injury and associated financial liability within the health care system.[4–6]

A significant challenge to improving the safety of care provided in the ED is identifying the best means of detecting, measuring, and evaluating medical error.[7] A variety of means are available for investigating patient safety, including peer review committees, risk management sentinel event reviews, autopsy reports, and review of complaints made to regulatory bodies.[8,9] In addition, a primary method of exploring error and risk in the ED has been medical malpractice ''closed-claims analysis,''[10,11] which offers the advantage of studying a potentially large number of patient encounters that have at least a nominal adverse outcome. To date, the majority of such studies have been limited by relatively small numbers of claims restricted to specific patient conditions or adverse outcomes,[12–16] particular kinds of errors,[17] and limited geographies,[18] most often with an exclusive focus on the emergency physician (EP).[19] A recent exception to this is a review by Selbst and colleagues[20] of 2,283 closed malpractice claims originating in the ED or urgent care setting over a period of 16 years. This study, the largest to date, was limited, however, to pediatric patients.

To address the limitations of prior research, we examined malpractice claims data collected by the Physician Insurers Association of America (PIAA). Our study investigated over 11,500 closed malpractice claims in a 23-year study period, where an injury was alleged to an adult patient treated in the ED. We describe the types of alleged errors, patient conditions, severity of injuries, and relative contribution to total liability for claims closed in the study period. We also report the specialty groups with highest overall numbers of claims and indemnity payments. In addition, we describe how the number of claims and the financial liability for the claims changed over time.

METHODS

Study Design

We conducted a retrospective review of closed medical malpractice claims data collected by the PIAA. This study was exempted from review by the institutional review board because study data were anonymous.

Study Setting and Population

PIAA members are physician-owned or -operated insurance carriers that collectively insure approximately 60% of all practicing physicians in the United States.[21] Since 1985, PIAA has maintained a database of closed claims information, obtained from participating medical malpractice insurance carriers. To date this database contains information on over 213,000 medical malpractice claims with over $12.5 billion in total indemnity. PIAA uses the collective data to assist its member organizations in efforts to improve patient safety and mitigate risk. The PIAA database was queried to identify all claims that arose from an alleged injury that occurred in an ED involving a patient 18 years of age or older between January 1, 1985, and December 31, 2007. We report the epidemiologic characteristics of these claims, including common alleged errors, associated patient conditions, severity of injuries, adjudicatory outcome, and financial liability for claims closed in the study period. Claims arising from urgent care centers were excluded. A claim is defined as any written demand for monetary compensation by a patient or patient's family stemming from an alleged injury during the patient's medical care by the insured clinician. A claim is closed when there is a resolution by settlement or by verdict or when a claim is withdrawn, dropped, or dismissed without payment.

The PIAA's member insurers regularly submit malpractice claims data to PIAA using a standardized coding form supplemented by specific reporting instructions. The data submitted do not include any information that would allow for identification of patients, claimants, or insured parties. For each claim, the insurer is instructed to record basic demographic information, including the primary defendant's age, sex, full-time employment status, board certification, U.S. medical school graduate status, and previous claims history. Not all insurers require this information from their insured clinicians, and as a result data on sex, employment status, board certification, and claims history were reported for only 76, 77, 71, and 66%, respectively, for the primary clinician defendant in the data obtained.

Study Protocol

For each claim, using standard instructions from PIAA, each insurer identifies the primary error, or ''misadventure'' code, associated with the claim. The primary error is that which the insurer identifies as the single most significant act or omission on the part of the insured that led to the alleged injury or injuries in a claim. The most commonly reported errors in the PIAA database on ED claims involve diagnosis and performance. In the PIAA database, diagnosis errors include failure to diagnose (not identifying the underlying problem), and incorrectly diagnosing (identifying the wrong condition as the underlying problem). Performance errors include improper performance (a procedure is done incorrectly), failure to perform (provider fails to perform an indicated treatment or procedure), and delay in performance (treatment or procedure is deferred).

The PIAA also collects information on the health conditions or diagnoses associated with the primary error for each claim, as well as the severity of the patient's injuries. Severity of injury is documented according to a classification system from the National Association of Insurance Commissioners (NAIC), using a severity scale

with nine levels.[22] The nine severity levels are emotional injury only (no physical injury alleged or suffered), insignificant injury (minor injury but no treatment is required such as a small cut from a cast saw), minor temporary injury (minor injury that requires continued treatment such as a delay in diagnosis of appendicitis), major temporary injury (injury that results in a complication such as delay in diagnosis of appendicitis that results in peritonitis), minor permanent injury (permanent injury that does not compromise daily activities such as removal of bowel due to circulatory compromise), significant permanent injury (injuries that affect daily living such as a below-knee amputation), major permanent injury (severe injuries that affect daily living such as bilateral leg amputations), grave injury (serious injuries that the patient survives but has limited function such as brain injury that causes a vegetative state), and death.[22]

Finally, for each claim in the database, PIAA lists specific adjudicatory outcomes and financial liability associated with each claim. Adjudicatory outcome refers to the legal disposition of a claim as it makes its way into and through the court system toward a final resolution. Adjudicatory outcome measures include whether the claim progressed to a verdict; ended with a settlement; or was withdrawn, dropped, or dismissed without payment. The primary adjudicatory outcome was determined for 97% of the closed claims in the study period. Three percent of claims were unavailable for specific outcome analysis because the outcome was determined by an alternative to litigation, such as mediation, arbitration, or alternative dispute resolution, or by contractual liability agreements.

Financial liability refers to the legal obligation, incurred by settlement or by verdict, of the insured to compensate a claimant for alleged injury. This liability represents an agreed upon (or adjudicated) payment to be paid to the claimant by the medical malpractice insurer on behalf of the insured physician defendant (i.e., an indemnity payment). It does not include the expenses incurred as a claim is investigated or litigated, such as attorneys' fees. The primary data point examined in our data set is indemnity payments. In addition, where available, the expenses involved in the litigation process are reported separately. The ''payout'' associated with a paid claim represents only the indemnity payment, exclusive of expenses of litigation. The ratio of claims ''paid-to-close'' (the percentage of all closed claims that resulted in an indemnity payment to the plaintiff) is also reported.

Data Analysis

The main study outcomes were the number of claims, relative frequency of claims, average indemnity payments, and paid-to-close ratios. We report these outcomes by primary specialty group, error type, patient health conditions, and severity of injury. We also present information on adjudicatory outcomes for claims closed in the study period.

We conducted a trend analysis on numbers of claims, paid-to-close ratios, indemnity payments, and litigation expenses over the 23-year study period. Dollar amounts in the trend analysis were adjusted for inflation, using the Consumer Price Index with 2007 as the index year. All calculations were performed using Microsoft Excel version 2007 (Microsoft Corp., Redmond, WA).

RESULTS

During the 23-year study period, there were 11,529 closed claims reported to PIAA's data bank for events that took place in a United States ED involving patients 18 years of age and older. Of these, 3,522 (31%) resulted in a payment to the claimant, representing $664,152,120 of total indemnity, with an average indemnity of $188,572 per paid claim. Among the claims with demographic information available, the majority of claims involved full-time (96%), male (93%) clinicians who were board-certified (74%) graduates of U.S. medical schools (71%) with previous claims experience (72%).

Table 1 displays the top 10 specialty groups associated with the highest numbers of closed claims in the ED. EPs represented the largest number of claims for an individual specialty in the ED. However, the vast majority of claims (81%) that arose from alleged injuries in the ED were attributable to other specialty groups, who either provided direct patient care in the ED or provided consultation services for ED patients. Anesthesiology was associated with the highest average indemnity ($454,934), followed by neurology ($386,721), and psychiatry ($321,190) (data not shown). The largest

Table 1
Top 10 Specialty Groups Responsible for ED Claims, by Total Number of Closed Claims, With Associated Indemnity

Specialty	Closed Claims	% of Total	Paid Claims	% Paid	Total Indemnity	Average Indemnity
Emergency Medicine	2,156	19	662	31	$122,619,720	$185,226
Internal Medicine	1,752	15	528	30	$113,309,655	$214,602
General and Family Practice	1,629	14	566	35	$89,385,139	$157,924
Orthopedic Surgery	1,281	11	374	29	$54,057,564	$144,539
General Surgery	1,155	10	373	32	$55,728,594	$149,406
Radiology	769	7	223	29	$29,571,945	$132,610
Radiation Therapy	726	6	283	39	$80,740,569	$285,302
Obstetrics and Gynecology	298	3	79	27	$13,382,553	$169,399
Cardiology	250	2	55	22	$13,771,348	$250,388
Neurology	228	2	70	31	$27,070,456	$386,721
Other	1,285	11	309	24	$64,514,577	$208,785
Total	11,529		3,522	31	$664,152,120	$188,572

payment reported ($4,247,423) was for a claim involving cardiothoracic surgery (data not shown).

The top 10 most common categories of errors identified as the primary, or most significant, single factor attributed to each claim are provided in Table 2. Errors in diagnosis—including failure to diagnose and diagnosing incorrectly—were identified as the primary misadventure in 37% of all closed claims in the ED. The payout for this category, over $347 million, represented 46% of all paid claims in the database. The next highest error category included improper performance of a procedure (17% of all claims), which was associated with the highest average indemnity payment ($248,422) of all error types. Three of the top 10 types of error involved delays in patient care, including delays in performance (of a procedure or treatment), referral, consultation, or admission to the hospital. For 2,091 claims, no error could be identified by the provider's insurer. These claims involved allegations that were felt to have potential legal merit as a result of some factor other than error attributed to the insured. Although claims without identified error represented 18% of the total closed claims in the database, they were paid only 4% of the time, representing just over $14 million in total liability. Within the broad error categories, the specific practitioner functions most commonly identified as the primary factor behind each claim included the diagnostic interview, evaluation, or consultation process (30%); the physical examination (8%); and the prescription of medicine (7%) (data not shown). Hands-on procedural errors (diagnostic radiologic procedures and closed reduction of fractures) were attributed to 6 and 5% of closed claims, respectively (data not shown).

Table 3 presents the most common diagnoses involved in ED claims. Acute myocardial infarction (AMI; 5% of all claims) and appendicitis (2% of all claims) were the health conditions associated with the highest number of claims. Bony skeleton fractures appear three times in the top ten diagnoses involved in ED closed claims, including forearm fractures, leg fractures, and bony spine fractures (6% altogether). AMI was associated with the highest paid-to-close ratio (42%), and the highest average indemnity ($317,281) was associated with the diagnosis of chest pain not further defined. The majority of claims involving AMI were attributed to an error in diagnosis (305 claims) (data not shown). More than half (53%) of closed claims

Table 2
Top 10 Categories of Error Attributed to ED Claims, by Total Number of Closed Claims, With Associated Indemnity

Error	Closed Claims	% of Total	Paid Claims	% Paid	Total Indemnity	Average Indemnity
Error in diagnosis	4,233	37	1,642	39	$347,200,036	$211,449
No error identified by insurer	2,091	18	84	4	$14,415,118	$171,609
Improper performance	1,935	17	571	30	$78,283,607	$137,099
Failure to supervise or monitor a case	755	7	321	43	$67,987,917	$211,800
Failure to perform	405	4	172	42	$24,255,313	$141,109
Delay in performance	301	3	114	38	$28,320,109	$248,422
Medication errors	275	2	97	35	$10,805,493	$111,397
Failure or delay in referral or consultation	273	2	110	40	$20,589,683	$187,179
Failure or delay in admission to hospital	269	2	114	42	$25,542,958	$224,061
Failure to recognize treatment complication	255	2	80	31	$13,685,671	$171,071
Other	737	6	217	29	$33,066,215	$152,379
Total	11,529		3,522	31	$664,152,120	$188,572

Table 3
Top 10 Diagnoses Involved in ED Claims, by Total Number of Closed Claims, With Associated Indemnity

Diagnosis	Closed Claims	% of Total	Paid Claims	% Paid	Total Indemnity	Average Indemnity
Acute myocardial infarction	573	5	238	42	$58,384,676	$245,314
Chest pain, not further defined	419	4	142	34	$45,053,898	$317,281
Symptoms involving abdomen and pelvis	377	3	100	27	$22,091,122	$220,911
Injury to multiple parts of the body	306	3	94	31	$17,537,303	$186,567
Appendicitis	260	2	80	31	$4,831,763	$60,397
Fracture of vertebral column	260	2	79	30	$14,884,605	$188,413
Fracture of the radius or ulna	245	2	69	28	$5,118,501	$74,181
Aortic aneurysm	222	2	72	32	$17,285,508	$240,077
Open wound to fingers	184	2	67	36	$3,413,981	$50,955
Fracture of the tibia or fibula	183	2	55	30	$7,951,831	$144,579
Other	8,500	74	2,526	30	$467,598,932	$185,114
Total	11,529		3,522	31	$664,152,120	$188,572

associated with a missed or improperly diagnosed AMI resulted in a payment, the highest paid-to-close rate of any major diagnostic group for this error category (data not shown).

Table 4 displays claims by severity of injury. Claims involving a patient death contributed 36% of all closed claims arising from the ED, 40% of all paid claims, and just under one half of the total liability in the reporting period – over $312 million. AMI was the most common diagnosis in claims involving a patient death (393 claims), followed by chest pain not further defined (258 claims), aortic aneurysm (213 claims), symptoms involving the abdomen or pelvis not further defined (168 claims), and pulmonary embolism (115 claims) (data not shown). Over a third (37%) of closed claims where death occurred were attributed to errors in diagnosis (data not shown).

Average indemnity was associated with severity of alleged injury. Three categories of injury (significant permanent, major permanent, and grave) together with death constituted 80% of the total indemnity in the database (over $531 million). Examples of injuries grouped in these categories would include loss of sight, extremity amputation, paraplegia or quadriplegia, and brain damage. Isolated fracture of the vertebral column, including the cervical, thoracic, or lumbar spine, was the most common diagnosis (100 claims) for claims that involved significant permanent, major permanent, or grave injury, followed by AMI (81 claims), chest pain not further defined (58 claims), cerebrovascular accident (44 claims), and injury to multiple parts of the body (43 claims) (data not shown).

Table 5 presents closed claims in the reporting period by adjudicatory outcome. Seven percent of claims progressed to a completed trial. Of these, only 15% resulted in a verdict for the plaintiff, representing 1% of the total claims in the database. The remaining 93% of cases were closed with settlement payments (29%), or were withdrawn, dropped, or dismissed without payment (64%). The overwhelming bulk of indemnity paid out for claims in this reporting period was a product of settlement (96% of paid claims). Average indemnity for claims resolved by settlement ($175,545) was significantly lower than the average indemnity sustained for claims that were adjudicated in favor of the plaintiff by verdict ($393,350). When indemnity payments and expenses of litigation are factored in to the total money spent defending each paid claim, those claims that resolve by verdict had a significantly higher overall average total cost of litigation ($469,826 per claim) than those that resolve through settlement ($201,188 per claim).

Figure 1 demonstrates the annual variation in numbers of closed claims and paid claims, as well as in average indemnity payments and expenses of litigation. The total number of closed claims reported per year has trended downward, from 432 in 1985 to 341 in 2007, as has the number of paid claims per year, from 130 in 1985 to 91 in 2007. In contrast, the average indemnity payment and average expense per claim have

Table 4
Claims Listed by Severity of Injury, With Associated Indemnity

Injury	Closed Claims	% of Total	Paid Claims	% Paid	Total Indemnity	Average Indemnity
Emotional	260	2	27	10	$2,279,595	$84,429
Insignificant	363	3	63	17	$1,935,214	$30,718
Minor temporary	2,115	18	540	26	$27,669,430	$51,240
Major temporary	1,520	13	413	27	$47,086,994	$114,012
Minor permanent	1,388	12	411	30	$55,005,362	$133,833
Significant permanent	894	8	319	36	$80,566,849	$252,561
Major permanent	557	5	230	41	$77,693,742	$337,799
Grave	312	3	130	42	$60,943,767	$468,798
Death	4,120	36	1,394	34	$312,499,167	$224,174
Total*	11,529		3,527	31	$665,680,120	$188,738

*Five paid claims were classified in more than one category.

Table 5
Resolution of Claims by Adjudicatory Outcome, With Associated Indemnity and Expense

Outcome	Closed Claims	% of Total	Total Indemnity	Average Indemnity	Total Expense	Average Expense
Verdict for plaintiff	119	1	$46,808,680	$393,350	$9,100,559	$76,475
Verdict for defendant	667	6			$42,420,504	$63,599
Settlement (with payment to plaintiff)	3,216	29	$564,553,150	$175,545	$82,468,149	$25,643
Withdrawn, dropped, or dismissed (without payment to plaintiff)	7,220	64			$85,045,120	$11,779
Total*	11,222		$611,361,830	$183,317	$219,034,332	$19,518

*Specific adjudication information not available for 307 claims resolved through alternative means, such as arbitration or mediation.

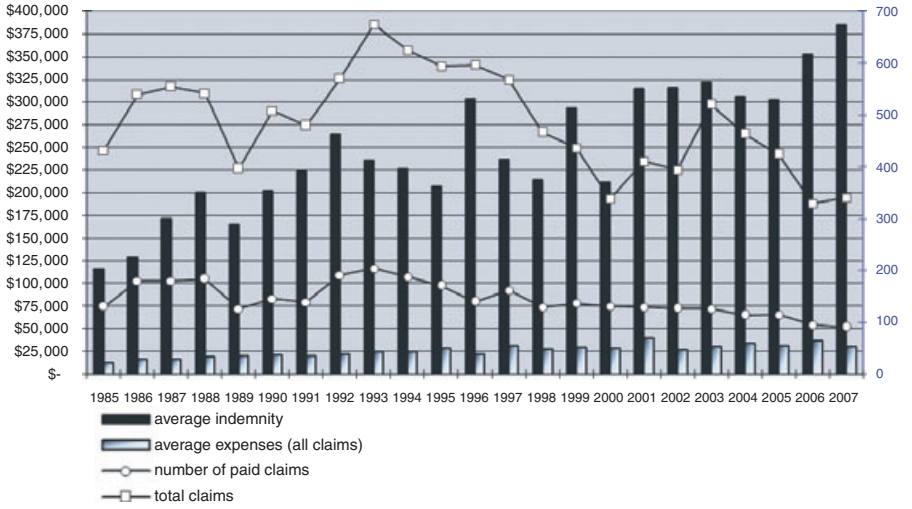

Figure 1. Annual variation in numbers of closed claims and paid claims, as well as in average indemnity payments and expenses of litigation, adjusted for inflation.

both steadily increased over the reporting period, adjusted for inflation. The average indemnity payment in 2007 was $384,603, significantly higher than the average payment in 1985 ($115,952), adjusted for inflation. The average expense associated with defending a claim was $30,810 in 2007, significantly higher than the average expense in 1985 ($12,693), adjusted for inflation.

DISCUSSION

We reviewed data on more than 11,500 closed claims made over a 23 year period as a result of alleged malpractice to an adult patient treated in an ED. We found that fewer than one-fifth of claims involved an EP as the primary defendant. Diagnostic errors were identified as the most prevalent type of error. AMI, appendicitis, and fractures were the most common conditions involved in alleged malpractice, and most claims in our study were the result of alleged serious and permanent injuries. The vast majority of claims closed without a completed trial, and the small number that did proceed to a verdict were decided most often in favor of the clinician. The number of total claims and paid claims both decreased over the study period, while the average payouts and average expenses to defend claims have increased.

Emergency physicians were associated with only 19% of all closed claims in our study. Our study suggests that improving patient safety and mitigating risk in the ED setting requires a broader focus that involves the numerous specialties that provide care in and through the ED. Efforts that coordinate feedback among specialties that play a significant role in the diagnosis and treatment of ED patients may provide useful information for all specialty groups to improve care of patients in the ED.[23,24] Systems changes that focus only on the EP in the ED may miss a substantial amount of error and injury, and ignore the complex specialty interactions that are required to treat the critically ill.

Errors in diagnosis represented the single largest source of identified error, and almost half of all paid claims in our study were attributed to an improper or missed diagnosis. Our study is consistent with prior research studies that have reported diagnostic errors as the most common factors in adverse events suffered in the ambulatory and ED setting.[17,21,25,26] Performing an adequate history and physical examination, ordering and interpreting appropriate diagnostic tests, and obtaining timely and necessary consults, are areas identified as potential areas for improvement in the diagnostic process for ED patients.[17] Future research should aim to more precisely identify which aspects of the diagnostic process most commonly result in patient harm, and which aspects of patient care are most amenable to preventive measures.

No error could be identified in 18% of claims closed in the study period, and only 4% of these claims resulted in a payment to the claimant. Specific information about the kinds of alleged injuries and errors associated with these claims was not available, making it difficult to speculate about why these claims were infrequently paid. The low paid-to-close ratio may suggest that the medico-legal system acts as an effective filter against demands for compensation where no negligent act occurs. However, it may also reflect an inability of the medico-legal system, with its focus on identifying specific parties at ''fault,'' to compensate patients when systems errors, rather than errors made by individuals, lead to adverse outcomes. Preventing injury and providing compensation may require a broader conception of how error occurs in large complex systems, and a shift from blaming individual providers for negligent actions towards identifying systems failures that allow error to occur.

Our findings are consistent with prior studies that have identified AMI, appendicitis, and fractures as high-frequency diagnoses involved in medical error and risk management.[17,19] AMI was the most frequently alleged missed diagnosis, the diagnosis most associated with a death, and had the highest paid-to-close ratio of any diagnosis in our study. While our study was not designed to determine the cause of potential misdiagnoses, other studies have identified some common

diagnostic tasks, such as correct interpretation of electrocardiograms and performing an adequate history and physical, as central to improving the ability of the practitioner to properly diagnose patients with chest pain.[12,13] AMI remains a diagnostic challenge with an associated high risk of medical malpractice liability; particular vigilance when this diagnosis is entertained is warranted.

Most closed claims arise from serious patient injuries. Over a third of the claims in our study involved a death, and 80% of the total indemnity in the database was due to serious or permanent injuries. Emotional or insignificant injuries did not represent a significant portion of the total claims, had low average indemnity, and low paid-to-close ratios. Few claims in our study proceeded through a completed trial, and 85% of verdicts favored the clinician. Seventy percent of claims closed without a payment to the claimant. Nonetheless, these claims are associated with significant litigation expenses. The 7,220 claims that closed without a payment to the plaintiff were associated with over $85 million in total expenses.

While the number of total claims and paid claims in our study period both decreased over time, the average indemnity and average expenses associated with these claims have more than doubled since 1985. This finding is consistent with other investigations of medical malpractice trends.[2,3,27] Recent research suggests that fear of malpractice liability significantly influences the care that health care practitioners provide, leading to increased practice of defensive medicine, particularly in high-risk environments such as the ED.[28–30] Changes in the malpractice insurance market, recent state-level reform efforts resulting in statutory caps on damages and tighter requirements for filing medical malpractice lawsuits, and changing practice patterns engendered by improvements in technology, all may play a role in shaping future trends and warrant future study.[31–33]

LIMITATIONS

We chose to examine closed medical malpractice claims, a method of studying malpractice risk that will miss significant numbers of medical errors and adverse patient outcomes. Other studies have shown that a substantial number of medical errors and adverse outcomes do not result in litigation.[34,35] Those errors or injuries that do result in litigation may over-represent more egregious injuries or less complex processes that are more readily litigated. Closed claims analysis is inherently subject to hindsight bias, including the specific weakness that identification of error takes place after a patient has brought forward an allegation of harm.

This study relied on data pooled by a trade association, PIAA, that represents and advocates for a large number of medical malpractice insurance companies. The data available for analysis by parties outside of the PIAA organization are limited. All approved analyses were conducted by PIAA staff, and were restricted to aggregate findings. The PIAA database consists of data pooled from a number of different insurers, each with different operating practices and reporting capabilities, and it was not possible to determine the data integrity or comparability of the data from insurer to insurer. Not all data, in particular demographic information, were consistently reported for all claims. Nor was it possible to determine why some specialty groups working in the ED had higher average indemnity payments than others, as specialty-specific data on ED claims were not available. Coding decisions were made by insurance carrier staff, not independent clinician reviewers, and those decisions were made for the purpose of preparing for malpractice litigation.

The PIAA data sharing project attempts to identify one primary error, and one primary patient health condition, for each closed claim. Attempting to isolate one primary error as the cause of an alleged negligent act or omission does not acknowledge the often equal contributions of multiple sources of error to a given adverse health outcome. This is particularly true of the ED, where many factors play a role in the diagnosis and treatment of the critically ill.[36] While a number of medical malpractice insurers participate in PIAA's data sharing project, it is not clear how generalizable the medical malpractice experiences of these insurers' clinicians are to other insured groups.

CONCLUSIONS

We provide epidemiologic information for over 11,000 closed malpractice claims arising from United States EDs—to the best of our knowledge the largest study to date to examine the types of errors, disease processes, and associated liability for patients alleging harm as a result of their seeking emergency care. Our results support the need for a broader focus on coordinating risk reduction and patient safety efforts within the context of a complex system and the wide range of specialties that care for patients in the ED. Previous studies have identified certain conditions, such as acute myocardial infarction, appendicitis, and fractures as high-risk disease processes in the ED, and our study supports continued vigilance when practitioners are presented with these conditions. Diagnostic error remains a challenging reality of caring for patients, and efforts to enhance safety and mitigate risk in the ED should focus on identifying those aspects of the diagnostic process that are most amenable to error prevention reforms.

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