

ORIGINAL RESEARCH

Liability Impact of the Hospitalist Model of Care

Adam C. Schaffer, MD^{1*}, Ann Louise Puopolo, BSN, RN², Supriya Raman, BE, MS², Allen Kachalia, MD, JD¹

¹Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts; ²Risk Management Foundation of the Harvard Medical Institutions, Cambridge, Massachusetts.

BACKGROUND: An increasingly large proportion of inpatient care is provided by hospitalists. The care discontinuities inherent to hospital medicine raise concerns about malpractice risk. However, little published data exist on the medical liability risks associated with care by hospitalists.

OBJECTIVE: We sought to determine the risks and outcomes of malpractice claims against hospitalists in internal medicine.

DESIGN: Retrospective observational analysis.

MEASUREMENTS: Using claims data from a liability insurer-maintained database of over 52,000 malpractice claims, we measured the rates of malpractice claims against hospitalists compared to other physician specialties, types of allegations against hospitalists, contributing factors, and the severity of injury in and outcomes of these claims.

RESULTS: Hospitalists had a malpractice claims rate of 0.52 claims per 100 physician coverage years (PCYs), which

was significantly lower than that of nonhospitalist internal medicine physicians (1.91 claims per 100 PCYs), emergency medicine physicians (3.50 claims per 100 PCYs), general surgeons (4.70 claims per 100 PCYs), and obstetricians-gynecologists (5.56 claims per 100 PCYs) ($P < 0.001$ for all comparisons). The most common allegation types made against hospitalists were for errors in medical treatment (41.5%) and diagnosis (36.0%). The most common contributing factors underlying claims were deficiencies in clinical judgment (54.4%) and communication (36.4%). Of the claims made against hospitalists, 50.4% involved the death of the patient.

CONCLUSIONS: Despite fears of increased liability from the hospitalist model of care, hospitalists in internal medicine are subject to medical malpractice claims less frequently when compared to other internal medicine physicians and specialties. *Journal of Hospital Medicine* 2014;9:750–755. © 2014 Society of Hospital Medicine

The hospitalist model of care is becoming an increasingly prominent part of the inpatient clinical landscape. The percentage of hospitals in which hospitalists provide care has risen every year since 2003, and this trend is anticipated to continue.¹ In 2010, 59.8% of hospitals reported utilizing hospitalists to provide care, with a prevalence as high as 84.9% in New England.¹ Though the model started within internal medicine,² hospitalists can now be found in multiple medical disciplines including pediatrics, neurology, obstetrics-gynecology, and orthopedics.³ This model has many strengths, which include an improved provider presence in the hospital for acute issues, as well as a better understanding of hospital operations and knowledge of inpatient care. However, concerns have been raised that the hospitalist model, which does not usually involve longitudinal relationships with patients and introduces discontinuities in care, could carry a higher risk of malpractice claims.^{4–6}

However, little is known about whether the hospitalist model actually leads to greater liability. Theoretical analyses suggest that failure to provide adequate follow up care, especially with regard to tests pending at discharge, may be a source of greater medical liability risk for hospitalists.⁷ Coordination of care with consulting specialists and supervision of trainees may also be areas of increased liability risk.^{7,8} Prior research evaluating the difference in malpractice payments between the inpatient and outpatient settings found that the mean payment amounts were significantly higher in the inpatient setting.⁹ Another study examined the rates of malpractice claims against physicians and determined that internal medicine physicians were at average risk of claims compared to other specialties.¹⁰ However, none of the available data have provided direct information on liability risks specific to the hospitalist model.

METHODS

Design and Malpractice Claims Data

We conducted a retrospective observational analysis using closed claims data obtained from a liability insurer-maintained database of over 52,000 coded medical malpractice claims. This database includes claims from 20 different insurance programs providing coverage to over 3000 different organizations, including academic medical centers, community hospitals, and physician groups. Approximately 30% of closed claims in the United States are included in the database.

*Address for correspondence and reprint requests: Adam C. Schaffer, MD, Brigham and Women's Hospital, PBB-B-428, 75 Francis Street, Boston, MA 02115; Telephone: 617-278-0055; Fax: 617-278-6906; E-mail: aschaffer1@bics.bwh.harvard.edu

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TABLE 1. Rates of Medical Malpractice Claims by Physician Specialty

	Hospitalists (Internal Medicine Only)	All Other Internal Medicine Physicians	Emergency Medicine Physicians	General Surgeons	Obstetricians- Gynecologists
No. of claims	16	398	90	191	248
Physician coverage years	3,060	20,787	2,571	4,062	4,462
Claims per 100 physician coverage years (95% CI)	0.52 (0.30-0.85)	1.91* (1.73-2.11)	3.50* (2.82-4.29)	4.70* (4.07-5.40)	5.56* (4.90-6.27)

* $P < 0.001$ compared to hospitalists.

NOTE: Analysis is based on data from a single large malpractice insurer. Abbreviations: CI, confidence interval.

Claims in the database are categorized by allegation type, factors contributing to the error or injury, severity of injury, and claim outcome. Database categorization of claims was performed by trained registered nurses and performed according to prespecified criteria. Data on the number of physician coverage years (PCYs) were available for only one of the medical liability carriers, which covers a number of academic medical centers and community hospitals in New England. Therefore, claims rate analyses are based on information from this one insurer, which included 34,942 PCYs during the study period.

Claims with injury dates from 1997 to 2011 were used for analyses in this study. We chose 1997 as the starting year for the analysis because that was the first year the database formally included hospitalist claims as a separate category. For malpractice claims rates, the period analyzed was for injury dates from 1997 to 2008. We used 2008 as the cutoff for the analysis of claims rates to account for the time lag that can exist between the date of the alleged malpractice and the filing of a malpractice claim. Claims were classified by physician practice specialty, based on the attending physician's specialty at the time of the care that led to the claim. Hospitalists were defined as internal medicine physicians who spend >50% of their time practicing in the inpatient setting. This study was approved by the institutional review board at Brigham and Women's Hospital in Boston, Massachusetts.

Outcome Variables

Our primary outcome was the rate of malpractice claims, expressed as the number of malpractice claims per 100 PCYs. Other outcome variables, including major allegation types, contributing factors, and severity of injury, are reported as number of cases within a given category or subcategory and percentages of cases. The percentages are calculated as the percentage of the total number of claims against hospitalists. Severity of injury is ranked based on the National Association of Insurance Commissioners' Severity of Injury Scale, a standard scale for measuring the severity of injury in tort cases.^{11,12} Payment status refers to whether or not payment was made on a malpractice claim, regardless of whether payment resulted from a court judgment or a settlement. Compensation amounts are adjusted for

inflation using the US Bureau of Labor Statistics Consumer Price Index, based on the year of payment and reported in 2011 dollars.¹³

Statistical Analysis

Comparisons between mean and median payment amounts were performed using the Wilcoxon rank sum test, as the distributions of the payment amounts were non-normal. Comparisons for physician claims rates, severity of injury, and the percentage of cases in which payment was made were performed using Fisher's exact test. Confidence intervals (CIs) for proportions were calculated using the exact (Clopper-Pearson) method. Tests performed were 2-sided, with a P value <0.05 considered significant. Statistical analysis was performed using the SAS statistical software package, version 9.2 (SAS Institute Inc., Cary, NC).

RESULTS

We identified 272 medical malpractice claims against hospitalists. The mean age of the claimants was 56 years (standard deviation, 22 years). Claimants were 51.8% female and 44.5% male (gender not available for 3.7%).

The rate of claims against hospitalists (0.52 claims per 100 PCYs; 95% CI: 0.30-0.85) was significantly lower than the rate of claims against nonhospitalist internal medicine physicians (1.91 claims per 100 PCYs; 95% CI: 1.73-2.11), as well as the other physician types studied ($P < 0.001$ for all claims rate comparisons) (Table 1). The rate of claims against nonhospitalist internal medicine physicians and emergency medicine physicians were approximately 3.5 times and 7 times, respectively, the rate of claims against hospitalists.

The most common types of allegations against hospitalists were for issues related to medical treatment (41.5%; 95% CI: 35.6%-47.6%) and diagnosis-related claims (36.0%; 95% CI: 30.3%-42.0) (Table 2). The most common steps in the diagnostic process implicated in the diagnosis-related allegations were errors in the ordering of diagnostic or lab tests (16.2%; 95% CI: 12.0%-21.1%) and the performance of the history and physical (12.1%; 95% CI: 8.5%-16.6%).

The most common categories of contributing factors were errors in clinical judgment (54.4%; 95% CI: 48.3%-60.4%) and lapses in communication

TABLE 2. Major Allegation Types in Hospitalist Medical Malpractice Cases (n = 272)*

Category	No. of Cases	% of Cases (95% CI)
Medical treatment	113	41.5% (35.6%-47.6%)
Diagnosis related [†]	98	36.0% (30.3%-42.0%)
Patient notes problem and seeks medical care	2	0.7% (0.1%-2.6%)
History/physical and evaluation of symptoms	33	12.1% (8.5%-16.6%)
Ordering of diagnostic/labs tests	44	16.2% (12.0%-21.1%)
Performance of tests	8	2.9% (1.3%-5.7%)
Interpretation of tests	22	8.1% (5.1%-12.0%)
Receipt or transmittal of test results	8	2.9% (1.3%-5.7%)
Physician follow-up with patient	6	2.2% (0.8%-4.7%)
Referral management or consultation errors	24	8.8% (5.7%-12.8%)
Medication related	26	9.6% (6.3%-13.7%)
Patient monitoring	12	4.4% (2.3%-7.6%)
Surgical treatment	9	3.3% (1.5%-6.2%)

*Major allegation types involving 5 or fewer cases are not reported. Therefore, the total number of cases adds up to fewer than 272.

[†]Diagnosis-related subcategories are listed in the temporal sequence of the diagnostic process, rather than from most common to least common. Within the category of diagnosis-related allegations, there could be diagnostic errors at more than one step in the diagnostic process. Therefore, the diagnosis-related allegation subcategories add up to more than the total number of diagnosis-related allegations.

NOTE: Abbreviations: CI, confidence interval.

(encompassing communication among clinicians and between the clinician and patient) (36.4%; 95% CI: 30.7%-42.4%) (Table 3). Issues involving transitions of care were a factor in 37.9% of cases (95% CI: 32.1%-43.9%). Supervision of housestaff was a factor in 1.5% of cases (95% CI: 0.4%-3.7%).

The percentage of claims involving a patient death was significantly higher among hospitalist cases (50.4%; 95% CI: 44.3%-56.5%) compared to all other inpatient cases (29.1%; 95% CI: 28.4%-29.8%) or outpatient cases (18.2%; 95% CI: 17.6%-18.9%)

($P < 0.001$ for both comparisons), but lower than non-hospitalist inpatient internal medicine cases (57.6%; 95% CI: 54.6%-60.5%) ($P = 0.035$) (Table 4).

There were no significant differences in the percentage of hospitalist cases in which payment was made (32.0%; 95% CI: 26.5%-37.9%) compared to any of the other 3 groups studied (Table 5). The median payment in hospitalist cases, \$240,000 (interquartile range [IQR]: \$100,000–\$524,245), was significantly higher than that in all other inpatient cases (\$156,714; IQR: \$39,188–\$488,996) ($P = 0.040$) and in outpatient cases (\$92,671; IQR: \$20,895–\$325,461) ($P < 0.001$), though not significantly different than the median payment in all other inpatient internal medicine cases (\$206,314; IQR: \$57,382–\$488,996).

DISCUSSION

In our analysis of closed medical malpractice claims, we found that hospitalists have a significantly lower rate of claims compared to the other types of physicians studied, including other internal medicine physicians and emergency medicine physicians. Although hospitalists had a relatively low rate of claims, the severity of injury involved in those claims was high.

Prior research has found that the proportion of internal medicine physicians who face a malpractice claim each year is between 7% and 8%.¹⁰ The rate of claims against internal medicine physicians in this prior study was similar to that of emergency medicine physicians, who, like hospitalists, are defined by their site of practice. In addition, both frequently work with acutely ill patients with whom they do not have a longitudinal relationship. However, this prior analysis did not assess for any difference in malpractice risk based on whether internal medicine physicians were

TABLE 3. Contributing Factors in Hospitalist Medical Malpractice Cases (n = 272)*

Contributing Factor	No. of Cases	% of Cases (95% CI)	Definition or Example
Clinical judgment	148	54.4% (48.3%-60.4%)	Problems with patient assessment or choice of therapy; failure/delay in obtaining consult/referral
Failure or delay in ordering a diagnostic test	36	13.2% (9.4%-17.8%)	
Failure or delay in obtaining a consult or referral	35	12.9% (9.1%-17.4%)	
Having too narrow a diagnostic focus	34	12.5% (8.8%-17.0%)	
Communication	99	36.4% (30.7%-42.4%)	Issues with communication among clinicians or between the clinicians and the patient or family
Inadequate communication among providers regarding the patient's condition	61	22.4% (17.6%-27.9%)	
Poor rapport with/lack of sympathy toward and patient and/or family	15	5.5% (3.1%-8.9%)	
Insufficient education of the patient and/or family regarding the risks of medications	9	3.3% (1.5%-6.2%)	
Documentation	53	19.5% (14.9%-24.7%)	Insufficient or lack of documentation
Administrative	47	17.3% (13.0%-22.3%)	Problems with staffing or hospital policies and protocols
Clinical systems	44	16.2% (12.0%-21.1%)	Failure or delay in scheduling a recommended test or failure to identify the provider coordinating care
Behavior related	28	10.3% (7.0%-14.5%)	Patient not following provider recommendations; seeking other providers due to dissatisfaction with care

*An individual case may have multiple contributing factors. Categories including <10% of cases are not reported. Nonsubstantive categories, such as inadequate information available, are excluded. Where subcategories are specified, only the top 3 subcategories are reported.

NOTE: Abbreviations: CI, confidence interval.

TABLE 4. Severity of Injury in Medical Malpractice Claims

Severity*	Hospitalists Cases, Internal Medicine Only, n = 272		All Other Inpatient Internal Medicine Cases, n = 1120		All Other Inpatient Cases, n = 14,386		Outpatient Cases, n = 15,039	
	No. of Cases	% of Cases (95% CI)	No. of Cases	% of Cases (95% CI)	No. of Cases	% of Cases (95% CI)	No. of Cases	% of Cases (95% CI)
Low	19	7.0% (4.3%-10.7%)	61	5.4% (4.2%-6.9%)	1,180	8.2% (7.8%-8.7%)	2,279	15.2% [†] (14.6%-15.7%)
Medium	65	23.9% (19.0%-29.4%)	235	21.0% (18.6%-23.5%)	6,503	45.2% [†] (44.4%-46.0%)	7,803	51.9% [†] (51.1%-52.7%)
High	188	69.1% (63.3%-74.6%)	824	73.6% (70.9%-76.1%)	6,703	46.6% [†] (45.8%-47.4%)	4,957	33.0% [†] (32.2%-33.7%)
Death	137	50.4% (44.3%-56.5%)	645	57.6% [‡] (54.6%-60.5%)	4,186	29.1% [†] (28.4%-29.8%)	2,744	18.2% [†] (17.6%-18.9%)

*The severity of injury is ranked based on the National Association of Insurance Commissioners' Severity of Injury Scale.¹¹ The high severity of injury category includes death and nonfatal high-severity injuries.

[†]P < 0.001 compared to hospitalists.

[‡]P = 0.035 compared to hospitalists.

NOTE: Abbreviations: CI, confidence interval.

practicing primarily as outpatient physicians or as hospitalists, and so the liability risk of hospitalists (as opposed to internal medicine physicians generally) remains undefined. Our analysis sought to determine whether there is a difference in claims rates when adopting a hospitalist model.

Notably, two factors have been raised as potentially increasing the risk that hospitalists will be subject to malpractice claims. The first is that hospitalists have only a brief relationship with their patients, thus limiting their ability to form the strong physician-patient relationships that decrease the likelihood of a malpractice claim.¹⁴⁻¹⁷ Second, hospitalists face the challenge of transitions of care as patients move from the outpatient to the inpatient setting, and vice versa.^{4,7,18,19} Despite these theoretical concerns, we found that hospitalists face a relatively low rate of claims compared to other physicians. The reasons for this low liability risk remain uncertain.

One possible explanation for this relatively low rate of claims against hospitalists is that hospitalists are actually at lower risk of missing a diagnosis, the most common reason for a malpractice claim in the ambulatory setting.²⁰⁻²² In contrast to how patients may present in the clinic or the emergency department,

when patients are admitted to the hospital, it is likely that they present to the hospitalist with a known problem, rather than a clinical symptom without an etiology. For example, when a patient is admitted to the hospital for chest pain, other physicians may have already been concerned enough to raise clinical suspicion of a myocardial infarction and order basic testing, making the diagnosis less likely to be missed when the hospitalist assumes care of that patient. Indeed, we found that, among the claims made against hospitalists, the leading type of allegation was an error in treatment rather than an error in diagnosis.

It is also possible that the lower rate of claims against hospitalists reflects the high quality of care provided by hospitalists, resulting from their clinical expertise and knowledge of hospital systems. High clinical volume is associated with better outcomes for multiple surgical procedures,²³ and, to a lesser degree, for certain medical conditions.²⁴ Because hospitalists are likely to see a high volume of those medical conditions that regularly require admission to an inpatient medical service, this high volume could translate into higher quality of care, both because of medical expertise in managing these conditions and because of

TABLE 5. Payment Status and Amount*

	Hospitalist Cases, Internal Medicine Only		All Other Inpatient Internal Medicine Cases		All Other Inpatient Cases		Outpatient Cases	
	No. of Cases	% of Cases (95% CI)	No. of Cases	% of Cases (95% CI)	No. of Cases	% of Cases (95% CI)	No. of Cases	% of Cases (95% CI)
Payment made	87	32.0% (26.5%-37.9%)	330	29.5% (26.8%-32.2%)	5164	35.9% (35.1%-36.7%)	4632	30.8% (30.1%-31.5%)
No payment made	185	68.0% (62.1%-73.5%)	790	70.5% (67.8%-73.2%)	9222	64.1% (63.3%-64.9%)	10407	69.2% (68.5%-69.9%)
Mean payment (95% CI)	\$384,617 (\$289,662-\$479,573)		\$451,713 (\$359,656-\$543,769)		\$482,963 (\$452,725-\$513,202)		\$305,462 [†] (\$286,517-\$324,408)	
Median payment (IQR)	\$240,000 (\$100,000-\$524,245)		\$206,314 (\$57,382-\$488,996)		\$156,714 [‡] (\$39,188-\$488,996)		\$92,671 [†] (\$20,895-\$325,461)	
Standard deviation	\$445,531		\$850,086		\$1,108,404		\$657,707	

*Payment can be made either as a result of a court judgment or a settlement. Dollar amounts are inflation adjusted and expressed in 2011 dollars.

[†]P < 0.001 compared to hospitalists.

[‡]P = 0.040 compared to hospitalists.

NOTE: Abbreviations: CI, confidence interval; IQR, interquartile range.

proficiency in dealing with hospital systems. However, this theory must be tempered by the conclusion from earlier work that did not show a large difference in outcomes among patients cared for by hospitalists.²⁵

Another reason for the lower claims rate could be a direct result of how hospitalist jobs are structured. In prior research, an inadequate physician-patient relationship has been found to be a factor in patients deciding to file a malpractice claim.¹⁴⁻¹⁷ Although hospitalists usually only care for their patients during the few days of the hospital admission, hospitalists are on site all day and thus are able to frequently communicate with patients and families face to face. This level of interaction may allow for a sufficiently healthy, even if time-limited, physician-patient relationship that meets patients' expectations.

For the claims that occur, deficiencies in communication and transitions of care, both of which have been cited as a special concern for hospitalists, were in fact present in 37.9% of the hospitalist cases we evaluated.⁷ This proportion appears to be higher than previous work in the ambulatory setting that showed communication generally to be a factor in 30% of cases, and problems related to handoffs specifically to be a factor in 20% of cases.²⁰ These findings highlight the risks associated with the discontinuities inherent in the hospitalist model, which can occur on admission, during the hospitalization (where a number of hospitalists may care for one patient), and on discharge. These findings also point to the need for ongoing efforts to address these concerns.

More than half of the claims against hospitalists (50.4%; 95% CI: 44.3%-56.5%) involved the death of the patient. However, this high rate of claims involving the death of the patient did not appear to be specific to hospitalists. Rather, this appeared to be true for inpatient internal medicine cases generally, because the rate of claims in which the severity of injury was death was significantly higher among non-hospitalist inpatient internal medicine cases (57.6%; 95% CI: 54.6%-60.5%).

Our study has several limitations. Though the database that we used includes hospitals and physician groups from 20 different liability carriers covering multiple regions across the country, it nonetheless may not be entirely representative, especially given the variation in the hospitalist models used at different institutions (for example, coverage of intensive care unit patients) and because of geographic variability. However, the sample did contain a large proportion (approximately 30%) of closed claims nationally. Claims rates are based on data from a single insurance carrier, albeit one with 23,847 PCYs among internal medicine physicians during the study period. Second, we defined hospitalist cases as those cases in which the hospitalist was the attending of record at the time of the clinical event that gave rise to the malpractice

claim. It is possible that this definition captured claims in which the hospitalist, although the attending of record, may not have been directly involved in the care leading to the claim (for example, a problem with a surgery gave rise to the claim). Third, we assessed liability risk by years covered, which does not account for risk that may vary based on clinical volume.

Overall, our results suggest that liability fears should not impede the adoption of the hospitalist model in internal medicine. Not only do hospitalists have a lower rate of claims, but there is also no difference in the rate at which claims are paid or mean indemnity amounts for the claims that are paid for hospitalists. Previous analyses of the costs associated with care by hospitalists, compared to care by other types of physicians, have not taken into account the decreased liability costs that are likely associated with care provided by hospitalists.^{25,26}

In conclusion, contrary to concerns that have been raised, we found that hospitalists face a lower rate of malpractice claims when compared to other internal medicine physicians and specialties. However, we did find that care discontinuities may be resulting in liability risk due to communication and handoff-related errors. Improvements in the hospitalist model of care targeted at improving communication and clinical judgment may not only further reduce claims against hospitalists, but also improve the safety of care associated with this model.

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