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A Retrospective Analysis of Medical Malpractice Litigation in Three New York Counties

Erin J. Farley

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For correspondence, please contact Erin J. Farley, Center for Court Innovation, 520 8th Avenue, 18th Floor, New York, NY 10018 (farleye@courtinnovation.org).

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Executive Summary

In 2010, with funding provided by the Agency for Healthcare Research and Quality of the U.S. Department of Health and Human Services, the New York State Department of Health and the New York State Unified Court System launched the Medical Liability Reform and Patient Safety Demonstration. Piloted at five large academic medical centers, the goals of the project were to reduce preventable injuries, improve doctor/patient communication, and ensure that patients receive fair and quick compensation for medical injuries. To inform the planned demonstration project and future reform initiatives, the Center for Court Innovation was recruited to conduct a retrospective analysis of medical malpractice cases in three New York City counties.

Research Design

The data was drawn from the New York State Department of Health's Medical Malpractice Data Collection System (MMDCS), which collects claims information from malpractice insurers, and the New York State Unified Court System's Civil Case Information System (CCIS). Over an eight-year time frame (2002-2010), cases were drawn from the same counties where the Medical Liability Reform and Patient Safety Demonstration was implemented. The final sample included 3,201 cases. Key measures include plaintiff/patient characteristics (i.e., age, sex, injury severity etc.) and defendant characteristics (i.e., facility or physician) as well as case processing measures¹, case outcomes, and monetary award.

Multiple regression analyses were conducted to determine which variables significantly influenced court outcomes as well as monetary award. Analyses were also conducted to determine whether there was significant variation in outcomes based on either the specific judge(s) who heard the case or on the extent to which there was turnover in the judge(s) who presided over the life course of the case.

Major Findings

Characteristics of Medical Malpractice Cases

- **Baseline Characteristics:** A substantial portion of cases involved female patients (58%), patients' ages 35 to 63 years (50%), and patients with significant physical injuries (46%).² The most commonly cited adverse event location was the operating room (25%), and the average number of days in the hospital was 25 days. The most commonly cited physical specialty was surgery (35%), followed by internal medicine (23%), and obstetrics and gynecology (20%). One-quarter of cases contained at least one claim in

¹ Court case processing measures include: number of court appearances, judicial consistency, and key litigation milestones (i.e., time from RJI filing to first court appearance).

² Utilizing the National Association of Insurance Commissioners recode strategy, the full distribution of patient injuries was 2% emotional, 24% minor physical, 46% significant physical, 9% major physical, and 20% death.

which the defendant's insurance was the (public) Health and Hospitals Corporation (HHC).

- **Court Case Processing Characteristics:** Cases averaged 2.4 years from the initial adverse event to the filing of a court case and averaged an additional 2.4 years (encompassing 14.9 court appearances) from court case filing to disposition.
- **Key Differences between Counties:** Cases in County A averaged significantly fewer court appearances but significantly more time from case filing to disposition in comparison to County B and County C. Specifically, court cases lasted an average of 3.0 years in County A, 2.4 years in County B, and 1.9 years in County C.

Key Predictors of Case Outcomes

- **Baseline Characteristics:** Cases with a greater number of claims, claims with insurance from the New York City Health and Hospitals Corporation (HHC), as well as claims involving injuries ranging from minor physical to death (as opposed to emotional injuries), were significantly more likely to result in case outcomes with monetary awards for the plaintiff. Case outcomes with monetary awards were also most common in the “major physical” injury category.
- **Court Case Processing Measures:** Cases with more motions were less likely to result in a case outcome (i.e., decision for the plaintiff or settlement) with a monetary award. However, cases that were pending for longer—both more days from the adverse event to court filing and more days from the court filing to disposition—were more likely to result in a case outcome with a monetary award. While cases heard in County A averaged a longer processing time than cases heard in County B or County C (where a longer processing time is in turn associated with disposition outcomes with monetary awards), once the analysis *controlled for* case processing time, cases heard in County A were otherwise more likely than others to have a case outcome with no monetary award. Among those cases that did have a case outcome with a monetary award, those heard in County A averaged a higher monetary award than elsewhere.

Key Predictors of Monetary Award

- **Baseline Characteristics:** Cases with alleged malpractice events from County A, a greater number of claims, claims of major physical injuries, and/or young patients averaged significantly greater monetary awards than other types of cases. Those cases with claims of minor physical injuries averaged significantly lower monetary awards than other cases.
- **Court Case Processing Measures:** Cases with a greater number of days between the adverse event and court filing, as well as fewer days between the court filing to disposition, averaged a significantly greater monetary award.

Significance of the Judge in the Case

- Predicting Case Outcome: Analyses revealed a varying degree of influence of judicial measures, depending on county and outcome. Within County A, cases heard by two particular judges were significantly more likely than others to conclude with a case outcome with a monetary award.³ In County B, one judge was more likely than others to hear cases concluding with a disposition resulting in a monetary award for the plaintiff. In County C, outcomes did not vary based on the specific identity of the judge, although case outcomes involving monetary awards were more likely when there was less turnover in whoever the judge was over the life course of the case.
- Predicting Monetary award: Also reflecting the role of the judge, the identity of the judge had a significant association with monetary award in two of the three counties.

Study Limitations

This study possessed several limitations. First, this project did not involve review of medical records, and as a result we were unable to distinguish between meritorious and non-meritorious medical injury claims. In addition, approximately 27% of the cases in the Department of Health database were successfully matched to cases in the corresponding civil dataset; although we have no reason to believe that the matching difficulties were not randomly distributed, we cannot rule out the possibility that our final subsample may not be representative of the total sample.

In addition, when working with large databases, there is always the possibility of data entry error. In this regard, it is important to note that the information entered into the Department of Health databases is collected from medical malpractice insurers, not from the doctors, attorneys, or plaintiffs, which may increase the possibility that particular medical information pertaining to the plaintiff may not always be entirely accurate.

In respect to the civil database, our “starting line” was represented by the date of a Request for Judicial Intervention filing;⁴ however, within New York State, legally substantive activity (i.e., discovery) occurs prior to the RJI filing. An earlier date that would have provided a more accurate benchmark for the beginning of a case would have been the date that the adjudicative case number was purchased; however, this information was not contained in available datasets. A final limitation is that while many of the reported predictive relationships are suggestive, available quantitative data did not reveal how or why their influence was realized in case negotiations and deliberations. Accordingly, caution should be exercised when attempting to interpret the quantitative study findings.

³ To ensure the confidentiality of findings related to specific judges, where various judicial measures were significantly associated with outcomes, the counties in which such findings appeared are not identified.

⁴ The Request for Judicial Intervention is represented by the date the document was filed with the County Clerk’s office. The filing of an RJI can be seen as a starting point for medical malpractice cases, as it is preceded only by the purchasing of an index number. Once RJI is filed, the courts have 45 days to hold a preliminary conference.

Conclusion

Research findings indicate that a variety of factors contribute to medical malpractice costs. While the level of injury severity stands out as a particularly important predictor for both case outcome and monetary award, the analysis also revealed that case processing factors (e.g., number of court appearances and days from RJI filing to disposition), as well as the judge who presided over the case, are influential as well.

New York has created specialized court parts for medical malpractice claims in which cases are assigned to particular judges with extensive knowledge in this area. An underlining principle of these specialized court parts is that, in providing an experienced and knowledgeable judge to preside over medical malpractice cases, they may have the ability to effect positive change in how cases are processed through the civil court system. One particular component of the demonstration project, a judge-directed negotiation program, involves training judges in negotiation and mediation skills so that they may also be able to effect positive change in how cases are processed. Whereas this study does not yield conclusive evidence regarding which specific judicial practices, in fact, make a difference in court cases involving medical malpractice, this study does confirm the broad premise behind the specialized court model that judges do matter.

Chapter One: Introduction and Research Methods

New reforms have recently emerged in an attempt to address the continuing concerns of high malpractice overhead and patient safety related to medical malpractice litigation (AMA 2012). Interest in this topic has also been sparked by the passage of the Patient Protection and Affordable Care Act in 2010, legislation that was motivated in part by the high costs of health care in the United States.

In 2010, with funding provided through the Agency for Healthcare Research and Quality of the U.S. Department of Health and Human Services, the New York State Department of Health and the New York State Unified Court System launched a demonstration project involving five large academic medical centers. These hospitals and agencies came together to implement the New York Medical Liability Reform and Patient Safety model. This model involves employing judge-directed negotiations and a disclosure and early settlement program, with the objective of reducing preventable injuries, improving doctor/patient communication, and ensuring that patients receive fair and quick compensation for medical injuries, while at the same time reducing the incidence of frivolous lawsuits and reducing the high costs of insurance premiums.

As part of the Medical Liability Reform and Patient Safety Demonstration Project, the Center for Court Innovation was recruited to conduct a retrospective analysis of medical malpractice cases in three New York City counties between 2002 and 2010. The retrospective analysis entails merging data from separate court and health databases to link hospital and patient data with civil court data. This analysis was motivated by two key research objectives: 1) determine the factors driving higher medical malpractice costs; and 2) informing the demonstration projects efforts to identify best practices with the end goal of reducing the frequency of malpractice claims, payout costs, and time taken from filing to resolution of civil court cases.

Data Sources

The data in this study was drawn from two separate databases. The first database was the New York State Department of Health's Medical Malpractice Data Collection System (MMDCS), which collects claims information filed against New York State insureds from their malpractice insurers. The second database was the New York State Unified Court System's Civil Case Information System (CCIS), which collects court related information in 13 New York counties regarding medical practice cases in the Civil Division of the Supreme Court.

An eight-year time frame (2002-2010) was isolated. Based on the data made available to us, we were able to identify and utilize both case- and claims-level information. Prior research has defined a claim as "a written demand for compensation for a medical injury" (Studdert et al. 2006; Studdert et al. 2000; Wieler et al. 1993). A plaintiff (whether it be the patient, adult guardian or surviving relative) can file multiple claims against different physicians and/or facilities. In this situation, a case will have a single plaintiff but multiple claims against different defendants. We have been able to extract relevant claims-level data and recode these measures so as to be utilized within a case-level analysis. By doing this we were able to gain a fuller

understanding of medical malpractice litigation not possible from examining only claims-level data. To further elucidate the characteristics of our data we provide a brief data cleaning summary below. See Appendix A for a more detailed description.

The MMCDS data received from the Department of Health provides information on medical malpractice claims and includes a unique adjudicative case number that groups all claims by case. In turn, the CCIS data provided by the Office of Court Administration is maintained at the case-level in which every case has a unique Index Number. In order to merge these two datasets, the MMCDS data was aggregated to the case-level at the same time preserving and transforming claims-level data so that it can be utilized for analytic purposes. First name, last name of the plaintiff and the unique case number (adjudicative and index number) were utilized to enable the merging of the two datasets. Within the court context, a plaintiff may be the patient, an adult guardian of a minor or surviving family. For current purposes, the term plaintiff will most commonly be utilized and will also incorporate the patient. When appropriate, the term patient may be interchanged.

After aggregating and cleaning the MMCDS data, the new dataset contained 8,276 cases. Of these cases, 3,280 (40%) were merged successfully with the CCIS data. A factor contributing to this low percentage is that the MMCDS database contains any case in which a civil index number has been purchased (claim), but only a portion of these cases go on to become lawsuits. In comparison, the CCIS database contains only those cases that have resulted in a lawsuit. After removing an additional 79 merged cases that were identified as ineligible, the final sample of 3,201 included 732 County A cases, 1,355 County B cases, and 1,114 County C cases (see Table 1.1).

Table 1.1. Distribution of Claims and Cases by County

Merged MDCS & CCIS Database	County A	County B	County C	Total
Final Number of Cases	732	1,355	1,114	3,201
Average Number of Claims Per Case	2.04	2.07	1.90	2.00
Range of Claims Per Case	1 to 9	1 to 12	1 to 9	1 to 12

Variables of Interest

The following section describes the variables of interest and the process of recoding, when applicable.

Department of Health’s Medical Malpractice Data Collection System

Patient Demographics

As previously mentioned, each case included in the analysis had the potential to contain more than one claim. As a result, part of the data cleaning process included verifying the validity of measures, like patient demographics, when possible.⁵ Data regarding the patient’s age (range 0 to

96 years) and sex were extrapolated from the claims to the case-level.⁶ No measure was available to provide information regarding a patient's race or ethnicity.⁷

Additional patient-oriented measures included:

- **Injury Severity:** In instances where cases contained more than one claim it was possible, although uncommon, for a case to be classified with varying levels of severity. For ease of analysis, a single measure was created to represent level of injury severity. The original injury severity scale included nine categories,⁸ with the “maximum” number representing the “more severe” injury (i.e., 1 = emotional injury and 9 = death). Citing prior research, this measure was then collapsed into five categories representing *emotional, minor physical, significant physical, major physical* and *death* (Studdert and Mello 2007). Since injury severity is a categorical measure, this variable was further recoded into five independent dichotomous variables.
- **Total Days in Hospital:** For those plaintiffs who were hospitalized, each claim had an associated beginning and ending hospital date. When calculating the total days plaintiffs spend in the hospital, we used the greatest number of days between beginning and ending date for any claim. The range varied from 0 days (representing claimants who had a hospital visit but spent less than one day in the hospital) to 2,686 days.
- **Event Location:** The Event Location measure represents a record of the 16 possible sites in which an adverse event occurred. As a way to simplify the measure for analytic purposes, the first claim was utilized to identify the four most commonly cited locations: the patient's room, the labor/delivery room, the emergency department, and the operating room. Subsequently, four dichotomous variables were created in which *any* case possessing a claim with one of these four common locations was represented with a “1”. Among those cases with two or more claims, it is possible that multiple locations can be cited within a case. As a result, these measures are not mutually exclusive. In turn, there are cases in which none of the four selected locations are referenced.

⁵ In respect to MMDCS data, claim information was vectored prior to aggregation so that as much unique data per claim as possible could be preserved after the aggregation process. For measures that should be consistent across all claims, like patient sex and age, only one measure was saved to represent these variables. Consistency issues included plaintiff's sex (i.e., husband/male) being entered for the patient's sex (i.e., wife/female). In these situations, case characteristics and narrative were utilized to confirm sex of patient (i.e. labor/delivery v. prostate cancer).

⁶ Within a portion of cases, birthdates varied by claim. Some ages were able to be verified by associated case notes. In cases that age was not able to be confirmed, the mean age was calculated during the aggregation process after age was created from birthdates. When possible the consistency of sex identification across claims was verified as well. This was particularly relevant in reference to labor and delivery cases where the mother and newborn characteristics were sometimes interchanged (male newborn mistakenly included with claim related to injuries associated with mother).

⁷ Additional measures in the DOH database included patient's income, occupation, education and number of dependents however; these measures were not utilized with enough consistency to be included in the analysis.

⁸ This injury severity scale was developed by the National Association of Insurance Commissioners (Sowka 1980).

Defendant Characteristics

Information provided at the claim-level also permitted us to extrapolate defendant characteristics to the case level. Defendants fell into two general categories, medical facilities and physicians.⁹ As a result, we created a measure representing defendant type which identified cases with claims against physicians *only*, cases with claims against medical facilities *only*, and cases with claims against *both* physicians and medical facilities. Almost half of all cases (46%) in our sample involved claims against both physicians and facilities. (The remaining cases were split almost equally across the two remaining categories.)

- **Participating Hospitals:** A single dichotomous variable was created in which any case containing a claim in which the adverse event occurred at one of the five participating medical centers was identified as a “1”.¹⁰
- **Insurance Type:** Claim-level information was also available regarding the insurance type for each defendant. The original categorical variable was recoded and combined with an additional insurance variable which permitted agencies to write in the “other” insurance (the most common “other” insurance type was FOJP Service Corporation¹¹). In turn, the categories of this new insurance measure were collapsed to represent four categories of insurance: self-insured entity; insurance company (profit) and Mutual Company; FOJP Service Corporation; and other. Since there was no way to rank these different types of insurance, only the first claim was examined for descriptive purposes. An additional insurance measure, which provided the names of the respective insurance agencies, was utilized to identify any case with at least one claim where the insurance provider was the New York City Health and Hospitals Corporation (HHC). This type of insurance was of particular interest because hospitals insured by HHC had already been utilizing judge-directed negotiations.
- **Physician Specialty:** In general, very little information was available regarding the background characteristics of the defendant-physicians, with physician specialty being one of the few exceptions. This measure provided information regarding 118 specialties. For analytic purposes, the first claim was examined to identify the most commonly cited areas of practice. From this review, three specialties stood out from the rest: Internal, obstetrics/gynecology, and Surgery. Subsequently, three dichotomous variables were created representing each of the three specialties, in which *any* case containing a claim filed against one of these three specialty areas was coded affirmatively as a “1”. These three physician specialty measures are not mutually exclusive; a case with multiple claims could contain defendant physicians in two or more of these areas.

⁹ Cases involving non-demonstration sites are not limited to medical facilities and may include other types of sites like clinics, nursing homes, and doctors’ offices.

¹⁰ The five participating hospitals represent 10 specific locations.

¹¹ FOJP Service Corporation is a risk management agency serving hospitals, long term care facilities and social services in New York City.

Unified Court System's Civil Case Information System

Court Case Process Measures

- **Total Number of Court Appearances:** Within the CCIS data system, information was recorded for every court appearance including the purpose, the presiding judge, and court part. For analytic purposes, a measure was created to represent the total number of court appearances for each case. Analysis revealed a mean of 14.87 court appearances per case.
- **Judicial Measures:** Medical malpractice cases may be presided over by different judges over the course of many court appearances. As a result, we constructed two judicial measures as a way to identify the judges that possessed more than just a transitory involvement with the progress of a medical malpractice court case.
 - **Proportion of Court Appearances per Judge:** Appearance information was used to create a measure representing the proportion of time each case may have appeared before a particular judge. For example, if a case involved 10 total appearances and 5 of these appearances were presided over by Judge X, the portion of time this case was presided over by Judge X was .50. Measures were created to identify the five judges per county with the greatest proportion of court appearances with all other judges being recoded as “other.” This provided us with a numerical value with a possible range of 0 (no appearances with Judge X) to 1 (all appearances with Judge X) which could be utilized in our regression analyses.
 - **Judicial Consistency:** Appearance information was utilized to create a single measure to represent the greatest proportion of time a case stayed with any judge.
- **Total Number of Motions:** Information was also available for motion practices including the date the motion was filed as well as a description of the type of motion (i.e., proceeding type and relief sought). For analytic purposes, a measure representing the total number of motions filed per case was created and ranged from 0 to 23 with a mean of 1.87 motions per case.
- **Request for Judicial Intervention:** The Request for Judicial Intervention (RJI) File date represents the date when the RJI was filed with the County Clerk’s office. The filing of an RJI in some ways can be seen as a starting point for medical malpractice cases. This step “starts the clock” as the courts have 45 days after the RJI is filed to hold a preliminary conference.¹² Table 1.2 presents the distribution of RJI filings by year and reveals the majority (65%) of cases in the analysis were filed with the court in 2005 or earlier. Important to note is that this trend is not evidence of the decrease in medical malpractice litigation over time but instead an effect of our sample selection. Based on a sample of 1,452 closed malpractice claims, Suddert et al. (2006) estimated the average

¹² Of note, RJI filing is preceded by the purchasing of an Index number and also represents an important early milestone in the medical malpractice litigation process, however, this information was not available in the CCIS data file.

length of time between an adverse event and the closure of a claim was five years. This finding is supported by initial analysis of our own sample, which possessed an average length of time from adverse event to case closure of 4.76 years. Within this context, the later a case was filed during our sample selection period, the greater the odds it would still be open at our cutoff year of 2010, resulting in fewer cases eligible for analysis during the later years.

Table 1.2. Distribution of RJI Filing by Year

	County A	County B	County C	Total
Sample Size	732	1,355	1,114	3,201
Year RJI Filed				
2002	13%	14%	13%	13%
2003	23%	19%	17%	19%
2004	19%	17%	16%	17%
2005	19%	16%	15%	16%
2006	13%	13%	14%	13%
2007	11%	11%	12%	12%
2008	1%	6%	8%	6%
2009	1%	4%	4%	3%
2010	0% ^b	1%	1%	1%
Total	100%	101% ^a	100%	100%

^aNote: Total may be greater or less than 100% based on rounding.

^bNote: Less than one-half of one percent.

Key Litigation Milestones:

- **RJI Filing Date to Preliminary Conference:** As mentioned, once an RJI is filed attorneys have 45 days to schedule a preliminary conference (in theory). The final measure ranged from 0 to 2,225 days with a mean of 74.90 days.
- **RJI Filing Date to First Appearance:** This measure represents the number of days between the RJI file date and the first court appearance, and it ranged from 0 to 1,938 days with a mean of 62.31 days.
- **RJI Filing Date to Disposition Date (Total Case Time):** This measure represents the days between the RJI file date and the disposition date. The final measure ranged from 7 to 3,224 days with a mean of 866.30 days.

We were also able to link dates provided in the MMDCS data with the CCIS data to create two additional measures:

- **Adverse Event Date to RJI Filing Date:** This measure represents the number of days from the event date on the first claim to the RJI filing date. The measure ranged from 25 to 7,684 days with a mean of 870.91 days.

- **Adverse Event Date to Disposition Date:** This measure represents the number of days between the event date and the disposition date and ranged from 72 to 8,375 days with a mean of 1,734.07 days.

Financial Measures:

- **Expense Reserve:** This measure represents the amount of money a defendant’s insurance company utilized on administrative resources (i.e., attorney’s fees, expert witnesses) and does not include judgment or settlement amounts. The measure ranged from \$0.00 to \$2,000,000.00 with a mean expense reserve of \$53,485.26.
- **Indemnity Reserve:** This measure represents the amount of money identified by the insurance company as an acceptable payout for the medical malpractice injury. The measure ranged from \$0.00 to \$14,100,000.00 with a mean indemnity reserve of \$517,677.05.

Case Outcome Measures

Through the MMDCS data file, we were able to gain access to the outcome of every medical malpractice claim in our sample. The original variable provided 25 categories¹³ which we simplified and recoded for analytic purposes. A description is provided below.

- **Time of Settlement:** For cases with multiple claims, there was a possibility that the timing of a settlement would vary by claim (i.e., one claim may be settled before trial and another during). To gain a preliminary understanding of the extent of variation, we first created a measure, utilizing the first claim only, focusing on the different settlement times, and collapsing the measure into five categories: before litigation; before trial; during trial; during appeal; and after verdict. Examination of this measure found very little variation; 94% of first claims were settled before trial.
- **Case Outcome:** As previously mentioned, the original measure contained 25 categories representing different types of case outcomes. For the purposes of the current analysis this measure was simplified and recoded into three separate measures:
 - *Rank Outcome:* For this measure, *all outcomes for all claims* were considered when creating a rank outcome measure. Table 1.3 breaks down the specific ranking to show how claim outcomes were ranked in terms of “primary,” as well as the “secondary” outcomes, which include other outcomes that may have applied to different claims that were linked to the same underlying case. The

¹³ The original 25 disposition codes include: settlement before litigation, settlement before trial, voluntary dismissal, involuntary dismissal, judgment plaintiff, judgment defense, judgment no verdict plaintiff, judgment no verdict defense, direct verdict plaintiff, direct verdict defense, plaintiff after appeal, defense after appeal, arbitration plaintiff, arbitration defense, abandon by plaintiff, settlement during trial, settlement during appeal, HMO voluntary arbitration, arbitration uncontested, not covered under policy, settlement achieved after verdict, dropped from suit, defense transferred, high low agreement – high, high low agreement- low.

measure represents the following coding scheme: “1” cases include at least one claim with a decision/judgment for the plaintiff; “2” cases include at least one claim with a settlement but no judgment/decision for plaintiff; “3” cases include at least one claim with a decision/judgment for defendant; “4” cases include claims identified as involuntary dismissals with no claims receiving a judgment/decision or settlement; “5” cases include claims identified as voluntary dismissals with no claims receiving a judgment/decision, settlement or involuntary dismissal; “6” cases have a claim that has been dropped or abandoned and no claims that have a judgment/decision, have been settled or dismissed; and finally “7” cases only have “other” types of outcomes (See Appendix B for frequency table).¹⁴

Table 1.3. Coding Structure for Ranking Case Outcome

Categories	1	2	3	4	5	6	7
1- Decision/judgment for plaintiff	Primary						
2-Settlement	Secondary	Primary					
3-decision/judgment for defendant	Secondary	Secondary	Primary				
4-Involuntary dismissals	Secondary	Secondary	Secondary	Primary			
5-Voluntary dismissals	Secondary	Secondary	Secondary	Secondary	Primary		
6-Dropped or abandoned	Secondary	Secondary	Secondary	Secondary	Secondary	Primary	
7-Other	Secondary	Secondary	Secondary	Secondary	Secondary	Secondary	Primary

- *Three Categorical Outcome:* The rank outcome measure was collapsed into three categories: those representing judgments or settlements for the plaintiff (1), those representing judgments for the defendant (2) and those representing dismissed or abandoned cases (3).
- *Case Outcomes with a Monetary Award:*¹⁵ The rank outcome measure was also recoded into a dichotomous variable to represent two general categories of case outcomes: those cases that include dismissed or abandoned claims or judgments found in the defendant’s favor (0); or cases in which claims include a settlement or judgment in favor of the plaintiff (1).¹⁶
- **Monetary award:** Represents the amount of money awarded to the plaintiff as the result of either a settlement, judgment, or verdict. The monetary award ranged from \$0.00 to \$65,000,000.00 with a mean monetary award of \$664,819.45.

¹⁴ “Other” types of case outcomes include: defense transfer; not covered under current policy; HMO voluntary arbitration and arbitration uncontested.

¹⁵ From a legal perspective, the collapsing of the various case outcome into a dichotomous measure may appear to be an oversimplification. However, in the interest of research purposes, this measure captures the essential status of how the case ended, was statistically examined to verify its usefulness, and complements the richer measure that we also utilized for the precise value of the monetary award in cases where an award was made.

¹⁶ Among the cases with claim disposition in favor of the plaintiff, 0.6% (n=12) of them had \$0 as a monetary award. This is being attributed to data error and these cases were kept in the subsequent analyses.

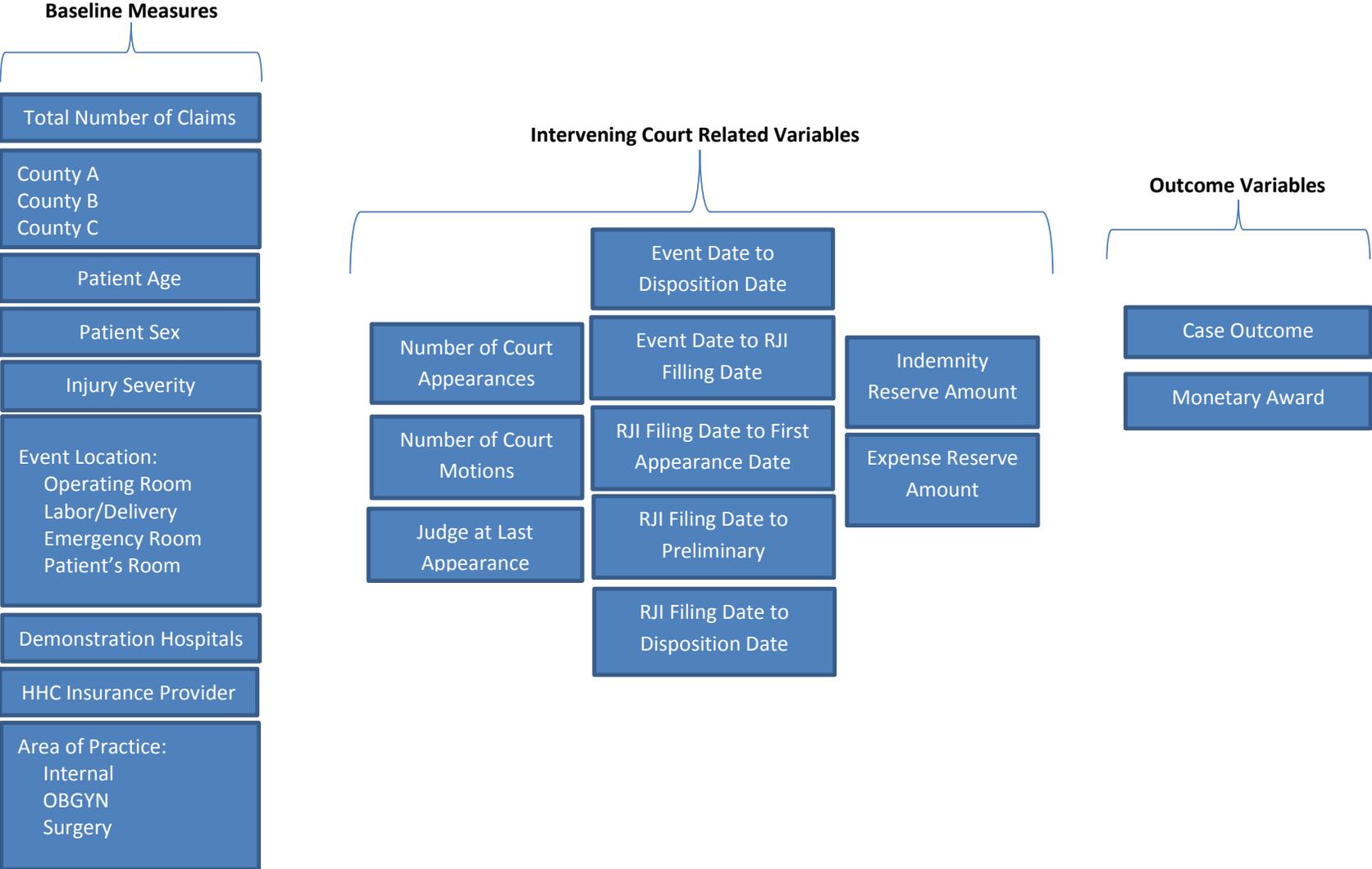
Analytic Framework

We constructed an analytic framework (Figure 1.1) in which the analytic direction goes from left to right. The left column lists the baseline plaintiff and medical related measures. The following group of measures (next three columns) represents the intervening court related measures and includes measures like number of days from the adverse event to RJI filing. The third group includes our two dependent measures, case outcome and monetary award.

To begin our analysis, we utilized cross-tabulation and Analysis of Variance (ANOVA) to determine if plaintiff, defendant, and case characteristics significantly varied across the three selected counties. Bivariate correlation analysis was utilized to determine which predictor variables would be included in the logistic and linear regression models predicting case outcome as well as monetary award. In turn, only those measures which attained a p-value of less than 0.1 in bivariate analyses were included in the multivariate regression analyses.

After all relevant measures were identified, the full sample was utilized in multiple regression analyses to determine which predictor variables significantly influenced court outcomes as well as monetary award. In turn, a subsample of cases involving dispositions that had resulted in monetary awards for the plaintiff was utilized in multiple regression analyses to determine if any variation in predictor relationships existed within this particular sample. Finally, in order to examine the potential role of the judge in impacting case outcome and monetary award, county-level regression analyses were conducted with judicial measures representing the key independent variables.

Figure 1.1. Analytic Framework for Retrospective Analysis



Chapter Two: Examining Case Characteristics and Differences between Counties

This chapter presents descriptive information regarding the plaintiff, defendant and case characteristics of medical malpractice cases filed and disposed between 2002 and 2010. This chapter also presents results from analyses examining the significant differences between the three counties.

As previously mentioned, within each case, there can be one or more claims filed against multiple physicians and/or medical facilities and Table 2.1 presents the distribution of claims per case by county. Overall, the vast majority of cases (89%) had three or less claims, and close to majority (47%) had only one claim. Specifically, County A cases had a range of claims from 1 to 9 with 43% of cases involving a single claim, 31% involving two claims, 14% involving three claims and the remaining 12% of cases containing four or more claims. Within County B, the number of claims per case ranged from 1 to 12 with 46% of cases involving one claim, 27% involving two claims, 15% involving three claims, and the remaining 12% having four or more claims. County C claims per case ranged from 1 to 9 with 51% (564) of the sample of cases involving one claim, 28% involved two claims, 12% involved 3 claims, and the remaining 9% with four or more claims. Comparison of the mean number of claims across the three counties revealed County C (claim per case mean of 1.90) had significantly ($p < .001$) fewer claims per case than County B (mean = 2.07). With a mean of 2.04 County A did not significantly vary from County B or County C.

Table 2.1. Case Description

County	County A	County B	County C	Total
Number of Cases	732	1,355	1,114	3,201
Average Number of Claims **	2.04	2.07	1.90	2.00
1 claim	43%	46%	51%	47%
2 claims	31%	27%	28%	28%
3 claims	14%	15%	12%	14%
4 claims	8%	6%	5%	6%
5 claims	3%	3%	2%	3%
6 claims	2%	1%	1%	1%
7 claims	0%	1%	1%	1%
8 or more claims	0%	1%	0%	1%
Total	101% ^a	100%	100%	101% ^a

***p<.001 **p<.01 *p<.05 + p<.10

^aNote: Total may be greater or less than 100% based on rounding.

Plaintiff Demographics

Table 2.2 presents plaintiff characteristics. Overall, we found that 50% of the plaintiffs were between 35 and 63 years of age. Analysis examining the mean differences between counties revealed that plaintiffs were significantly ($p < .001$) older in County C (mean age 46.28 years) in comparison to County A (mean age 39.29 years) and County B (mean age 40.33 years). In addition, 58% of the plaintiffs were female with no significant differences found between counties.

Injury Severity

The most common injury severity reported was *Significant Physical* (46%), followed by *Minor Physical* (24%), *Death* (20%), *Major Physical* (9%), and *Emotional* (2%) (see Table 2.2). Cross-tabulation analysis revealed significant ($p < .001$) variation in injury severity by county. For example, 26% of County B, 23% of County A and only 10% of County C cases were associated with the most serious injury severity, *death*. In turn, 33% of County C cases were associated with *minor physical* injuries, whereas for County A and County B, this type of injury has only represented in 20% and 17% of cases, respectively.

Adverse Location Event

Analysis found the operating room (25%) was the most commonly cited adverse event location, followed by the emergency department (12%), labor/delivery room (10%), and patient's room (9%). Cross-tabulation analysis found significant variation across counties within all four adverse event location measures. For example, in County B, 11% of the cases had events occurring in the patient's room, in comparison to County A and County C (7% each). In County C, 33% of the cases had events in the operating room, followed by County B (23%) and County A (17%).

Days in the Hospital

Overall, the number of days in the hospital ranged from 0 to 2,686 with an average stay in the hospital of 25 days. Three percent of cases had zero hospital days, meaning these plaintiffs went to the hospital but were released the same day. No significant variation was found between the three counties.¹⁷

¹⁷ A large portion of cases involving hospital visits (versus those that involved an office visit) were found to be missing the dates used to determine the length of their hospital stay. For example, among the 284 cases that have claims in which an adverse event occurred in the patient's room, 32% (92 cases) are missing dates and in respect to Emergency Department events, 57% (220 cases) are missing dates.

Table 2.2. Patient and Injury Characteristics

	County A	County B	County C	Total
Number of Cases	732	1,355	1,114	3,201
Age Distribution of Patient***	(1 Missing)	(2 Missing)	(1 Missing)	(4 Missing)
Less than 1 year	15%	14%	5%	11%
1 - 17 years	6%	6%	3%	5%
18-34 years	19%	17%	17%	18%
35-49 years	23%	24%	28%	25%
50-63 years	18%	23%	30%	25%
64 years or greater	19%	16%	17%	17%
Total	100%	100%	100%	101% ^a
Mean Age	39.5 years	40.4 years	46.4 years	42.3 years
Sex⁺	(0 Missing)	(1 Missing)	(0 Missing)	(1 Missing)
Male	39%	42%	44%	42%
Female	61%	58%	56%	58%
Total	100%	100%	100%	100%
Injury Severity ***	(37 Missing)	(76 Missing)	(37 Missing)	(150 Missing)
Emotional	3%	2%	2%	2%
Minor Physical	20%	17%	33%	24%
Significant Physical	45%	45%	48%	46%
Major Physical	9%	11%	7%	9%
Death	23%	26%	10%	20%
Total	100%	101% ^a	100%	101% ^a
Event Location	Missing N/A	Missing N/A	Missing N/A	Missing N/A
Patient's Room***	7%	11%	7%	9%
Labor & Delivery Room***	14%	13%	5%	10%
Operating Room***	17%	23%	33%	25%
Emergency Department***	13%	15%	8%	12%
Stay in Hospital (Days)	(397 Missing)	(709 Missing)	(605 Missing)	(1,711 Missing)
Range	0 to 226	0 to 1,472	0 to 2,686	0 to 2,686
Mean	15.43	23.69	32.84	24.96
Standard Deviation	27.08	73.71	171.846	112.693
Median	1.00	6.00	7.00	6.00

***p<.001 **p<.01 *p<.05 + p<.10

^aNote: Total may be greater or less than 100% based on rounding.

Defendant Characteristics

Table 2.3 presents the characteristics of medical malpractice defendants. Forty-six percent of cases involved claims against both physicians and facilities, and the remaining portion was evenly split between claims against a *facility (or facilities) only* (27%) and claims against a *physician (or physicians) only* (27%). Cross-tabulation analysis revealed significant ($p < .001$) differences in the distribution of cases across the three counties, with County B and County C reporting significantly more claims against *physicians only* (29% and 34% respectively) in comparison to County A (12%).

In regards to the five hospitals participating in the demonstration project, analysis of variation between counties revealed significant ($p < .001$) differences between all three counties. County A (39%) reported the highest portion of cases containing at least one claim against one of the five participating hospitals, followed by County C (21%) and then County B (14%).

Defendant Insurance

Twenty-four percent of cases contained at least one claim in which the defendant's insurance was the NYC Health and Hospitals Corporation (HHC). Analysis revealed significant variation ($p < .001$) between all counties, with County A (33%) possessing the greatest portion of defendants with HHC insurance, followed by County B (25%), and County C (17%).

Fifty percent of cases involved insurance categorized as Insurance Company (profit) and mutual company followed by self-insured (25%), FOJP (22%), and other (3%). Crosstabulation analysis revealed significant ($p < .001$) variation in the distribution of insurance across the three counties. For example, both County C (55%) and County B (59%) had the largest portion of their cases associated with insurance identified as Insurance Company (profit) and Mutual company, whereas the largest portion of insurance for County A defendants was identified as FOJP (40%) or self-insured (33%).

Physician Specialty

Excluding cases involving claims filed against *only* medical facilities ($n=875$), 35% of the remaining cases ($n=2,324$) included a claim filed against a physician specializing in surgery, 23% included a claim against a physician specializing in internal medicine, and 20% included a claim against a physician specializing in obstetrics and gynecology. Further analysis revealed significant differences between the three counties on all three physician specialty measures. Among the 23% of cases containing at least one claim filed against a physician specializing in internal medicine, County B (27%) possessed a significantly ($p < .001$) higher portion of these cases in comparison to County C (18%) and County A (23%). (The difference between County C and County A was not significant.) Among the 20% of cases containing at least one claim filed against a physician specializing in obstetrics and gynecology, County C (13%) possessed a significantly ($p < .001$) smaller portion of these cases in comparison to County A (26%) and County B (23%). Finally, County C (42%) possessed a significantly ($p < .001$) greater portion of cases filed against a surgeon in comparison to County A (32%) and County B (29%).

Table 2.3. Defendant Characteristics

	County A	County B	County C	Total
Number of Cases	732	1,355	1,114	3,201
Defendant Type: Physician, Facility or Both***	(0 Missing, 1 removed for error)	(0 Missing)	(2 Missing)	(2 Missing, 1 removed)
Claim(s) Against Physician Only	12%	29%	34%	27%
Claim(s) Against Facility Only	35%	27%	23%	27%
Claims Against Both Physician and Facility	53%	44%	43%	46%
Total	100%	100%	100%	100%
Five Hospitals (Event site)***	(0 Missing)	(0 Missing)	(0 Missing)	(0 Missing)
5 Participating Hospitals	39%	14%	21%	22%
Other	61%	86%	79%	78%
Total	100%	100%	100%	100%
NYC Health and Hospitals Corporation***	(0 Missing)	(0 Missing)	(0 Missing)	(0 Missing)
HHC	33%	25%	17%	24%
Non-HHC	67%	75%	83%	76%
Total	100%	100%	100%	100%
Insurance Type (First Claim)***	(0 Missing)	(0 Missing)	(0 Missing)	(0 Missing)
Self-Insured Entity	33%	25%	18%	25%
Insurance Co (Profit) & Mutual Company	25%	59%	55%	50%
FOJP	40%	13%	22%	22%
Other	2%	3%	4%	3%
Total	100%	100%	99% ^a	100%
Area of Practice^b	(n = 476, 0 Missing)	(n = 991, 0 Missing)	(n = 857, 0 Missing)	(n = 2,324, 0 Missing)
Internal Medicine***	23%	27%	18%	23%
Obstetrics and Gynecology***	26%	23%	13%	20%
Surgery ***	32%	29%	43%	35%

***p<.001 **p<.01 *p<.05 + p<.10

^aNote: Total may be greater or less than 100% based on rounding.

^bNote: Cases with facility defendants *only* excluded.

Civil Case Processing Characteristics

The case characteristics presented in Table 2.4 reveal that court appearances ranged from 1 to 94 with a mean of 14.87. In turn, an analysis of variance revealed the mean number of court appearances significantly differed ($p < .001$) with County A having significantly fewer court appearances on average (9.74) in comparison to County B (15.72) and County C (15.48). The number of motions filed in court ranged from 1 to 23 with a mean of 1.87 motions. Analysis revealed significant differences ($p < .001$) between all three counties with County B reporting the greatest average number of motions (2.25 motions), followed by County A (1.92 motions) and County C (1.36 motions).

Table 2.4 also shows key court case processing milestones. For example, the number of days from the adverse event to the disposition date ranged from 72 to 8,375. In turn, analysis found significant differences between all three counties, with County A reporting the most days on average (1,951.17 days), followed by County B (1,730.17 days), and County C (1,593.38 days). Analysis revealed the number of days from the adverse event to the RJI Filing date ranges from 25 to 7,684 days with a mean of 1,734.07 days. As with other measures, significant ($p < .001$) variation was found between the three counties, with County C reporting the greatest average days (919.49 days) and County B (843.79 days) reporting the fewest average days. (County A fell between County B and County C and was not significantly different from either.)

The number of days from RJI filing to the preliminary conference is legally mandated to be 45 days or less. Our analysis revealed a range of 0 to 2,225 days with a mean of 74.90 days. In turn, analysis of the mean differences between counties reveal significant differences between County A (101.75 days), which averaged significantly ($p < .001$) more days on average than County B (64.83 days) and County C (69.33 days).

The number of days from RJI filing to the first appearance ranged from 0 to 1,938 days with mean of 62.31 days. County A had significantly ($p < .001$) more average days (93.77 days) in comparison to County C (58.91 days) and County B (48.11 days).

The average number of days between court appearances ranged from 0 to 1,556 days with a mean of 85.24 days. Analysis revealed significant ($p < .001$) differences between all three counties with County A reporting the greatest number of (average) days between appearances (142.35 days), followed by County B (82.14 days) and County C (50.81 days).

Finally, the total number of days a case was in the court system (beginning with the RJI filing date and ending with the disposition date) ranged from 7 to 3,224 days with a mean of 866.30 days. As with other court related measures a significant ($p < .001$) difference was found between all three counties, with County A leading with the greatest average number of days in the court system (1,103.69 days) followed by County B (887.11 days) and County C (681.50 days).

Table 2.4. Civil Case Characteristics

	County A	County B	County C	Total
Number of Cases	732	1,355	1,114	3,201
Total Number of Court Appearances***	(0 Missing)	(0 Missing)	(0 Missing)	(0 Missing)
Range	1 to 53	1 to 90	1 to 94	1 to 94
Mean	12.36	15.72	15.48	14.87
Standard Deviation	9.74	12.38	11.39	11.55
Median	10.00	13.00	13.00	12.00
Total Number of Motions***	(0 Missing)	(0 Missing)	(0 Missing)	(0 Missing)
Range	0 to 16	0 to 23	0 to 17	1 to 23
Mean	1.92	2.25	1.36	1.87
Standard Deviation	2.06	2.70	1.7	2.28
Median	1.00	1.00	1.00	1.00
Event Date to Disposition Date (Days)***	(0 Missing)	(0 Missing)	(22 Missing)	(22 Missing)
Range	179 to 8,375	225 to 7,323	72 to 6,381	72 to 8,375
Mean	1,951.17	1,730.17	1,593.38	1,734.07
Standard Deviation	900.46	822.26	724.59	820.05
Median	1,861.00	1,603.00	1,495.00	1,608.00
Event Date to RJI File Date (Days)***	(0 Missing)	(1 Missing)	(5 Missing)	(6 Missing)
Range	69 to 7,684	75 to 6,417	25 to 6,287	25 to 7,684
Mean	847.47	843.79	919.49	870.91
Standard Deviation	695.65	671.55	611.21	657.76
Median	661.00	711.50	826.00	742.00
RJI File Date to Preliminary Conference (Days)***	(82 Missing)	(163 Missing)	(137 Missing)	(382 Missing)
Range	2 to 2,225	0 to 993	10 to 1,036	0 to 2,225
Mean	101.75	64.83	69.33	74.90
Standard Deviation	184.42	85.97	65.93	112.62
Median	48.00	37.00	51.00	44.00
RJI File Date to First Appearance (Days)***	(1 Missing)	(1 Missing)	(4 Missing)	(6 Missing)
Range	2 to 1,938	0 to 678	5 to 847	0 to 1,938
Mean	93.77	48.11	58.91	62.31
Standard Deviation	191.99	66.32	47.9	106.78
Median	35.00	30.00	43.00	36.00
Average Number of Days Between Appearances (Days)***	(37 Missing)	(14 Missing)	(10 Missing)	(61 Missing)
Range	0 to 1,556	0 to 429	0 to 386	0 to 1,556
Mean	142.35	82.14	50.81	85.24
Standard Deviation	162.70	62.08	30.14	95.90
Median	98.55	66.50	47.31	61.00
Case Time: RJI File Date To Disposition Date (Days)***	(0 Missing)	(0 Missing)	(21 Missing)	(21 Missing)
Range	19 to 3,004	7 to 2,933	7 to 2,909	7 to 3,224
Mean	1,103.69	887.11	681.50	866.30
Standard Deviation	589.40	490.64	382.78	507.59
Median	1,104.00	856.00	667.00	808.00

***p<.001 **p<.01 *p<.05 + p<.10

^aNote: Total may be greater or less than 100% based on rounding.

Financial Measures

Table 2.5 presents the descriptive statistics for the expense reserve and indemnity reserve measures. In regards to the expense reserve, among the 70% of cases which contained information, the values ranged from \$0.00 to \$2,000,000.00 with a mean of \$53,485.26. In regards to indemnity reserve amount, the value ranged from \$0.00 to \$14,100,000.00 with a mean of \$5,517,677.05. Analysis of the mean differences between counties revealed significant differences ($p < .05$) between County A (\$610,316.71) and County C (\$476,039.28), with County B (\$501,863.21) falling in the middle and not significantly different between either.

Table 2.5. Summary of Financial Measures

Financial Measures	County A	County B	County C	Total
Number of Cases	732	1,355	1,114	3,201
Expense Reserve	(33% w/ zero value)	(33% w/ zero value)	(24% w/ zero value) (1 missing)	(30% w/ zero value) (1 missing)
Minimum	\$0.00	\$0.00	\$0.00	\$0.00
Maximum	\$2,000,000.00	\$595,000.00	\$1,815,000.00	\$2,000,000.00
Mean	\$54,302.55	\$49,126.81	\$58,253.85	\$53,485.26
Standard Deviation	\$115,925.98	\$615,353.22	\$92,007.91	\$87,363.43
Median	\$35,000.00	\$35,000.00	\$35,000.00	\$35,000.00
Indemnity Reserve Amount*	(6% w/ zero value)	(10% w/ zero value)	(7% w/ zero value)	(8% w/ zero value)
Minimum	\$0.00	\$0.00	\$0.00	\$0.00
Maximum	\$11,250,000.00	\$13,000,000.00	\$14,100,000.00	\$14,100,000.00
Mean	\$610,316.71	\$501,863.21	\$476,039.28	\$517,677.05
Standard Deviation	\$1,106,811.15	\$959,764.73	\$1,020,855.80	\$1,017,225.68
Median	\$250,000.00	\$225,000.00	\$200,000.00	\$210,000.00

***p<.001 **p<.01 *p<.05 + p<.10

Case Outcome and Monetary Award

Table 2.6 presents the distribution of case outcomes, timing of settlement, and monetary award. Overall, 67% of cases had a favorable outcome for the plaintiff on at least one claim, including 70% in County A, 69% in County B, and 62% in County C. The nature of the favorable outcome was predominately a settlement (67% of all cases) and rarely a decision or judgment at trial (<1%, n=14 cases). Among outcomes that are essentially favorable to the defendant (physician or facility), 14% of cases possessed at least one claim that resulted in an involuntarily dismissal, followed by 12% of cases with at least one claim resulting in a voluntary dismissal, 6% of cases with a claim resulting in a decision or judgment for the defendant, and 1% of cases with a claim that had been dropped or abandoned (see Table 2.3 for review of ranking order of case outcomes).

Not only is it clear that the majority of cases (67%) involved settlements, they also predominately occurred before trial (94%) with only 4% occurring during trial. Among the 2,143 cases that involved a judgment, decision, or settlement for the plaintiff, the value of the monetary award ranged from \$0.00 to \$65,000,000.00 with a mean of \$664,819.45. An analysis of variance regarding the mean monetary award revealed that County A had a significantly ($p < .05$) higher average monetary award (\$840,147.80) in comparison to County C (\$591,477.83), with County B falling in between (\$622,873.25).

Table 2.6. Case Outcome, Point of Settlement, and Monetary Award

	County A	County B	County C	Total
Number of Cases	732	1,355	1,114	3,201
Case Outcomes***				
Cases including claims with a decision/judgment for Plaintiff	1%	1%	0%	0%
Cases including claims with a settlement	70%	68%	62%	67%
Cases including claims with a decision/judgment for Defendant	4%	5%	9%	6%
Cases including involuntarily dismissed claims	15%	14%	13%	14%
Cases including voluntarily dismissed claims	11%	11%	15%	12%
Cases including dropped or abandoned claims	1%	1%	1%	1%
Cases including claims with other types of outcomes	0%	1%	0%	0%
Total	102% ^a	101% ^a	100%	100%
Three Category Case Outcome***				
Settled of decision for the plaintiff	70%	69%	62%	67%
Decision for the defense	4%	5%	9%	6%
All dismissed, abandoned, dropped and/or other	26%	26%	29%	27%
Total	100%	100%	100%	100%
Dichotomous Case Outcome***				
Pro-plaintiff outcome	70%	69%	62%	67%
Pro-defense outcome	30%	31%	38%	33%
Total	100%	100%	100%	100%
Time of Settlement^{b**}				
Before Litigation	2%	1%	1%	1%
Before Trial	94%	92%	95%	94%
During Trial	3%	6%	3%	4%
After Verdict	1%	1%	1%	1%
During Appeal	0%	0%	0%	0%
Total	100%	100%	100%	100%
Monetary Award^{c*}	(3 cases w/ zero value)	(3 cases w/ zero value)	(6 cases w/zero value)	(12 cases w/ zero value)
Sample Size	(n = 514)	(n=935)	(n = 694)	(n= 2,143)
Minimum	\$0.00	\$0.00	\$0.00	\$0.00
Maximum	\$65,000,000.00	\$9,500,000.00	\$29,650,003.00	\$65,000,000.00
Mean	\$840,147.80	\$622,873.25	\$591,477.83	\$664,819.45
Standard Deviation	\$3,075,616.79	\$989,358.69	\$1,441,038.43	\$1,836,852.51
Median	\$300,000.00	\$300,000.00	\$250,000.00	\$275,000.00

***p<.001 **p<.01 *p<.05 + p<.10

^aNote: Total may be greater or less than 100% based on rounding.

^bNote: Based on information provided in the first claim only.

^cNote: Includes cases with any claim that was settled or received a judgment, verdict, arbitration, high agreement.

Summary

Our analysis revealed important trends and patterns both in general and between counties. Of note are the differences between County A in comparison to County B and County C. For example, even though County A had the lowest average number of court appearances, County A cases run for the longest spans of time, whether it has the time from RJI filing to the first appearance, to the preliminary conference or to the disposition date. In turn, County A stands out as having a significantly higher average monetary award (in conjunction with a significantly higher average indemnity reserve amount) than the other two counties.

Chapter Three: Comparison of Case Characteristics between Participating and Nonparticipating Medical Sites

This chapter presents results of a comparison of plaintiff, defendant, and case characteristics between cases with claims against demonstration and non-demonstration medical facilities.¹⁸ The purpose of this comparison is not to evaluate either type of facility but primarily to understand the kinds of cases, injuries, and other baseline case characteristics that were particularly likely to be found within those medical facilities that participated in the Medical Liability Reform and Patient Safety Demonstration. Table 3.1 indicates significant differences between demonstration and non-demonstration sites across many measures. For example, cases with claims against demonstration hospitals had a significantly greater number of claims ($p < .001$), as well as significantly more cases from County A ($p < .001$) and significantly less from County B ($p < .001$). In terms of plaintiff characteristics, cases associated with demonstration hospitals had a significantly greater number of older plaintiffs ($p < .001$), who suffered two types of injuries: significant physical ($p < .01$) or death ($p < .05$). In turn, cases involving claims against non-participating medical facilities had a significantly greater number of emotional ($p < .01$) and minor physical ($p < .001$) injuries. There was also a greater number of cases against physicians with a surgery specialty ($p < .001$) among the participating medical facilities, but significantly fewer adverse events at all four ($p < .001$) isolated event locations (i.e., patient's room, emergency department, operating room, and labor/delivery). Cases associated with participating medical facilities had significantly fewer hospitals with HHC insurance ($p < .001$) as compared to the nonparticipating medical facilities. While cases associated with participating medical facilities had a greater number of days on average from the time of RJI filing to the disposition date ($p < .001$), they had fewer days from RJI filing to preliminary conference ($p < .01$) and from the RJI filing to the first court appearance. ($p < .05$). Finally, both the expense ($p < .001$) and indemnity ($p < .05$) reserve amounts were significantly higher among the participating medical facilities, while there was no significant difference between the average monetary award.

Summary

Overall, when we compared nonparticipating and participating medical facilities, we discovered that the participating facilities had a unique set of needs. For example, participating hospitals were significantly more likely to have malpractice claims involving significant physical injuries or the death of the patient. In turn, participating medical facilities were significantly more likely to have more days from the RJI filing date to case disposition and higher expense and indemnity reserve amounts. Within this context, these participating sites reveal a history of particular needs that would seem to make them good candidates for the demonstration project of which they are part.

¹⁸ Cases with claims against physicians only were excluded from the analysis (28%). Non-demonstration sites include a range of hospitals, clinics, and doctor's offices.

Table 3.1. Comparison of Participating and Nonparticipating Medical Sites^a

	Participating Medical Sites	Nonparticipating Medical Sites
Number of cases	629	1,715
Total Claims per Case (mean)	2.59***	2.13
County A	41%***	22%
County B	28%***	46%
County C	32%	31%
Mean Age of Patient	45.3 yrs***	39.2 yrs
Gender (female)	56%	57%
Injury Severity		
Emotional	0%**	3%
Minor Physical	17%***	24%
Significant Physical	49%**	42%
Major Physical	9%	11%
Death	25%*	20%
Predominant Area of Practice:		
Obstetrics and Gynecology	14%	15%
Internal	15%	13%
Surgery	37%***	19%
Total Days Spent in Hospital	30.8 days ⁺	20.9 days
Event Site:		
Patient's Room	4%***	13%
Labor & Delivery	5%***	15%
Operating Room	16%***	30%
Emergency Room	7%***	18%
HHC Insurance	1%***	44%
Court Appearances	14.42	13.80
Motions	1.76	1.76
Event Date to Disposition Date	1768.06 days+	1700.52 days
RJI Filing to Disposition Date	932.43 days***	840.52 days
RJI Filing to Preliminary Conference	65.78 days**	82.50 days
RJI Filing to First Court Appearance	56.27 days*	69.04 days
Financial Measures		
Expense Reserve Amount	\$93,323.99***	\$38,818.17
Indemnity Reserve Amount	\$669,641.08*	\$557,467.56
Monetary Award	\$533,165.18	\$481,643.25

***p<.001 **p<.01 *p<.05 + p<.10

^aNote: Analysis excludes cases involving claims against physicians *only* (27% of cases).

Chapter Four: Predicting Case Outcome and Monetary Award

This chapter presents findings from multiple regression analyses examining the impact of plaintiff, defendant, and case characteristics on case outcome as well as monetary award. In addition, separate county-level analyses were conducted to examine if the presiding judge and judicial consistency measures have an independent impact on these relationships. Prior to conducting final multiple regression analyses, bivariate relationships were examined with a larger array of potential predictors than those represented in the tables that follow. Where measures are not represented (e.g., patient sex in Table 4.1), it can be inferred that the measure was not significant in the bivariate analyses.

Examining Dispositions: Factors Related to Case Outcomes with Monetary Awards

Table 4.1 presents the results of logistic regression analysis predicting case outcomes with and without a monetary award (settlement, judgment, or verdict for the plaintiff). Model 1 includes relevant baseline measures (e.g., county, patient age, injury severity, and physician specialty). Model 2 includes these baseline measures as well as intervening court case process measures. These models were created to examine the extent to which the predictive power of the baseline measures on final outcomes is mediated by what happens during the court process.

Model 1 reveals that six of the baseline measures significantly predicted case outcomes with monetary awards. Specifically, cases with more claims ($p < .001$), involving an HHC insurance provider ($p < .001$), minor physical injury ($p < .01$), significant physical injury ($p < .001$), major physical injury ($P < .001$), or death ($P < .001$) had significantly greater odds of receiving case outcomes with a monetary award. From inspecting the odds ratios, in regards to the patient injury measures, the odds of a case outcome with a monetary award increase dramatically (odds ratio = 8.315) when there is a “major” physical injury compared to emotional injury (the reference category); increase substantially with a “significant” physical injury or death (odds ratios between 4.000 and 5.000); and increase less but still significantly with a “minor” physical injury (odds ratio = 2.383).

With the introduction of court processing measures in Model 2 we see only slight reductions in the predictive power of the baseline measures. County A also gains significance, meaning that County A cases have significantly ($p < .01$) lower odds of receiving case outcomes with a monetary award. In addition, three of the four court processing measures themselves reached statistical significance. For example, cases with more days between the adverse event and RJI filing ($p < .001$) as well as more days between the RJI filing and case disposition ($p < .001$) have significantly greater odds of receiving a case outcome with a monetary award. Since cases in County A average a significantly longer period than County B or County C from RJI filing to disposition, it is only in Model 2 that it becomes apparent, that once controlling for this case processing difference by county, County A *otherwise* sees fewer case outcomes with a monetary award. On the other hand, cases with more motions ($p < .001$) had significantly lower odds of receiving a case outcome with a monetary award. Overall, the inclusion of court processing

measures doubled the amount of variation explained in the outcome (9% to 20% Nagelkerke R-Square), thereby improving the model fit.¹⁹

Examining Factors Related to Amount of Monetary Award

Initial bivariate analyses examining the relationship between baseline measures, case process measures, and monetary award significantly correlated with county, with County A possessing the largest mean monetary award followed by County B and County C. In addition, plaintiff age and the five injury severity measures correlated with monetary award, meaning those with plaintiffs younger than one year as well as those who had reported a major physical injury received a notably higher mean monetary award (see Table 4.2).

¹⁹ As previously described in the methods section, a total of 25 possible disposition outcomes were recoded into a dichotomous variable. Additional analyses were then conducted to examine the utility of the resulting dichotomous outcome measures, given that it is potentially an oversimplification to reduce the outcome simply to case outcomes associated with monetary awards for the plaintiff or case outcomes in favor of the defendant, when the details of the negotiations and precise monetary awards may provide a different portrait of how truly favorable the outcome proved to be for each side. Thus, in additional test analyses, the injury severity measures were removed as covariates from the model and, in turn, the effects of the other covariates were examined for each injury severity subgroup—that is, separate analyses were conducted, respectively, for those with a minor physical injury, significant physical injury, major physical injury and death; due to an extremely low sample size, it was unfeasible to conduct such a subgroup analysis exclusively for those with an emotional injury. In general we found a consistent predictability of case outcome across the same covariates, indicating that the dichotomous outcome measure is nuanced enough to detect dynamics across the various injury types. See Appendix B for the results of this additional analysis.

Table 4.1. Logistic Regression Model Utilizing Case Characteristics to Predict Case Outcomes Associated with Monetary Awards for the Plaintiff

Sample Size	3,047	3,023
	Model 1	Model 2
	Odds Ratio	Odds Ratio
Total Number of Claims Filed	1.154***	1.185***
County (Reference = County A)		
County B	0.885	0.92
County C	0.997	0.719**
Patient Age	0.999	0.998
Injury Severity (Reference = Emotional)		
Minor Physical	2.383**	1.864*
Significant Physical	4.267***	3.172***
Major Physical	8.315***	7.579***
Death	4.516***	3.530***
Physician Specialty: OBGYN	1.086	1.051
Event Site: Labor and Delivery	1.11	1.213
HHC Insurance Case	2.457***	2.309***
Case Process Measures		
Number of Court Appearances		0.986 ⁺
Number of Court Motions		0.778***
Event to RJI Filing (Days)		1.000***
RJI Filing to Disposition (Days)		1.001***
Constant	0.360**	0.613
Nagelkerke R-Square	0.090	0.198

***p<.001 **p<.01 *p<.05 + p<.10

Note: An odds ratio close to 1.000 represents a increase in the odds of the outcome and would be evident if expanded to include more decimal places.

Table 4.2. Bivariate Results for Relevant Monetary Award Predictors

	Mean Monetary Award
Sample Size	N=3,201
Event County*	
County A	\$664,819.45
County B	\$622,873.25
County C	\$591,447.83
Plaintiff's Age*	
Less than 1 year	\$1,550,877.82
1 to 17 years	\$641,713.86
18 to 34 years	\$533,437.64
35 to 49 years	\$681,294.57
50-63 years	\$499,313.95
64 years and greater	\$373,675.83
Injury Severity***	
Emotional	\$49,250.00
Minor Physical	\$236,028.31
Significant Physical	\$538,061.91
Major Physical	\$2,283,400.67
Death	\$619,464.66

***p<.001 **p<.01 *p<.05 + p<.10

Table 4.3 presents the results from a multiple linear regression examining the relationship between select predictor variables and the amount of monetary award. All cases evaluated as in favor of the defendant (i.e., dropped, abandoned, or dismissed) have a monetary award of \$0.00. As presented earlier in Table 4.1, Model 1 includes baseline measures only and Model 2 includes the addition of court process measures. A new analysis, presented in Model 3, incorporates all relevant baseline and court process measures *as well as* the indemnity reserve amount, which effectively reflects the advance computation of the insurance company of the likely payout that must be made available.

As shown in Model 1, cases with more claims (p<.001) as well as those located in County A (p<.01) received a significantly higher monetary award. Cases with older plaintiffs (p<.05), along with those with emotional (p<.05) or minor physical (p<.01) injuries received a significantly lower monetary award.

With only one exception, when comparing Model 1 to Model 2, the same baseline measures remained significant. The exception was that in Model 2, those cases with claims of major physical injury received a significantly (p<.001) higher monetary award than cases involving the death of the patient.

Among the three court process measures in Model 2, only the time from adverse event date to RJI filing was significant, meaning that those cases with more days from the adverse event to the RJI filing date averaged a significantly ($p < .01$) lower judgment award. Overall, we see close to no change in the model fit, which remains close to 10%, from Model 1 to Model 2.

With the introduction of the indemnity reserve measure in Model 3, we observe a notable impact on the predictive power of other measures as well as model fit. For example, five of the seven statistically significant measures in Models 1 and 2 lost significance in Model 3. Only major physical injury ($p < .001$) and time from adverse event date to RJI filing ($p < .05$) remained significant. In turn, cases with higher indemnity reserve amounts averaged a significantly ($p < .001$) higher monetary award (Beta = .428). In turn, we find that Model 3 increased the variation accounted for in the outcome measure, from 10% to 24%, markedly increasing model fit.

Table 4.3. Linear Regression Predicting Monetary Award

Sample Size	3,034	3,007	3,006
	Model 1	Model 2	Model 3
	Beta	Beta	Beta
Total Number of Claims Filed	0.070***	0.068***	-0.020
County (Reference = County B)			
County C	0.024	0.026	-0.007
County A	0.054**	0.060**	0.035 ⁺
Patient Age	-0.051*	-0.059**	-0.024
Patient Sex (Female)	-0.007	-0.006	-0.004
Injury Severity (Reference = Death)¹			
Emotional	-0.039*	-0.037*	-0.009
Minor Physical	-0.079**	-0.079**	-0.011
Significant Physical	-0.031	-0.031	0.015
Major Physical	0.233	0.241***	0.137***
Physician Specialty: OBGYN	0.012	0.008	-0.004
Event Site: Labor/Delivery	0.03	0.035	-0.004
Court Related Measures			
Total Number of Court Appearances		0.019	0.026
Event Date to RJI Filing (Days)		-0.054**	-0.038*
RJI Filing to Disposition Date (Days)		-0.018	-0.026
Expense Reserve Amount			-0.027
Indemnity Reserve Amount			0.428***
Adj. R-Squared	0.100	0.101	0.241

***p<.001 **p<.01 *p<.05 + p<.10

¹Note: Based on lack of significant association during initial bivariate analysis, "death" was excluded from the analysis, thereby serving as the reference measure whereas in Table 5.1 "emotional" physical injury was the reference category as it had been excluded due to lack of significant association in the bivariate correlation.

Table 4.4 presents findings from the same analysis conducted above but with a subsample of the cases with an outcome (judgement, decision, or settlement for the plaintiff) with a monetary award (n = 2,143). This analysis is intended to examine how the relationship between baseline and court process measures and monetary award may vary when focusing on *only* those cases with outcomes in favor of the plaintiff. Overall we find similar results as the analysis presented in Table 4.3.

With five of the baseline measures significantly predicting monetary award, Model 1 explains 11% of the variation in monetary award. In Model 2 many these same measures remained statistically significant, with only slight variations in beta coefficients or significance levels. In

addition, those cases with more days between adverse event date and RJI filing date received a significantly ($p < .05$) lower monetary award. However, those cases with more days between RJI filing and disposition date, received a significantly ($p < .05$) higher monetary award. For Model 2, the variance explained increased less than one percent (Adjusted R-square of 11%).

In Model 3, two additional measures, indemnity reserve amount and expense reserve, were introduced. However, only indemnity reserve gained statistical significance and, as observed in the full sample analysis, the inclusion of this powerful measure (Beta = .415) dramatically altered the findings for other parameters. For example, three of the significant baseline measures in Model 2 lost statistical significance in Model 3. In addition, HHC insurance gained statistical significance in Model 3, meaning that those cases in which defendants possessed HHC insurance received a significantly ($p < .05$) lower monetary award, after controlling for the given insurance company's expectations (as signaled by the indemnity reserve). Overall, the inclusion of the indemnity reserve measure in Model 3 increased the variance explained from 11% to 24%, notably improving the model fit.²⁰

²⁰ To further examine the utility of our dichotomous outcome measure, the regression analysis in Table 4.4 was reexamined isolating each type of injury severity in a separate subgroup analysis. (Such an analysis was not performed with the subgroup of cases with an emotional injury severity, due to extremely low sample size. Our analysis revealed that the R^2 increased with an increase in the severity level. This finding confirms that with more serious injuries, there may be particularly great variations in judgment amount, beyond the level of variation shown when grouping all injury severities together in a single analysis. Accordingly, see Appendix C to view the results from this additional clarifying analysis.

Table 4.4. Linear Regression Predicting Monetary Award Among Cases with Claims that Settled or Received a Judgment or Decision

Sample Size	2,026	2,018	2,015
	Model 1	Model 2	Model 3
	Beta	Beta	Beta
Total Number of Claims Filed	0.065**	0.060**	-0.022
CountyA County	0.058**	0.087**	0.065**
Patient Age	-0.060*	-0.069**	-0.035
Patient Sex (Female)	-0.016	-0.014	-0.009
Injury Severity (Reference = Death)			
Emotional	-0.031	-0.034	-0.010
Minor Physical	-0.071**	-0.075**	-0.012
Significant Physical	-0.029	-0.031	0.008
Major Physical	0.239***	0.247***	0.142***
Event Site: Labor/Delivery	0.033	0.042	0.008
HHC Insurance	-0.040 ⁺	-0.041 ⁺	-0.049*
Physician Specialty: OBGYN	0.011	0.008	-0.002
Court Related Measures			
Total Number of Court Appearances		0.059	0.052
Total Number of Court Motions		-0.034	0.018
Event Date to RJI filing (Days)		-0.049*	-0.040*
RJI Filing to Disposition (Days)		0.080*	-0.063*
Expense Reserve Amount			-0.035
Indemnity Reserve Amount			0.415***
Adj. R-Squared	0.107	0.112	0.236

***p<.001 **p<.01 *p<.05 + p<.10

County Level Analysis Predicting Case Outcomes with a Monetary Award: Examining the Impact of the Presiding Judge²¹

In order to examine the impact of the presiding judge on case outcome, three separate county level analyses were conducted. A select number of the most commonly cited judges were chosen for *each* county and court appearance data was recoded in order to create a measure representing the proportion of time each case had come before one of the selected judges out of their total number of court appearances (an additional “other” category was created to represent all other court appearances in which other judges presided). In addition, the maximum proportion a case was seen by one judge was selected to represent judicial consistency.

²¹ Across Tables 4.5 to 4.9, the minimum sample size was 694. So while we're not sharing the N in order to maintain de-identification, it wasn't low enough that it should raise any power concerns.

Table 4.5 presents the findings from our multiple logistic regression analysis predicting case any outcome with a monetary award for County A.²² Model 1 (baseline measures only) explains 6% of the variance in the outcome measure. Model 2 displays the results when the selected judges²³ are added to the model and reveal that having a greater proportion of court appearances with Judge B (odds ratio = 24.264, $p < .001$) or judge C (odds ratio = 5.379, $p < .05$) significantly increases the odds of receiving a case outcome with a monetary award. The results in Model 2 demonstrate that presiding judge can have a significant and independent impact on case outcomes, even after controlling for baseline characteristics.

The final model (Model 3) introduces two court process measures, the number of motions and days from RJI filing to disposition, with both reaching statistical significance. Specifically, Model 3 reveals that once days between RJI filing and disposition and number of motions are controlled for, Judge C loses significance, meaning that Judge C influences case outcome in County A through the mechanism of taking more time to process cases. (There was .213 simple correlation between Judge C and days from RJI filing to disposition.) While Judge B remained a significant ($p < .05$) predictor of case outcome, the magnitude of influence decreased from 24.264 to 13.530. A correlation analysis between Judge B and the two court process measures revealed positive and significant relationships; thus, some of the influence of Judge B in Model 2 was mediated by court processes (Judge B is associated with more motions and more days between RJI filing and disposition).

²² County name is withheld in this analysis to maintain the de-identification of the judges.

²³ Reference group is an unspecified number of “other” County A judges.

Table 4.5. Logistic Regression Predicting any Case Outcome with a Monetary Award in County A^a

	Model 1	Model 2	Model 3
	Odds Ratio	Odds Ratio	Odds Ratio
Total Number of Claims Filed	1.100	1.107	1.158 ⁺
Patient Age	0.997	0.998	1.000 ^b
Injury Severity (Reference = Death)			
Emotional	0.292*	0.276*	0.323*
Minor Physical	0.534*	0.545*	0.577 ⁺
Significant Physical	1.025	1.044	1.092
Major Physical	1.529	1.694	1.898
HHC Insurance	1.934**	0.595	0.777
Judge (Ref = Other Judges)			
Judge A		37.844	473.303 ⁺
Judge B		24.264**	13.530**
Judge C		5.379*	3.582
Unspecified Other Judges^c		Unspecified	Unspecified
Case Process Measures			
Number of Court Motions			0.695***
RJI Filing to Disposition Date (Days)			1.001**
Constant	2.024*	1.298	0.777
Nagelkerke R-Square	0.059	0.119	0.242

***p<.001 **p<.01 *p<.05 + p<.10

^aNote: The judicial consistency measure failed to significantly correlate with monetary award and was excluded from the analysis.

^bNote: An odds ratio close to 1.000 represents a increase in the odds of the outcome and would be evident if expanded to include more decimal places.

^cNote: To ensure de-identification of judges, all measures representing individual judges were examined and all non-significant coefficients were grouped as unspecified.

Table 4.6 presents a similar analysis for County B. Model 1 reveals that baseline measures explain a total of 9% of the variance in the outcome measure. Model 2 reveals that Judge A significantly predicted case outcomes with monetary awards for the plaintiff. With the addition of the judicial measures, the variance explained in the outcome measure increased from 9% in Model 1 to 19% in Model 2. This mainly results from controlling for Judge A, whose odds ratio equals 20.226 (p<.001), meaning that those cases with a greater proportion of court appearances with Judge A have 20.226 greater odds of receiving a case outcome with a monetary award for the plaintiff.

With the inclusion of court process measures in Model 3, several parameters became more or less strongly significant than in Model 2. Perhaps most interestingly, while Judge A remained statistically significant, the magnitude of the odds ratio sharply decreased (from 20.226 to

8.341), meaning that a portion of the causal relationship between Judge A and case outcome is mediated by court processes. For instance, Judge A holds significantly more court appearances per case and appears to average slightly more total case processing time than other judges, with both of these processing measures trending toward a positive relationship with outcomes that have a monetary award for the plaintiff.

Table 4.6. Logistic Regression Predicting any Case Outcome with a Monetary Award in County B

	Model 1	Model 2	Model 3
	Odds Ratio	Odds Ratio	Odds Ratio
Total Number of Claims Filed	1.168**	1.210**	1.282***
Injury Severity (Reference = Significant Physical)			
Emotional	0.129***	0.189**	0.239*
Minor Physical	0.657*	0.791	0.803
Major Physical	1.800*	1.955*	2.498**
Death	1.194	1.289	1.349 ⁺
Event Site: Labor and Delivery	1.377	1.499	1.785*
Demonstration Hospitals	1.428 ⁺	1.713**	1.643*
HHC Insurance Case	2.752***	4.342***	3.402***
Physician Specialty: OBGYN	1.228	1.180	1.170
Judge (Ref = Unspecified Number of Other Judges)			
Judge A		20.226***	8.341***
Unspecified Number of Other Judges^a		Unspecified	Unspecified
Other Judges		0.676 ⁺	0.520*
Judicial Consistency		0.888	0.365*
Case Process Measures			
Number of Court Appearances			1.003
Number of Court Motions			0.784***
Event Date to RJI Filing (Days)			1.000***
RJI Filing to Disposition			1.000 ^b
Constant	1.245	0.656	2.981*
Nagelkerke R-Square	0.094	0.185	0.271

***p<.001 **p<.01 *p<.05 + p<.10

^aNote: In order to maintain the de-identification of judges the reference category, as well as the non-significant coefficients included in the model are grouped as unspecified.

^bNote: An odds ratio close to 1.000 represents a increase in the odds of the outcome and would be evident if expanded to include more decimal places.

Table 4.7 presents the results of a logistic regression for County C predicting any case outcome with monetary award. In model 1, baseline measures explain .101 of the variation in case outcomes, a figure that only increased to .118 in Model 2, after adding a parameter for judicial consistency. (Parameters for individual judges were not included in Model 2 because they were not significant in the bivariate analyses.) Model 2 does indicate, however, that they newly introduced measures, judicial consistency, was significant. Those cases with greater judicial consistency had significantly (p<.001) greater odds of receiving a case outcome with a monetary

award for the plaintiff. With the introduction of court process measures in Model 3, judicial consistency remained statistically significant but its magnitude of influence decreased, meaning that while this measure remained an independent predictor of case outcome, a portion of its influence is mediated by court processes.

Table 4.7. Logistic Regression Predicting any Case Outcome with a Monetary Award in County C^a

	Model 1	Model 2	Model 3
	Beta	Beta	Beta
Total Number of Claims	1.124*	1.133*	1.116+
Patient Age (Mean)	0.996	0.995	0.992+
Injury Severity (Reference = Death)			
Emotional	0.333*	0.332*	0.432
Minor Physical	0.533**	0.523**	0.514*
Significant Physical	1.079	1.083	1.078
Major Physical	2.717*	2.551*	3.075*
HHC Insurance Case	2.759***	2.928***	2.754***
Judicial Consistency		4.059***	2.499*
Case Process measures			
Number of Court Appearances			0.938***
Number of Court Motions			0.833**
Event date to RJI Filing (Days)			1.000** ^b
RJI Filing to Disposition (Days)			1.002***
Constant	1.588	0.477	1.014
Nagelkerke R-Square	0.101	0.118	0.219

***p<.001 **p<.01 *p<.05 + p<.10

^aNote: Judicial measures failed to significantly correlate with case outcome and were excluded from analysis.

^bNote: An odds ratio close to 1.000 represents an increase in the odds of the outcome and would be evident if expanded to include more decimal places.

County Level Analysis Predicting Monetary award: Examining the Role of the Presiding Judge

In order to examine the role of the presiding judge in predicting monetary award, three separate county-level analyses were conducted. Initial bivariate analyses revealed that only County B and County C included judicial measures significantly associated with monetary award; as a result, County A was excluded from further analysis.

Table 4.8 presents the results from a multiple linear regression predicting monetary award for County B. With the addition of the select judge measures and the judicial consistency measure in Model 2, the predictive relationship of the significant baseline measures did not dramatically change. Only one of the select judges included in the analysis significantly predicted monetary award. Cases with a greater proportion of court appearances with Judge B averaged significantly (p<.05) larger monetary awards. In addition, independent of any influence Judge B may have on

monetary award, those cases with greater judicial consistency averaged significantly ($p < .01$) lower monetary awards. The addition of the two court case processing measures increased the percent of variation explained by less than 1%, meaning that the court case process did not have a great influence over the final monetary award in County B.

Table 4.8. Linear Regression Predicting Monetary Award in County B

	Model 1	Model 2	Model 3
	Beta	Beta	Beta
Total Number of Claims	0.134***	0.139***	0.144***
Patient Age (Mean)	-0.083**	-0.086**	-0.099**
Injury Severity (Reference = Death)			
Emotional	-0.048 ⁺	-0.033	-0.033
Minor Physical	-0.125***	-0.114***	-0.121***
Significant Physical	-0.025	-0.037	-0.036
Major Physical	0.350***	0.338***	0.354***
Event Site: Labor and Delivery	0.056 ⁺	0.061 ⁺	0.069*
Event Site: Operating Room	-0.032	-0.040	-0.041 ⁺
Demonstration Hospital	0.035	0.040	0.04
Physician Specialty: OBGYN	-0.055 ⁺	-0.059*	-0.065*
Judge^a			
Judge A		-0.051 ⁺	-0.051 ⁺
Judge B		0.064*	0.070*
Unspecified Number of Judges^b		Unspecified	Unspecified
Judicial Consistency		-0.078*	-0.112**
Case Process Measures^a			
Event Date to RJI filing (Days)			-0.088**
RJI Filing to Disposition (Days)			-0.079**
Adj. R-Square	0.228	0.246	0.253

*** $p < .001$ ** $p < .01$ * $p < .05$ + $p < .10$

^aNote: Reference Categories includes the Other Judges measure as well as an unspecified number of other individual judge measures.

^bNote: In order to maintain de-identification of judges, the parameters of individual judges were examined and any non-significant coefficients were grouped as unspecified.

Table 4.9 presents the results of a multiple linear regression for County C. In Model 2, with the introduction of the select judge measures, those cases with a greater proportion of court appearances with Judge A averaged a significantly ($p < .05$) larger monetary award than cases with more appearances before any other judge. This relationship did not change when controlling for court process measures in Model 3.

Table 4.9. Linear Regression Predicting Monetary Award in County C^a

	Model 1	Model 2	Model 3
	Beta	Beta	Beta
Total Number of Claims	0.089**	0.090**	0.088**
Patient Age (Mean)	-0.060 ⁺	-0.059 ⁺	-0.061 ⁺
Injury Severity (Reference = Death)			
Emotional	-0.044	-0.053	-0.530 ⁺
Minor Physical	-0.071	-0.079	-0.074
Significant Physical	-0.027	-0.031	-0.029
Major Physical	0.242***	0.240***	0.242***
Event Site: Labor and Delivery	-0.023	-0.021	-0.020
Physician Specialty: OBGYN	0.013	0.010	0.008
Physician Specialty: Surgery	0.053 ⁺	0.051 ⁺	0.052 ⁺
Judge (Ref = A Number of Unspecified Judges)^b			
Judge A		0.101**	0.116***
Other Judges		-0.031	-0.032
Case Process measures			
RJI Filing to Disposition (Days)			-0.020
Adj. R-Square	0.093	0.104	0.105

***p<.001 **p<.01 *p<.05 + p<.10

^aNote: The judicial consistency measure failed to significantly correlate with monetary award and was excluded from the analysis.

^bNote: In order to maintain the de-identification of judges, the reference category includes a number of unspecified judges.

Summary

In general cases with more claims, Health and Hospitals Corporation (HHC) Insurance, and a physical injury claim (especially a major physical injury), tended to have more case outcomes with monetary awards than other types of cases. Analysis also determined that cases with a longer court processing time (from the RJI filing to disposition) were more likely to result in a case outcome with a monetary award. Interestingly, cases heard in county A average a longer processing time than cases heard in County B or County C. Once the analysis controlled for processing time, cases heard in County A were less likely than others to have case outcomes with monetary awards, although among those case outcomes that had a monetary award, those heard in County A average a higher monetary award than elsewhere. Of further interest, the results that isolated the effect of the judge in the case generally provided strong evidence that judge matters in predicting case outcome and monetary award.

Medical malpractice cases can be complex with a wide range of complicated legal and medical matters influencing the litigation process. The legal and medical measures included in the current analyses do not account for the full range of factors that may impact the case outcomes or

monetary awards, no is it always discernible, absent in depth qualitative observations that were unfeasible in this study, why some of the observed relationships were detected. Therefore, while it is important to recognize the significant influence of the measures included in these analysis, it is equally important to recognize the limitations in the resulting conclusions.

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Appendix A. Data Cleaning Description

Data cleaning began with the initial MMDCS data, which included 15,626 claims, against both physicians and facilities, opened and closed between January 1, 2002 and December 31, 2010 from three New York City Counties: County A, County B, and County C.²⁴ Since a single plaintiff can file multiple claims,²⁵ the MMDCS database contained rows of claim information pertaining to a single case (i.e., a single plaintiff). A claim, as defined by prior research, includes “a written demand for compensation for a medical injury” (Studdert et al., 2006; Studdert et al., 2000; Wieler et al., 1993). The current research diverges from prior investigations by extracting selected claims level data and simplifying and condensing this data as to facilitate examination at the case level. This provides us with an opportunity to encompass more characteristics of medical malpractice litigation in a way that hopefully provides a fuller picture of how cases are processed and what factors influence outcome measures. In order to merge MMDCS data with the CCIS data, which is maintained at the case-level, relevant MMDCS data was vectored, after which the data was aggregated. This aggregation created a new database which included 8,276 cases,²⁶ and within each case plaintiffs had data associated with possibly 1 to 23 claims (average claim per case was 1.9) (see table below).

The next step entailed merging the MMDCS and CCIS datasets and included a multistep process due to the differential structure of the respective datasets. For example, the CCIS data was received as numerous data files separated by county and the data characteristics of these data files varied greatly from one county to the next.²⁷ As a result, as the data cleaning process progressed, the CCIS data was maintained in three independent databases representing each of the three counties. In comparison, the MMDCS data was maintained and received as a single, unified dataset.

The first step in the eventual merging of the MMDCS and CCIS databases required separating of the MMDCS database into three mutually exclusive datasets based on *Event County* (i.e., County A, County B, and County C). Based on county identifier, each MMDCS dataset was then merged with its respective CCIS dataset utilizing plaintiff’s last and first name. Of the 1,707 County A MMDCS cases, 25% (740) successfully merged with the CCIS database (this represents 28% of CCIS cases with an RJI file date on or after January 1, 2002 and a disposition date on or prior to December 31, 2010). Of the 2,827 County B MMDCS cases, 26% (1,379) successfully merged with the CCIS database (this represents 31% of CCIS cases with an RJI file date on or after January 1, 2002 and a disposition date on or prior to December 31, 2010). Of the 3,741 County C MMDCS cases, 31% (1,161) successfully merged with the CCIS database (this represents 30% of CCIS cases with an RJI file date on or after January 1, 2010 and a disposition date on or prior to December 31, 2010).

²⁴ MMDCS measure “Event County” utilized to identify three counties.

²⁵ Plaintiff could be patient or family member.

²⁶ A small number of cases involving separate claims representing mother and newborn were removed from analysis prior to aggregating data.

²⁷ In string format.

After merging was completed the three datasets were examined to verify that the merge was successful (i.e., name, age, injury etc. consistent in the CCIS and MMDCS data files). This step allowed us to identify any remaining unmatched or ineligible cases and as a result seventy-nine additional cases were identified as ineligible and were removed from the three datasets. An additional review of the data quality was conducted to verify that cases were properly matched and as well as the validity and reliability of measures. At this point a number of measures were excluded from consideration based on lack of consistency or absence of data. The final stage of data cleaning process entailed merging the three separate datasets into one unified database representing medical malpractice cases from County A, County B, and County C.²⁸ The final sample included 3,201 medical malpractice cases (732 County A, 1,355 County B, and 1,114 County C cases) (see Table below).

Distribution of Claims and Cases by County

MMDCS Database	County A	County B	County C	Total
Number of Claims	2,971	5,252	7,403	15,626
Number of Cases	1,707	2,827	3,741	8,276
Range of Claims	1 to 10	1 to 20	1 to 23	1 to 23
CCIS Database				
Number of Cases	2,605	4,498	3,899	11,002
Merged MMDCS & CCIS Database				
Successfully Matched Cases	740	1,379	1,161	3,280
Final Number of Cases	732	1,355	1,114	3,201
Range of Claims	1 to 9	1 to 12	1 to 9	1 to 12

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²⁸ Merging was based on the plaintiff's first and last name as well as the unique identifier used in the MMDCS data files (adjudicative case number) and the CCIS data files (case index number).

Appendix B

Distribution of Recoded Case Outcome Measure

Number of cases	Total 3,201
Case Outcomes	
Decision/Judgment for Plaintiff	0% ^a (14)
Settlement	67% (2,129)
Decision/Judgment for Defendant	6% (192)
Involuntary Dismissals	14% (438)
Voluntary Dismissals	12% (396)
Dropped or Abandoned	1% (19)
Other	0% ^a (13)
Total	100%

^aNote: Less than one-half of one percent.

Appendix C

Logistic Regression Model Utilizing Case Characteristics to Predict Case Outcomes with Monetary Awards, Separated by Injury Severity

Sample Size	704	1,389	273	598
	Minor Physical Injury	Significant Physical Injury	Major Physical Injury	Death
	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio
Total Number of Claims Filed	1.185 ⁺	1.126*	1.252 ⁺	1.307***
County (Reference = County B)				
County C	0.709	1.100	1.096	0.725
County A	0.671	0.821	0.680	0.526*
Patient Age	0.998	0.996	0.996	1.005
Physician Specialty: OBGYN	1.049	1.128	1.504	0.607
Event Site: Labor and Delivery	2.149 ⁺	0.745	0.661	2.819
HHC Insurance Case	1.604*	3.211***	5.488**	2.056**
Case Process Measures				
Number of Court Appearances	0.986	0.982	0.995	0.983
Number of Court Motions	0.665***	0.824***	0.781*	0.761***
Event to RJI Filing (Days)	0.999**	1.000***	1.000	0.999**
RJI Filing to Disposition (Days)	1.001**	1.001***	1.000	1.002***
Constant	2.315*	1.884*	3.490 ⁺	1.319
Nagelkerke R-Square	0.212	0.152	0.146	0.225

***p<.001 **p<.01 *p<.05 + p<.10

Note: The emotional injury measure was excluded due to low N size.

Appendix D

Linear Regression Predicting Monetary Award among Cases with Claims that Settled or Received a Judgment or Decision Separated by Injury Severity

Sample Size	24	393	953	226	432
	Emotional Injury Only	Minor Physical Injury	Significant Physical Injury	Major Physical Injury	Death
	Beta	Beta	Beta	Beta	Beta
Total Number of Claims Filed	0.461 ⁺	-0.024	0.097**	0.078	0.252***
County A	0.456	-0.015	0.112**	0.203**	0.113*
Patient Age	-0.101	0.004	-0.073 ⁺	-0.177 ⁺	-0.152**
Patient Sex (Female)	0.178	0.039	0.061 ⁺	-0.090	0.025
Event Site: Labor/Delivery	0.198	0.004	0.025	0.054	0.049
HHC Insurance	0.065	-0.069	-0.007	-0.001	-0.065
Physician Specialty: OBGYN	0.260	-0.016	-0.071 ⁺	0.019	0.089 ⁺
Court Related Measures					
Total Number of Court Appearances	0.341	0.037	0.322***	-0.060	0.183 ⁺
Total Number of Court Motions	-0.080	-0.070	-0.093 ⁺	0.205*	-0.137 ⁺
Event Date to RJI filing (Days)	-0.132	-0.011	-0.044	-0.172*	-0.110 ⁺
RJI Filing to Disposition (Days)	-0.046	0.007	-0.149**	-0.158	0.016
Adj. R-Squared	0.34	-0.018	0.042	0.079	0.149

***p<.001 **p<.01 *p<.05 + p<.10