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ABSTRACT

In this study we examine the experience of a single large hospital with an informal pre-litigation "complaint" process that resolves some cases outside of the legal system. The empirical results are generally consistent with an information structure where patients are poorly informed about the quality of medical care and the hospital does not know whether particular patients are litigious or not. The complaint process seems to resolve many complaints in a less costly manner than filing lawsuits. Almost half of all complaints are resolved before a lawsuit is filed. The large majority of these are dropped, and they are cases that would likely have been dropped even if they had been initiated as lawsuits. Very few cases are settled with a cash payment to patients before a lawsuit is filed, suggesting that patients must file lawsuits in order to convince the hospital that they are litigious enough to justify a settlement. Cases initiated through the complaint process are not resolved (dropped, settled, tried to a verdict) significantly differently from cases initiated as lawsuits, controlling for observable case characteristics. When settlements of lawsuits occur, the amounts paid do not vary depending on how the case originated, but settlements of complaints are much higher for cases settled after a lawsuit is filed. We conclude that the complaint process is a cost-effective "front-end" for the litigation process that provides information to patients regarding the quality of their medical care and, hence, the likelihood of negligence.

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A Comparison of Formal and Informal Dispute Resolution in Medical Malpractice

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1. Introduction and Background

When patients suffer harm due to negligence while undergoing medical treatment in a hospital, the vast majority do not file lawsuits (Danzon, 1985; Localio *et al* 1991). Nonetheless, the costs of medical malpractice disputes are widely perceived to be excessive (Vidmar, 1992). This perception is based on two factors. First, health care providers and policymakers are concerned about juries making unreasonably large damage awards. Second, health care providers (and other providers) are concerned about the high legal costs of resolving disputes. In this study we examine the experience of a single large hospital with an informal dispute resolution process that resolves some cases outside of the legal system.[1] While an informal dispute resolution process cannot address the first component of costs, excessive jury awards, it does address the second component, high legal costs.

The Complaints Process and the Litigation Process

Patients who feel that they were harmed by their medical care at the hospital may either pursue formal methods of dispute resolution—file a lawsuit against the hospital, or pursue informal methods of dispute resolution—register a complaint with the hospital's ombudsman's office. In the latter

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[1] See Farber and White (1991) for an analysis of the disposition of lawsuits filed against the same hospital. See Bovbjerg, *et al* (1991), Sloan and Hsieh (1990) and Taragin *et al* (1992) for analyses of the disposition of large samples of medical malpractice lawsuits.

case, if the complaint is sufficiently serious and involves potential medical malpractice it is referred to the hospital's "patient relations office".[2] Complaint cases may be resolved in any of four ways: 1) by patients dropping their cases without payment, 2) by patients dropping their cases in return for forgiveness of unpaid hospital charges, but no other compensation, 3) by patients and the hospital agreeing on a settlement under which the hospital pays compensation to the patient, or 4) by patients filing lawsuits. Lawsuits, regardless of whether they are filed initially or subsequent to complaints, may be resolved in any of three ways: 1) by patients dropping their cases, 2) by a settlement occurring under which the hospital pays compensation to the patient, or 3) by the case being tried to a verdict in court.[3]

One important difference between informal and formal methods of dispute resolution is that complaint cases do not involve lawyers. Patients represent themselves, and the hospital is represented by its in-house complaints staff.[4] In lawsuits, both sides are represented by lawyers. Plaintiffs' lawyers in medical malpractice cases normally are hired on a contingency fee basis (although plaintiffs occasionally represent themselves in litigation), and the hospital is represented by outside counsel. A typical contingency arrangement is for the patient/plaintiff's lawyer to get one-third of the settlement or damage award if the patient wins at trial and nothing if the case is dropped or the patient loses at trial. Lawyers representing plaintiffs have

[2] Most complaints to the ombudsman's office involve dissatisfaction with general hospital services such as food and the like.

[3] Cases are often dropped or settled during trial, but before the trial has concluded. In our data, these cases are counted as drops or settlements. Of the 34 cases that started trial in our sample, 24% were dropped and 15% were settled during trial.

[4] Patients occasionally (less than 10% of the time) are represented by lawyers during the complaints process and they also sometimes contact lawyers before filing complaints. Lawyers appear to sometimes suggest that patients file complaints, either because the lawyer does not want to take the case or because patients may gain information by filing complaints. See below.

an incentive to screen cases for those having the highest expected value. Lawyers for the hospital, in contrast, are paid on an hourly basis. In addition to the cost of lawyers, both sides must hire expert witnesses before trial. Since liability in medical malpractice cases depends on negligence, experts are needed at trial to explain the standard of care to the jury and to argue whether or not negligence occurred. In many cases, plaintiffs' lawyers pay for patients' experts and are reimbursed from the amount paid to the plaintiff, if any. Thus, plaintiffs' lawyers' involvement in medical malpractice cases often goes beyond just committing their time.[5]

Complaints and the Hospital's "Risk Management" System

In addition to the complaints process, the hospital has a risk management program under which the medical staff files incident reports when they feel that something occurred that could result in liability by the hospital. When a report is received, the patient relations office opens a file similar to the file that is opened when a complaint is referred by the ombudsman's office. An evaluation is then conducted. In some of these incident-report based cases, the patient later contacts the patient relations office to file a complaint, and the case then proceeds in the same fashion as complaints initiated without an incident report, except that the hospital has advance notification. In the remaining cases, the patient never contacts the patient relations office, possibly because the patient never knew that the incident occurred or because the patient does not wish to pursue a complaint.[6] By examining the records, we are able to determine if the patient (or a family member) contacted the patient-relations office in cases initiated by incident

[5] Expert witnesses are not needed if the case is dropped or settled in the early stages of litigation, but they must be available to be deposed by the other side before trial. Plaintiffs often drop their cases at the time when they must hire an expert witness.

[6] Two large studies found that only a small fraction of adverse medical outcomes result in legal action by patients. See Danzon (1985), Harvard Medical Practice Study (1990), and Localio (1991).

reports. We classify incident report-based cases as "active" if the patient or a family member contacted the patient relations office or as "passive" otherwise. This means that we have four different types of cases: those initiated as lawsuits, those initiated by patients without an incident report (referred to as complaints), and those initiated as incident reports in which the patient did and did not contact the patient-relations office (referred to as active and passive incident-report-based cases, respectively).

The reason for making the distinction between active and passive incident-report-based cases is that, otherwise, we would mistakenly infer that many incident-report-based cases were filed and dropped when in fact patients never contacted the patient-relations office. An additional possibility is that complaint cases may be substantively different from active-incident-report based cases, even though patients contact the patient relations office in both. If an incident report has been filed, the patient relations office is prepared in advance and any effort by the patient to contact the office is noted in the record. However if no incident report has been filed, patients may have to show greater persistence before the office responds by opening a complaint file. Thus patient characteristics may differ between the two types of cases. If the thresholds for opening a file were actually the same for both types of cases, then active incident-report-based cases should be treated as equivalent to patient-initiated complaints. However if the thresholds differ, then case characteristics and disposition will tend to differ for the two types of cases, and they should not be treated as equivalent. We address this issue below.

Information Flows in the Negotiation and Dispute Resolution Process

Information flows between the hospital and patients play an important role in the dispute resolution process, and the character of these flows may differ between formal and informal methods of dispute resolution. Two critical variables in medical malpractice disputes are the quality of medical

care, which determines liability under the negligence rule, and the severity of damage to the patient, which determines the size of the damage award if any. Patients generally are poorly informed about the quality of care at the time they initiate cases, while the hospital has access to good information concerning care quality. In contrast, both sides are well informed about the severity of patients' damage.

During the dispute resolution process, information is transmitted from the hospital to patients concerning quality of care. During the complaint process, information transmission is voluntary. The hospital has an incentive to provide information to patients when the information is favorable to the hospital, *i.e.*, when care was non-negligent. (See Cooter and Rubinfeld, 1992). But it may also provide information which is incomplete or misleading. Once a lawsuit is filed, patients can use the discovery process to compel the hospital to transmit information, in particular by deposing the medical personnel involved in the incident. Thus in lawsuits, the hospital can be compelled to transmit even unfavorable information.[7] One question we address indirectly is whether information flows during the complaint process are similar to or different from information flows in lawsuits.

Another critical variable in medical malpractice disputes (and in disputes more generally) is how "peaceful" or "litigious" patients are. Patients may vary greatly in their litigiousness, interpreted here as the pecuniary and non-pecuniary costs of pursuing disputes, and the hospital is probably not well informed about the litigiousness of specific patients. The hospital can learn about the litigiousness of specific patients by observing how far and hard they pursue their claims. At one extreme, many potential claims are not pursued at all, and these patients are the least litigious (Danzon, 1985; Brennan, *et al*, 1991; Localio, *et al*, 1991; Harvard Medical Practice

[7] Patients can examine their written hospital records at either stage. But normally they need an expert physician to interpret the record and an expert is hired only after a lawsuit is filed.

Study, 1990). Other, less litigious, patients will pursue complaints or lawsuits depending on the potential damages. As discussed above, cases based on incident reports may involve relatively less litigious patients, on average, and this has implications for how these cases are resolved. Additionally, incomplete information by the hospital regarding patients' litigiousness is likely to affect how the hospital deals with cases, particularly at the early stages. We address these issues in our empirical analysis.

Potential Benefits and Costs from the Complaints Process

What can the hospital expect to gain from having the complaints process? Clearly the hospital saves legal costs if disputes can be resolved at the complaint stage rather than becoming lawsuits.[8] In addition to saving its own legal expenses (including expert witness fees) if a case is resolved informally, the hospital may save some or all of the patient's legal expenses as well. Suppose bargaining over a settlement takes the form of the hospital making a take-it-or-leave-it offer to the patient. A risk-neutral patient will be willing to accept a settlement offer at the complaint stage as long as it is at least equal to the expected value of the case at the lawsuit stage minus the patient's legal costs. If the hospital offers the minimum amount that the patient is willing to accept, then it captures savings equal to both sides' legal costs from going to trial. The hospital gains even more if the patient is risk averse and is therefore willing to accept a lower damage award at the complaint stage than he or she expects to receive at the lawsuit stage.

Besides providing the hospital with a cost-effective mechanism for transmitting care quality information to patients, the complaints process may provide a mechanism through which unhappy patients can "let off steam" as an alternative to filing lawsuits. When patients contact the patient relations office, they speak to a staff member who is a sympathetic listener and

[8] We present estimates of legal costs below.

hear a message of conciliation, rather than contacting a lawyer from whom they presumably hear a message of litigation. In addition, patients who are unhappy with their medical care often do not pay their medical bills. As a result, they receive a stream of bills that continually remind them of their experience. Since these unpaid bills are usually small (for insured patients, they are the amount not covered by insurance), it may be cost-effective for the hospital to reduce or forgive them if doing so prevents patients from filing lawsuits—and the patient-relations office sometimes does so.

A potential cost of having the complaints process is that it may cause an increase in the number of disputes, since it is much easier for unhappy patients to file complaints than lawsuits. If the complaints staff is ineffective, then they could leave patients dissatisfied and could cause them to file more lawsuits than they would have otherwise. One possible strategy that the hospital could use to prevent this involves having the patient-relations office never offering settlements (or rarely offering small settlements) at the complaint stage. This allows the hospital to learn which of the patients who have filed complaints are litigious by forcing them to file lawsuits in order to receive a settlement. Then the hospital gains because some cases that would otherwise have been filed as lawsuits are resolved without litigation and any additional cases filed as complaints do not cost very much. While it is difficult to determine with the available data the extent to which cases initiated through the complaints process would have been filed as lawsuits absent the complaints process, we can and do investigate the tradeoff between pre-litigation settlement costs and potential savings in legal costs.

2. Theoretical Framework

In any negotiation, the central governing factor is the dispute settlement mechanism that determines the outcome if the parties fail to agree. In medical malpractice disputes, this mechanism is trial to a verdict in court, usually before a jury. Expectations about the decision that would be

made in court in a given case provide an important constraint on negotiations, since both parties use this expected outcome as a benchmark to judge settlement offers (Mnookin and Kornhauser, 1979; Farber and Katz, 1979). The dispute settlement mechanism is also central to the logically-prior decision of patients regarding whether or not to initiate disputes. Patients (or their lawyers) compare the expected outcome to the costs in deciding whether to initiate disputes.

A trial under the negligence rule requires that the jury or judge make a two-stage decision. First, it decides if there is liability, which requires negligence on the part of the defendant. Then if the defendant is liable, it determines the amount of damages. Represent the probability of the hospital being found liable at trial by $Pr(L)$ and represent the expected damage award at trial conditional on the hospital being found liable by $E(D|L)$. The expected outcome at trial is then $E(D) = Pr(L) * (E(D|L))$. Under the negligence rule, only care quality and other factors affecting the likelihood of negligence should affect the determination of liability $Pr(L)$. Similarly, only injury severity and other factors affecting the costs of the injury should affect the damage award conditional on liability, $E(D|L)$.

This specification is an oversimplification since the hospital and patients do not have identical expectations concerning the outcome at trial, particularly given patients' lack of information concerning care quality. Suppose patients' expected outcome at trial is denoted $E(D_p)$ and the hospital's expected outcome at trial is denoted $E(D_h)$. Now suppose the parties bargain over a settlement, either after a lawsuit is filed or at the complaints stage. Patients are willing to accept a settlement which equals their expected outcome at trial minus their legal costs of going to trial, $E(D_p) - c_p$, where c_p is patients' legal costs. The hospital is willing to offer a settlement which equals its expected outcome at trial plus its legal costs of going to trial, $E(D_h) + c_h$, where c_h is the hospital's legal costs. Suppose a range of settlements exists which makes both sides better off than going to trial, or

$E(D_h) + c_h > E(D_p) - c_p$, and that the expected settlement amount $E(S)$ when settlements occur is a weighted average of the two parties' expected outcomes net of costs, or:

$$E(S) = [\lambda E(D_p) + (1-\lambda)E(D_h)] + [(1-\lambda)c_h - \lambda c_p)] \qquad (1)$$

where $0 \leq \lambda \leq 1$. The higher is λ, the greater is the hospital's bargaining power relative to the patient's.

Eq. (1) has several implications. First, the higher are the hospital's legal costs relative to patients', the higher the expected settlement, and *vice versa*. Second, eq. (1) can be evaluated separately for settlements that occur in the lawsuit context versus the complaints context. Since on average $E(D_p)$ and $E(D_h)$ are likely to be the same in both, differences in settlement amounts between lawsuits and complaints should be due to differences between λ, c_h, or c_p in the two contexts. Both c_p and c_h must be higher for complaints than lawsuits, since both measure the additional legal cost of continuing a dispute to trial and complaints are "further" from trial than are lawsuits. However, the difference between c_p at the complaint and lawsuit stages is probably greater than the difference between c_h at the complaint and lawsuit stages. This is because patients incur most of their legal expenses when they hire lawyers on contingency fees, while the hospital's legal expenses increase gradually from the time a lawsuit is filed. This consideration suggests that settlements in complaint cases will tend to be lower than settlements in lawsuits. In addition, when patients hire lawyers, their bargaining power vis-a-vis the hospital probably rises (λ falls), which also implies that lawsuit settlements will tend to be higher than complaint settlements (Ashenfelter and Bloom, 1990).

Asymmetric information about patients' litigation costs provides an alternative explanation for why settlements reached at the complaint stage may be lower than settlements reached after the filing of a lawsuit. Suppose some patients are "peaceful" (have high litigation costs), while other

patients are "litigious" (have low litigation costs), due to differences in degree of risk aversion, general attitude toward confrontation, or actual legal costs. The hospital cannot determine *ex ante* which patients are which. Suppose peaceful patients have costs c_p^h and litigious patients have costs $c_p^l < c_p^h$. Peaceful patients are willing to accept lower settlement offers than litigious patients and may even drop their cases if they receive no offer. Thus if the hospital wishes to settle a case and plans to make a single take-it-or-leave-it offer, it can make a high offer which will be accepted by both types of patients. Or it can make a low offer or no offer, which will cause litigious patients to pursue their cases to the next stage, *i.e.*, file a lawsuit if the case is a complaint or proceed to trial if the case is a lawsuit, and will cause peaceful patients to accept or drop their cases. Given the potentially high cost of settling cases involving litigious patients, it could be better for the hospital to make only low offers or no offers at all at the complaint stage. Doing so allows it to learn which patients are litigious and to avoid incurring high expenses in settling with peaceful patients.

Finally, asymmetric information concerning care quality between patients and the hospital is a likely reason for differences between $E(D_h)$ and $E(D_p)$ in Eq. (1).[9] Suppose, for example, that care quality is good. Then the hospital expects to win at trial, so that $E(D_h)$ is relatively low. But patients must predict the outcome at trial based on expected care quality, so that $E(D_p)$ is higher. Thus in good care cases, the hospital would benefit from transmitting information to patients since doing so would lower $E(D_p)$ and therefore lower the expected settlement $E(S)$. If information can be transmitted credibly, then patients may even drop cases involving good care quality, because the expected settlement may fall so low that

[9] This contrasts with the explanation for differences in expectations in the standard theory of settlement bargaining in the law and economics literature, which emphasizes differences in levels of optimism and degree of risk aversion between the parties. See Mnookin and Kornhauser (1979) and Shavell (1982).

it does not cover their legal costs of continuing the dispute. Conversely, if care quality is bad then $E(D_h)$ will be high relative to $E(D_p)$. In this case the hospital benefits from settling cases quickly if it can do so without transmitting information.

3. The Data

The sample consists of resolved medical malpractice claims made against a single large hospital and/or medical personnel on its staff by patients who received treatment there.[10] Claims were for incidents occurring between 1976 and 1987 that were resolved by 1991.[11] We have complete data (for our purposes) on 209 lawsuits that were filed without going through the complaints process, on 295 patient-initiated complaints, and on 191 incident reports. Of the latter, 117 were classified as active and 74 as passive.[12] In each of the complaints categories, some complaints were subsequently filed as lawsuits.[13]

The data are derived from two sources. All data on complaints come from records kept by the hospital's patient relations office.[14] The data on lawsuits come from the hospital's legal affairs office. If a complaint

[10] The hospital is located in a state that has neither adopted tort reforms that limit liability in the medical malpractice area nor shielded the hospital from liability by governmental or charitable immunity. The hospital manages the legal defense of all hospital staff and pays damage awards and settlements on their behalf.

[11] The year 1987 was chosen as the cutoff in order to allow sufficient time for a large fraction of claims to be resolved by 1991.

[12] Recall that we define an incident-report-based complaint as "active" if the patient or his/her family contacted the patient relations office and "passive" if there was no such contact.

[13] Some of the lawsuits (54) were filed against the hospital and staff along with an unaffiliated party, such as an equipment manufacturer or another hospital. Our analysis deals only with how the case was resolved against the hospital and its staff.

[14] Thus, the patient-initiated complaints we see are those referred to the patient relations office by the ombudsman's office. Trivial claims and claims unrelated to the quality of medical care are not generally referred.

or incident-report-based case later became a lawsuit, then we linked the complaint record with the lawsuit record. We have information for each case on: 1) date of incident and date of filing, 2) how the case was resolved, 3) the amount of the settlement or the damage award paid by the hospital, if any, 4) the hospital's experts' judgments of the quality of medical care, and 5) the severity of damage alleged by the victim.[15] All dollar values used in this study are converted to 1982-84 dollars using the Consumer Price Index.

A key feature of our data set is that it contains a measure of care quality taken from the hospital's records. When a complaint, an incident report, or a lawsuit is filed, the hospital investigates whether the standard of care determining negligence was or was not met by asking experts to evaluate the incident. These evaluations may be provided by the supervisors of the relevant hospital departments and/or by other hospital physicians or nurses in the relevant specialty. For lawsuits, outside experts are also consulted. The evaluation is similar at the complaint and the lawsuit stages, but more exhaustive for the latter than the former. Care was coded as "bad" if it was clearly negligent, "good" if it was clearly non-negligent, and "ambiguous" if the experts' reports were ambiguous or if there was disagreement. Although the evaluations of care quality were made for the hospital, they are not subject to "discovery" by plaintiffs in the course of litigation. This means that there is no incentive for the hospital to put biased information into

[15] We also have data on patients' age and sex, but did not find that sex of the patient mattered. In our previous paper (Farber and White, 1991), we found that lawsuits filed by young patients had higher expected value, presumably because young patients have higher damage (greater lost earnings and higher future medical costs), holding everything else constant. The sample used in this study differs from that used in our earlier study for several reasons: 1) our earlier study investigated only lawsuits, while the current study also includes complaints and incident reports; 2) our earlier study used some cases based on incidents prior to 1976 and after 1987, 3) the current study includes some lawsuits for which we were able to obtain complete data only after finishing the earlier study, and 4) our earlier study excluded lawsuits where parties unaffiliated with the hospital were also named as defendants.

its own record. These reports are used by the hospital in deciding on its litigation strategy in individual cases.

The data also contain a measure of the severity of damage that the patient claims to have suffered as a result of the medical malpractice.[16] The severity measure is divided into four categories: temporary disability, permanent partial disability, permanent total disability, and death. The severity measure is a key determinant of the damage award if the defendant is found negligent at trial. Patients who suffer permanent total disability have higher future medical care costs and more lost income than patients who suffer permanent partial disability, so that the hospital's expected liability is higher. For patients who die, future medical care costs are zero, so that the hospital's expected liability is lower in cases involving death than in cases involving permanent total disability. The hospital's liability is lowest in cases of temporary disability.[17]

4. Analysis of the Complaint Process: Simple Statistics

Case Disposition by Mode of Initiation

Table 1 contains a breakdown of case disposition by mode of initiation. First consider the patient-initiated complaints. The outstanding feature is that about 46% of these were resolved without lawsuits. A substantial majority of these cases (113 or 82.5%) were dropped without monetary payment to the patient. Of the 113, 35 cases or 31% received debt forgiveness, but the average amount was rather small at \$1,625 (s.d. = \$2,564).[18]

[16] Note that the severity of damage due to medical malpractice is often a matter of dispute between the plaintiff and the defendant.

[17] There is not a significant relationship between quality of care and severity of injury in our sample. A chi-squared test of independence fails to reject with p-value = 0.967.

[18] This compares with an average settlement amount in the 24 cases that settled without a lawsuit of \$26,857 (s.d. = \$95,904).

Another important characteristic of the complaint cases is that the hospital only rarely settled cases without a lawsuit being filed (8.1% of complaints). Ultimately, over 40% of patient-initiated complaints are settled, but only about a fifth of the settlements occur before a lawsuit is filed. This is consistent with the information structure outlined above, where patients vary in their litigation costs but the hospital does not know these costs for any particular patient. In this situation it may be rational for the hospital to refrain from offering settlements until patients have demonstrated high litigiousness by filing lawsuits.

Now turn to the incident-report-based cases in columns 3 and 4 of table 1.[19] Fully 83.8% of these cases were dropped without a lawsuit being filed (75.2% of active cases and 97.3% of passive cases). Of these, 37 cases or 23% received debt forgiveness (28.4% of active cases and 16.7% of passive cases).[20] Regardless of whether they are classified as active or passive, the cases based on incident reports are of substantially different character than the patient-initiated complaints: only 13.1% of the former resulted in lawsuits (19.7% of the active cases and 2.7% of the passive cases), compared to 53.6% of the latter. However, the hospital's settlement strategy is similar for both: it only rarely settles cases without a lawsuit being filed. 3.1% of all incident-report-based cases (5.1% of active cases and 0.0% of passive cases) are settled without litigation. Ultimately, 13% of these cases are settled, but only about a quarter of the settlements occur before a lawsuit is filed. The very high pre-litigation drop rate of incident-report-based cases probably reflects the fact that these cases are selected differently from

[19] Note that two "passive" incident-report-based cases were filed as lawsuits. These cases are nonetheless classified as passive because the patient did not contact the patient relations office.

[20] Once again, the average forgiveness amount was rather small at \$2,344 (s.d. = \$6,388). The average was \$3,308 (s.d. = \$7,614) in active cases and \$335 (s.d. = \$747) in passive cases.

patient-initiated complaints, so that patients involved in incident-report-based cases are less litigious.[21]

Table 2 contains a breakdown of the ultimate resolution of cases by mode of initiation. As noted above, cases based on incident reports (even considering only active cases) are significantly more likely to be dropped than other types of cases (p-value < 0.0005). This is consistent with the argument made earlier that these patients are less litigious on average and have a relatively low probability of pursuing their cases, so that it is not worthwhile for the hospital to make settlement offers. The perhaps-surprising finding in table 2 is that there is no significant difference between the ultimate resolution of cases initiated as complaints versus as lawsuits (p-value $= 0.247$). For both, about half of cases are dropped without a cash payment to the patient and slightly less than half are settled with a cash payment.[22] Only about four percent of cases are tried to a verdict in court.

Table 3 contains a breakdown of the ultimate resolution of lawsuits by mode of initiation. This table is based on the subset of complaints and incident reports that "survive" to the lawsuit stage, along with all cases initiated as lawsuits. Complaint- and active incident-report-based lawsuits are significantly and substantially more likely to result in compensation for the patient than are cases initiated as lawsuits (p-value < 0.0005). Almost two-thirds of complaint-based lawsuits and over three-quarters of active incident-report-based lawsuits result in a cash payment to the patient, compared with less than half of lawsuits initiated without a complaint. This is consistent with the hospital transmitting information during the pre-litigation period if the complaint- and incident-report-based cases that

[21] Further, the medical staff sometimes encourages patients to contact the patient relations office in situations where an incident report has been filed, and these contacts cause the case to be classified as active.

[22] We make no distinction between lawsuits dropped by plaintiffs and lawsuits dismissed by the court because the distinction is ambiguous in the data. In order for plaintiffs to drop a case, they must formally request that the judge dismiss it (with prejudice).

survive to the lawsuit stage have lower average care quality. The difference in the distributions of disposition between complaint-based and active incident-report-based lawsuits is not statistically significant at conventional levels (p-value = 0.195).

Case Characteristics by Mode of Initiation

Table 4 contains a breakdown of the quality of medical care by mode of initiation. There is weak evidence that complaint- and incident-report-based cases have lower quality medical care than do lawsuit-based cases. However, the difference is only marginally statistically significant at conventional levels using a chi-squared test (p-value = 0.081).[23] The fact that the lawsuit-based cases have fewer rather than more bad and ambiguous care cases than complaint-based cases and the fact that the two distributions are not strongly significantly different is consistent with the hypothesis discussed above that patients are uninformed about care quality at the time they decide whether to file complaints or lawsuits. If, alternately, patients were well-informed about care quality, then we would expect the distribution of lawsuit-based cases to be more heavily weighted toward lower care quality cases than the distribution of complaint-based cases. This is because plaintiffs' lawyers would have a strong incentive to select cases having low care quality (since they have higher expected value) if this information were available.

One puzzling result in table 4 is that 41% of incident-report-based cases have good care quality. Thus, incident reports are not filed exclusively where care quality is unsatisfactory. Informal conversations with hospital personnel who manage the complaint and risk-management procedures suggest that medical staff members sometimes file incident reports when the

[23] The difference *is* statistically significant at conventional levels if passive complaint-based cases are omitted (p-value = 0.039).

results of treatment are bad, even though later investigation suggests that care quality met the negligence standard. Incident reports are sometimes also filed when patients express strong dissatisfaction to the hospital staff and indicate that they plan to file lawsuits or when families of patients who die request an autopsy. It is also worth noting that the distribution of care quality in cases based on incident reports does not vary significantly by whether the case is active or passive (p-value = 0.217). This is further evidence consistent with the view that patients are not well informed, *ex ante*, about care quality.

Table 5 contains a breakdown of the severity of injury by mode of initiation. There are significant differences in the distribution of severity by mode of initiation (p-value < 0.0005). Complaint-based cases are significantly more likely to involve temporary injuries than are lawsuit-based cases (p-value = 0.004).[24] Permanent-partial injuries are significantly more common in lawsuit-initiated cases than in cases initiated by other means (p-value < 0.0005). The contrast between the severity distribution of lawsuit-based cases and complaint-based cases is consistent with screening by plaintiffs' lawyers, since patients know their severity of injury and lawyers prefer higher damage cases. Cases based on incident reports are significantly more likely to involve a death than are cases initiated in other ways (p-value = 0.004), but this difference is entirely due to the passive incident-report-based cases. We have no obvious interpretation of this result other than to note that hospital personnel seem to be more concerned about potential liability where there has been a death and that patients do not seem to share this concern in their decision to follow up incident reports.[25]

[24] Cases based on active incident reports are not significantly more likely to involve temporary injuries than are lawsuit-based cases (p-value = 0.146).

[25] In fact, only 52% of incident reports in cases involving death are followed up by the patients' families (active), compared with a follow-up rate of 66% for incident reports in cases not involving death (p-value of difference = 0.060).

Consider first the comparison of dispositions for complaint-based versus lawsuit-based cases. The simple tabulations in this section are consistent with the complaints process not changing the ultimate disposition of these cases, but resolving a substantial fraction (almost half) of complaint-based cases without lawsuits. To the extent that this is the case, the complaints process may be an efficient mechanism for resolving disputes. However, outcomes may still differ by mode of initiation when case characteristics are controlled for. In the next two sections, we present multivariate analyses of outcomes as a function of case characteristics and mode of initiation in order to investigate this possibility.[26]

The analysis in this section also raises important questions about the role of the risk-management process. Cases initiated by incident reports are not pursued by patients to the same extent as other complaint-based cases. Since the care quality distributions of the two types of complaints are indistinguishable, this is not because incident reports are filed in cases that have less merit. Quite the opposite, the risk-management process is expected to focus on cases where the hospital's potential liability is relatively high. Thus our results suggest either that the patient relations office is extremely effective in resolving complaints when there is advance notification or that the selection process is such that patients who have initiated their own complaints are more litigious than patients whose files are initiated by incident reports. In other words, the pool of incident-report based complaints includes patients who have little interest in pursuing their cases,

[26] Unobserved case characteristics related to both mode of initiation and case outcomes might be responsible for any observed relationships (or non-relationships) between mode of initiation and case disposition. (For example, patients who are particularly likely to evoke a jury's sympathy may be more likely to file lawsuits rather than complaints, and vice versa.) A solution to this problem is not available because of the lack of either random assignment of cases to the complaint process or a convincing instrument. We rely on the two central characteristics of cases (care quality and severity of injury) that are available.

while the pool of patients who file complaints or lawsuits on their own is selected in part on the basis of having low costs (psychic or otherwise) of complaining or litigating.

In the remainder of the analysis, we focus only on patient-initiated complaints and lawsuits.

5. Prelitigation Disposition of Complaints

The tabulations in table 1 show that slightly less than half of all patient-initiated complaints are resolved without filing lawsuits. It is particularly interesting to ask which complaints are dropped, settled, or result in a lawsuit as a function of care quality. If the hospital is providing information about care quality to patients during the complaint process, then complaints involving good care will be more likely to be dropped than complaints involving bad care. Table 6 contains a tabulation of the progress of complaints as a function of care quality, and the results are consistent with our expectation. Where care quality is bad, almost two-thirds of complaints wind up as lawsuits and only a fifth are dropped. In contrast, where care quality is good, slightly less than half of the cases wind up as lawsuits and slightly over half are dropped. The results are intermediate where care quality is ambiguous. The hypothesis that the prelitigation disposition of complaints is independent of care quality is soundly rejected (p-value $<$ 0.0005). In addition, the fact that the probability of complaints winding up as lawsuits rises as care quality falls suggests that patients tend to receive truthful information at the complaint stage.

These tabulations are consistent with the view that the hospital generally treats the filing of a lawsuit as a hurdle that patients must overcome to receive a settlement. This allows the hospital to separate out litigious versus peaceful patients and to avoid settling with peaceful patients who would not file lawsuits. In bad-care complaint-based cases, patients who did not file lawsuits received cash settlements about one-sixth of the time,

but patients who did file lawsuits received cash settlements fully 90 percent of the time. Thus, the hospital seems almost surely to settle complaints involving bad care, but only if patients file lawsuits. The conclusion is qualitatively similar in complaints involving good care. The hospital never makes cash settlements without a lawsuit in good care cases, but it settles 35% of these cases when lawsuits are filed. This strategy allows the hospital to avoid compensating peaceful patients.

There are an insufficient number of complaints settled without a lawsuit to carry out a true multinomial analysis of the progress of complaints. However, we can investigate the probability that complaints are dropped prior to the filing of a lawsuit and the probability that complaints result in lawsuits.[27] Table 7 contains estimates of linear probability models explaining the first-stage disposition of complaints.[28] In column 1, the dependent variable equals one if the complaint is dropped and equals zero if either a settlement occurs or a lawsuit is filed. In column 2, the dependent variable equals one if a lawsuit is filed and equals zero if the complaint is either dropped or settled. The base category in both regressions consists of complaints with temporary injuries and good care quality—the scenario most favorable to the hospital.

The results are clear cut. Cases with bad care are substantially less likely to be dropped (35 percentage points) and more likely to result in a lawsuit (17 percentage points) than cases with good care. Cases with ambiguous care are intermediate in both outcomes. With regard to severity of injury, patients with permanent partial injuries are substantially less likely to drop their cases (about 21 percentage points) and substantially more likely to file lawsuits (about 26 percentage points) than are patients with temporary

[27] These two probabilities sum to less than one because of the small probability of a settlement at the complaint stage.

[28] Logit or probit specifications of these models yields qualitatively identical results.

injuries. A similar pattern holds for cases involving death of the patient.[29] Interaction effects between care quality and severity in determining the progress of complaints are insignificant.

6. Ultimate Disposition of Complaint- and Lawsuit-Based Cases

An important question is whether cases initiated through the complaint process are ultimately resolved in the same way as cases initiated as lawsuits. The simple tabulation in table 2 suggested that there is *not* a significant difference between complaint-based and lawsuit-based cases in the probability of cases being dropped, settled, or tried to a verdict. However, this analysis cannot account for differences in case characteristics by mode of initiation, and it does not consider the dollar amount of settlements. In this section we estimate a multinomial logit model of case disposition that controls for case characteristics as well as mode of initiation of the case. We also estimate an OLS regression model of log settlement amounts as a function of the same variables, and we briefly examine trial verdicts. Again the analysis excludes incident-report based cases on the grounds that patients in these cases are systematically less interested in pursuing their claims.

Multinomial Logit Model of Ultimate Disposition

Table 8 contains estimates of the multinomial logit model of ultimate dispositions. The base category for the dependent variable is drop, and the base category for the independent variables consists of lawsuit-based cases with good quality medical care and a temporary injury. These estimates verify that the odds that a case is settled rather than dropped is strongly inversely related to care quality. Cases where medical care was judged bad are more likely to be settled than dropped relative to cases where care

[29] None of the three non-temporary severity of injury categories are significantly different from each other in their effect on the progress of complaints (p-values > 0.7).

quality was judged to be good. Cases where care quality was ambiguous are intermediate. With regard to severity of injury, cases with a temporary injury and death are relatively less likely to settle than drop than are cases with other, more serious, injuries. The odds that a case is tried to a verdict relative to being dropped is not significantly related to any of the observable case characteristics. It seems that a small random selection of cases that are expected to drop instead are tried to a verdict. We have little to say about why patients do not drop these cases.[30]

With regard to the mode of initiation of the case, neither of the dummy variables for a case being complaint-based is significantly different from zero at conventional levels. The joint hypothesis that these two dummy variables are zero is not rejected (p-value = 0.15). Additionally, we estimated the multinomial-logit models separately for the two modes of initiation. While these estimates are not shown here, the joint hypothesis that the parameters of the model are identical across modes of initiation cannot be rejected against either the model in table 8 with dummy variables for mode of initiation (p-value = 0.395) or an alternative model without any mode-specific dummy variables (p-value = 0.272).

On balance, there is no evidence that the ultimate resolution of complaints differs from that of lawsuits even when we control for observable characteristics of the cases.

Settlement Amounts

Table 9 contains mean settlements amounts in both logs and levels, broken down by whether cases were lawsuit- or complaint-based and by whether or not a lawsuit was filed. The findings are clear cut. The mean log settlement amount is marginally significantly lower in the 24 complaints

[30] We found a similar result in our earlier work (Farber and White, 1991). However, in a large sample of medical malpractice cases, Sloan and Hsieh (1990) found that cases involving higher damage severity are more likely to be tried to a verdict.

settled before a lawsuit was filed (p-value $= 0.12$ using a two-tailed test). This difference is significant in log terms (p-value < 0.0005). There is no difference in settlement amounts in cases where lawsuits have been filed by mode of origin either in levels (p-value $= 0.861$) or in logs (p-value $= 0.802$).

In order to investigate the possibility that the differences in raw means in table 9 is due to differences in observable case characteristics, table 10 contains estimates of OLS regression models of log settlement amounts as a function of care quality and severity of injury. The estimates in the first column are for the basic model estimated over the entire sample of 218 settlements. These estimates verify that settlement amounts are strongly related to both care quality and severity of injury. Controlling for severity, settlements in cases with bad care are estimated to be more than four times larger than in cases with good care. Settlements in cases with ambiguous care are estimated to be almost twice as high as in cases with good care. Controlling for care quality, settlements are estimated to be largest in cases with permanent-total injury (about 57 times as large as in cases with temporary injury). Settlements in cases with a permanent-partial injury are estimated to be about five times larger than those in temporary injury cases. Where a death has occurred, settlements are about 10 times larger than in temporary injury cases. All of these differences are significantly different from zero at conventional levels. The rank order of settlement amounts is therefore (from largest to smallest): 1) permanent-total, 2) death, 3) permanent-partial, and 4) temporary.

The second column of table 10 contains estimates of the basic model augmented with a dummy variable indicating whether or not the case was initiated as a complaint. The estimates suggest that settlements in complaint-based cases are significantly lower on average than settlements in lawsuit-based cases (p-value $= 0.0398$). The point estimate implies that settlements in complaint-based cases are only 65% of settlements in lawsuit-based cases on average. Alternatively, the third column of table 10 contains

estimates of the basic model augmented with a dummy variable indicating whether or not the case reached the lawsuit stage. The estimates suggest that cases that are litigated have settlements over four times higher than cases that are resolved at the complaint stage (p-value < 0.0005). The difference in settlements at the lawsuit versus the complaint stage is far larger than the amount that patients pay their lawyers under the contingency fee system (normally around one-third).

In fact, the finding that settlements are lower in complaint-based cases is driven entirely by the substantially lower pre-litigation settlements in complaint based cases. The estimates in the last column of table 10 include both the dummy variable indicating mode of initiation and the dummy variable indicating whether or not a lawsuit was filed. The results are clear. Settlements are *not* related to mode of initiation (p-value $= 0.447$), but they are significantly related to whether or not a lawsuit was filed (p-value < 0.0005).

The findings that settlements of lawsuits are not related to mode of initiation while settlements at the complaint stage are far smaller than settlements at the lawsuit stage are consistent with the hospital being poorly informed about the litigiousness of patients. The hospital makes at best small settlement offers at the complaint stage in order to entice less litigious patients to settle without litigation. Only by filing lawsuits can patients demonstrate that they are sufficiently litigious to justify a large settlement, and the settlement amount is then not related to the mode of initiation.

Trial Outcomes

Only 21 of 504 cases in our sample were tried to a verdict, and the multinomial logit analysis in table 8 suggests that cases tried to a verdict are indistinguishable from cases dropped with regard to quality of care and severity of injury. For example, 14% of cases dropped and 19% of cases tried to a verdict had bad medical care. This compares with 52% of cases

settled having bad medical care. Additionally, 64% of cases dropped and 62% of cases tried to a verdict had good medical care. This compares with only 17 percent of cases settled having good medical care.

Plaintiffs won (received a cash award in) only 3 of the 21 cases tried to a verdict. There is a statistically significant relationship between care quality and which party won in the 21 cases tried to a verdict (p-value $= 0.035$).[31] This is largely because care quality was good in 13 cases, and plaintiffs won none of these. Plaintiffs did win 2 of the 4 cases with bad care and 1 of the 4 cases with ambiguous care. There is not a statistically significant relationship between severity of injury and which party won (p-value $=$ 0.497). This supports the theoretical model discussed above, in which only variables measuring care quality should affect the determination of liability.

Of the 21 cases tried to a verdict, 12 were lawsuit-based and 9 were complaint-based. Plaintiffs won only 1 (8.3%) of the 12 lawsuit-based cases and only 2 (22.2%) of the 9 complaint-based cases. This difference in the plaintiff win rate is not statistically significant (p-value $= 0.368$). Additionally, the relationships between who wins and care quality and severity of injury do not differ significantly by mode of initiation.

With regard to the amount of awards in the 3 trial outcomes won by the plaintiff, these can be compared with average settlement amounts in cases with the same characteristics. One case, with a trial award of \$179,317, was complaint-based with ambiguous care quality and severity of death. This compares with an average settlement amount in the 9 settled cases with these characteristics of \$119,040 (s.d. $=$ 109,253). Two other cases had bad care and a temporary injury. One was lawsuit-based and had an award of \$19,806, compared to an average of \$45,940 (s.d. $=$ 77,341) in the 23 settlements reached in similar cases. The other was complaint-based

[31] All p-values related to trial outcomes in this sub-section are necessarily approximate due to the small cell sizes.

and had an award of $11,549 compared with an average of $21,332 (s.d. = 47,736) in the 37 settlements reached in similar cases.

7. Crude Estimates of Cost Savings from the Complaint Process

An important aspect of the complaint process is that it disposes of many cases (46.4%) before a lawsuit is filed, thus saving substantial legal costs. In this section, we present some *very* crude calculations of the potential savings to the hospital from use of the complaints procedure.[32] We focus only on complaint-based cases (again excluding incident-report-based cases). We acknowledge that these calculations are speculative, and we ignore potentially important selection issues at our (and the reader's) peril.

We were able to get data on legal costs billed to the hospital, including the cost of hiring outside experts, for a subset of the cases in our sample along with some more recent cases that are not in our sample. The data show average legal costs of $7,037 (n=60, s.d.=11,991) for cases dropped and $14,413 (n=60, s.d.=13,871) for cases settled.[33] Assume that without the complaints process, all complaint-based cases would have been filed as lawsuits. Then we estimate that the hospital saved $795,181 in legal costs in the 113 complaints that actually dropped without a lawsuit but otherwise would have dropped after filing a lawsuit. Similarly, the hospital saved $345,912 in legal costs in the 24 complaints that settled without a lawsuit but otherwise would have settled after filing a lawsuit. The predicted total savings in legal costs from the complaint process is therefore $1,141,093.[34]

[32] We ignore trial outcomes in this analysis since they are so rare and because there are no significant differences in court awards by mode of initiation.

[33] As with settlement amounts, all dollar values are expressed in real terms using the 1982-84=100 CPI.

[34] Cases that started trial (including those that settled or dropped during trial) had average legal costs of $30,837 (n=32, s.d.=24,376). Since this is higher than the average legal costs in lawsuits that are dropped or settled before a trial starts, our estimates, which are based on the pre-trial cost figures, may underestimate the cost savings slightly.

This is an overstatement of savings in legal costs if not all of the complaint-based cases that were resolved without lawsuits would otherwise have been filed as lawsuits. Still, if even only half of these cases would have resulted in lawsuits, the savings would have been substantial.

Further potential savings would accrue to the hospital if it could force all medical malpractice cases to begin as complaints, thereby allowing patients to learn something about care quality without filing a lawsuit. Among actual complaint-based cases, 70% of those dropped were dropped without filing a lawsuit. Suppose the same percent of the lawsuit-based cases that were dropped would have been dropped prior to the filing of a lawsuit if they had been forced to go through the complaint process. Since 104 lawsuit-based cases were dropped, legal costs would then have been saved in 70% of these cases (or 73 cases), for a savings in legal costs of $513,701. In addition, 19% of actual complaint-based cases settled without filing a lawsuit. Suppose the same percent of the lawsuit-based cases would have settled prior to the filing of lawsuits if they had been forced to go through the complaint process. Since 93 lawsuit-based cases were settled, legal costs would then have been saved in 19% of these (or 18 cases), for a savings of $259,434. The total potential savings in legal costs from forcing lawsuit-based cases through the complaints process is $773,135.[35]

Combining these estimates, the predicted total savings in legal costs to the hospital from having a mandatory complaint process is about $1,900,000. In addition, plaintiffs also bear legal costs once a lawsuit is filed. To the extent that cases can be resolved outside of the legal system, plaintiffs' legal

(Trials started in only 34 of the 370 lawsuits in our sample.) On the other hand, our estimate of the cost savings is overstated slightly by the total of $56,875 in forgiven hospital bills in cases dropped at the complaint stage.

[35] There are also potential cost savings from the risk management process if early notification of potential problems through incident reports does allow the hospital to avoid litigation. However, our data does not allow us to conclude that the risk management system does, in fact, contribute to early resolution of claims. It may be that the patients in these cases are simply less litigious.

costs are also saved. One rough assumption is that both sides' legal costs are the same on average. Then our estimate of legal costs saved by forcing all cases to go through the complaints procedure can be doubled to about $3,800,000.[36] Given the 504 cases in our sample, this is about $7,500 per case—a substantial amount.

This figure is an upper bound for at least two reasons. First, as mentioned above, not all complaint-based cases would have been filed as lawsuits in the absence of the complaint process. Second, the hospital paid out about $650,000 as pre-litigation settlements of complaints in order to avoid litigation. This offsets some of the hospital's savings in legal costs, but, because it is a transfer to patients, it does not represent a real resource cost.

Finally, we asked the head of the patient relations office to estimate how much would be saved if the complaints process were eliminated. Given that the patient relations office also performs risk management functions for the hospital (and these we assumed would remain), the best estimate was that the cost of operating the complaint process was about $9,000 per year or about $210 per case over the period covered by the sample. Thus the estimated cost of operating the complaints process appears to be well below the benefit.

8. Final Remarks

We examined the experience of a single large hospital with an informal dispute resolution process for medical malpractice cases. We also examined how the hospital's risk management system interacts with its system of informal dispute resolution.

[36] The fact that plaintiffs' attorneys generally work on a contingency fee basis rather than an hourly basis is irrelevant to our calculation of actual legal costs if—on average—fees calculated on both bases are equal. We expect this condition to hold as long as there are no barriers to entering legal practice, the industry is in long-run equilibrium and plaintiffs' lawyers are risk neutral.

We divided the cases into three types by mode of initiation: 1) cases initiated with a lawsuit, 2) cases initiated with a complaint by the patient (or family), and 3) cases initiated by incident (risk management) reports. We found that cases based on incident reports, even where patients subsequently contact the hospital's patient relations office, are very likely to be dropped despite that fact that these cases are as likely (though no more likely) to involve low quality medical care as cases initiated in other ways. We conclude from this that the patients involved in cases initiated through incident reports are less litigious ("more peaceful") than patients who initiated cases on their own either through a complaint or a lawsuit.[37]

Cases initiated by patients through the complaint process are not resolved (dropped, settled, tried to a verdict) significantly differently from cases initiated by a lawsuit controlling for observable case characteristics. However, settlements reached at the complaint stage are significantly lower than settlements reached after the filing of a lawsuit. Settlements reached after a lawsuit has been filed do not differ by mode of origin.

Our empirical results are consistent with an information structure where patients are relatively poorly informed about the quality of medical care and the hospital does not know how litigious particular patients are. We found that the informal dispute resolution process seems to transmit the same type of information concerning quality of medical care to patients who file complaints as is transmitted by the legal system to patients who file lawsuits, and at lower cost. This is despite the fact that information transmission by the hospital is compulsory in lawsuits, but voluntary in complaints. As a result of this transmission of information, cases involving good care quality are much more likely to be dropped by patients whether

[37] The alternative view, that advance notification through incident reports allows the hospital to dispose of complaints more effectively, cannot be ruled out. However, it is difficult to understand why the simple filing of an incident report would have such an effect.

they are filed initially as lawsuits or complaints. Thus the complaint process appears to provide a mechanism outside the legal system for the hospital to transmit information concerning care quality to patients. The hospital does not settle complaints prior to the filing of a lawsuit very often or for very much money when it does, which is consistent with our view that the hospital is ill-informed about the litigiousness of specific patients. Patients must therefore file a lawsuit in order to convince the hospital to make a (sufficiently large) settlement. We are not able to examine how many of the complaint-based cases we see would have been initiated as lawsuits had the complaint process not been available.

In summary, our comparison of the resolution of complaint-based cases and lawsuit-based cases suggests that the complaint process is a cost-effective "front-end" for the litigation process that provides information to patients regarding the quality of their medical care and, hence, the likelihood of negligence.

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Table 1

Disposition of Cases by Initiation

Frequency Distribution
(column percentage)

Disposition	Initiated by: Lawsuit	Complaint	Incident Report Active	Passive
Drop w/o lawsuit	0 (0.0%)	113 (38.3%)	88 (75.2%)	72 (97.3%)
Settle w/o lawsuit	0 (0.0%)	24 (8.1%)	6 (5.1%)	0 (0.0%)
Drop w/ lawsuit	104 (49.7%)	48 (16.3%)	3 (2.6%)	2 (2.7%)
Settle w/ lawsuit	93 (44.5%)	101 (34.2%)	19 (16.2%)	0 (0.0%)
Trial to Verdict for Plaintiff	1 (0.5%)	2 (0.7%)	0 (0.0%)	0 (0.0%)
Trial to Verdict for Defendant	11 (5.3%)	7 (2.4%)	1 (0.9%)	0 (0.0%)
Total	209	295	117	74

Note: Incident-Report-Based Cases are classified as active if the patient contacted the patient relations office in the hospital and passive if they did not.

Table 2

Disposition of Cases by Initiation

Frequency Distribution
(row Percentages)

Initiation	Dropped/ Dismissed	Settled	Trial to Verdict	Total
Lawsuit	104 (49.8%)	93 (44.5%)	12 (5.8%)	209 (100%)
Complaint	161 (54.6%)	125 (42.4%)	9 (3.1%)	295 (100%)
Active Inc Report	91 (77.8%)	25 (21.3%)	1 (0.9%)	117 (100%)
Passive Inc Report	74 (100%)	0 (0.0%)	0 (0.0%)	74 (100%)
Total	430 (61.9%)	243 (35.0%)	22 (3.2%)	695 (100%)

Table 3

Disposition of Cases by Initiation Conditional on Lawsuit Filed

Frequency Distribution
(row Percentages)

Initiation	Dropped/ Dismissed	Settled	Trial to Verdict	Total
Lawsuit	104 (49.8%)	93 (44.5%)	12 (5.8%)	209 (100%)
Complaint	48 (30.4%)	101 (63.9%)	9 (5.7%)	158 (100%)
Active Inc Report	3 (13.0%)	19 (82.6%)	1 (4.4%)	23 (100%)
Passive Inc Report	2 (100%)	0 (0.0%)	0 (0.0%)	25 (100%)
Total	157 (40.1%)	213 (54.3%)	22 (5.6%)	392 (100%)

Table 4

Breakdown of Care Quality by Mode of Initiation

Frequency Distribution
(column percentages)

Care Quality	Initiated by: Lawsuit	Complaint	Incident Report Active	Passive	Total
Bad	60 (28.7%)	95 (32.2%)	48 (41.0%)	24 (32.4%)	227 (32.7)
Ambiguous	46 (22.0%)	83 (28.1%)	27 (23.1%)	14 (18.9%)	170 (29.5%)
Good	103 (49.3%)	117 (39.7%)	42 (35.9%)	36 (48.7%)	298 (42.9%)
Total	209 (100%)	295 (100%)	117 (100%)	74 (100%)	695 (100%)

Table 5

Breakdown of Injury Severity by Mode of Initiation

Frequency Distribution
(column percentages)

Severity of Injury	Initiated by: Lawsuit	Complaint	Incident Report Active	Passive	Total
Temporary	95 (45.5%)	172 (58.3%)	63 (53.9%)	31 (41.9%)	361 (51.9%)
Permanent Partial	65 (31.1%)	50 (17.0%)	12 (10.3%)	10 (13.5%)	137 (19.7%)
Permanent Total	8 (3.8%)	5 (1.7%)	7 (6.0%)	1 (1.4%)	21 (3.0%)
Death	41 (19.6%)	68 (23.1%)	35 (29.9%)	32 (43.2%)	176 (25.3%)
Total	209 (100%)	295 (100%)	117 (100%)	74 (100%)	695 (100%)

Table 6

Disposition of Complaint-Based Cases by Quality of Care

Frequency Distribution
(column percentage)

Disposition	Quality of Care: Bad	Ambiguous	Good	All
Drop w/o lawsuit	19 (20.0%)	28 (33.7%)	66 (56.4%)	113 (38.3%)
Settle w/o lawsuit	16 (16.8%)	8 (9.6%)	0 (0.0%)	24 (8.1%)
Drop w/ lawsuit	4 (4.2%)	16 (19.3%)	28 (23.9%)	48 (16.3%)
Settle w/ lawsuit	54 (56.8%)	29 (34.9%)	18 (15.4%)	101 (34.2%)
Trial to Verdict for Plaintiff	1 (1.1%)	1 (1.2%)	0 (0.0%)	7 (2.4%)
Trial to Verdict for Defendant	1 (1.1%)	1 (1.2%)	5 (4.3%)	2 (0.7%)
Total	95	83	117	295

Note: Only patient-initiated complaints are included in this breakdown.

Table 7

First-Stage Disposition of Patient-Initiated Complaints

Probabilties of Drop and File Suit

Linear Probability Models

Coefficient Estimate
(standard error)

Variable	(1) Probability Drop	(2) Probability File Suit
Constant	.639 (.0464)	.326 (.0484)
Care Bad	-.350 (.0628)	.174 (.0656)
Care Ambiguous	-.207 (.0654)	.106 (.0683)
Permanent Partial Injury	-.212 (.0732)	.261 (.0764)
Permanent Total Injury	-.286 (.206)	.397 (.215)
Death	-.191 (.0651)	.318 (.0679)
R-Squared	.146	.117
n	295	295

Note: The base group for the independent variables is good care quality and temporary disability. Cases not dropped are either settled or result in the filing of a lawsuit. Cases where a lawsuit is not filed are either dropped or settled. A settlement is defined to have occurred when the plaintiff received a positive payment from the hospital before filing a lawsuit, and no lawsuit is filed. A case is defined as dropped if no payment is made to the plaintiff and no lawsuit is filed. Lawsuits are filed in the remaining cases. Table 1 contains the means of the dependent variables.

Table 8

Multinomial Logit Analysis of Ultimate Disposition of Cases

(Dropped, Settled, or Tried to a Verdict)

Variable	Coefficient Estimate (standard error) (1) Settle Relative to Drop	(2) Trial to Verdict Relative to Drop
Constant	-1.62 (.247)	-2.41 (.176)
Care Bad	2.72 (.269)	.465 (.607)
Care Ambiguous	1.66 (.260)	-.0190 (.598)
Permanent Partial Injury	.529 (.269)	.384 (.553)
Permanent Total Injury	-1.03 (.676)	*
Death	-.599 (.271)	.428 (.574)
Complaint Based	-.331 (.222)	-.705 (.473)
Log-Likelihood	-347.7	
n	504	

Note: The base category for the dependent variable is "drop". The base group for the independent variables is a lawsuit-based case with good care quality and temporary disability. A settlement is defined to have occurred when the plaintiff received a positive payment from the hospital before a trial verdict. A case is defined as dropped if no payment is made to the plaintiff before a trial verdict is reached. The remaining cases are tried to a verdict. Table 2 contains the means of the dependent variable. Only patient-inititated complaints and lawsuit based cases are included.

*There are no cases with a permanent-total injury that are tried to a verdict so that the coefficient for the dummy variable for this category in odds of completing trial relative to dropping equation is driven to $-\infty$. This has no effect on the estimates of the other coefficients in the model.

Table 9

Mean Real Settlement

by Mode of Initiation and Whether a Lawsuit is Filed

Average Real Settlement

	No Lawsuit	Lawsuit Filed
Lawsuit Based	----	$134,965 (335,299) [93]
Complaint Based	$26,858 (95,904) [24]	$143,883 (367,994) [101]

Average Log Real Settlement

	No Lawsuit	Lawsuit Filed
Lawsuit Based	----	10.33 (1.80) [93]
Complaint Based	8.39 (1.58) [24]	10.40 (1.85) [101]

Note: The dollar amounts are in real dollars deflated by the 1982-84=100 Consumer Price Index. Standard deviations are in parentheses, and sample sizes are in brackets.

Table 10

OLS Analysis of Log Real Settlement Amount

Variable	Coefficient Estimate (standard error) (1)	(2)	(3)	(4)
Constant	8.12	7.91	6.83	6.83
	(.272)	(.289)	(.392)	(.393)
Care Bad	1.37	1.42	1.55	1.56
	(.280)	(.279)	(.271)	(.272)
Care Ambiguous	.628	.659	.802	.803
	(.301)	(.299)	(.292)	(.292)
Permanent Partial Injury	1.67	1.63	1.52	1.52
	(.251)	(.250)	(.243)	(.243)
Permanent Total Injury	4.13	4.05	3.86	3.84
	(.540)	(.538)	(.522)	(.523)
Death	2.24	2.29	1.96	2.00
	(.248)	(.247)	(.246)	(.250)
Lawsuit Based	---	.419	---	.158
		(.203)		(.208)
Laswuit Filed	---	---	1.41	1.33
			(.321)	(.339)
R-Squared	.413	.424	.462	.464
MSE	2.16	2.13	1.99	1.99

Note: Dollar amounts are in real dollars deflated by the 1982-84=100 Consumer Price Index. The base group for the independent variables is a case with good care quality and temporary disability. A settlement is defined to have occurred when the plaintiff received a positive payment from the hospital before a trial verdict is reached. Only the 218 patient-initiated complaints and lawsuit based cases are included. The mean log settlement is 10.15 (s.d. = 1.90).