

# Electronic Discovery and Electronic Medical Records: Does the Threat of Litigation affect Firm Decisions to Adopt Technology?

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## **Abstract**

Firms' decision-making is increasingly leaving an electronic trail. We ask how the

# 1 Introduction

It is conventional to think of the computer revolution as increasing firm productivity. Changing from a paper-based document, communications and archival system to an electronic one cuts costs and helps firms respond more quickly to new challenges. However, there may be hidden costs in the form of increased litigation risk. In several high-profile cases, the 'electronic paper trail' has led to rulings against firms. In United States v. Microsoft, CA No. 98-1232, federal prosecutors used Microsoft executives' e-mails as evidence of anti-competitive intent towards Netscape.<sup>1</sup> The risk of litigation can also impose costs in terms of the archiving and preservation of electronic documents. For example, in Zubulake v. UBS Warburg, 2004 WL 1620866, an employee was awarded \$29.2 million in a gender discrimination case, partly because of UBS's failure to ensure adequate backup for electronic documents relating to the case.

In this paper we study whether the change in litigation risks and costs from the presence of an electronic paper trail deters technology adoption. We study the case of Electronic Medical Records (EMR). EMR allows health providers to store and exchange information about a patient's medical and treatment history electronically rather than using paper. EMR

electronic medical records by hospitals is associated with a drop in neonatal mortality, and obstetrics is commonly categorized as a field of medicine that is characterized by malpractice lawsuits, so EMR could also lead to fewer malpractice lawsuits.

On the other hand, EMRs include more detailed information about patient care that is

thereby amplifying the risk relative to paper documents. Finally, electronic information also

Section 5 reports our results and demonstrates their robustness. Section 6 investigates further the mechanism and the hospitals that are most affected. In Section 7, we discuss the implications of our findings.

## 2 Literature Review

In the medical ethics literature, several articles refer to the liability risks that accompany the adoption of new healthcare IT such as electronic medical records,<sup>4</sup> and that indicate the need for empirical analysis.<sup>5</sup>

from anecdotal evidence that electronic systems do not increase practice exposure, because Feldman (2004) ignores the additional risk created by additional data stored in the electronic record. To try to understand how 'malpractice risk' and EMR adoption may correlate, Virapongse et al. (2008) sent surveys to 1140 physicians in Massachusetts. 6.1 percent of physicians with an EMR system had a history of paid malpractice claims, compared to 10.8 percent of physicians who did not use EMR. However, after controlling for sex, race, year of medical school graduation, speciality and practice size, this difference was no longer statistically significant.

There is also a small but growing legal literature that discusses the procedural aspects and risks of electronic medical records for malpractice litigation from a legal perspective. For example, Korin and Quattrone (2007) emphasize that to meet electronic document discovery challenges, attorneys will need to 'become familiar with systems and processes that are used to create, transmit and store health care information electronically; what electronic information is available; how routine computer operations in health care institutions may change or alter electronically stored information (ESI); and what is entailed in producing requested electronic documents.' More broadly, our paper contributes to a policy debate about the costs of electronic disclosure in court systems (Losey (2008), Dimick (2007)). While the focus so far has been on the complexity and cost electronic discovery adds to the litigation process, we suggest that it is also important for policymakers to consider whether potential litigants are being deterred from adopting welfare-enhancing technology.

This work relates to an established literature in health economics that attempts to assess how the risk of malpractice litigation affects health provider choices. The bulk of this research considers physician responses to the malpractice environment, and considers location (Matsa (2007)) and treatment decisions. For example, Kessler and McClellan (1996) show that medical malpractice tort reform affects how doctors treat heart disease patients. Dubay et al. (1999) study the effects on caesarean section rates while Currie and MacLeod (2008) study

birth outcomes. In contrast, this study considers hospitals decisions regarding technology adoption. In our robustness analysis, we control for the major tort reforms studied in the previous papers, such as payment caps and joint and several liability rules. Our focus, however, is on the impact of the rules of evidence, which have not previously been explored.

Finally, by exploring the role of malpractice risk on healthcare IT adoption, we contribute to a growing new literature concerning the diffusion of healthcare IT in the US. For example, Borzekowski (2002) investigates how cost-saving incentives created by the US

(2008). We matched the HADB data with the American Hospital Association survey from 1995-2007, and were left with data on the timing of technology adoption decisions of 3,712 hospitals. The hospitals in our data were generally larger than the hospitals we could not match in the American Hospital Association Data. For example, they had on average 7,988 annual admissions compared to 2,717 average annual admissions for the hospitals for whom the HADB data did contain information on IT adoption. The HADB database covers the majority of US hospitals, including about 90 percent of non-profit, 90 percent of for-profit, and 50 percent of government-owned (non-federal) hospitals. However, it excludes hospitals that have fewer than 100 beds and are not members of healthcare systems. Also, we do not have information on hospitals that were in operation during the sample period but that closed or merged before 2007. Therefore, our estimates should be taken as representative



Table 1: Summary statistics

Variable	Mean	(Std. Dev.)	Min.	Max.
adoptEMR	0.033	(0.179)	0	1
adoptQuality	0.028	(0.165)	0	1
E-Discovery Law	0.106	(0.308)	0	1
Years Opened	0.356	(0.614)	0	20.08
Sta ed Beds	0.183	(0.175)	0.003	1.875
Admissions	0.753	(0.812)	0	9.817
Inpatient Days	0.427	(0.482)	0	5.82
Medicare Inpatient Days	0.192	(0.211)	0	4.769
Medicaid Inpatient Days	0.843	(1.431)	0	30.276
Births	0.897	(1.257)	0	16.463
Total Inpatient Operations	0.226	(0.287)	0	8.307
Total Operations	0.588	(0.664)	0	21.344
Emergency Outpatient Visits	0.235	(0.218)	0	2.901
Total Outpatient Visits	0.113	(0.147)	0	2.936
Total Payroll Expenses	3.574	(5.215)	0.004	111.646
Employee Benefits	0.819	(1.27)	0	29.45
Total Expenses	8.496	(12.519)	0.009	239.381
Length of Stay	0.101	(0.008)	0.1	0.2
No. Doctors	0.155	(0.65)	0	20.67
No. Nurses	0.219	(0.279)	0	3.325
No. Trainees	0.19	(0.822)	0	13.47
Non-Medical Sta	0.609	(0.769)	-0.017	12.054
PPO	0.645	(0.479)	0	1
HMO	0.559	(0.496)	0	1
Speciality Hospital	0.036	(0.186)	0	1
Non-Profit	0.599	(0.49)	0	1
Gross State Product Per Capita	32468.118	(4994.055)	20892.287	58792

1,394 hospitals who adopted EMR during the sample period between 1994 and 2007.<sup>7</sup> The average annual adoption rate of EMR among hospitals who had not previously adopted the technology was 3.3 percent.

## **4 State Electronic Discovery Laws**

In order to determine if the risk of litigation deters or encourages the adoption of Electronic Medical Records by health providers, we exploit variation in the legal environment that

concerning potential witnesses, potential experts and their testimony, expert witness depositions and the release of information about all people who were part of the medical team in question.

In the past decade, many states have adopted rules that govern 'E-Discovery,' or the use of electronic materials in the discovery stage of court proceedings. As shown by Figure A-1 in the appendix, these rules are geographically diverse. These rules have originated both from statutes and courts. Table 2 summarizes the rules that have been enacted. The majority of the rules add electronic documents as an additional class of documents that are governed by existing rules on discovery in pre-trial proceedings. This means that they fall without any room for dispute into the class of materials that must be automatically produced without objection in pre-trial proceedings. Without such a legal guarantee in place, the use of electronic materials is something that has to be hashed out between the plaintiff's and defendant's team lawyers. Since these agreements are not reliably recorded, there is no empirical evidence to document the outcome of these discussions. Interviews with medical malpractice attorneys suggest that they often reach an agreement with the other party to exclude electronic evidence from the discovery process. The rationale given for this course of action is that, without clarification from the courts about how electronic discovery should be conducted, e-discovery becomes costly for the defence and is not reliably likely to produce worthwhile evidence that offsets these costs. This anecdotal evidence was backed up by a recent '2008 Litigation Survey of Fellows of the American College of Trial Lawyers' ACTL and IAALS (2009). This suggested that nearly 77 percent of courts did not understand the difficulties associated with e-discovery and that 87 percent of trial lawyers said that e-discovery increases the costs of litigation.

In our regressions we use an indicator variable to signal the existence (or not) of a state rule: we do not exploit the variation in the wording of the rule. We do, however, check the robustness of our results to the exclusion of Texas, which appears to have the least 'plaintiff -



Table 2: State Laws Governing E-Discovery

State	Law	Date	Statute:Cour	Description
CT	Connecticut Practice Book, Superior Court - Procedures in Civil Matters Sec.			

that includes net revenues and patient outcomes, including potential costs associated with malpractice lawsuits. Hospitals choose to adopt EMR if the net benefits are positive. We model EMR adoption as an irreversible state and exclude hospitals who have previously adopted from the sample.

The discrete-time hazard model is an attractive alternative to continuous-time hazard

enactment of electronic discovery laws is associated with an increase in consumer protection sentiment at the state level, which also leads to problems for hospitals in collecting unpaid medical bills from consumers, which in turn leaves hospitals with less money to invest in technology.

We deal with this potential for endogeneity in three ways. First, we added additional controls to control for changes in how 'plaintiff-friendly' state courts were. Second, we

well-known Zubulake v. UBS Warburg, 2004 WL 1620866 decision, UBS had to pay \$29.2 million partly because they failed to properly store data. Conversation with e-discovery



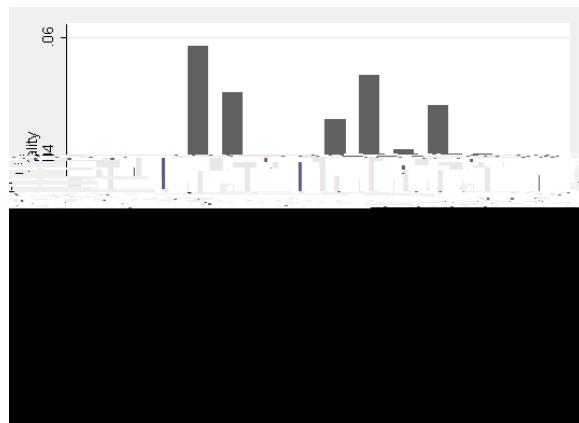
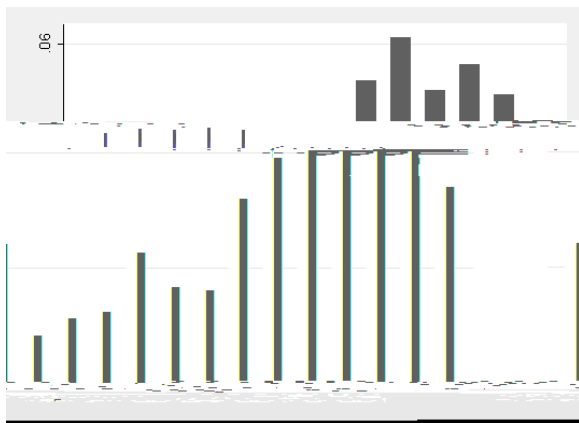


Figure 1: Adoption of EMR Software over Time

Figure 2: Adoption of Quality Software over Time

involve details of medical procedures but instead evidence about how the administrative arm of the hospital interacted with the patient. Such software systems also help ensure that a

Table 3: How e-Discovery laws affect hospital adoption of EMR

	EMR (1) Simple	(2) IV	Placebo (3) Simple	(4) IV
E-Discovery Law (d)	-0.0117 (0.00261)	-0.0399 (0.0198)	-0.00590 (0.00388)	-0.0152 (0.0233)
Years Opened	0.00155 (0.000983)	0.00132 (0.00132)	-0.00443 (0.00226)	-0.00646 (0.00307)
Stated Beds	0.00661 (0.0166)	0.0149 (0.0208)	0.0699 (0.0188)	0.0911 (0.0260)
Admissions	0.00462 (0.00380)	0.00404 (0.00461)	0.00975 (0.00490)	0.0108 (0.00621)
Inpatient Days	0.00606 (0.00812)	0.00517 (0.0101)	-0.0235 (0.00999)	-0.0283 (0.0130)

is that higher malpractice payments by practitioners represent a greater financial risk to hospitals from malpractice, either because hospitals themselves face risks from litigation or because hospitals compete for physicians and would need to compensate them for increasing their exposure to malpractice risk. We use data from the national practitioner databank of all medical malpractice payments. The files are the universe of all claims paid in the United States, but do not include information on complaints and litigation that did not result in a payment.<sup>8</sup> We use payments from the previous year to predict new adoption, avoiding the potential reverse causality from EMR adoption to malpractice payments.

Using the 3-digit allegation claim category code, we determined if each payment fits into each of these three (non-exclusive) categories: Claims that might be preventable by EMR, claims that would be supported by EMR, and claims that probably would not be affected by EMR. An example of a claim that could be theoretically supported by electronic metadata in an electronic medical record is a 'failure to monitor' a patient sufficiently. An example of a claim that could be theoretically prevented by an electronic medical record is a claim of a 'wrong dosage' being administered by a nurse, since electronic medical records theoretically remove the uncertainties introduced by a physician's handwriting and idiosyncratic use of unit abbreviations. There are also claims that may be both documented and prevented by electronic medical records. These include categories such as 'a failure to diagnose,' where easy access to a patient's previous medical history may make diagnosis easier, but a failure to use the history would also be documented and could be used in court. An example of a claim that would not probably be affected by EMR is 'failure to use aseptic technique'. It is unlikely that the presence of an electronic medical record would affect the cleanliness of an operating room or physician procedure.

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<sup>8</sup>The practitioner databank is the most comprehensive source of malpractice payments, with full coverage of practitioners and inclusion of both settlements and verdicts. The Jury Verdict Research data exclude settlements and the Physician Insurer Association of America Data Sharing Project contains only about 12 percent of claims.

The first three columns of Table 4 show how the presence of an electronic discovery law is mediated by the average payment in a medical case for each of these claims classes. In each case, to ensure comparability, we use a standardized and centered measure of the average payment data. Unrelated claims and claims that are associated with practices that might be prevented by EMR have statistically insignificant effects on the estimated impact of an e-discovery law. In contrast, the average size of claims that are associated with practices that might be documented by EMR have a statistically significant negative interaction with the presence of a law. This suggests that when a hospital is in a state where there are large medical malpractice payouts for the kind of lawsuit that would be documented by electronic medical records that if there is a law facilitating electronic discovery then this would be incrementally negatively correlated with adoption. This negative interaction is particularly interesting given the positive level effect from malpractice payments in stimulating EMR adoption. This pattern may reflect the fact that having an EMR system in place can be an advantage for hospitals in documenting their compliance with standard practices. However, this benefit is eliminated when e-discovery rules put all electronic information in the hands of plaintiffs. The increased malpractice risk to hospitals with extensive electronic documentation increases directly when the control over that information shifts to plaintiffs through greater ease of electronic discovery. There is anecdotal evidence that some hospitals with EMRs attempt to gain control over this risk by engaging in costly activities such as retaining duplicate paper records or employing third-party document storage systems to limit the content included in the legal medical record.

As pointed out by Ai and Norton (2003), care is needed when evaluating the significance of interaction terms in non-linear models. Therefore, we also report the results of a linear probability model in Table A-7 of the appendix. The results and the relative significance of the results are similar.

Table 4: How the risk of medical malpractice claims mediate the effect of e-discovery laws on hospital adoption of EMR

	(1)	(2)	(3)
E-Discovery Law (d)	-0.0111 (0.00273)	-0.0111 (0.00273)	-0.0111 (0.00277)
Law*EMR Prevent Malp. Payouts	-0.00298 (0.00269)		
Law*EMR Document Malp. Payouts		-0.00523 (0.00288)	
Law *EMR Unrelated Malp. Payouts			-0.00244 (0.00294)
EMR Prevent Malp. Payouts	0.00396 (0.00104)		
EMR Document Malp. Payouts		0.00263 (0.00110)	
EMR Unrelated Malp. Payouts			-0.000343 (0.00117)
Years Opened	0.00154 (0.000981)	0.00153 (0.000985)	0.00154 (0.000984)
Stated Beds	0.00629 (0.0165)	0.00624 (0.0165)	0.00633 (0.0166)
Admissions	0.00481 (0.00379)	0.00486 (0.00379)	0.00467 (0.00380)
Inpatient Days	0.00596 (0.00810)	0.00591 (0.00810)	0.00603 (0.00811)
Medicare Inpatient Days	-0.0145 (0.00951)	-0.0146 (0.00952)	-0.0146 (0.00953)
Medicaid Inpatient Days	0.000550 (0.000938)	0.000556 (0.000938)	0.000552 (0.000939)
Births	-0.000589 (0.000880)	-0.000599 (0.000881)	-0.000571 (0.000882)
Total Inpatient Operations	-0.00587 (0.00732)	-0.00607 (0.00732)	-0.00589 (0.00732)
Total Operations	0.00191 (0.00244)	0.00199 (0.00244)	0.00200 (0.00243)
Emergency Outpatient Visits	0.0121 (0.00521)	0.0121 (0.00521)	0.0120 (0.00522)
Total Outpatient Visits	0.00761 (0.00635)	0.00764 (0.00635)	0.00785 (0.00636)
Total Payroll Expenses	0.000188 (0.000698)	0.000187 (0.000699)	0.000188 (0.000699)
Employee Benefits	0.00284 (0.00167)	0.00288 (0.00167)	0.00291 (0.00167)
Total Expenses	-0.0000821 (0.000285)	-0.0000862 (0.000285)	-0.0000870 (0.000286)
Length of Stay	0.254 (0.0708)	0.257 (0.0707)	0.254 (0.0710)
No. Doctors	0.0000878 (0.00130)	0.0000895 (0.00130)	0.0000639 (0.00131)
No. Nurses	-0.0137 (0.00794)	-0.0135 (0.00795)	-0.0136 (0.00796)
No. Trainees	-0.00438 (0.00131)	-0.00434 (0.00131)	-0.00435 (0.00131)
Non-Medical Sta	0.00193 (0.00270)	0.00187 (0.00270)	0.00189 (0.00271)
PPO (d)	0.00198 (0.00234)	0.00196 (0.00234)	0.00213 (0.00234)
HMO (d)	0.00100 (0.00230)	0.000955 (0.00231)	0.000893 (0.00231)
Speciality Hospital (d)	0.0112 (0.00496)	0.0112 (0.00496)	0.0111 (0.00496)
Non-Profit (d)	0.0175 (0.00162)	0.0176 (0.00162)	0.0176 (0.00162)
Gross State Product Per Capita	0.00000605 (0.000000710)	0.00000652 (0.000000712)	0.00000810 (0.000000712)
State Effects	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes
Observations	42106	42106	42106
Log-Likelihood	-5585.2	-5588.5	-5591.7

Marginal effects; Standard errors in parentheses (d) for discrete change of dummy variable from 0 to 1

## 6.1 Which hospitals are affected by electronic discovery laws?

We now consider how hospital characteristics may affect the correlations between hospital EMR adoption and the presence of e-discovery laws. We find evidence that the most

Table 5: Which Hospitals' Adoption is Affected by E-Discovery Laws?

	(1)	(2)	(3)
E-Discovery Law (d)	-0.00794 (0.00329)	-0.00817 (0.00328)	-0.00782 (0.00331)
Law*Low Admissions (d)	-0.0110 (0.00301)		
Law*Low Total Budget (d)		-0.0102 (0.00311)	
Law*Low Non-Medical Sta (d)			-0.0112 (0.00300)
Years Opened	0.00143 (0.000982)	0.00148 (0.000985)	0.00141 (0.000983)
Stated Beds	0.00566 (0.0165)	0.00574 (0.0166)	0.00546 (0.0165)
Admissions	0.00439 (0.00379)	0.00455 (0.00379)	0.00455 (0.00379)
Inpatient Days	0.00683 (0.00808)	0.00664 (0.00809)	0.00675 (0.00808)
Medicare Inpatient Days	-0.0151 (0.00952)	-0.0151 (0.00953)	-0.0151 (0.00952)
Medicaid Inpatient Days	0.000501 (0.000936)	0.000522 (0.000937)	0.000515 (0.000936)
Births	-0.000632 (0.000879)	-0.000635 (0.000880)	-0.000648 (0.000879)
Total Inpatient Operations	-0.00613 (0.00731)	-0.00604 (0.00732)	-0.00603 (0.00731)
Total Operations	0.00203 (0.00243)	0.00200 (0.00243)	0.00200 (0.00243)
Emergency Outpatient Visits	0.0108 (0.00523)	0.0109 (0.00524)	0.0109 (0.00523)
Total Outpatient Visits	0.00823 (0.00635)	0.00814 (0.00635)	0.00817 (0.00635)
Total Payroll Expenses	0.000148 (0.000698)	0.000159 (0.000699)	0.000160 (0.000698)
Employee Benefits	0.00299 (0.00167)	0.00298 (0.00167)	0.00297 (0.00167)
Total Expenses	-0.000116 (0.000285)	-0.000118 (0.000286)	-0.000117 (0.000285)
Length of Stay	0.252 (0.0709)	0.251 (0.0709)	0.250 (0.0709)
No. Doctors	0.000153 (0.00130)	0.000156 (0.00131)	0.000170 (0.00130)
No. Nurses	-0.0131 (0.00797)	-0.0132 (0.00797)	-0.0131 (0.00797)
No. Trainees	-0.00424 (0.00131)	-0.00425 (0.00131)	-0.00423 (0.00131)
Non-Medical Sta	0.00224 (0.00269)	0.00218 (0.00269)	0.00212 (0.00269)
PPO (d)	0.00225 (0.00234)	0.00223 (0.00234)	0.00223 (0.00234)
HMO (d)	0.000764 (0.00231)	0.000803 (0.00231)	0.000811 (0.00231)
Speciality Hospital (d)	0.0111 (0.00495)	0.0109 (0.00493)	0.0110 (0.00494)
Non-Profit (d)	0.0174 (0.00161)	0.0174 (0.00161)	0.0174 (0.00162)
Gross State Product Per Capita	0.000000674 (0.000000706)	0.000000666 (0.000000706)	0.000000653 (0.000000706)
State Effects	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes
Observations	42106	42106	42106
Log-Likelihood	-5587.9	-5588.6	-5587.7

Marginal effects; Standard errors in parentheses  
(d) for discrete change of dummy variable from 0 to 1  
 $p < 0.10$ ,  $p < 0.05$ ,  $p < 0.01$

might facilitate a hospital's defense, by providing a broader and more robust standard of



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Figure A-1: Distribution of E-Discovery Laws by 2007

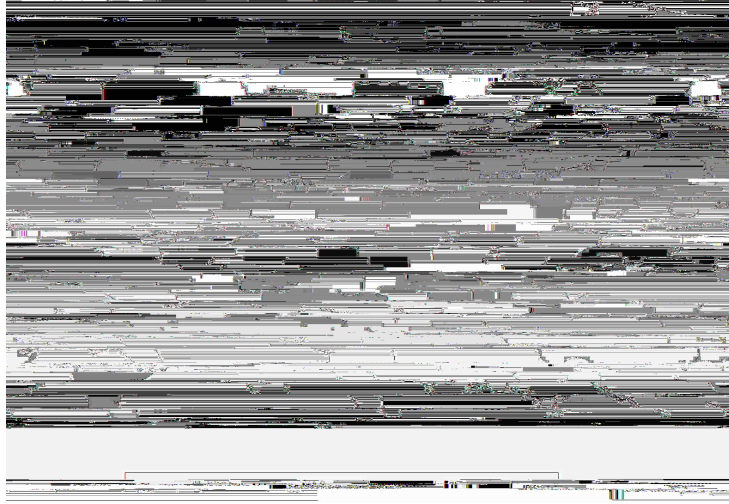


Table A-6: Robustness checks for results in Table 3

	(1)	(2)	(3)
	No TX	No 2007	Legal Controls
E-Discovery Law (d)	-0.0148 (0.00267)	-0.0143 (0.00244)	-0.0114 (0.00264)
Years Opened	0.00295 (0.00116)	0.00134 (0.00104)	0.00154 (0.000975)
Stated Beds	0.000420 (0.0175)	0.00826 (0.0168)	0.00685 (0.0165)
Admissions	0.00413 (0.00401)	0.00503 (0.00388)	0.00464 (0.00378)
Inpatient Days	0.00707 (0.00850)	0.00276 (0.00832)	0.00587 (0.00807)
Medicare Inpatient Days	-0.0119 (0.00999)	-0.0120 (0.00963)	-0.0146 (0.00947)
Medicaid Inpatient Days	0.000757 (0.000985)	0.000754 (0.000958)	0.000552 (0.000934)
Births	-0.000489 (0.000960)	-0.000357 (0.000892)	-0.000562 (0.000875)

Table A-7: Effect of initial document access costs on effect of Electronic Discovery law (Linear Probability Model)

	(1)	(2)	(3)
E-Discovery Law (d)	-0.0173 (0.00456)	-0.0179 (0.00455)	-0.0176 (0.00465)
Law*EMR Prevent Malp. Payouts	-0.00227 (0.00338)		
Law*EMR Document Malp. Payouts		-0.00506 (0.00356)	
Law *EMR Unrelated Malp. Payouts			-0.00166 (0.00358)
EMR Prevent Malp. Payouts	0.00544 (0.00131)		
EMR Document Malp. Payouts		0.00363 (0.00135)	
EMR Unrelated Malp. Payouts			0.000900 (0.00136)
Years Opened	0.00170 (0.00143)	0.00169 (0.00143)	0.00170 (0.00143)
Stated Beds	-0.00966 (0.0228)	-0.00979 (0.0228)	-0.00966 (0.0228)
Admissions	0.0119 (0.00565)	0.0120 (0.00565)	0.0118 (0.00565)
Inpatient Days	0.00423 (0.0117)	0.00409 (0.0117)	0.00423 (0.0117)
Medicare Inpatient Days	-0.0215 (0.0134)	-0.0217 (0.0134)	-0.0215 (0.0134)
Medicaid Inpatient Days	0.00185 (0.00138)	0.00187 (0.00139)	0.00185 (0.00139)
Births	-0.00168 (0.00129)	-0.00169 (0.00129)	-0.00164 (0.00129)
Total Inpatient Operations	-0.0187 (0.0101)	-0.0190 (0.0101)	-0.0189 (0.0101)
Total Operations	0.00552 (0.00358)	0.00556 (0.00358)	0.00553 (0.00358)
Emergency Outpatient Visits	0.0161 (0.00770)	0.0160 (0.00771)	0.0160 (0.00771)
Total Outpatient Visits	0.0167 (0.0102)	0.0168 (0.0102)	0.0168 (0.0103)
Total Payroll Expenses	0.000315 (0.00113)	0.000315 (0.00113)	0.000310 (0.00113)
Employee Benefits	0.00958 (0.00270)	0.00962 (0.00271)	0.00964 (0.00271)
Total Expenses	0.000211 (0.000439)	0.000211 (0.000439)	0.000212 (0.000439)
Length of Stay	0.378 (0.115)	0.380 (0.115)	0.379 (0.115)
No. Doctors	-0.0000807 (0.00182)	-0.0000897 (0.00182)	-0.0000838 (0.00182)

-0.0189

)-1444(0)-1(0.00271))-4444(0)-1(0.00271))TJ-138.711-7.704Td(T)97(otHMOta)32((000756)-)87080)-540240.0018)-1(5)220.0018)-1(5)2TJ118.711-6.974Td((0)-1(.)1(001)-1(29))-4444(0)-1(0.00

Table A-8: Which Hospitals' adoption is being affected by Electronic Discovery Laws? (Linear Probability Model)

	(1)	(2)	(3)
E-Discovery Law (d)	-0.0113 (0.00536)	-0.0116 (0.00543)	-0.0108 (0.00544)
Law*Low Admissions (d)	-0.0128 (0.00556)		
Law*Low Total Budget (d)		-0.0118 (0.00558)	
Law*Low Non-Medical Sta (d)			-0.0132 (0.00562)
Years Opened	0.00159 (0.00143)	0.00165 (0.00143)	0.00158 (0.00143)
Stated Beds	-0.0106 (0.0228)	-0.0105 (0.0228)	-0.0108 (0.0228)
Admissions	0.0113 (0.00565)	0.0115 (0.00565)	0.0115 (0.00565)
Inpatient Days	0.00526 (0.0117)	0.00499 (0.0117)	0.00518 (0.0117)
Medicare Inpatient Days	-0.0221 (0.0134)	-0.0221 (0.0134)	-0.0222 (0.0134)
Medicaid Inpatient Days	0.00179 (0.00139)	0.00182 (0.00139)	0.00180 (0.00139)
Births	-0.00174 (0.00129)	-0.00174 (0.00129)	-0.00176 (0.00129)
Total Inpatient Operations	-0.0189 (0.0101)	-0.0188 (0.0101)	-0.0187 (0.0101)
Total Operations	0.00549 (0.00358)	0.00543 (0.00358)	0.00545 (0.00358)
Emergency Outpatient Visits	0.0147 (0.00773)	0.0148 (0.00773)	0.0148 (0.00772)
Total Outpatient Visits	0.0176 (0.0103)	0.0175 (0.0103)	0.0175 (0.0103)
Total Payroll Expenses	0.000284 (0.00113)	0.000298 (0.00113)	0.000303 (0.00113)
Employee Benefits	0.00971 (0.00270)	0.00971 (0.00270)	0.00968 (0.00270)
Total Expenses	0.000173 (0.000439)	0.000167 (0.000439)	0.000169 (0.000439)
Length of Stay	0.378 (0.115)	0.377 (0.115)	0.376 (0.115)
No. Doctors	-0.0000284 (0.00182)	-0.0000178 (0.00182)	-0.00000494 (0.00182)
No. Nurses	-0.0237 (0.0122)	-0.0239 (0.0122)	-0.0239 (0.0122)
No. Trainees	-0.00999 (0.00177)	-0.00998 (0.00177)	-0.00997 (0.00177)
Non-Medical Sta	0.0000700 (0.00402)	0.00000215 (0.00402)	-0.0000925 (0.00402)
PPO (d)	0.00194 (0.00271)	0.00192 (0.00271)	0.00191 (0.00271)
HMO (d)	0.00111 (0.00266)	0.00114 (0.00266)	0.00117 (0.00265)
Speciality Hospital (d)	0.0109 (0.00500)	0.0107 (0.00500)	0.0107 (0.00500)
Non-Profit (d)	0.0208 (0.00209)	0.0208 (0.00209)	0.0207 (0.00209)
Gross State Product Per Capita	0.00000138 (0.000000830)	0.00000137 (0.000000830)	0.00000136 (0.000000830)
State Effects	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes
Observations	42106	42106	42106
Log-Likelihood	13307.7	13307.3	13307.8

Marginal effects; Standard errors in parentheses  
(d) for discrete change of dummy variable from 0 to 1  
 $p < 0.10$ ,  $p < 0.05$ ,  $p < 0.01$