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**Liability Insurance Markets and the Need for Settlement**  
**Disclosure Rules: The Case of Medical Malpractice**

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**Draft of April 2007**

# Liability Insurance Markets and the Need for Settlement Disclosure Rules: The Case of Medical Malpractice

Noam Sher \*

We use economic analysis of law to explore the medical malpractice oversight mechanisms in the healthcare and medical liability insurance markets and litigation stages, demonstrate the incomplete information problems that cause partial collapse of the healthcare market and the mainly empirically based phenomena of the medical malpractice litigation. We then suggest *settlement disclosure rules* (SDRs), requiring the parties to a medical malpractice lawsuit, *inter alia*, to jointly and uniformly draft a report of the main facts, legal findings and medical lessons derived from the claimed adverse event, as a solution to those problems. These suggested SDRs are innovative as they are currently not included in the civil procedure rules, even not a specific prohibition on settlement confidentiality. Moreover, the literature is ambiguous even regarding the expected social welfare effects of a ban on settlement confidentiality.

We claim that properly designed SDRs that would require the parties to draft *common, public and adequate information* and the court acting as gatekeeper – as an efficient oversight mechanism of the healthcare market – will both solve the incomplete information problems inherent in this market. Moreover, in litigation stages, with incomplete information on the true nature of claims, SDRs without liability insurance will not change the number of suits filed or settlements reached at pre-filing or at the end of the revealing stage of positive expected value (PEV) and most negative expected value (NEV) cases, although they might have two minor effects: they might slightly reduce the expected settlement

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amount and cause a slight decrease in the number suits, settlements and drops of the weakest NEV claims.

We claim that with liability insurance and incomplete information, SDRs would reinforce the positive effects of the liability insurers' gate-keeping role and mitigate its negative ones. Moreover, in medical malpractice litigation, liability insurance affects litigation outcomes similarly to SDRs; however, and contrary to the recent literature which focuses on a ban on settlement confidentiality, if liability insurance already exists, the SDRs' effects on litigation outcomes, if any, will be insignificant and thus without negative effect on litigation outcomes. We explain how SDRs should be constructed and conclude that properly designed SDRs are socially desirable.

## Introduction

What else can we do in order to reduce the appalling rate of tens of thousands of deaths a year as a result of medical errors in the United States alone? Empirical findings indicate that a vast majority of the hundreds of thousands of patients who suffer injury following negligent medical care do not sue their doctors, suggesting a severe under-deterrence problem. Medical malpractice reforms enacted since the 70's have tended to mitigate the deterrent effects of tort litigation. In this article, we explore the structure, operation and key phenomena of the healthcare market, the medical liability insurance market and medical malpractice litigation. We focus on incomplete information problems, the strategic market behaviors of liability insurers, medical professionals, patients, attorneys and juries and, most importantly, an innovative and powerful regulatory tool to address them, *settlement disclosure rules* (hereinafter: SDRs).

The suggested SDRs should include: first, *Common and Accurate Information Rule*, requiring the parties to a medical malpractice lawsuit to jointly and uniformly draft a report on the main facts, legal findings and medical lessons derived from the claimed adverse event; second, *Public Information Rule*, mandating proper techniques and procedures for publicizing

and distributing settlement reports in the legal and medical fields, creating sub-categories of mandatory disclosure and requiring the use of plain language in the reports; third, *Adequate Information Rule* regulating the quantity and quality of facts, legal explanations and medical lessons that should be disclosed, for example, by using *materiality* as the main disclosure criterion; and fourth, *Court Supervision Rule* entitling and requiring the court to oversee the parties' success in meeting those SDR requirements before approving their reports. The suggested SDRs are innovative as they are not currently included in civil procedure rules, even not as a specific prohibition on settlement confidentiality.<sup>1</sup> Moreover, the literature is ambiguous regarding the expected net social welfare effects of a ban on settlement confidentiality.

In the article, we use economic analysis of law modeling methods to explore the medical malpractice oversight mechanisms in the healthcare and medical liability insurance markets and litigation stages, and demonstrate the problems that cause the healthcare market's partial collapse and under-deterrence and the mainly empirically based phenomena of the

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<sup>1</sup> In the existing civil procedure rules, we can find a few types of settlement rules that have some characteristics in common with SDRs such as class-action settlement rules. See Fed. R. Civ. P. § 23(e). However, this is the exception as there are no general or common SDR arrangements in the civil procedure field, and no general prohibition on settlement confidentiality. In the few areas where such rules have been enacted, for example, Florida's reform of 1990 which included the Sunshine in Litigation Act, providing that confidential agreements concealing a public hazard or any information thereof may not be enforced, courts tend to dilute the law and favor confidentiality interpretation. For a summary of the civil procedure's minimal arrangements regarding the end of a lawsuit by settlement and the courts' regular willingness to accept and enforce confidentiality provisions in those settlements, see: Scott A. Moss, *Illuminating Secrecy: A New Economic Analysis of Confidential Settlements*, 105 MICH. L. REV. 1-2 (forthcoming, 2007) available at <http://ssrn.com/abstract=921463>; Alison Lothes, *Quality, Not Quantity: An Analysis of Confidential Settlements and Litigants' Economic Incentives*, 154 U. PENN. L. REV. 433, 442-45 (2005).

medical malpractice litigation<sup>2</sup> – complex phenomena that distinguish it from regular tort litigation. Some of the explanations for the models presented here are new and counter-intuitive. All are basically derived from the existence of the same inherent incomplete information problems.

We demonstrate that with liability insurance, socially desirable in itself, and incomplete information, SDRs have positive social welfare effects both on the healthcare market and on the malpractice litigation process. In a way, SDRs could play a role similar to the plea-bargaining rules of criminal procedures<sup>3</sup> and strike the balance between the surplus social welfare achieved through greater use of civil litigation as a risk-management and information-creation mechanism, on the one hand, and litigation costs on the other.

The existence of *liability insurance* against medical malpractice suits has significant effects on social welfare.<sup>4</sup> Buying liability insurance allows medical professionals, healthcare

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<sup>2</sup> For a comprehensive presentation of empirical findings on medical malpractice litigation and for explanations of those phenomena, see: TOM BAKER, *THE MEDICAL MALPRACTICE MYTH* (2005); David A. Hyman & Charles Silver, *Medical Malpractice Litigation and Tort Reform: It's the Incentives, Stupid*, 59 *VANDERBILT L. REV.* 1085 (2006); Philip G. Peters, Jr., *What we Know about Malpractice Settlements* (Working Paper, 2006), available at <http://ssrn.com/abstract=891120>. See also *infra* Section IC.

<sup>3</sup> The plea bargaining practice began to appear during the early or mid-nineteenth century, became established in the last third of the same century and today governs most convictions in the United States, where approximately 95% of criminal cases are disposed of by plea of guilty rather than by trial. Contrary to civil litigation settlements, the plea bargaining practice is heavily regulated. For the evolution, logic and description of plea bargaining rules see, for example, WAYNE R. LAFAVE, JEROLD H. ISRAEL & NANCY J. KING, *CRIMINAL PROCEDURE* 966-1031 (4<sup>th</sup> ed., 2004); 21 *Am. Jur.* 2<sup>nd</sup> *Criminal Law* § 686-709. See also *infra* Section IVC.

<sup>4</sup> For an investigation of insurance effects on social welfare, see, for example, STEVEN SHAVELL, *ECONOMIC ANALYSIS OF ACCIDENT LAW* 186-261 (Harvard Univ. Press, 1987); RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 450-51 (6<sup>th</sup> ed., 2003); ROBERT H. JERRY, II, *UNDERSTANDING INSURANCE LAW* 17-19 (3<sup>rd</sup> ed., 2002).

organizations (hereinafter: HMOs)<sup>5</sup> and staff, to substitute a premium for the high risk of medical liability litigation<sup>6</sup> and thus tremendously improve their budgetary planning efficiency. Liability insurance assigns risk distribution management, including litigation management, to experts, and this is also very advantageous. This article focuses on liability insurance's second role, litigation management, and on its third: its ability to act as the healthcare market gatekeeper so as to promote the main objectives of tort liability – directing behavior and damage distribution. *Inter alia*, liability law and liability insurance generate incentives for the development of *risk-management mechanisms*<sup>7</sup> by insurers and HMOs and also achieve the additional legal objective of risk distribution with greater efficiency.

On the face of it, the existence of liability insurance might also dilute the directing

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<sup>5</sup> The main medical institutions of the healthcare market are hospitals and Managed Care Organizations (hereinafter: MCOs). MCOs provide healthcare insurance. MCOs also provide medical care mainly by entering into contracts both with potential patients and doctors for the latter to provide the former with the necessary treatment. The contracts include granting oversight authority to MCOs over the doctors' medical activities.

<sup>6</sup> The law which currently applies to medical liability sets a negligence standard and is based on the principle of torts. For a review of the law's principles in the field of medical liability, see, for example, STEVEN E. PEGALIS, *AMERICAN LAW OF MEDICAL MALPRACTICE* (3rd ed., 2005); FRANK M. MCCLELLAN, *MEDICAL MALPRACTICE – LAW, TACTICS, AND ETHICS* (1994); DAVID M. HARNEY, *MEDICAL MALPRACTICE* (3rd ed., 1993).

<sup>7</sup> Risk-management mechanism is “[a] process of making and carrying out decisions that will assist in prevention of adverse consequences and minimize the adverse effects of accidental losses upon an organization. ... A systematic and scientific approach in the empirical order to identify, evaluate, reduce, or eliminate the possibility of an unfavorable deviation from expectation and, thus, to prevent the loss of financial assets resulting from injury to patients, visitors, employees, independent medical staff, or from damage, theft, or loss of property belonging to the healthcare entity or persons mentioned...” AMERICAN SOCIETY FOR HEALTHCARE RISK MANAGEMENT (ASHRM), *BARTON CERTIFICATE IN HEALTHCARE RISK MANAGEMENT PROGRAM GLOSSARY* (2003) 45 available at <http://www.ashrm.org/ashrm/resources/files/glossary.pdf>. For references regarding the issue of risk-management mechanisms, their structure and operation, see, *infra* note 95.

behavior effects of tort liability.<sup>8</sup> Many authors<sup>9</sup> claim that liability insurance leads to deviations from the market's social optimum, basically because of incomplete information problems, mainly moral hazard and adverse selection.<sup>10</sup> Those problems might lead, *inter alia*, to a partial collapse of the liability insurance market and under-deterrence in the healthcare market. This is a key question. If liability insurance dilutes the directing behavior effects of tort liability and generates under-deterrence and under-insurance, this is a severe outcome we must avoid. If premiums are too high, it is a burden on the healthcare budget with dramatic negative effects on social welfare.

In order to form a clear impression of the severity of those phenomena, it would help to examine the numbers: according to a study by the Institute of Medicine (IOM) of the National Academy of Science,<sup>11</sup> between 44,000 and 98,000 patients die in the United States each year, and about a million others suffer various degrees of injuries, as a result of medical errors. According to the Harvard Medical Practice Study,<sup>12</sup> which relied on hospital

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<sup>8</sup> Historically, liability insurance was perceived as a mean to escape liability and in several countries it was forbidden by law. See: Steven Shavell, *Liability for Accidents*, in 1 HANDBOOK OF LAW AND ECONOMICS 9 (A. Mitchell Polinsky & Steven Shavell eds., forthcoming 2006).

<sup>9</sup> For Shavell's approach regarding liability insurance effects on social welfare, see: Steven Shavell, *On Liability and Insurance*, 13 BELL J. OF ECO. 120 (1982). See also SHAVELL, ECONOMIC ANALYSIS OF ACCIDENT LAW, *supra* note 4, *ibid*; Shavell, *Liability for Accidents*, *ibid*, at 6-9. For a discussion of the different approaches to the question of liability insurance's effects on social welfare, see: POSNER, *supra* note 4, at 201-04. See also discussion *infra* at Section IA.

<sup>10</sup> For a presentation and a definition of the *Moral Hazard* and of the *Adverse Selection* problem both generally and in the context of healthcare market, see *infra* notes 68-71 and the accompanying text.

<sup>11</sup> See: INSTITUTE OF MEDICINE, TO ERR IS HUMAN: BUILDING A SAFER HEALTH SYSTEM (National Academy Press, Linda T. Kohn, Janet M. Corrigan & Molla S. Donaldson eds., 2001).

<sup>12</sup> See: Troyen A. Brennan, Lucian L. Leape, Nan M. Laird, et al., *Incidence of Adverse Events and Negligence in Hospitalized Patients: Results of The Harvard Medical Practice Study I*, 324 N. ENGL. J. OF MED.

records,<sup>13</sup> about 4% of hospitalized patients suffer injury following medical care, and about a quarter of those (1% of all hospitalized patients) suffer injury as a consequence of negligent medical care. Amazingly, however, only about 2% of medical malpractice victims sue for damages. As for the premiums, American annual public expenditure on medical liability insurance policies totaled \$11 billion in 2003.<sup>14</sup>

Are those numbers as high as they seem? Some argue that the United States suffers from a general medical malpractice crisis with high socioeconomic costs, mainly in terms of incentives for torts litigation and inflated medical liability insurance premiums. They also

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370 (1991); Troyen A. Brennan, Lucian L. Leape, Nan M. Laird, et al., *The Nature of Adverse Events in Hospitalized Patients: Results of The Harvard Medical Practice Study II*, 324 N. ENGL. J. OF MED. 377 (1991); PAUL C. WEILER, HOWARD H. HIATT, JOSEPH P. NEWHOUSE, ET AL., *A MEASURE OF MALPRACTICE: MEDICAL INJURY, MALPRACTICE LITIGATION, AND PATIENT COMPENSATION* (1993).

<sup>13</sup> The Harvard Medical Practice Study reliance on hospital records could have biased its results by underestimating the rate of medical mistakes and negligent medical mistakes. See: Jennifer Arlen & W. Bentley MacLeod, *Malpractice Liability for Physicians and Managed Care Organizations*, 78 N.Y.U. L. REV. 1929, 1938-39 (2003). In another study, researchers used actual observations of medical staff consultations, and recorded all adverse events during discussed in these meetings. They found that 17.7% of the patients in the study had at least one serious adverse event, and that the likelihood of experiencing an adverse event increased about 6% for each day of hospital stay. They also found that 1.2% of the patients who experienced a medical error made claims for compensation. See: Lori B. Andrews, T. Krizek, C. Stocking, et al., *An Alternative Strategy for Studying Adverse Events in Medical Care*, 349 LACET 309 (1997).

<sup>14</sup> See: BAKER, *supra* note 2, at 8-9. Baker claimed that the annual public expenditure of \$11 billion on medical liability insurance policies in 2003 is reasonable when compared both to automobile insurance premiums totaling \$115.5 billion or the total public expense on healthcare insurance of more than \$1,500 billion (more than one-hundred times the expenditure on medical liability insurance), and to the number of doctors in the United States – almost 900,000 – so that even without taking hospitals and other HMOs into account, the average annual expense per doctor is \$12,000. Baker believes this cost is reasonable in view of the high ratios of negligent errors in what he terms "the medical malpractice epidemic". *Ibid*, at 6-10, 24-42.

claim that those high costs should be controlled by a medical malpractice reform.<sup>15</sup>

State legislators have responded to this purported crisis with various reforms, all based on the principle of limiting medical liability, such as *damage caps* (which cap the damages awarded, mainly for pain and suffering), limits on legal fees, interventions concerning information about and oversight on the quality of medical care and in the structure of the medical liability insurance market, such as creating funds to cover medical negligence damages. Since 2003, President G.W. Bush's administration has been pushing, hitherto unsuccessfully, for federal legislation on medical malpractice suits.<sup>16</sup>

The opponents of reform claim that the costs of the medical malpractice system are not exaggerated at all. The main problems of the healthcare market are not reflected in high liability premiums but rather in an enormous amount of patient deaths and injuries as a result

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<sup>15</sup> According to reform advocates, the medical malpractice crisis is characterized by increasing numbers of medical negligence claims and extremely high damage awards to claimants. These lead, in turn, to inflated liability insurance premiums which are in turn translated into higher medical treatment costs; into a "brain drain" phenomenon in which practitioners shy from areas characterized by a higher incidence of claims and consequently, higher insurance premiums; into suspension of certain medical services; into interstate "migration" of healthcare service provision based on legal differences; and into "defensive medicine" – medical decision-making not based on purely professional considerations but rather on the legal results of any decision made. See the references *infra* at note 17.

<sup>16</sup> This federally suggested intervention includes a *damage cap* of 250,000 dollars, limits on legal fees, shrinking the limitation period to three years following the negligent event or to one year following its discovery, and limits on punitive damages. For federal and state reforms performed in the fields of torts for medical liability, information about and oversight of medical treatment quality and the structure of the market for medical liability insurance, see, for example, BAKER, *ibid*, at 24-42, 157-80; MEDICAL MALPRACTICE AND THE U.S. HEALTH CARE SYSTEM (William M. Sage & Rogan Kersh eds., 2006); Nancy L. Zisk, *The Limitations of Legislatively Imposed Damages Caps: Proposing a Better Way to Control the Costs of Medical Malpractice* (Working Paper, 2006) available at [law.bepress.com/expresso/eps/1272/](http://law.bepress.com/expresso/eps/1272/).

of medical errors.<sup>17</sup>

In this article, the framework of analysis is composed of two basic models which represent the healthcare market and litigation mechanisms. A rich literature exists on the appropriate medical liability arrangement in the healthcare market.<sup>18</sup> Recent literature, *e.g.*, Arlen and MacLeod<sup>19</sup> and Stein<sup>20</sup>, suggests that the healthcare market suffers from *informational problems* leading to its partial collapse. Following this recent literature, in our first model incomplete information problems produce high operational costs.<sup>21</sup> In our model of the healthcare market, one of the market's main problems is moral hazard resulting from the fact that the doctor's actions are hidden and the patient is unable to tell, even after the fact, whether the doctor has acted optimally or provided substandard treatment. One of the

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<sup>17</sup> For a review of the arguments for the existence of a medical malpractice crisis justifying the imposition of limitations on the medical liability regime and interference in the structure of the market for medical liability insurance and a review of counterarguments, see, for example, BAKER, *ibid*; Michelle M. Mello, David M. Studdert & Troyen A. Brennan, *The New Medical Malpractice Crisis*, 348 NEW ENG. J. OF MED. 1010 (2003); Sage & Kersh, *ibid*; Alex Stein, *Fixing Medical Torts by Repositioning Inalienability and Contract* (Working Paper, 2006) available at [ssrn.com/abstract=889474](http://ssrn.com/abstract=889474).

<sup>18</sup> For a review of the literature in this field, see *infra* Section IB.

<sup>19</sup> See: Jennifer Arlen & W. Bentley MacLeod, *Torts, Expertise and Authority: Malpractice Liability of Physicians and Managed Care Organizations*, 36 RAND J. OF ECO. 494 (2005); Arlen & MacLeod, *supra* note 13; Jennifer Arlen, *Private Contractual Alternatives to Malpractice Liability*, in SAGE & KERSH, *supra* note 16. For a presentation of this model, see *infra* Section IB.

<sup>20</sup> Stein, *supra* note 17, *ibid*. For a presentation of this model, see *infra* Section IB.

<sup>21</sup> For a brief presentation of the model of the healthcare market, see *infra* Section IIIA. For a more detailed presentation of the model, see Noam Sher, *New Differences between Negligence and Strict Liability and their Implications on Medical Malpractice Reform* 16 S. CAL. INTERDISC. L. J. (forthcoming 2007). In this last article, we described the differences between the negligence and strict liability mechanisms in the healthcare market based on a basic model similar to the first model presented here regarding the healthcare market.

advantages of HMOs is that compared to the general public, they have better tools for overseeing doctors. However, even their level of oversight suffers from incomplete information problems.

The main results of the healthcare market model demonstrate the potential power of the twin mechanisms of law and reputation to deal with the incomplete information problems causing its partial collapse: the law poses a threat to the doctors' and HMOs' reputation, while the law and the courts provide the market with lacking information, resolving its inherent incomplete information problems.

One of the main mechanisms required to ensure the successful operation of this liability mechanism based on reputation and law is the litigation process. In a second model, we formally describe the parameters affecting the outcomes of medical malpractice litigation in terms of the likelihood for a suit to be filed and settled and the expected settlement amount.

*Our main thesis* is comprised of several parts. *The outcomes of the litigation stages' model* show that severe incomplete information problems exist also in litigation stages, causing the different outcomes presented above. These outcomes, which are consistent with the empirically based phenomena of medical malpractice litigation, are as follows. *First*, the model demonstrates that many strong medical malpractice cases, together with others, might be excluded from litigation and settlement procedures. This is due to the fact that evidence regarding the true actions of the doctors and HMOs reached the patients after the medical accident in a way that masked the true nature of the patient's claim.

*Second*, the likelihood of filing a lawsuit is higher the higher the expected damages award. Furthermore, the likelihood of filing a lawsuit is positively correlated with expected changes in doctors' and HMOs' reputations during the last stage of the trial and with the costs to the plaintiff that cannot be saved in each stage of trial. *Third*, many cases remain unlitigated and unsettled. *Fourth*, compensations to patients before the end of the disclosure

stage of trial are rare and preserved for particularly strong cases.

*Fifth*, a large number of frivolous cases are brought to court and later dropped. In our model, this happens since incomplete information does not allow the parties' attorneys to *ex ante* calculate the expected outcomes of the hypothetical bargaining expected at trial, unless the case is identified as a pre-filing strong case.

*Sixth*, the model provides a reputation-based explanation to one of the most striking empirical findings, which is that only victims with small claims are sometimes modestly overpaid, and in most cases victims are under-compensated at a rate positively correlated with the severity of the injury.

*Seventh*, the model provides an incomplete information explanation to another striking finding: medical malpractice defendants win trial approximately 80% of the time. This outcome is in contrast to Priest and Klein's hypothesis, which predicts that defendants win approximately half the time – a well-supported hypothesis for other areas of tort litigation.

*Our thesis regarding the SDRs' influence* is that properly designed SDRs, requiring the parties to draft *common, public and adequate information* and the court to act as a gatekeeper will solve the market's inherent incomplete information problems. Moreover, in litigation stages, with incomplete information regarding the true nature of claims, SDRs will not change the number of suits filed or settlements reached at pre-filing or at end of the revealing stage of positive expected value (hereinafter: PEV) and most negative expected value (hereinafter: NEV) cases. They might have the two following minor effects, however. First, they might slightly reduce the expected settlement amount as a consequence of weakening the doctors' and HMOs' reputation effect. Second, where the costs of the hearing stage to the plaintiff are higher than in the revealing stage, which is usually not the case, they might also cause a slight decrease in the number of the suits, settlements and drops of the

weakest NEV claims. All assuming SDRs are designed so as to involve both parties in the process of preparing settlement reports.

We argue that with liability insurance and incomplete information, SDRs would reinforce the positive effects of the gate-keeping role of liability insurers and weaken the negative effects of liability insurance policies. Moreover, in medical malpractice litigation, liability insurance affects litigation outcomes similarly to SDRs; however, and contrary to the current literature which focuses on banning settlement confidentiality, if liability insurance preexists, the SDRs' effects on litigation's outcomes will be insignificant at best. Hence, we conclude that SDRs are socially desirable.

Elsewhere,<sup>22</sup> we claimed that healthcare market legislators should consider enacting general mandatory disclosure, similar to that which exists in the securities markets, including, *inter alia*, the establishment of a central authority such as the Securities and Exchange Commission (SEC), and regulating mandatory disclosure duties by legislating differential report requirements and enforcing them by criminal, quasi-criminal and administrative tools and by special causes of action and civil litigation. SDRs can be also seen as a part of this system.

Our thesis is not necessarily limited to medical liability. We believe it is also relevant to other areas where liability insurance and incomplete information exist. This is particularly true for the liability of various professionals, such as construction engineers and corporate directors, and for that of various players in markets overseen by gatekeepers, where reputation plays a key role, such as the securities market.<sup>23</sup>

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<sup>22</sup> See: Sher, *ibid*.

<sup>23</sup> Elsewhere, we have presented the information problems in the securities market as such that justify holding the market's participants liable similarly to problems that justify the imposition of liability in the healthcare market. See: Noam Sher, *Underwriters' Civil Liability for IPO's: An Economic Analysis*, 27 U. PA. J.

*Chapter I* reviews the literature on the influence of liability insurance on the objectives of tort liability, the incomplete information in the healthcare market approach and key empirical finding related to medical malpractice litigation and their implications. It also reviews several theoretical explanations for phenomena related to litigation and settlements. *Chapter II* provides background on medical malpractice information reforms and the structure of the liability insurance market. *Chapter III* models the healthcare market and the medical malpractice litigation process without and with SDRs, followed by an analysis of changes in the models' outcomes in reaction to liability insurance without and with SDRs in *Chapter IV*. Finally, a concluding discussion is presented in *Chapter V*.

## **Chapter I: Literature Review**

### **A. Liability Insurance and Torts Objectives**

Shavell<sup>24</sup> focused on the differential effects of the negligence versus the strict liability rules on risk bearing and insurance: risk aversion by the relevant parties may affect their behavior. The option of purchasing a liability insurance policy would correct the deviation from the social optimum if the insurer is able to effectively oversee both parties' activities, so that no moral hazard problem is created. The more efficient this insurance in overseeing the level of care of the actor whose risk averseness effects a deviation from the social optimum, the closer we are to achieving an optimal level of care. In any case, liability insurance is efficient as it distributes the players' risks optimally. Therefore, there is no basis for regulatory intervention in liability insurance markets.

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INT'L ECON. L. 389 (2006). See also: Noam Sher, *Negligence Versus Strict Liability: The Case of Underwriter Liability in IPO's*, 4 DEPAUL BUS. & COM. L.J. 451 (2006).

<sup>24</sup> See: Shavell, *On Liability and Insurance*, *supra* note 9, *ibid*. See also: SHAVELL, ECONOMIC ANALYSIS OF ACCIDENT LAW, *supra* note 4, *ibid*; Shavell, *Liability for Accidents*, *supra* note 8, at 6-9.

Moreover, many authors claimed that liability insurance leads to deviations from the market's social optimum. Posner,<sup>25</sup> for example, explained that liability insurers cannot fully observe the type of person they are selling the policy to, which may lead to different premiums to the insured not fully correlated with the risk each one of them imposes, to high premiums, to partial collapse of the market and also to under-deterrence that would be reflected in more accidents. Nevertheless, liability insurance is still efficient, if victims are fully compensated, since the insurers and the insureds are better off, and no one else is worse off. Furthermore, the under-deterrence effect can be neutralized by insurer monitoring of the insureds' safety behavior.

### **B. The Incomplete Information Approach in the Healthcare Market**

The medical liability and medical liability insurance market structure dispute hinges on both theoretical and empirical aspects of issues related to the appropriate legal arrangement of medical liability, and a rich literature exists on this subject.<sup>26</sup>

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<sup>25</sup> For a discussion of the different approaches to the question of liability insurance's effects on social welfare including Posner's approach, see: POSNER, *supra* note 4, at 201-04.

<sup>26</sup> See, for instance, Arlen, *supra* note 19; Arlen & MacLeod, *supra* note 19; Arlen & MacLeod, *supra* note 13; Ronen Avraham, *An Empirical Study of the Impact of Tort Reforms on Medical Malpractice Payments* (Working Paper, 2006) available at <http://ssrn.com/abstract=382120>; BAKER, *supra* note 2; Tom Baker, *Reconsidering the Harvard Medical Practice Study Conclusions About The Validity of Medical Malpractice Claims*, 33 J. OF L., MED. & ETHICS 501 (2005); Tom Baker, *Medical Malpractice and the Insurance Underwriting Cycle*, 54 DEPAUL L. REV. 393 (2005); Bernard S. Black, Charles M. Silver, David A. Hyman & William M. Sage, *Stability, Not Crisis: Medical Malpractice Claim Outcomes in Texas, 1988-2002*, 2 J. OF EMPIRICAL LEG. STUD. 207 (2005); Mark Geistfeld, *Malpractice Insurance and the (Il)legitimate Interests of the Medical Profession in Tort Reform*, 54 DEPAUL L. REV. 439 (2005); Mark Geistfeld, *The Analytics of Duty: Medical Monitoring and Related Forms of Economic Loss*, 88 VA L. REV. 1921 (2002); William M. Sage, *Medical Malpractice Insurance*

Various studies suggested that the market's major operative cost is due to *incomplete information* problems.<sup>27</sup> Arlen and MacLeod analyzed<sup>28</sup> the healthcare market in a model where MCOs affect the quality of medical treatment by overseeing doctors. This oversight is of two types. First, before contracting with doctors, MCOs assess their level of investment in acquiring expertise; second, contracts between the parties authorize MCOs not to approve treatments decided on by the doctors, so as to prevent the latter from choosing a prohibitively expensive type of treatment (the *expertise* and *authority* concepts, respectively). Nevertheless, wielding this authority effectively requires costly investment in information. In this model, the transactions between the MCOs and the doctors and the transaction between the MCOs and the insured suffer from a moral hazard problem. Consequently, without applying a law holding the MCOs tortuously liable, in equilibrium, MCOs make excessive use of their authority not to approve the type of treatment chosen by the doctors while approving less costly treatments, since they bear the full cost of treatment without enjoying the full benefit gained by the patient. Moreover, they do not choose to refer their patients to doctors with an optimal level of expertise. Without the law imposing liability the doctors underinvest in acquiring expertise, causing medical errors at a higher-than-optimal rate, and select treatments

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*and the Emperor's Clothes*, 54 DEPAUL L. REV. 463 (2005); William M. Sage, *Reputation, Malpractice Liability, and Medical Error*, in ACCOUNTABILITY: PATIENT SAFETY AND POLICY REFORM 159 (Virginia A. Sharpe ed., 2004); William M. Sage, *Managed Care's Crimea: Medical Necessity, Therapeutic Benefit, and the Goals of Administrative Process in Health Insurance*, 53 DUKE L. J. 593 (2003); Catherine M. Sharkey, *Unintended Consequences of Medical Malpractice Damages Caps*, 80 N.Y.U. L. REV. 391 (2005); Stein, *supra* note 17, *ibid*.

<sup>27</sup> For the informational public-good framework, another important model of incomplete information in the healthcare market, see: Stein, *supra* note 17, *ibid*.

<sup>28</sup> See: Arlen & MacLeod, *Torts, Expertise and Authority: Malpractice Liability of Physicians and Managed Care Organizations*, *ibid*; Arlen & MacLeod, *Malpractice Liability for Physicians and Managed Care Organizations*, *ibid*; Arlen, *ibid*.

which are too costly in social optimal terms.

### **C. The Medical Malpractice Litigation and its Reciprocal Effects on the Healthcare and the Liability Insurance Markets – An Empirical Review**

Hyman and Silver recently reviewed the findings of empirical studies, including their own, on medical malpractice litigation and its effects on the healthcare and liability insurance markets.<sup>29</sup> Regarding patient litigiousness,<sup>30</sup> they showed that several studies concluded that only a small fraction of the patients who experienced medical malpractice, less than 2%, sued for compensation. In our opinion this is an upsetting piece of information, since it indicates that the healthcare market suffers from severe under-deterrence.<sup>31</sup> Hyman and Silver's explanations for the finding that most negligently injured patient do not sue<sup>32</sup> were that medical errors are often hard to spot, injuries caused by medical errors are small or temporary and generally covered by health insurance, litigation costs are high, the chances of winning a lawsuit are low as is the expected value of the damages awards and finally, there are less expensive alternatives to lawsuits, such as changing a doctor or HMO.

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<sup>29</sup> See: Hyman & Silver, *supra* note 2, *ibid*. See also: BAKER, *supra* note 2, at 22-42; Philip G. Peters. Jr., *supra* note 2, *ibid*.

<sup>30</sup> See: Hyman & Silver, *ibid*, at 1113-15.

<sup>31</sup> Still, this is not a perfect proof of the under-deterrence phenomenon in the healthcare market, since there are also valid counterclaims. See, for example, Robert D. Cooter & Ariel Porat, *Liability Externalities and Mandatory Choices: Should Doctors Pay Less?* 1 J. OF TORT L. (forthcoming 2006).

<sup>32</sup> Still, it is not a perfect proof for the under-deterrence phenomenon in the healthcare market, since there are also valid counter-claims. See, for example, Robert D. Cooter & Ariel Porat, *Liability Externalities and Mandatory Choices: Should Doctors Pay Less?* 1 J. OF TORT L. (forthcoming 2006).

Hyman and Silver<sup>33</sup> and Baker<sup>34</sup> showed that empirical findings support the claim that the medical malpractice system is relatively accurate, namely, that when patients do sue, there is high, albeit not perfect, correlation between negligence and payments. For example, if the claim was groundless it was most likely not to end with payments to the plaintiff; if the claim was unclear the likelihood of payment was higher and if the defendant's case was indefensible it was most likely for the plaintiff to receive payments. Furthermore, it was found that payment amount correlated positively with injury severity.<sup>35</sup> Notably, the system is not perfect, and in some cases, not a small fraction of them, a payment was made even though the case was groundless or the outcome was no payment at all despite negligence by the medical staff.

Another well-known but not fully studied phenomenon is the large number of frivolous claims of medical malpractice. Hyman and Silver discussed the finding of the Medical Liability Study conducted by the Texas Medical Association (TMA) that about 86% of the insurance claims were ended with no indemnity payment.<sup>36</sup> They claimed that some of those claims were denied even though payments should have been made. Furthermore, other claims were withdrawn by plaintiff's attorneys upon finding out that their case was weak following discovery.

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<sup>33</sup> *Ibid*, at 1092-1100.

<sup>34</sup> See: BAKER, *supra* note 2, at 22-42; Baker, *Reconsidering the Harvard Medical Practice Study Conclusions About The Validity of Medical Malpractice Claims*, *supra* note 26, at 502-6.

<sup>35</sup> See, for example, David M. Studdert et al., *Claims, Errors and Compensation Payments in Medical Malpractice Litigation*, 354 *NEW ENG. J. MED.* 2024 (2006); Frank A. Sloan & Chee Ruey Hsieh, *Injury, Liability, and the Decision to File a Medical Malpractice Claim*, 29 *L. & SOC. REV.* 413 (1995). Studdert et al. found that the system was accurate, namely, reached the outcome of no payment in a groundless case and payment in a negligence case (only?) about 73% of the time.

<sup>36</sup> See: Hyman & Silver, *supra* note 2, at 1100-4.

Hyman and Silver<sup>37</sup> presented further empirical studies that found, contrary to popular opinion,<sup>38</sup> that only victims with small claims are sometimes modestly overpaid. In most cases victims are under-compensated and the rate of under-payment is positively correlated with the severity of the injury, so that the worst injuries end with the smallest portion of payment to the plaintiff of his full losses. Furthermore, it takes a long time for the victims to receive this (under)payment.<sup>39</sup>

Another striking datum is that medical malpractice defendants win between 73% and 81% of the time, while torts defendants win approximately 48% of the time.<sup>40</sup> Hyman and Silver also show that jury awards tend to be reduced mainly in post-verdict settlements, a phenomenon they call *post-verdict “haircuts”*.<sup>41</sup>

As for liability insurance premiums, Baker<sup>42</sup> explained that liability insurance premiums go through *underwriting cycles*, correlated with many factors, such as the general

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<sup>37</sup> *Ibid*, at 1104-6.

<sup>38</sup> Baker dubbed this phenomenon of popular misconceptions regarding medical malpractice *The Medical Malpractice Myth*. See: BAKER, *supra* note 2, at 1-42.

<sup>39</sup> For example, Heise found that the average duration of malpractice jury trials was 38.4 months, more than jury civil trials with only 30.2 months. See: Michael Heise, *Justice Delayed? An Empirical Analysis of Civil Case Disposition Time*, 50 CASE W. RES. L. REV. 813, 834 (2000).

<sup>40</sup> See: Hyman & Silver, *supra* note 2, at 1107-8.

<sup>41</sup> *Ibid*, at 1008. For Hyman and Silver's further research into the *post-verdict “haircuts”* phenomenon, see: David A. Hyman, Bernard Black, Charles Silver & William M. Sage, *Do Defendants Pay What Juries Award?: Post-Verdict Haircuts in Texas Medical Malpractice Cases, 1988-2003*, J. EMPIRICAL LEGAL STUD. (forthcoming 2007). For further discussion of the *post-verdict “haircuts”* phenomenon, see *infra* Section IVD.

<sup>42</sup> See: BAKER, *supra* note 2, at 43-67; Baker, *Reconsidering the Harvard Medical Practice Study Conclusions about the Validity of Medical Malpractice Claims*, *supra* note 26, at 396-422. See also: Hyman & Silver, *Medical Malpractice Litigation and Tort Reform: It's the Incentives, Stupid*, *ibid*, at 1111.

underwriting cycle, changes in the healthcare industry and changes in the securities markets, but not dramatic changes in medical malpractice claim payments.

Based on those empirical findings, Hyman and Silver<sup>43</sup> claimed that the medical malpractice system gives the plaintiffs' attorneys incentives to develop reputations for choosing good cases and winning in court. In this sense, the plaintiffs' attorneys act as gatekeepers. Hyman and Silver claimed that insurers would rarely compensate patients before litigation becomes protracted, due to high rates of under-claiming and case dropping.

Hyman and Silver<sup>44</sup> also argue that medical malpractice defendants win trials so often thanks to their strategic behavior. In regular torts, the Priest and Klein hypothesis<sup>45</sup> predicts equal odds for both parties. This is because plaintiffs and defendants go to trial in close cases, such that are likely to diverge. If they both estimate the same chances for plaintiffs and defendants winning the case they will be equally right or wrong. According to Hyman and Silver, it is possible that in medical malpractice cases the insured sometimes rejects settlement, first offered to her by the insurer, using her insurance policy veto power; this, in order to avoid the reputation, reporting and insurance consequences of the settlement.<sup>46</sup> Since no settlement offer is forthcoming, the plaintiffs' attorneys tend to go more often to trial, even though the odds favor the defendant.

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<sup>43</sup> See: Hyman & Silver, *supra* note 2, at 1111-23.

<sup>44</sup> *Ibid*, at 1125-27.

<sup>45</sup> See: George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1 (1984).

<sup>46</sup> Hyman and Silver describe Gross and Syverud's findings that "in most medical malpractice cases where trials occurred, defendants (or their insurers) *made no settlement offers at all*". Hyman & Silver, *supra* note 2, at 1123.

#### **D. Litigation and Settlement – A Theoretical Review**

The literature on litigation and settlement presents several models representing the players' strategies regarding the decisions to sue, negotiate and compromise. Bebchuk showed<sup>47</sup> why a defendant would agree to pay any positive settlement amount to a plaintiff with an NEV lawsuit. In Bebchuk's model, litigation costs are spread over a period of time and bargaining can take place in different stages of the procedure. At the last stage, only a small fraction of the litigation costs remains to be incurred, and therefore, the plaintiff's threat to continue the trial to pursue a remedy higher than costs becomes credible. At this stage, the defendant is facing a PEV lawsuit and would therefore agree to a settlement with payment. However, if the plaintiff has a credible threat at the last stage of trial, and has had a credible threat to proceed through all previous stages, the defendant is expected to offer him a settlement already at the first litigation stage.

Other explanations of litigation and settlement phenomena in NEV suits rely on asymmetric information models.<sup>48</sup> Klement<sup>49</sup> suggested that when the defendant holds private information regarding her liability, the plaintiff's threat to sue may lose credibility.

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<sup>47</sup> See: Lucian A. Bebchuk, *A New Theory Concerning the Credibility and Success of Threats to Sue*, 45 J. LEGAL STUD. 1 (1996). Bebchuk defined a NEV suit as "one in which the plaintiff would obtain a negative expected return from pursuing his suit all the way to trial, that is, one in which the plaintiff's expected litigation costs would exceed the expected judgment". *Ibid*, at 1.

<sup>48</sup> For models attributing NEV suits' successes to asymmetric information problems, see: Lucian A. Bebchuk, *Suing Solely To Extract a Settlement Offer*, 17 J. LEGAL STUD. 437 (1988); Avery Katz, *The Effect of Frivolous Lawsuits on the Settlement of Litigation*, 10 INT'L REV. L. & ECON. 3, 4 (1990); Alon Klement, *Threats to Sue and Cost Divisibility under Asymmetric Information*, 23 INT'L REV. L. & ECON. 261 (2003). For other explanations, see, for example, David Rosenberg & Steven Shavell, *A Model in which Suits are Brought for their Nuisance Value*, 5 INT'L REV. L. & ECON. 3 (1985).

<sup>49</sup> See: Klement, *ibid*.

This is due to the fact that the defendant has a better strategy: to reject the plaintiff's settlement offers and signal that her expected liability as estimated by the better informed party is low. Therefore, plaintiffs have to update their beliefs regarding the probability of settlement, and in turn, their threat to sue is weakened.<sup>50</sup>

In an analysis of nuisance suits Rosenberg and Shavell<sup>51</sup> suggested that the solution to the plaintiff's incentive to file a nuisance suit is to give defendants the option to have courts declare that settlement agreements will not be enforced. Rosenberg and Kozel<sup>52</sup> proposed mandatory summary judgment as a solution to the nuisance suit problem.<sup>53</sup>

The literature offers different approaches to settlements and confidential settlements in civil procedure.<sup>54</sup> Perhaps the most famous is the Fiss's<sup>55</sup> "against settlement" approach,

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<sup>50</sup> Another approach to modeling information problems was used by Grundfest & Huang, who employed a real options model to show that every NEV suit can become credible if the variance of the information to be disclosed during the litigation is sufficiently high. See: Joseph A. Grundfest & Peter H. Huang, *The Unexpected Value of Litigation*, 58 STANFORD L. REV. 1267 (2006).

<sup>51</sup> See: David Rosenberg & Steven Shavell, *A Solution to the Problem of Nuisance Suits: The Option to Have the Court Bar Settlement* (Working Paper, 2004), available at <http://ssrn.com/abstract=623285>. Rosenberg & Shavell defined a nuisance suit as "a legal action in which the plaintiff's case is sufficiently weak that he would be unwilling to pursue it to trial", *Ibid*, at 1. In this type of suit, by filing a claim, even a plaintiff with a weak case places the defendant in a position where he would lose by default judgment unless he spent on defense. Hence, the defendant should be willing to pay a positive amount in settlement even to avoid those costs. The basic model analyzing this problem was presented in Rosenberg & Shavell, *supra* note 47, *ibid*.

<sup>52</sup> See: David Rosenberg & Randy J. Kozel, *Solving the Nuisance-Value Settlement Problem: Mandatory Summary Judgment* (Working Paper, 2004), available at <http://ssrn.com/abstract=485242>. The suggested rule provides a precommitment device that renders a party's threat to invoke summary judgment credible.

<sup>53</sup> For a related discussion see: Alon Klement & Zvika Neeman, *Against Compromise: A Mechanism Design Approach*, 21 J. OF L., ECON. & ORG. 285 (2005).

<sup>54</sup> For a summary of those approaches see: Moss, *supra* note 1, at 2-4; Lothes, *supra* note 1, at 435-40.

which laid the groundwork for future approaches by denying dispute resolution as the court's only proper role. Fiss claimed<sup>56</sup> “that settlement as a generic practice... should be treated... as a highly problematic technique for streamlining dockets.... Like plea bargaining, settlement is a capitulation to the conditions of mass society and should be neither encouraged nor praised”. Followers turned to different ways. Several focus on the bad effects of settlement confidentiality in specific fields as a justification for banning secret settlement agreements. Society is the loser since the parties sell the social interest in order to win more awards for the plaintiff and confidentiality for the defendants.<sup>57</sup> Others argue that settlement confidentiality plays a crucial role in efficient litigation: it increases the advantage of litigation to both parties and helps the plaintiffs receive the verdict awards in a timely manner; it causes more good than harm by increasing the defendants’ willingness to pay in order to save litigation and reputation losses and therefore, a ban on secret agreements might block settlements; a ban might also increase the number of meritless suits; in sum, a ban might increase litigation costs.<sup>58</sup>

Recently, Lothes<sup>59</sup> used two economic frameworks to find ambiguous results regarding settlement confidentiality. First, an open settlement with “qualitative” signals,

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<sup>55</sup> See: Owen M. Fiss, *Against Settlement*, 93 YALE L. J. 1073 (1973).

<sup>56</sup> *Ibid*, at 1075.

<sup>57</sup> See, for example, Laurie Kratky Doré, *Settlement, Secrecy, and Judicial Discretion: South Carolina's New Rules Governing the Sealing of Settlements*, 55 S.C. L. REV. 791 (2004); Richard A. Zitrin, *The Laudable South Carolina Court Rules Must be Broadened*, 55 S.C. L. Rev. 883 (2004).

<sup>58</sup> See, for example, POSNER, *supra* note 4, at 563-609; Arthur R. Miller, *Confidentiality, Protective Orders, and Public Access to the Courts*, 105 HARV. L. REV. 427 (1991); Richard A. Epstein, *The Disclosure Dilemma: Why a Ban on Secret Legal Settlements Does More Harm Than Good*, THE BOSTON GLOBE, Nov. 3<sup>rd</sup>, 2002, at D1; David Luban, *Settlements and the Erosion of the Public Realm*, 83 Geo. L. J. 2619 (1995).

<sup>59</sup> See: Lothes, *supra* note 54, *ibid*.

namely such that provide information about the adverse event, may encourage injured plaintiffs to obtain rightful compensation and efficiently deter wrongdoers. Second, an open settlement with “quantitative” signals, namely such that provide information about the settlement amount may encourage frivolous suits. Therefore, sunshine regimes tailored to specific areas where the public interest is especially great would most likely be most efficient. Lothes also examined the example of medical malpractice<sup>60</sup> and concluded that a brief description of the claim could be efficient in providing more qualitative information to a future plaintiff than the current law does, and also that medical malpractice is a complicated case in which further parameters should be considered.

More Recently, Moss<sup>61</sup> claimed that banning settlement confidentiality is expected to have ambiguous effects. *First*, it discourages post-filing settlements while encouraging pre-filing settlements. *Second*, the change in settlement timing might change litigation costs. *Third*, the ban’s effects would vary between high- and low-value cases – but it is difficult to predict which type would be affected more. *Forth*, more settlement disclosure could induce more lawsuits, both good and bad, but by decreasing litigation uncertainty, it also could discourage frivolous litigation and help the parties settle their own cases. *Fifth*, more settlement disclosure could have positive effects beyond the litigation context, in employment and product markets, by helping employees, consumers, and investors.

We claim that SDRs have many benefits. Moreover, and contrary to the current literature which focuses on banning settlement confidentiality, one of our key arguments is that with liability insurance, which is socially desirable in itself, and incomplete information, the outcomes of litigation in cases previously predicted by the literature as ambiguous are in favor of SDRs.

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<sup>60</sup> *Ibid*, at 463-74.

<sup>61</sup> See: Moss, *supra* note 54, *ibid*.

## Chapter II: Background

### A. Medical Malpractice Information Reforms

Significant federal reform targeted information about the quality of medical treatment and its oversight. It began with the Health Care Quality Improvement Act of 1986 (hereafter: HCQIA).<sup>62</sup> This act grants limited immunity to participants in the process of investigating accident events undertaken in hospitals, or "peer review". It also requires HMOs and insurers to disclose information<sup>63</sup> to the National Practitioner Data Bank (hereafter: NPDB) created for this purpose, and to state licensing boards, on any payment resulting from any written claim or judgment regarding medical malpractice. Furthermore, the act requires hospitals to report to the boards about any steps taken to limit doctors' medical authorities or privileges in the context of disciplinary procedures, and to receive information from the NPDB about disciplinary actions taken against doctors whenever their membership in the medical staff is being reviewed, and also once biannually. Importantly, the information stored in the NPDB may be reviewed by the doctor and hospital in question, but is inaccessible to the public, except when required by state law. However, only few state laws requiring medical malpractice settlements to be published.<sup>64</sup>

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<sup>62</sup> 42 U.S.C. § 11101. For background and description of HCQIA, see, for example, Notes, *The Legal Ramifications Under the Health Care Quality Improvement Act of Physicians Labeled Disruptive for Advocating Patient Quality of Care Issues*, 24 J.L. & COM. 281 (2006).

<sup>63</sup> 42 U.S.C. § 11131-37. According to § 11131(b) the information includes: "(1) the name of the physician..., (2) the amount of the payment, (3) the name (if known) of any hospital with which the physician... is affiliated or associated, (4) a description of the acts or omissions and injuries or illnesses upon which the action or claim was based, and (5) such other information as the Secretary determines is required for appropriate interpretation of information reported..."

<sup>64</sup> See, for example, the New Jersey Health Care Consumer Information Act, N.J. Stat. ANN. §45:9-22.22

## B. The Liability Insurance Market Structure

According to the United States General Accounting Office (GAO), many, but not all private healthcare service providers buy professional liability insurance.<sup>65</sup> Apparently, in the medical liability area, self-insurance is usually an unsuitable alternative, even for large HMOs<sup>66</sup>, though some do opt for it. Although commercial insurers are also active in the medical liability insurance market, 60% of them are either owned or managed by doctors.<sup>67</sup> The non-commercial organizations include independent or statutory collateral sources. The collateral source rules differ from state to state, but in one common arrangement, a state fund is created for surplus compensation of patients who've suffered from negligent medical treatment; in order to participate in this arrangement, HMOs are required to buy medical insurance policies and to pay the fund an annual premium.

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(2004). For a review of state laws requiring medical malpractice settlements to be published (mainly requirements regarding the disclosure of the settlement amount or indications for its rate), see Lothes, *supra* note 1, at 464-74.

<sup>65</sup> United States General Accounting Office, *Report to Congressional Requesters: Medical Malpractice - Implications of Rising Premiums on Access to Health Care*, GAO-03-836 8-9, 25-26 (2003) available at <http://www.gao.gov/new.items/d03836.pdf>.

<sup>66</sup> See: Eric Nordman, Davin Cermak & Kenneth Medaniel, *Medical Malpractice Insurance Report: A Study of Market Conditions and Potential Solutions to the Recent Crisis* 9-10 (National Association of Insurance Commissioners, 2004) available at [http://www.naic.org/documents/topics\\_Med\\_Mal\\_Rpt\\_Final.pdf](http://www.naic.org/documents/topics_Med_Mal_Rpt_Final.pdf).

<sup>67</sup> See: United States General Accounting Office, *Medical Malpractice Insurance: Multiple Factors Have Contributed to Increased Premium Rates*, GAO-03-702 at 6 (2003), available at <http://www.gao.gov/new.items/d03702.pdf>.

### **Chapter III: The Effects of Medical Reputation and the Need for Settlement Disclosure Rules (SDRs)**

#### **A. The Incomplete Information Model in the Healthcare Market and the Roles of Doctors' and HMOs' Reputation and of the Law**

In our *first model*, the healthcare market suffers from incomplete information problems leading to its partial collapse. One of the market's main problems is that the doctor's actions are hidden and the patient is unable to tell, even after the fact, whether the doctor has acted optimally or provided substandard treatment. The result is a *moral hazard* problem,<sup>68</sup> created "where one party to a transaction [in our case – the doctor] may undertake certain action that (a) affects the other party's [the patient's] valuation of the transaction but that (b) the second party cannot monitor/enforce perfectly".<sup>69</sup>

The fact that the doctor has professional reputation which might suffer as a consequence of inappropriate medical actions is insufficient to resolve the problem, since if the doctor's selection of a certain level of investment in the treatment constitutes a *hidden action* in game-theoretic parlance, the doctor's reputation would not suffer as a result of

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<sup>68</sup> Not every *hidden action* problem is a *moral hazard* problem, and vice versa. For a theoretical illustration of a hidden action problem leading to a moral hazard problem, see DAVID M. KREPS, A COURSE IN MICROECONOMIC THEORY 577-624 (1990); ERIC RASMUSEN, GAMES AND INFORMATION: AN INTRODUCTION TO GAME THEORY 161–210 (3<sup>rd</sup> ed., 2001); and IAN MOLHO, THE ECONOMICS OF INFORMATION: LYING AND CHEATING IN MARKETS AND ORGANIZATIONS 60-184 (1997).

<sup>69</sup> See: KREPS, *ibid*, at 577. For similar definitions of moral hazard, see: ROBERT S. PINDYCK & DANIEL L. RUBINFELD, MICROECONOMICS 606 (5th ed., 2001) ("In general, moral hazard occurs when a party whose actions are unobserved affects the probability or magnitude of a payment"); ROGER B. MYERSON, GAME THEORY – ANALYSIS OF CONFLICT 263 (1991) ("The need to give players an incentive to implement recommended actions can be called moral hazard").

malpractice.

Another incomplete information problem created in the model is *adverse selection*,<sup>70</sup> which arises “where one party to a transaction [in our case – the doctor] knows things pertaining to the transaction that are relevant but unknown to the second party [the patient]”.<sup>71</sup> The problem occurs since the patient is unable to assess his practitioner's level of professional skills. Having no objective means of assessing their doctors, the patients' ability to choose among doctors cannot take all relevant data into account. This causes a partial collapse of the doctors' incentive to keep optimally up-to-date, as they pay the full cost of professional up-to-datedness while gaining only part of the return on this investment, since the market cannot appreciate its full value.

HMOs may contract with the doctor as an employee – the common practice in hospitals – or hire her services as an independent contractor – as in MCOs.<sup>72</sup> One of the

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<sup>70</sup> For a game theoretic discussion of the adverse selection problem and for the distinction between moral hazard and adverse selection, see: KREPS, *ibid*, at 577-78, 625-60; RASMUSEN, *supra* note 68, at 211-39; MOLHO, *supra* note 68, at 17-59.

<sup>71</sup> See: KREPS, *ibid*, at 57. For similar definitions of adverse selection, see: PINDYCK & RUBINFELD, *supra* note 69, at 598 (“Adverse selection arises when products of different qualities are sold at a single price because buyers or sellers are not sufficiently informed to determine the true quality at the time of purchase”); and MYERSON, *supra* note 69, *ibid* (“The need to give players an incentive to report information honestly can be called adverse selection”).

<sup>72</sup> According the prevailing law in the United States, MCOs are usually not held tortuously liable. The MCOs' common contracts include a mechanism called *utilization review*, according to which the MCO is authorized not to approve the type of treatment selected by the doctor if it is deemed “experimental” or not “medically necessary and appropriate”. For more details about MCOs' market structure, operation and regulation, see: Arlen & MacLeod, *supra* note 13, at 1940-61; Arlen & MacLeod, *supra* note 19, at 497-503; Arlen, *supra* note 19, *ibid*; Sage, *Managed Care's Crime: Medical Necessity, Therapeutic Benefit, and the Goals of Administrative Process in Health Insurance*, *supra* note 26, *ibid*; David M. Studdert, William M. Sage, Carole R.

advantages of organizations in the healthcare market, including hospitals and MCOs, is that, compared to the general public, they have better tools for overseeing the doctors. HMOs also have incomplete information about the quality of actual treatment, based on their doctors' professional reports. Nevertheless, given a certain investment on their part, they are capable of gathering additional information about their doctors, both regarding their investment in professional expertise and regarding actual treatments. The problem is that even their level of oversight suffers from incomplete information problems. The patient cannot assess the degree of oversight applied by the medical organization. In addition, the organizations' activity in the healthcare market creates severe informational problems as well, since they also take many decisions affecting the patients' welfare, while unable to assess their actions. For example, the patient cannot tell whether the medical organization has invested optimally in medical gear, and whether it made the optimal decision – from his point of view – in approving or disapproving the practitioner's medical treatment recommendations.

HMO reputation is an insufficient solution for the market's partial information problems because they are barely exposed to the risk of *ex post facto* investigation by the patient – hence the imposition of legal liability on doctors and HMOs. The law poses a threat to the doctors' and HMOs' reputation, and by providing the market with the lacking information, the law and the courts could resolve its inherent incomplete information problems. The law operates in two ways. *First*, it deters service providers from opting for suboptimal actions by increasing their cost. *Second*, it can formulate a *convention*<sup>73</sup> regarding the strategy undertaken by the HMO. Such a convention may prove to be a significant contribution (which may even constitute a sufficient condition) for preferring the game play

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Gresenz & Deborah R. Hensler, *Expanding Managed Care Liability: What Impact on Employment-based Health Coverage?*, 18 HEALTH AFFAIRS 7 (November 1999).

<sup>73</sup> See: KREPS, *supra* note 68, at 410-13, 449-51. See also: H. Peyton Young, *The Economics of Convention*, 10 J. ECON. PERSP. 105, 107 (1996).

leading to desirable equilibrium. In practice, the HMO uses this legal convention to convince the patients that it would indeed undertake the optimal actions and thus ensures a real price for quality medical services, as well as the socially desirable result. Thanks to a well-operating legislation, the doctor is awarded for an optimal level of investment in treatment and professional skills, while the organizations are able to charge the full price for optimal healthcare, including optimal oversight on the doctors.

## **B. The Effect of Doctor and HMO Reputation on Medical Malpractice Litigation and on Efforts to Mitigate the Incomplete Information Problems in the Healthcare Market**

### *1. Framework of Analysis for the Litigation Stages*

In our *second model*, in the absence of a medical malpractice liability market, defendants should pay plaintiffs out of their own pocket. The doctor mainly seeks to maximize the value of her reputation – which reflects her long-term income potential – plus the value of her short-term net income. Therefore, whenever a doctor is sued, she will take into consideration the lawsuit's impact on the two main components of her welfare – reputation and net income.

The existence of risk to doctors' and HMOs' reputation may affect medical malpractice litigation in some important ways. *First*, it is expected to increase deterrence in the healthcare market. As explained above, the doctors' and HMOs' reputation, together with medical liability laws, act to resolve the markets' inherent incomplete information problems. However, in our opinion, over-deterrence is not likely,<sup>74</sup> among other things, since only a small portion of the patients who'd experienced medical malpractice have sued for damages.<sup>75</sup> *Second*, since defendants are afraid of suffering huge losses due to possible loss of reputation, they are more willing to compromise and pay the plaintiff in order to avoid a

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<sup>74</sup> For more explanations why over-deterrence is not, see *infra*.

<sup>75</sup> See *supra* note 13 and the accompanying text.

trial that might compromise their reputations, and therefore their long-term income.

Following Bebchuk,<sup>76</sup> we demonstrate incomplete information problems in the period following the medical accident and litigation by assuming that each accident is defined by the plaintiff's likelihood of winning a damages ruling. We also assume that there are four types of victims:  $n_1$  victims with frivolous claims who represent patients that suffer from damages caused by the natural risk of medical treatment although it was optimal with negligible probability of winning a damages,  $p_1=0$ ;  $n_2$  victims with weak claims representing victims of non-negligent medical accidents, with low probability of winning damages,  $0 < p_2 \ll \frac{1}{2}$ ;  $n_3$  victims with ambiguous claims representing victims of negligent medical accidents without clear evidence with a fifty-fifty chance of winning,  $p_3 \cong \frac{1}{2}$ ; and  $n_4$  victims with strong claims and a  $\frac{1}{2} < p_4 < 1$  probability of winning. Let  $N$  be the total number of victims:  $N = n_1 + n_2 + n_3 + n_4$ .

We also assume that when an accident occurs, nature plays and provides victims with costless information regarding their type. Suppose that a short time after the accident  $m_1$  victims do not have any hard evidence that can establish a lawsuit, even a weak one, including all the victims with frivolous claims and part of the other victims ( $n_1 < m_1$ );  $m_2$  victims have enough information to establish a weak claim, including part of the victims with a weak claim and part of the others;  $m_3$  victims have enough information to establish an ambiguous claim, including part of the victims with an ambiguous claim and part of those with a strong one; and  $m_4$  victims have enough information to establish a strong claim, including only part of the victims from the last group ( $m_4 < n_4$ ). We first suppose that specialist attorneys have similar and accurate estimates of the ratio of each true type of victims and the distribution of information to victims regarding their type once an accident occurs. For simplicity's sake, we

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<sup>76</sup> See: Lucian A. Bebchuk *Litigation and Settlement under Imperfect Information* 15 RAND J. OF ECO. 404 (1984)

first assume that each case has the same probability of being identified after the accident as its true type or as a lower one. For example, victims with ambiguous claims have a probability of  $\frac{1}{3}$  to appear after the accident as having an ambiguous, weak or frivolous claim.

After the medical accident, at time  $t=0$ , the victim has very little information on the probability for the trial to end with any damage ruling against the defendants. However, the victim can hire the services of a reputable attorney, bear the costs of gathering, verifying and assessing the information required to file a lawsuit in the amount of  $C_{P0}$ , and find out what type of plaintiff appears to be at this litigation stage – meaning  $m_1$ ,  $m_2$ ,  $m_3$  or  $m_4$  – and amount of money  $D$  can the court be expected to impose on the defendants.<sup>77</sup> We assume that plaintiffs' and defendants' costs prior to filing a lawsuit are negligible. We also assume that in all litigation stages, the defendants have equal or superior information about the plaintiff.

Suppose that trials have two main stages, the revealing stage that starts at time  $t=1$  when the suit is filed and ends at the beginning of the hearing stage, that starts at  $t=2$  when the court assembles to hear evidence and ends at  $t=3$  or adjudication. We assume that until the end of the revealing stage, the parties will learn the true nature of the plaintiff's case, meaning  $n_1$ ,  $n_2$ ,  $n_3$  or  $n_4$ , with costs, and will also share the same expectation regarding the amount of money  $D$  that the court would impose on the defendants. When the trial reaches the end of the revealing stage, the total litigation costs will be:  $C = C_{P0} + C_{P1} + C_{D0} + C_{D1} \cong C_{P1} + C_{D1}$ ; and if the parties proceed all the way to judgment, litigation costs will total  $C = C_{P0} + C_{P1} + C_{P2} + C_{D0} + C_{D1} + C_{D2} \cong C_{P1} + C_{P2} + C_{D1} + C_{D2}$ .

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<sup>77</sup> Suppose that  $D$  is uniformly distributed and that therefore, the plaintiff's attorney would be able to tell his client that damages are expected to vary between a minimum amount  $D_{MIN1}$  and a maximum amount  $D_{MAX1}$ . After the revealing stage, the parties will have more information and therefore the attorneys will be able to tell their clients that damages are expected to vary between a minimum amount  $D_{MIN2}$  and a maximum amount  $D_{MAX2}$ , where  $D_{MIN1} < D_{MIN2}$  and  $D_{MAX2} < D_{MAX1}$ . For a refinement of this definition of  $D$ , considering the expected actual payments to the plaintiff rather than the expected verdict awards, see *infra* at Section IVD.

The parties have four opportunities to negotiate: at the end of pre-filing period, just before the lawsuit is filed; at the beginning and end of the revealing stage; and at the beginning of the hearing stage. During their negotiation at the beginning of each stage each party incurs some portion of its litigation costs of that stage. For example, if the defendants choose not to invest in gathering, verifying and assessing the relevant information at the pre-filing stage, a lawsuit is be filed and the parties choose to negotiate at the beginning of the revealing stage, then the plaintiff and the defendants will incur costs at the negotiation stage in the amount  $C_{P1BN}=A*C_{P1}$ , such that  $0<A<1$  and  $C_{D1BN}=A*C_{P1}$ , respectively. However, if the parties negotiate at the end of either the pre-filing or the revealing stages, the costs incurred will be as if that stage had ended (without any costs savings or further negotiation costs). Assume that after a lawsuit is being filed, the trial can end in only three ways: a settlement, a request made by the plaintiff's attorney to drop the case or a judgment.

The way reputation influences the outcomes of medical malpractice litigation compared to litigation without any risk to defendant reputation depends on the remaining risk to defendant reputation in each case. The doctor's and HMO's reputations, as aggregated up to the moment when the patient decides to adopt a certain strategy, is the probability as assessed by the patient, or according to his belief, that the doctor or HMO would undertake the appropriate medical action. If the patient is forced to decide whether or not to use the same HMO services, he will take into consideration the private information he has, including information and assessments derived from the accident he had suffered. However, when estimating the doctor's and HMO's reputations, the patient facing the decision whether or not to file a lawsuit takes into account the harm already caused to the doctor's and HMO's public reputations, not including the effect of his own private information. This harm was due to media exposure of his case which he is usually aware of. The patient uses his private information and his attorney's expertise when trying to estimate the possibility of further revelations in trial and the remaining risk to the defendants' public reputation. These private

information and estimate of the remaining risk to defendant reputation will serve the patient in the negotiation with the defendants.

We assume that when an accident occurs the parties have partial information on the risk to the defendants' public reputation. If the trial will go all its way to judgment, the defendants will suffer from damage to their reputation in the amount  $\Delta R = \Delta R_0 + \Delta R_1 + \Delta R_2$ .

## 2. A Plaintiff with a Pre-Filing Strong Case

First, we examine the situation where a plaintiff hires an attorney and finds that he has a strong case and a pure positive expected value (PEV) lawsuit, or  $p_4D > C_{P1} + C_{P2}$ .

PROPOSITION 1. The parties will negotiate at the end of the pre-filing period and settle in the first round of bargaining, and the expected settlement amount would be

$$X_1 = p_4D + \frac{1}{2}(C_{D1} + C_{D2} - C_{P1} - C_{P2}) + \frac{1}{2}(\Delta R_1 + \Delta R_2). \quad (1)$$

*Proof.* Using backward induction to obtain a sequential bargaining equilibrium,<sup>78</sup> let's look at the last stage of trial. At the beginning of this stage, the parties have to decide whether to negotiate, drop the case or proceed to judgment. Following Bebchuk and Chang<sup>79</sup> we use backward induction, as in the sequential bargaining model analyzed by Rubinstein,<sup>80</sup> in every negotiation of each litigation stage.<sup>81</sup> In every negotiation there are  $n$  rounds of

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<sup>78</sup> For the backward induction method as a technique for resolving non-cooperative games of complete and incomplete information and for the concept of sequential equilibrium, see: KREPS, *supra* note 68, at 399-501, 551-573; DREW FUDENBERG & JEAN TIROLE, *GAME THEORY* 337-50, 359-60 (1996); RASMUSEN, *supra* note 68, at 110, 295-339.

<sup>79</sup> See: Lucian A. Bebchuk & Howard F. Chang *The Effect of Offer-of-Settlement Rules on the Terms of Settlement* 28 J. OF LEG. STUD. 489 (1999).

<sup>80</sup> See: Ariel Rubinstein, *Perfect Equilibrium in a Bargaining Model*, 50 *ECONOMETRICA* 97 (1982). For a presentation of Rubinstein's model and its variations see: KREPS, *ibid*, at 551-73; RASMUSEN, *ibid*, at 295-339.

<sup>81</sup> This is different from the Bebchuk & Chang model where the litigation process is composed of  $n$  rounds

offers and answers accepting or rejecting them. The party making the offer in the last round  $n$  would offer the other party a settlement amount that transfers to the offerer all the savings of not proceeding to judgment, and the offeree would accept it. For example, if the plaintiff makes the offer in round  $n$  he would request the amount  $p_4D + (1-A)C_{D2} + \Delta R_2$  and the defendants would accept. However, if the defendants make the offer in round  $n$  they would offer to settle for the amount  $p_4D - (1-A)C_{P2}$ , which is the amount the plaintiff can win by proceeding to judgment, and the plaintiff would accept the offer. Since the likelihood of each party making the offer in round  $n$  is equal, the expected value of settlement in round  $n$  is given by  $p_4D + \frac{1}{2}(1-A)(C_{D2}-C_{P2}) + \frac{1}{2}\Delta R_2$ .

By the same reasoning, if the plaintiff makes the offer in round  $n-1$ , he would offer the defendants to take for himself all the savings from not proceeding to round  $n$  and would therefore request the amount  $[p_4D + \frac{1}{2}(1-A)(C_{D2}-C_{P2}) + \frac{1}{2}\Delta R_2] + aC_{D2}$ , and the defendants would accept. However, if the defendants make the offer in round  $n-1$  they would offer to settle for the amount  $[p_4D + \frac{1}{2}(1-A)(C_{D2}-C_{P2}) + \frac{1}{2}\Delta R_2] - aC_{P2}$ , which is the amount the plaintiff can get from proceeding to round  $n$ , and the plaintiff would accept. Since the likelihood of each party making the offer in round  $n-1$  is equal, the expected value of settlement in round  $n-1$  is  $p_4D + \frac{1}{2}(1 - \frac{n-1}{n}A)(C_{D2}-C_{P2}) + \frac{1}{2}\Delta R_2$ . Using the same reasoning for each previous round of negotiation, we can see that the parties will settle in the first round of negotiation and that the expected settlement amount would be<sup>82</sup>

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of alternating offers. See: Bebchuk & Chang, *supra* note 79, *ibid*.

<sup>82</sup> As Bebchuk & Chang noted, the outcome of each negotiation is the same as under the Nash bargaining solution for cooperative games where the parties divide the surplus saved by accepting a settlement agreement. See: Bebchuk & Chang, *ibid*, at 496, footnote 15 and the accompanying text. In our model's terms, it is possible to see each possible negotiation as an outcome of a separate non-cooperative decision of each party to cooperate over a limited period of time, for example, to cooperate at the end of pre-filing period during the first round of

$$X_4 = p_4D + \frac{1}{2} (1-a)(C_{D2}-C_{P2}) + \frac{1}{2} \Delta R_2. \quad (2)$$

Continuing the reasoning of backward induction, if the parties face the negotiation opportunity at the end of the revealing stage and a settlement is expected at the beginning of the last stage, they will choose to negotiate and settle in the first round of bargaining, and the expected settlement amount would be

$$X_3 = p_4D + \frac{1}{2} (C_{D2}-C_{P2}) + \frac{1}{2} \Delta R_2. \quad (3)$$

Conversely, if the parties face the negotiation opportunity at the beginning of the revealing stage and a settlement is expected at its end, they will choose to negotiate and settle in the first round of bargaining, and the expected settlement amount would be

$$X_2 = p_4D + \frac{1}{2} (C_{D2}-C_{P2}) + \frac{1}{2} \Delta R_2 + \frac{1}{2} (1-a)(C_{D1}-C_{P1}) + \frac{1}{2} \Delta R_1. \quad (4)$$

Therefore, the parties will negotiate at the end of the pre-filing period and settle in the first round of bargaining, and the expected settlement amount would be that noted above in Equation (1). *QED.*

### 3. A Plaintiff with a Pre-Filing Ambiguous or Weak Claim

Consider the situation where a plaintiff hires an attorney and finds out that he appears to have a pre-filing ambiguous or weak case and a PEV lawsuit, meaning  $p_3D > C_{P1}+C_{P2}$  or  $p_2D > C_{P1}+C_{P2}$ , respectively. The parties' attorneys can use their common knowledge regarding the distribution of evidence to victims at the pre-filing stage to calculate the expected likelihood  $q_1$  of winning a damage ruling given the initial group the plaintiff belongs to at the pre-filing stage.

PROPOSITION 2. The parties to a pre-filing ambiguous or weak case will negotiate at the end of pre-filing period and settle in the first round of bargaining, and the expected settlement amount would be

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negotiation.

$$X_1 = q_1 D + \frac{1}{2} (C_{D1} + C_{D2} - C_{P1} - C_{P2}) + \frac{1}{2} (\Delta R_1 + \Delta R_2), \quad (5)$$

such that for the pre-filing ambiguous case,  $q_1 = (\frac{1}{3} n_3 p_3 + \frac{1}{4} n_4 p_4) / (\frac{1}{3} n_3 + \frac{1}{4} n_4)$  and for the pre-filing weak case,  $q_1 = (\frac{1}{2} n_2 p_2 + \frac{1}{3} n_3 p_3 + \frac{1}{4} n_4 p_4) / (\frac{1}{2} n_2 + \frac{1}{3} n_3 + \frac{1}{4} n_4)$ ; and in addition, the pre-filing frivolous cases would not be filed or settled before trial.

*Proof.* We use the same backward induction technique to obtain a sequential bargaining equilibrium of incomplete information. Consider the pre-filing ambiguous case. If eventually it would be revealed that the plaintiff has a strong case, then a settlement is expected at the end of the revealing stage and the expected settlement amount would be that noted above in Equation (3),  $X_3 = p_4 D + \frac{1}{2} (C_{D2} - C_{P2}) + \frac{1}{2} \Delta R_2$ . If, however, the parties know at the end of the revealing stage that he has a true ambiguous case, using the same reasoning we can conclude that a settlement is expected and the expected settlement amount would be  $X_3 = p_3 D + \frac{1}{2} (C_{D2} - C_{P2}) + \frac{1}{2} \Delta R_2$ .

Continuing this reasoning, at the beginning of the revealing stage the parties know that a settlement is expected at its end. Given that in the pre-filing ambiguous case group, a quarter of the cases are strong while a third are truly ambiguous, the expected settlement amount would be

$$X_3 = (\frac{1}{3} n_3 p_3 + \frac{1}{4} n_4 p_4) / (\frac{1}{3} n_3 + \frac{1}{4} n_4) D + \frac{1}{2} (C_{D2} - C_{P2}) + \frac{1}{2} \Delta R_2. \quad (6)$$

Continuing the same reasoning described in Section 2, regarding a plaintiff with a pre-filing strong case, the parties will negotiate at the end of the pre-filing period and settle in the first round of bargaining, and the expected settlement amount would be that noted in Equation (5). The same reasoning is valid for the pre-filing weak case, with the required changes in probability calculations. *QED.*

Notably, we have analyzed the pure PEV cases while many others are left out. In the pure PEV scenarios described here, as we move from strong cases to pre-filing ambiguous cases and from the latter to weak cases, a higher expected damages award is required in order

to enable a case to be pure PEV and be settled. Next, we examine those cases which are not pure PEV cases.

#### 4. A Plaintiff with a NEV (Negative Expected Value) Claim

Consider the situation where a plaintiff hires an attorney and finds out that his expected damages are not high enough, so that he has a NEV lawsuit. This means that if he has a strong case, then  $p_4D < C_{P1}+C_{P2}$ , that if he has a pre-filing ambiguous case, then  $p_3D < C_{P1}+C_{P2}$  and that if he has a pre-filing weak case then  $p_2D < C_{P1}+C_{P2}$ , or that he has a pre-filing frivolous case which can only be an NEV suit. The analyses of NEV situations below are a generalization of the previous analyses of PEV situations covered in Sections 2 and 3 above. As in the literature described above, the model presented in this article predicts that a NEV suit could also yield settlement awards.

PROPOSITION 3. The parties will negotiate at the end of pre-filing period and settle in the first round of bargaining, and the expected settlement amount would be as in Equations (1) and (5), or:

$$X_1 = q_1D + \frac{1}{2}(C_{D1}+C_{D2}-C_{P1}-C_{P2}) + \frac{1}{2}(\Delta R_1+\Delta R_2), \quad (7)$$

if and only if the following conditions apply:

$$q_1D - (1-A)C_{P2} > 0; \quad (8)$$

$$X_4 = q_1D + \frac{1}{2}(1-a)(C_{D2}-C_{P2}) + \frac{1}{2}\Delta R_2 > 0; \quad (9)$$

$$X_3 - (1-A)C_{P1} = q_1D + \frac{1}{2}(C_{D2}-C_{P2}) + \frac{1}{2}\Delta R_2 - (1-A)C_{P1} > 0; \quad (10)$$

$$X_2 = q_1D + \frac{1}{2}(C_{D2}-C_{P2}) + \frac{1}{2}(1-a)(C_{D1}-C_{P1}) + \frac{1}{2}(\Delta R_1+\Delta R_2) > 0; \text{ and} \quad (11)$$

$$X_1 > 0, \quad (12)$$

such that:

3.1 In the strong cases,  $q_1 = p_1$ ;

3.2 In the pre-filing ambiguous cases,  $q_1 = (\frac{1}{3}n_3p_3 + \frac{1}{4}n_4p_4) / (\frac{1}{3}n_3 + \frac{1}{4}n_4)$ ;

3.3 In the pre-filing weak cases,  $q_1 = (\frac{1}{2} n_2 p_2 + \frac{1}{3} n_3 p_3 + \frac{1}{4} n_4 p_4) / (\frac{1}{2} n_2 + \frac{1}{3} n_3 + \frac{1}{4} n_4)$ ;

and

3.4 In the pre-filing frivolous cases,  $q_1 = (\frac{1}{2} n_2 p_2 + \frac{1}{3} n_3 p_3 + \frac{1}{4} n_4 p_4) / (n_1 + \frac{1}{2} n_2 + \frac{1}{3} n_3 + \frac{1}{4} n_4)$ .

*Proof.* This proof follows the literature on NEV suits and for the strong NEV cases.

In particular, it follows Bebchuk's incomplete information model.<sup>83</sup> We first prove this proposition regarding the strong NEV cases, which belong to the last group. Proposition 1's reasoning is valid also for the NEV cases except that the NEV suits could be settled if and only if the plaintiff is expected to have a credible threat at the last stage of trial, and has had a credible threat to proceed through all previous stages, meaning that the expected awards at the end of each stage should be higher than its expected costs. In our model, where we have four possible negotiation periods, each with a large number of equal small costs' stages and two periods of relatively high costs, the conditions for a NEV suit to have a credible threat by the plaintiff to continue the trial are as follows: (i)  $q_1 D - (1-A)C_{p2} > 0$ ; (ii)  $X_4 > 0$ ; (iii)  $X_3 > 0$ ; (iv)  $X_3 - (1-A)C_{p1} > 0$ ; (v)  $X_2 > 0$ ; and (vi)  $X_1 > 0$ . Those are Equations (8)-(12), respectively, with the exception that condition (iii) is never binding and has therefore been deleted. This proves Proposition 3 for the strong NEV cases.

The same reasoning obtains in proving Proposition 3 for the pre-filing ambiguous, weak and frivolous cases. In those situations, Proposition 2 specifies the expected settlement amount with an extension to the frivolous cases. This, if and only if conditions (i)-(vi) are met, which means that the possible binding conditions are (i), (ii), (iv), (v) or (vi). *QED.*

Note that those results predict that HMOs' and doctors' reputations matter in terms of increasing the settlements amount, as shown in Equation (7). However, expected changes in reputation during the pre-filing period are sunk costs for any litigation's decision and will not

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<sup>83</sup> See: Bebchuk, *supra* note 47, *ibid.*

affect the settlement amount. Expected changes in reputation could also cause NEV cases to create a credible threat to sue and therefore lead to more litigations and settlements, as shown in Equations (9)-(12).

*Example 1.* Those model outcomes could be illustrated as follows. To emphasize the role of reputation, suppose that the parties' costs at the different trial stages are symmetric. In this case, only conditions (i) or (iv) can be binding (Equations (8) and (10), respectively, which require in this case that  $q_1D - (1-A)C_{P2} > 0$  and  $q_1D + \frac{1}{2} \Delta R_2 - (1-A)C_{P1} > 0$ ). The calculation demonstrating the power of the plaintiff's threat to sue and proceed through the revealing stage depends on the value of the defendants' expected changes in reputation at the last stage of trial rather than changes at the first stage. If those expected changes become higher then they will be willing to pay more and therefore it is more likely that the plaintiff would proceed through that stage. So is the case when the plaintiff costs that cannot be saved at the revealing stage become higher. Nevertheless, even if the defendant's attorney knows for sure that the plaintiff would proceed through the revealing stage he is not sure that the plaintiff is willing to proceed to judgment. If the costs of the hearing stage that cannot be saved are high enough then, disregarding the expected loss of reputation which is a sunk cost at this time, the plaintiff would proceed if and only if his costs that cannot be saved are expected to be lower than the expected judgment. However, if the defendant's attorney knows for sure that the plaintiff is willing to proceed through all the trial stages, he would offer a settlement that would save his clients half of the expected damages to their reputations that can be materialized through trial.

##### 5. Who Would File a Lawsuit?

In all the situations summarized in Proposition 3, when sufficient conditions for bringing a PEV or an NEV suit to court are met, the parties will negotiate at the end of pre-filing period and settle in the first round of bargaining, and the expected settlement amount would be as in

Equation (7). This is also the case where incomplete information is being presented. However, following the literature described above incomplete information could explain a failure of negotiation. Suppose the parties' attorneys could still reach a very good observation and evaluation regarding the current evidence, the expected damages award and the probability of winning a damage ruling given the true type of claim they are facing. Conversely, suppose they could not tell the real ratios of each true type of victims in the group that the case currently belongs to, as a consequence of the distribution of information to victims regarding their type once an accident occurred. For example, the parties' attorneys do not have common knowledge what the probabilities for victims with true ambiguous claims to appear after the accident as having an ambiguous, weak or frivolous claim are. They can only have their own private estimations regarding the real ratios of each true type of victims in the group that he currently belongs to which are not known to their rivals.

PROPOSITION 4. Proposition 3 holds for the PEV and NEV strong cases, even where the parties do not have any knowledge regarding the distribution of information to victims at the pre-filing period.

*Proof.* This proof is similar to the proof of Proposition 3 since for the PEV and NEV strong cases it is not based on any knowledge regarding the distribution of information to victims at the pre-filing period. *QED.*

PROPOSITION 5. In situations where the parties to a pre-filing ambiguous, weak or frivolous case have private estimates, rather than common knowledge, of the distribution of information to victims at the pre-filing period, they will negotiate at the end of the revealing stage and settle in the first round of bargaining, and the expected settlement amount would be

$$X_3 = p_i D + \frac{1}{2} (C_{D2} - C_{P2}) + \frac{1}{2} \Delta R_2, \quad (13)$$

if and only if the following conditions are met:

$$q_{P1} D - (1-A)C_{P2} > 0; \quad (14)$$

$$X_4 = q_{P1} D + \frac{1}{2} (1-a)(C_{D2} - C_{P2}) + \frac{1}{2} \Delta R_2 > 0; \text{ and,} \quad (15)$$

$$X_3 - (1-A)C_{P1} = q_{P1}D + \frac{1}{2} (C_{D2}-C_{P2}) + \frac{1}{2} \Delta R_2 - (1-A)C_{P1} > 0, \quad (16)$$

such that  $q_{P1}$  is the private estimate by the plaintiff's attorney of the expected likelihood  $q_1$  of winning a damage ruling, given the group the plaintiff has belonged to at the pre-filing stage; and in addition, if in situations of a pre-filing frivolous case it is discovered at the revealing stage to be truly frivolous then the plaintiff will drop the case.

*Proof.* We can use the reasoning of the proof for Proposition 2, based on backward induction for incomplete information situations, to show that if the parties to a pure PEV case reach the end of the revealing stage, they will settle in the first round of bargaining and the expected settlement amount would be as in Equation (13). However, we cannot continue this reasoning backward to any previous stages since at those stages a successful bargaining cannot be accomplished. This will occur since at the negotiation's rounds before the filing of the suit and immediately after the parties do not have the same estimates of the likelihood  $q_1$  winning a damage ruling given the initial group the plaintiff belong to at pre-filing stage. Importantly, since it is expected that the true type of the case would be exposed at the revealing stage they both know that ever since they will have the same accurate estimates regarding the probabilities that the plaintiff would win damages award. Hence, if the plaintiff's and defendants' attorneys know that a settlement will not be reached before the last part of the revealing stage, the plaintiff's attorney would use his beliefs to determine whether investing the costs of filing a suit and performing the revealing assignments are worth the expected settlement.

In situations where the parties to a pre-filing ambiguous, weak or frivolous PEV case have incomplete information regarding the distribution of information to victims at the pre-filing period, if the plaintiff's attorney believes the parties are facing a pure PEV suit, meaning  $q_{P1}D > C_{P1}+C_{P2}$ , then the plaintiff's attorney has a credible treat of filing a suit and pursuing it through all trial stages, which he has to partially realize in order to win a settlement at the beginning of the revealing stage.

However, the parties to the PEV case cannot *ex ante* calculate the expected outcomes of the hypothetical bargaining at the end of the revealing stage since they do not know the likelihood for the plaintiff to be revealed as any true type. Therefore, the bargaining at the last part of pre-filing period is expected to fail and becomes redundant. The plaintiff's attorney would do better off filing a suit, finding out the true nature of his client's case and settling at the last part of the revealing stage.

Following the reasoning of Proposition 3, it is possible to generalize those outcomes to situations of NEV pre-filing ambiguous, weak or frivolous cases: the principle determined in this reasoning, that NEV suits could be settled if and only if the plaintiff is expected to have a credible threat at the last stage of trial, and has a credible threat to proceed through all previous stages, still holds. However, the conditions for NEV suits to have a plaintiff's credible threat to continue the trial are as follows: (i)  $q_1 D - (1-A)C_{P2} > 0$  (Equation 14); (ii)  $X_4 > 0$  (Equation 15); (iii)  $X_3 > 0$  (which is never binding); and (iv)  $X_3 - (1-A)C_{P1} > 0$  (Equation 16).

Importantly, not all cases that satisfy those conditions would be settled at the revealing stage. In situation of pre-filing frivolous cases, if after the disclosure procedures the case is exposed as a frivolous one, the plaintiff's attorney would have to drop it, regardless of its previous definition as an NEV which meets the required conditions or as a PEV suit. *QED*.

Note that the results of Propositions 4 and 5 regarding situations where the parties have private estimates of the distribution of information to victims at the pre-filing period – rather than those of Proposition 3 regarding situations of common knowledge – also demonstrate the important effect of HMOs' and doctors' reputation on the settlements amounts as shown in Equation (13). Similarly, expected changes in reputation during the pre-filing period are sunk costs for any litigation's decision.

*Example 2.* Likewise, expected changes of reputation could cause NEV cases to pose a credible threat to sue and therefore lead to more litigations and settlements, as shown in

Equations (15) and (16), and, likewise, explaining the parties' behavior by assuming once again that the parties' costs at the different stages of trial are symmetric still applies.<sup>84</sup>

Moreover, analyzing the explanatory power of the outcomes of Propositions 4 and 5 shows they are *positively and highly correlated* with the abovementioned empirical findings on medical malpractice litigation and settlements.<sup>85</sup> *First*, the model demonstrates that many strong cases, together with others, remain unlitigated and unsettled. This is due to the fact that evidence distribution after the medical accident masks the true nature of a patient's claim being mixed in one group with other type of cases. The case screening performed by skilled attorneys can expose, with reasonable costs, the true nature of evidence at the time of inspection determine whether a given case belongs to a certain pre-filing group of cases, represented in our model by the pre-filing ambiguous, weak or frivolous case groups. Furthermore, only the mechanisms of the revealing stage could expose the true nature of a case. Hence, only cases that meet the conditions of creating a credible threat to file a NEV lawsuit and proceed through all stages of trial until judgment, or being a PEV suit, enable patients to be compensated for the damages they have suffered by medical malpractice.<sup>86</sup>

*Second*, as shown both in the empirical literature and in our model, the likelihood of filing a lawsuit is higher the higher the expected damages awards. The likelihood of filing a lawsuit is also positively correlated with the expected changes in doctors' and HMOs' reputations during the last stage of trial and the costs to the plaintiff that cannot be saved in

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<sup>84</sup> In this case only conditions (i) or (iv) (Equations (14) and (16)) can be binding, which require in this case that  $q_{p1}D-(1-A)C_{p2}>0$  and  $q_{p1}D+\frac{1}{2}\Delta R_2-(1-A)C_{p1}>0$ .

<sup>85</sup> See *supra* Section IC.

<sup>86</sup> Those outcomes are accepted regardless the assumptions defining whether the parties have common knowledge about the distribution of information to victims at the pre-filing period or not, as is shown by the similar outcomes on this subject reflected in Proposition 3 or in Proposition 4 and 5, respectively.

each stage of trial, as illustrated in Examples 1 and 2 to Proposition 3 and 5, respectively, of the parties' symmetric costs during the various trial stages. Importantly, the expected damages awards depend on the harm to the plaintiff caused by the medical treatment and on the expected likelihood ( $q_1$  or  $q_{P1}$ ) of winning a damage ruling given the initial group the plaintiff belong to at pre-filing stage. However, this initial position of cases is sensitive to nature's play of distributing evidences among medical victims. The victims that were hit twice, first by the medical accident and then by accepting poor evidence, are the patients who would most likely not be compensated.

*Third*, the high ratio of unlitigated and unsettled cases is due to two sources. First, cases rejected by the plaintiffs' attorneys for not having met the conditions of filing a NEV suit. Among those are cases that were first classified by the plaintiff's attorneys as pre-filing ambiguous, weak or frivolous cases and are truly of all case types. The likelihood for a case to belong to this group is negatively correlated with the abovementioned parameters that positively affect the likelihood for a claim to be filed or settled before trial. The second source consists of cases where the victim did not hire an attorney. Although we assume that plaintiffs' costs prior to suing are negligible, it may be that very low costs deter many victims from initiating any kind of legal action against their doctors and HMOs. The reasons for that go to the heart of the present discussion. When we modeled the healthcare market mechanism,<sup>87</sup> we demonstrated how incomplete information problems, mainly moral hazard and adverse selection, produce high market operational costs and lead to its partial collapse. Poor oversight over medical professionals' actions in the healthcare market due to incomplete information is reflected in the poor evidence immediately available to the patient after the medical accident. In other words, in most cases the patient does not have a clue that he is a victim of two accidents, medical malpractice and lack of evidence. Hence, even an efficient

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<sup>87</sup> See *supra* Section A1.

screening mechanism of cases involving very low costs to the potential plaintiff does not persuade most patients to hire an attorney. Moreover, in most cases the harm to the patients is relatively low and the damages are temporary or covered by the patient's healthcare insurance.<sup>88</sup> Likewise, it may be that patients do not believe it's a good strategy to quarrel with the doctor or HMO they are more than ever depending upon to continue treating them. Furthermore, patients can be expected to hire an attorney when they feel that a professional has not treated them with kindness and respect, and not to do so when they feel obligated to their doctor.

Since patients apply for legal opinions according to their interests and considerations, many patients with grounded claims do not sue. This is also the case when the patient believes he has low chances of winning. He may be mistaken, but cannot be corrected by an attorney. When he mistakenly hires an attorney due to misvaluation or dislike of the doctor as a person, the skilful attorney would convince him to drop the case. In both circumstances we will have fewer suits.

*Fourth*, the model explains the main settlement phenomena. We have shown that compensations to patients before the end of the disclosure stage are rare and reserved for strong cases. Furthermore, strong cases are sometimes brought to court, together with other types of suits, and cases that are not dropped are usually settled. Those findings could be demonstrated and predicted by Propositions 4 and 5. Importantly, the explanation derived from the model does not depend on strategic behavior by the medical liability insurer, but rather on incomplete information problems. This is as far as the current screening mechanism of plaintiffs' attorneys can reach and consequently, as explained by Proposition 4 and 5, even

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<sup>88</sup> For a discussion of the reasons why do not most patients with claims sue, see: Hyman & Silver, *supra* note 2, at 1113-15. Hyman & Silver argued that medical errors are often hard to spot, most errors inflict harms that are small or temporary and generally covered by health insurance, the litigation is expensive and slow with a low expected value and there are alternatives to litigation like reporting to disciplinary authorities.

a defendant attorney who is not playing strategically in order to defeat NEV suits will find it efficient to offer a settlement only to a pre-filing strong case plaintiff. Furthermore, it is also efficient to wait for a suit to materialize and offer a settlement in cases prove not to be frivolous only after the resolution of incomplete information problems during disclosure.

*Fifth*, the model explains the large number of frivolous cases brought to court and later dropped. It was found that in only approximately fifth of the suits the plaintiff received any payments. Proposition 5 shows that this happens since the incomplete information problems disable the parties' attorneys from calculating *ex ante* the expected outcomes of the hypothetical bargaining at the end of the revealing stage which, in turn, creates a better strategy than settling immediately for a very low sum. The preferred strategy would be to file a suit or wait for a suit to be filed, expose the true nature of the case and settle at the end of the revealing stage. The price of this strategy is that many frivolous cases are exposed and rejected. Notably, the rate of those cases is determined by the abovementioned parameters that pose a credible threat to file a NEV suit and continue to judgment, such as the harm to the plaintiff caused by the medical treatment and the private estimate by the plaintiff's attorney of the expected likelihood ( $q_{p1}$ ) of winning a damage ruling given the group the plaintiff has belonged to at the pre-filing stage, which depends, in turn, on nature's play of distributing evidence among medical victims.

*Sixth*, the model explains one of the most striking empirical findings,<sup>89</sup> that only victims with small claims are sometimes modestly overpaid, and in most cases victims are under-compensated at a rate positively correlated with the severity of the injury. This phenomenon can be explained by the reputation effect as follows:

*Example 3.* Suppose again that the parties' costs at the different stages of trial are symmetric, as in Examples 1 and 2. Furthermore, consider a case where the main damage to

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<sup>89</sup> See *supra* at footnotes 37-39 and the accompanying text.

the defendants' reputation,  $h$ , could be imposed by a court ruling accusing them of negligence with a weak negative effect on reputation compared to the actual damages award accurately predicted by both sides long before. In this case, Propositions 4 and 5 predict that the settlement amount would be

$$X = p_i D + \frac{1}{2} \Delta R_2, \quad (17)$$

and a simple equation that can demonstrate the change in reputation would be

$$\Delta R \cong \Delta R_2 = h + kD, \quad (18)$$

such that  $h$  is the main influence of judgment and  $0 < k < \frac{1}{2}$ . In this case, the expected settlement amount would be

$$X \cong p_i D + \frac{1}{2} (h + kD) = \frac{h}{2} + (p_i + \frac{k}{2}) D. \quad (19)$$

Hence, we observe the phenomenon that only victims with small claims are sometimes overpaid. This happens in every case where  $p_i + \frac{k}{2} < 1$  and no other forces, like asymmetric costs at the different stages of the trial, reduce the settlement amount. This phenomenon is also demonstrated in Figure 1 below.

This case also illustrates the empirical findings that under-compensation to the patients is at a rate positively correlated with the severity of the injury. It derived from Equation (19) where,

$$\frac{X}{D} = p_i + \frac{k}{2} + \frac{h}{2D}. \quad (20)$$

Intuitively, Equation (20) shows that plaintiffs are generally under-compensated at a rate positively correlated with their ability to prove their case. However, this rate is also positively correlated with their ability to receive more from the defendants, not because they are convinced they should be compensated for all their losses, but in order to avoid reputation loss. In small damages' cases the reputation effect can cause the settlement amount to be higher than the actual damages to the patient. As damages increase the reputation effect

causes defendants to increase their settlement offers. However, this increase becomes more and more moderate in comparison to the plaintiff's actual losses.

*Seventh*, the model can explain other striking findings: medical malpractice defendants win between 73% and 81% of the trials. This outcome is in contrast to Priest and Klein's hypothesis which predicts that defendants win approximately half the time, a well-supported hypothesis for other areas of tort litigation.<sup>90</sup> It is possible that this bias of medical malpractice litigation is due to the massive use of the litigation as a screening mechanism in order to create the required conditions for settlements. This mechanism brings to court many suits, including many frivolous ones, that otherwise would not have been filed. While the literature predicts plaintiffs and defendants go to trial in close cases, it is possible that in medical malpractice litigation the same problem of incomplete information that prevented the pre-filing bargaining from ending with a settlement still prevails. If the revealing stage of trial cannot disclose all the necessary facts required for successful bargaining, two other case groups will force suits to trial: ambiguous cases as in Priest and Klein's hypothesis; and all kinds of cases whose true nature has not been exposed at the revealing stage and therefore the parties still have to use the trial, now in its hearing stage, as a screening mechanism. Many of those cases are weak and frivolous, hence the phenomenon of medical malpractice bias in which high rates of defendants win trials.<sup>91</sup>

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<sup>90</sup> For findings on that issue and possible explanations, see *supra* footnote 40, 44-46 and the accompanying text.

<sup>91</sup> Another possible explanation for lawsuits and trials occurring, rather than a pre-filing settlement, is that attorneys, like doctors, can err, negligently or not. While by a plaintiff's attorney in collecting and valuating the existing evidence of the pre-filing period mistakes could be in favor of both sides, only those in favor of the plaintiff will end up with a suit, since they have very good potential of blocking a settlement. On the other hand, mistakes of defendants' attorney in collecting and valuating the existing evidence of the pre-filing period which are in favor of its clients will end up with a suit. If a suit is filed, then the same reasoning for a failure of

### 6. Settlement Disclosure Rules (SDRs) as a Solution for Incomplete Information Problems

The two models presented in this article demonstrate similar incomplete information problems. As argued above, in the healthcare market, the law has the potential of posing a threat to the doctors' and HMOs' reputation, and together, the law and the courts have the tools to provide the market with the lacking information, thus resolving its inherent incomplete information problems. However, the litigation process, a crucial element for the efficient application of the law and reputation as tools designed to solve incomplete information problems in the healthcare market, also operates under the shadow of those problems. As shown above, patients rarely sue their doctors and HMOs, even strong cases sometimes end up with no award, the likelihood of suing is higher the higher the expected award and the risk to defendant reputation, compensations to patients before the end of the disclosure stage are rare and reserved for strong cases, many frivolous cases are brought to court and later dropped, small claims are sometimes modestly overpaid, while victims are usually under-compensated commensurably with the severity of the injury, and, finally, defendants win trials only about fifth of the time; all this, *inter alia*, due to incomplete information problems.

However, if the vast majority of medical care victims do not sue their doctors and

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bargaining will apply to the negotiation at the beginning of the revealing stage and the parties will settle at the end of that stage after having learned the true nature of the case. However, there is a probability that mistakes would not be corrected by the disclosure means of the revealing stage. In this case, the parties will pursue the trial to judgment, and therefore the distribution of cases at the hearing stage of trial is expected to reflect the distribution of evidence by nature after the accident including frivolous, weak, ambiguous and strong cases rather than only ambiguous cases as predicted by the Priest and Klein hypothesis. Note that the mistakes explanation in this footnote can be combined with the incomplete information explanation for the occurrence of lawsuits and trials in the text above. In this mixed explanation suits occur, for example, because of incomplete information as

HMOs only a small fraction of the potential harm due to negligent treatments is being used as an actual risk for professionals of paying for their inappropriate actions. Therefore, deterrence, in the direct sense, cannot be attained. The low damage rewards reinforce this effect. Furthermore, the potential effect of the risk to doctors' and HMOs' reputation is compromised by their ability to minimize it through settlements.

Direct deterrence is not the only means to address the market's partial collapse due to high incomplete information costs. As explained above, the law and the courts have the tools to direct the strategic behavior of the healthcare market participants by providing the market with lacking information, thus resolving its inherent incomplete information problems. However, this mechanism is highly dependant on creating information by the litigation process, which, in turn, is being compromised by settlements. Settlements save the need for judicial inquiry into each defendant's action, for example, the doctor in investing in the treatment in question, or the HMO in purchasing appropriate medical gear. Thus, despite the saving in litigation costs, ending the process without looking into each defendant's action could undermine the negligence mechanism's ability to resolve the market's information problems. Settlements make the discussion of liability redundant, preventing any *ex post* inquiry into doctors' and HMOs' actions. This reduces the amount of information conveyed to the market, compared to that conveyed given full application of the tortuous negligence mechanism.

In a market with severe incomplete information problems causing significant under-deterrence it is crucial to allow the use of available information creation mechanisms in order to direct the behavior of market participants and achieve efficient and just market equilibrium. However, a settlement prohibition is not recommended. Settlements offer many advantages. Furthermore, many advantages of litigation with negligent rule and a settlement prohibition

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demonstrated in Proposition 5. However, trials occur due to attorneys' mistakes as explained in this footnote.

could be as efficiently achieved as in litigation with settlements being allowed and most likely also reached. For example, the expected damages awards motivate patients to invest in searching for and assessing the information they need to file the claim. Moreover, the information they require privately is also part of the information required by the healthcare market to resolve its incomplete information problems. This information is also crucial for settling the case at any civil litigation stage and not only for the purpose of ending the trial at the hearing stage and therefore will be equally created with and without the availability of settlements. This is also true considering the creation of information by defendants before the hearing stage.

On the other hand, not all information required for solving the healthcare market's problems would be created by the parties before the trial. *First*, the parties' pre-filing efforts create private information which is rarely publicized. *Second*, as demonstrated in the litigation model above, the parties may have different information regarding key issues which, more importantly, might remain unshared even after the revealing stage. *Third*, the incomplete information problems are inherent to medical malpractice litigation and might remain so at the end of the revealing stage. Those gaps could be filled by the court. The court has to decide in the matter of negligence and therefore look into the issues also relevant to conveying the information needed by the market; for example, has the doctor acted optimally, including appropriate professional up-to-datedness? Has the HMO acted optimally, as in purchasing the appropriate medical gear? Trial rather than settlement thus ensures that the courts provide the market with invaluable information focused on exposing the hidden actions and qualities of doctors and HMOs. Conversely, settlement dispenses with such investigations, conveying much less and insufficient information to the market.

SDRs represent a tool that would enable us to maintain the advantages of both mechanisms: while litigation costs would still be saved by settlements, required information would be delivered to the healthcare market. Properly designed SDRs would require the

parties to draft *common, public and adequate information*, creating an efficient market oversight mechanism which in turn would solve the market's inherent incomplete information problems. Properly designed SDRs are thus expected to have a huge positive welfare effect at minimum cost.

#### *7. SDRs and the Court's Role as Gatekeeper*

SDRs allow society to make more efficient use of the courts' oversight capability. Without them, the court uses its capabilities as an additional gatekeeper when judgment is delivered and rarely examines key issues' when a settlement is presented. This is a waste of power which SDRs could mobilize as a gate-keeping mechanism. SDRs would allow the court, over the long run, to establish expertise and reputation based on experience in overseeing medical procedures. Importantly, the court represents a unique type of oversight mechanism as it is impartial. Although the court cannot, of course, be said to constitute a completely disinterested player, it is clear that unlike the HMOs – whose role as overseers may be tainted with conflicts of interest stemming from their economic interests – the interests it *does* represent are very much in line with the public interest.

#### *8. SDRs and the Reputation of Doctors and HMOs*

SDRs could have additional, though not particularly dramatic implications for the litigation process. Under SDRs, doctors' and HMOs' reputations are exposed to the risk of settlement which currently acts as an "escape route" from judgment's negative effect. When the parties reach a settlement agreement which meets the SDRs the court will approve it and information will flow to the healthcare market, threatening, in turn, doctors' and HMOs' reputations. Should those negative outcomes from the latter's point of view appear imminent, the parties would be willing to trade those costs in. However, the parties cannot trade in such costs

during trial stages other than the pre-filing period. Therefore, in cases where the parties cannot reach a pre-filing agreement due to incomplete information, the reputational costs of a settlement cannot be saved, reducing the settlement amount.

PROPOSITION 6. Under SDRs Propositions 3, 4 and 5 hold except that  $\Delta R_2 = \Delta J_2 - Z$ , such that  $\Delta J_2$  is defined as the expected decrease in doctors' and HMO's' reputation at the hearing stage, previously denoted by  $\Delta R_2$ , and  $Z$  is the expected decrease to their reputation as a consequence of a settlement.

*Proof.* Using the same reasoning of Propositions 3, 4 and 5 we obtain the same outcomes except that when we use backward induction, if the plaintiff makes the offer in round  $n$  at the beginning of the hearing stage, he would request the amount  $p_4D + (1-A)C_{D2} + \Delta J_2 - Z$  rather than  $p_4D + (1-A)C_{D2} + \Delta J_2$ . The plaintiff making the offer in the last round  $n$  under SDRs would offer the defendants an amount that transfers to him all the savings created by not proceeding to judgment, as before. However, he must take into consideration the costs of the alternative he offers, which are, in this case, the expected decrease in defendant reputation  $Z$ , and the defendants will accept the offer. Again, since the likelihood for each party to make the offer in round  $n$  is equal, the expected value of settlement in round  $n$  is  $X_4 = q_1D + \frac{1}{2}(1-A)(C_{D2}-C_{P2}) + \frac{1}{2}(\Delta J_2 - Z) = q_1D + \frac{1}{2}(1-A)(C_{D2}-C_{P2}) + \frac{1}{2}\Delta R_2$ . From this point on, all statements and equations apply as in the proofs to Propositions 3, 4 and 5. *QED.*

Comparing the outcomes of Propositions 4, for the strong pre-filing cases and 5 for the other cases where the parties have private estimates of the distribution of information to victims at the pre-filing period, to the outcomes of Proposition 6 for the same situations under SDRs, yields some interesting results. The outcomes of the litigation model presented above would be changed to some extent by the SDRs, creating more information in order to achieve efficient and just equilibrium in the healthcare market. This comes with a price however, as shown in the example below.

*Example 4.* Suppose again that the parties' costs at the different stages of trial are symmetric, as in Examples 1 and 2, and that the expected reputation changes, not including the expected decrease in reputations as a consequence of a settlement, are  $\Delta J \cong \Delta J_2 = h+kD$ , as in Example 3.<sup>92</sup> Furthermore, assume that the expected decrease in reputations as a consequence of a settlement is  $Z = \alpha\Delta J_2$ , such that  $0 < \alpha < 1$ . This reflects an assumption that settlement reputation effects under SDRs are similar to those of judgment, although weaker. In this case, Proposition 6 predicts that: (i) the parties to a pre-filing strong case will negotiate at the end of the pre-filing period and settle in the first round of bargaining; (2) the parties to a pre-filing ambiguous, weak or frivolous case will negotiate at the end of the revealing stage and settle in the first round of bargaining – and in all cases the expected settlement amount would be

$$X \cong p_i D + \frac{1}{2} (\Delta J_2 - Z) = p_i D + \frac{1}{2} (1-\alpha)(h+kD) = (1-\alpha)\frac{h}{2} + (p_i + (1-\alpha)\frac{k}{2})D, \quad (21)$$

if and only if the following conditions are met:

$$q_{P1}D - (1-A)C_{P2} > 0; \quad (22)$$

$$q_{P1}D + \frac{1}{2} (1-\alpha)(h+kD) - (1-A)C_{P1} > 0; \quad (23)$$

such that in the pre-filing strong cases,  $q_{P1} = p_1$  and in the other cases,  $q_{P1}$  is the private estimate by the plaintiff's attorney of the expected likelihood  $q_1$  of winning a damage ruling given the initial group the plaintiff belongs to at the pre-filing stage; and in addition, if in situations of a pre-filing frivolous case it is found out at the revealing stage that it is truly frivolous, the plaintiff will drop the case.

The outcomes of Example 4 of applying SDRs in the symmetric cost case, compared to the situation where the parties can settle without interference, are summarized in Table 1 below.

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<sup>92</sup> As in Example 3 above,  $h$  is the main influence caused by the judgment and  $0 < k < \frac{1}{2}$ .

	PEV cases with and without SDRs			NEV cases with and without SDRs		
	Stage of Settlement	No. of suits and settlements	Expected settlement amount	Stage of Settlement	No. of suits and settlements	Expected settlement amount
<b>Pre-filing strong cases</b>	No change: Settlement will be reached before trial	No change	Will be slightly reduced	No change: If they meet NEV conditions, will be reached before trial	If $C_{P2} > C_{P1}$ – no change; Otherwise – might be slightly reduced	Will be slightly reduced
<b>Pre-filing ambiguous or weak cases</b>	No change: Settlement will be reached at the revealing stage	No change	Will be slightly reduced	No change:- If they meet NEV conditions, will be reached at the revealing stage	If $C_{P2} > C_{P1}$ – no change; Otherwise – might be slightly reduced	Will be slightly reduced
<b>Pre-filing frivolous cases</b>	No change as these cannot be PEV suits	No change as these cannot be PEV suits	No change as these cannot be PEV suits	No change: If they are truly strong, ambiguous or weak cases, will be reached at the revealing stage; otherwise – dropped	If $C_{P2} > C_{P1}$ – no change; Otherwise – might be slightly reduced (including less suits and dropped truly frivolous cases)	If they are truly strong, ambiguous or weak cases, will be slightly reduced

*Table 1*

**Litigation Outcomes with and without SDRs**

This last example demonstrates that SDRs are expected to somewhat raise the entrance barriers to an NEV suit to pose a credible threat and likewise reduce the expected settlement amount. This last outcome can also be seen in Figure 1, demonstrating the phenomenon that only victims with small claims are sometimes overpaid, in every case where  $p_i + \frac{k}{2} < 1$ .<sup>93</sup>

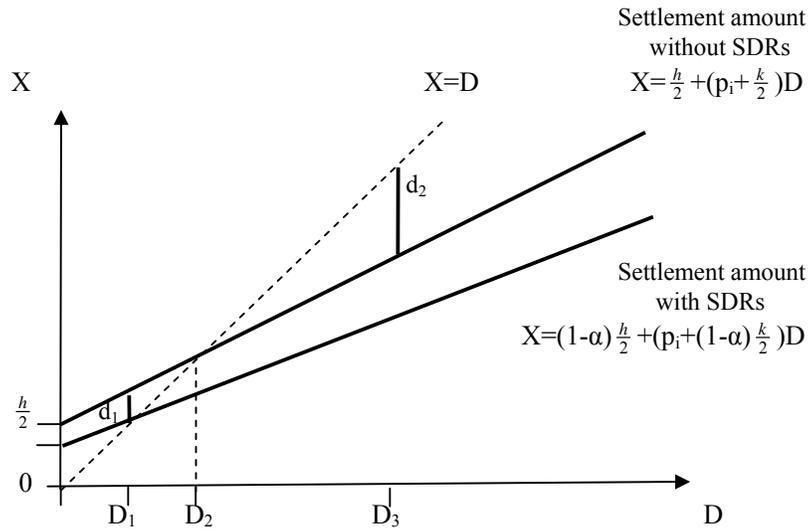


Figure 1

**Under- and over-compensation to medical malpractice plaintiffs without and with SDRs**

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<sup>93</sup> For further discussion and for an explanation of the creation of the phenomenon that only victims with small claims are sometimes overpaid, also in cases where  $1 < p_i + \frac{k}{2}$ , see Figure 2 *infra* at Section IVB(2) and the text below.

## Chapter IV: The Liability Insurer's Roles and the Need for Settlement

### Disclosure Rules (SDRs)

#### A. SDRs and the Liability Insurer's Roles in the Healthcare Market

##### 1. Does Liability Insurance Increase Social Welfare?

Liability insurers play important roles in the healthcare market:<sup>94</sup> budgetary planning; risk distribution management, including litigation management; and gate-keeping, including the development and maintenance of risk-management mechanisms.<sup>95</sup> This section deals with the second role, *litigation management*, and in the third role of *gate-keeping*. As explained above, the literature discusses both positive and negative potential effects of liability insurance.<sup>96</sup>

In the first model presented here, liability insurance has both positive and negative impact. Liability insurers serve as gatekeepers, directing their insured's behavior, reducing the risk for medical errors and, in turn, promoting social welfare. Moreover, the reduction in risk positively affects the performance of the insurers' roles of promoting budgetary planning and providing risk distribution management. On the other hand, when the optimal level of care cannot be overseen by the insurer, the liability insurance market suffers a moral hazard problem. It is therefore expected that the mechanisms of directing the insured's behavior and of damage distribution are compromised. In turn, those outcomes might negatively affect the

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<sup>94</sup> For references and a summary of the insurer's roles see *supra* notes 4-7 and the accompanying text.

<sup>95</sup> For a definition of *risk-management mechanism*, see *supra* note 7, *ibid*. For a discussion of the structure and operation of risk-management mechanisms, see, e.g., AMERICAN SOCIETY FOR HEALTHCARE RISK MANAGEMENT (ASHRM), *RISK MANAGEMENT HANDBOOK FOR HEALTHCARE ORGANIZATIONS* (4<sup>th</sup> ed. by Roberta Carroll, 2003); HEALTH FACILITIES RISK MANAGEMENT: FORMS, CHECKLISTS & GUIDELINES (J. Gullede & S. Beard, eds., 2003).

<sup>96</sup> See *supra* Section IA.

performance of the insurers' roles of promoting budgetary planning and providing risk distribution management.

Which prevail: the positive influences of risk-management mechanisms or the negative ones of weakening deterrence?

## *2. SDRs as a Solution for Incomplete Information Problems*

We claim that SDRs would reinforce the positive effects of the gate-keeping role of liability insurers and mitigate their negative ones. Properly designed SDRs would create a new form of mechanism that would oblige the liability insurer and HMO to be involved in specific, ongoing lawsuits to further investigate evidence regarding the adverse event in question and evaluate own their influence. This is profoundly different than the current system. *First*, the SDR mechanism involves the plaintiff as a public representative and the court as supervisor in investigating the adverse event and formulating medical treatment guidelines. The current system does not take the public interest into consideration in the process of medical treatment rulemaking derived from the findings in litigations which end in a settlement. The SDRs' intervention at this trial stage is crucial since the defendants' interest in the confidentiality of settlement terms prevails and pushes aside their interest in risk management. This confidentiality is a commodity that the plaintiff can sell to the defendants for a price, so that his interest in promoting future appropriate medical treatment is likely to be sold to the defendants. At present, the court's interest in independently overseeing the defendants' event analysis and treatment guideline formulation is negligible. The plaintiff's and court's supervision would not only direct the defendants to complete the investigation of the adverse event according to public standards but would also encourage them to perform an accurate assessment using the services of those medical experts hired to support their case.

*Second*, the current system manufactures judgments which accumulate in a public database, enabling healthcare market participants to learn and adjust theirs beliefs and actions

to the knowledge and standards it contains. However, the most cases brought to court are not stored in the public database. The SDR mechanism would add the information hidden in those cases lost to the public database, enriching it considerably and creating a much more accurate system allowing doctors and HMO's to reach better conclusions and ensuring much improved oversight over their actions in the healthcare market.

*Third*, SDRs can be modified to provide the healthcare market with *adequate information*, namely that required to optimally solve its inherent incomplete information problems considering the costs of the mechanism they create. SDRs could include criteria for information disclosure and therefore control both sides of the equation – efficient information supply at minimum cost.

In other words, SDRs are a powerful risk-management mechanism which could dramatically increase the positive social welfare effects of liability insurers. The liability insurers' current role as gatekeepers, collaborating with insured HMOs in developing a risk-management mechanism, would thus be much improved by SDRs.

Moreover, since the efficiency of directing the behavior of healthcare professionals and of damage distribution through liability insurance depends on the insurer's ability to assess the optimal level of care required of potential injurers, SDRs – creating much more information required for insurers to supervise their insureds' actions – are expected to mitigate the negative effects of liability insurance. While liability insurance offers positive influences as a risk-management mechanism and negative ones of weakening deterrence, SDRs would reinforce the positive effects and mitigate the negative. Hence, considering the incomplete information problems of the healthcare market, SDRs are expected to increase social welfare.

Notably, since liability insurers and HMOs are already maintaining risk-management mechanisms and have economic incentives to develop them further, the costs of their operation at the bargaining phase are expected to be low. Furthermore, they could be structured cost-effectively, for example, by using the parties' own medical experts to

formulate the requisite medical guidelines.

## **B. SDRs and the Liability Insurer's Roles in the Litigation Stages**

### *1. How Liability Insurers Affect Litigation Outcomes?*

As risk distribution managers, including litigation management, liability insurers affect litigation outcomes. Similarly to HMOs, liability insurers seek to maximize the value of their reputation plus income in the form of liability insurance premiums, minus the cost of their operation. In their medical practice litigation decisions, however, they do not care much about HMOs' and doctors' reputation. In a market with liability insurance, the HMOs' and doctors' reputation is expected to have only weak effects on litigation outcomes, as opposed to a market without it. Weak effects are still to be expected, though, for several reasons. *First*, since liability insurers also act as gatekeepers there could be low, albeit positive correlation between the liability insurer's and doctors' and HMOs' reputation. *Second*, despite the small number of large liability insurers in the market and the forbiddingly high costs of replacing an insurer, the insurers can still take the insured's reputations into account in the negotiation over policy renewal and as a tool for building a long-term relationship. *Third*, the market convention is for the insurance contract to grant the insured by veto power on settlements. Although rarely used, this could cause insurers to take their clients' considerations into some account.

Suppose now that contrary to the previous discussion on litigation without liability insurance,<sup>97</sup> an insurance liability market does exist. Also assume that the relevant expected changes in defendant reputations during the different stages of trial without SDRs remain  $\Delta R_1$  and  $\Delta R_2$ . However, when the liability insurer acts in every trial stage it takes into account only a small portion of the expected changes in the defendants' reputations. This means that

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<sup>97</sup> See *supra* Chapter III.

liability insurance without SDRs would influence litigation outcomes in the same way SDRs without liability insurance do.

PROPOSITION 7. Without SDRs, when the defendants have liability insurance, Propositions 3, 4 and 5 hold, except that  $\Delta R_i = \beta \Delta J_i$ , such that  $\Delta J_i$  is defined as the expected decrease in doctors' and HMO's' reputation at the litigation's stages and  $0 < \beta < \frac{1}{2}$ .

*Proof.* The proof is the same as the proof of Proposition 6, except that the reduction in defendant reputations relevant to decision making in every litigation stage is  $\Delta R_i = \beta \Delta J_i$ .

*QED.*

Hence, liability insurers replacing doctors and HMOs in managing litigation, just as SDRs without liability insurance,<sup>98</sup> change its outcomes by exposing doctors' and HMOs' reputations to the risk of settlement and partially blocking their reputations' pressure to find an "escape route" from judgment's negative affects. Therefore, the liability insurer will act as though it has less to lose compared to the doctors and HMOs. This will not cause any changes in the number of filed, settled or dropped PEV suits. Pre-filing strong cases will continue to be settled before filing, and due to incomplete information problems, all other PEV cases will be filed to court. At the revealing stage, cases exposed as a strong, ambiguous or weak will be settled or dropped. This segmentation depends on incomplete information problems rather than on doctors' and HMOs' reputation and would therefore not be changed by the existence of liability insurance.

On the other hand, the number of NEV cases settled before trial or filing is a function of the plaintiff's ability to pose a credible threat to continue each stage of trial, which depends on the expected remaining risk to the defendants' reputation. Since liability insurers take only a small portion of that risk into consideration, it will cause weak threats to be defeated and therefore might slightly decrease the number of pre-filing strong cases that will settled before

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<sup>98</sup> For a summary of those outcomes of SDRs without liability, see Table 1, *supra* Section IIIB(8).

trial and of other cases that will be filed. However, this effect would not occur if the dominant costs for the plaintiff are the hearing stage costs, since if he can meet these last costs and yet pose a credible threat he will indubitably be able to meet the revealing stage costs. Notably, in all PEV and NEV cases the settlement amount is slightly reduced due to the weakened reputation effect.<sup>99</sup>

## 2. *The Need for SDRs in Markets with Liability Insurance*

The liability insurer increases the efficiency of healthcare market risk distribution management, including litigation management. In performing this last task, liability insurance affects litigation outcomes mainly by significantly reducing the weight of the risk to doctors' and HMOs' reputation, leading to a slightly reduced settlement amount, among other things. However, no changes in the number of pre-filing settlement are expected, except, in some circumstances, a minor decrease in the number of the weakest NEV cases dropped by plaintiffs without a suit.

In a liability insurance environment, SDRs are expected to increase the liability insurance effects on litigation outcomes. However, since insurance has already significantly reduced the weight of doctors' and HMOs' reputation in litigation decisions, leading in turn to minor changes in litigation outcomes, it is expected that further SDRs effects would cause only a small decrease in the remaining risk to reputations that is taken into account and, in turn, insignificant further changes in litigation' outcomes.

PROPOSITION 8. With SDRs, when the defendants have liability insurance, Propositions 3, 4 and 5 hold, except that  $\Delta R_1 = \beta \Delta J_1$  and  $\Delta R_2 = \beta(\Delta J_2 - Z)$ , such that  $\Delta J_i$  is the

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<sup>99</sup> The schematic outcomes of Example 4 of applying SDRs in the symmetric costs case as set forth in Table 1 are also relevant to the case of applying liability insurance without SDRs. See Table 1, *supra* Section

expected decrease in doctors' and HMO's' reputation at the litigation stages,  $0 < \beta < \frac{1}{2}$  and  $Z$  is the expected decrease to their reputation as a consequence of reaching a settlement.

*Proof.* The proof is the same as the proof to Proposition 6, except that the reduction in defendant reputations relevant to the decision making is  $\Delta R_1 = \beta \Delta J_1$  and  $\Delta R_2 = \beta(\Delta J_2 - Z)$ .

*QED.*

Comparing the outcomes of Propositions 4 for the strong pre-filing cases, and 5 for the other cases where the parties have private estimates of the distribution of information to victims at the pre-filing period, with those of Proposition 7 regarding the same situations *with* liability insurance and also with those of Proposition 8 regarding the same situations *with* liability insurance *and* SDRs shows that the litigation model outcomes – showing slight changes due to the introduction of liability insurance – will be likewise changed due to the existence of SDRs, albeit insignificantly. This means that creating more information by SDRs in order to achieve efficient and just equilibrium in the healthcare market comes almost with no price, as illustrated in the example below.

*Example 5.* Suppose again that the parties' costs at the different trial stages are symmetric, as in Example 4. Proposition 8 predicts that with liability insurance and SDRs: (1) the parties to a pre-filing strong case will negotiate at the end of the pre-filing period and will settle in the first round of bargaining; and (2) the parties to a pre-filing ambiguous, weak or frivolous case will negotiate at the end of the revealing stage and settle in the first round of bargaining. In all cases, the expected settlement amount would be

$$X \cong p_i D + \frac{1}{2} \beta (\Delta J_2 - Z) = p_i D + \frac{1}{2} \beta (1 - \alpha)(h + kD) = (1 - \alpha) \beta \frac{h}{2} + (p_i + (1 - \alpha) \beta \frac{k}{2}) D, \quad (24)$$

if and only if the following conditions are met:

$$q_{P1} D - (1 - \alpha) C_{P2} > 0; \quad (25)$$

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IIIB(8). For a demonstration of the phenomenon that only victims with small claims are sometimes overpaid and for further discussion, see Figure 2, *infra* Section IVB(2) and the text below.

$$q_{P1}D + \frac{1}{2} (1-\alpha)\beta(h+kD) - (1-A)C_{P1} > 0; \quad (26)$$

such that in the pre-filing strong cases  $q_{P1} = p_1$ , and in the others  $q_{P1}$  is the private estimate by the plaintiff's attorney of the expected likelihood  $q_1$  of winning a damage ruling given the initial group the plaintiff belonged to at the pre-filing stage; and in addition, if in situations of a pre-filing frivolous case it is found out to be truly frivolous at the revealing stage, the plaintiff will drop it.

The outcomes of applying SDRs in the symmetric costs in Example 5, compared with the case of where the parties can settle without interference, both in an environment with liability insurance, are summarized in Table 2 below.

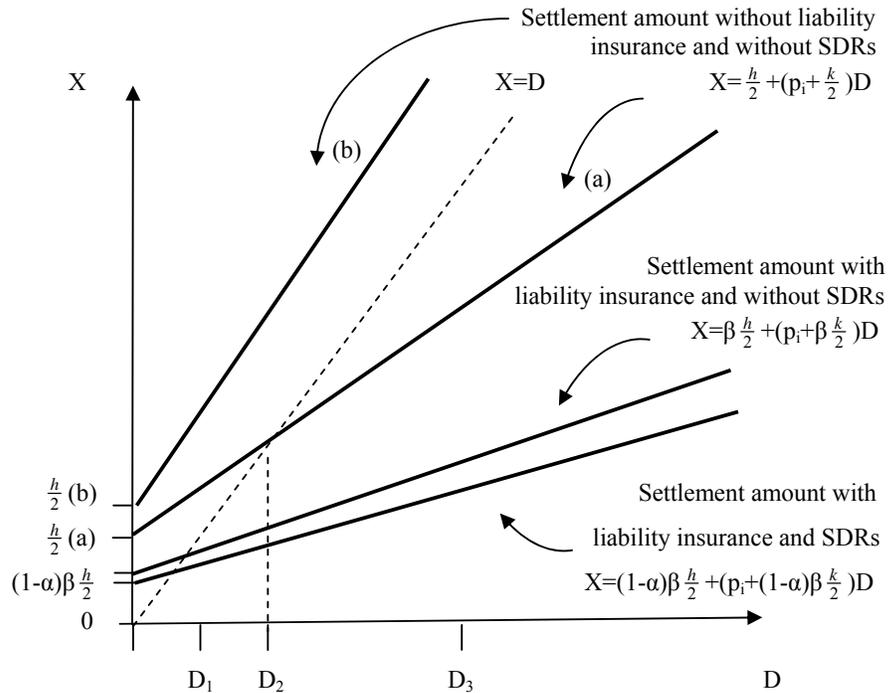
	PEV cases with liability insurance and with and without SDRs			NEV cases with liability insurance and with and without SDRs		
	Stage of Settlement	No. of suits and settlements	Expected settlement amount	Stage of Settlement	No. of suits and settlements	Expected settlement amount
<b>Pre-filing strong cases</b>	No change: Settlement will be reached before trial	No change	Will be insignificantly reduced	No change. If they meet the NEV's conditions, will be reached before trial	If $C_{P2} > C_{P1}$ – no change; Otherwise – might be insignificantly decreased	Will be insignificantly reduced
<b>Pre-filing ambiguous or weak cases</b>	No change: Settlement will be reached at the revealing stage	No change	Will be insignificantly reduced	No change. If they meet the NEV's conditions, settlement will be reached at the revealing stage	If $C_{P2} > C_{P1}$ – no change; Otherwise – might be insignificantly reduced	Will be insignificantly reduced
<b>Pre-filing frivolous cases</b>	No change as they cannot be PEV suits	No change as they cannot be PEV suits	No change as they cannot be PEV suits	No change. If they are truly strong, ambiguous or weak cases, settlement will be reached at the revealing stage; otherwise, they will be dropped	If $C_{P2} > C_{P1}$ – no change; Otherwise – might be insignificantly reduced (including less suits and dropped, truly frivolous cases)	If they are truly strong, ambiguous or weak cases, will be insignificantly reduced

*Table 2*

**Litigation outcomes with and without SDRs**

This concluding example demonstrates that SDRs with liability insurance are not expected to have more than insignificant effects on litigation outcomes in terms of damages

awards compared to the outcomes in an environment with liability insurance, as is shown in Figure 2.



**Figure 2: Under-compensation and over-compensation to medical malpractice plaintiffs with liability insurance and without and with SDRs**

Importantly, Figure 2 also demonstrates the empirically based phenomenon that only victims with small claims are sometimes overpaid.<sup>100</sup> Contrary to the incomplete situation without liability insurance,<sup>101</sup> the phenomenon can occur in the model with liability insurance in every case, whether the starting position for professionals who act without liability insurance is under-compensation only for big enough cases – which is the case where

<sup>100</sup> See Figure 1, *supra* Section IIIB(8) and the text above.

<sup>101</sup> See *supra* Section IIIB(6).

$p_i + \frac{k}{2} < 1$  (line *a* in Figure 2) – or permanent over-compensation – which is the case where  $1 < p_i + \frac{k}{2}$  (line *b* in Figure 2). In both cases, liability insurance significantly weakens the effects of doctors' and HMOs' reputation, leading to the phenomenon described above. SDRs, in turn, will cause a very small change in this last result.

### C. Properly Designed SDRs

Properly designed SDRs should include components that would maximize their welfare effects on both the healthcare market and the litigation process, *first*, by creating an efficient risk-management mechanism that will improve the liability insurers function as healthcare market gatekeepers by strengthening the positive effects and weakening the negative effects of liability insurance and *second*, by enabling us to monitor the litigation process in order to maximize the effects of law and doctors' and HMOs' reputation on satisfying the conditions necessary for efficient and just equilibrium in the healthcare market, *all that* – after having taken into account the costs of the expanded risk-management mechanism and the costs of litigation. Those components will be discussed below.

*Common and Accurate Information Rule* – or a rule requiring the parties to complete lacking information as a condition for a settlement to become valid – is necessary to overcome incomplete information problems. This could be achieved by requiring the parties to jointly and uniformly draft a report of the main facts, legal findings and medical lessons derived from the case. The joint task and the uniform version of facts and professional assessments and opinions, both legal and medical, are necessary in order to efficiently address the incomplete information problems. One draft with a single version would constitute more reliable information disclosure.

The participation of both parties in the process is crucial for several reasons which justify an additional rule. *First*, after agreeing on the settlement amount the plaintiff and the

liability insurer managing the litigation on behalf of the defendants would be more willing to represent the public interest. Even with a non-severe rule that would give the settlement report the status of an affidavit and punish the concealment of material facts' or other dishonesties in the report, they would rather not pay the expected fines or costs in any case where the benefit from concealment or dishonesty is not enormous. An oral agreement between the parties in which they collude to hide facts from the public for more generous damage awards would be, under the same rule, inapplicable and punishable by fines – not a good strategy for the plaintiff or the liability insurer. This additional rule – *Punishing Concealment, Dishonesty and Collusion* will, in most cases, deter the parties from acting this way.

*Second*, when the two parties participate in the process, this additional rule can be modified to create an efficient *true-telling mechanism*. For example, by giving each side a right to receive, even after the trial ended, an amount which reflects the contribution to the damages awards of including a misleading material fact in the settlement report, including an omission of a material fact. This mechanism can give each party an incentive to disclose all material facts that could be exposed in the future, even some of those that might lead to renegotiation of the settlement amount.

*Third*, when the two parties participate in the process this is more likely to balance the parties' trial costs. Liability insurers currently maintain risk-management mechanisms which they also operate with costs to assess their risk and to correct malpractice or otherwise improper methods in the healthcare market. SDRs would give them incentives to extend the operation of that mechanism, in full, to bargaining at the revealing stage, which is otherwise prevented since confidentiality considerations compromise its regular operation. Liability insurers would be required to use their experts, who have already written a medical opinion on the merits of the claims. Hence, the costs of SDRs using existing and operative mechanisms are not expected to be forbiddingly high. However, the expected effects of SDRs on litigation outcomes depend on the plaintiff's trial costs and on the differences between the

parties' costs at the different stages of trial. Therefore, using the plaintiff's services, including his medical expert services, in the process of creating public information would increase the efficiency of supervision over the liability insurance performance without disturbing the balance between the defendants' and the plaintiff's costs at the different trial stages. This will prevent any significant diversion from the above-described expected outcomes of litigation with liability insurance and SDRs.

Two more rules should be considered: First, mandatory use of legal and medical experts, meaning the parties' attorneys and medical experts hired to support their case, to draft the legal findings and medical conclusions parts, respectively; and second, applying the rule of punishing concealment, dishonesty and collusion to those professionals for their part in the settlement report.

A *Public Information Rule*<sup>102</sup> is a key component of the solution to the inherent incomplete information problems. There are several problems which can be viewed as public information issues. *First*, how to determine proper techniques and procedures for publicizing and distributing the settlement reports in the legal and medical field. A uniform and stable distribution of information techniques and procedures is necessary in order to achieve maximum effects in terms of the legal and medical professionals' efficient and reliable up-to-datedness.

*Second*, creating sub-categories of mandatory disclosure, for example by dividing the fact-findings category into five sub-categories – (i) the patient's basic personal details; (ii) the patient's medical history; (iii) the current medical treatments in question; (iv) the main symptoms and damages suffered from the adverse event; and (v) the term of settlement, including any damages awards. The same should be done to categorize the legal and medical

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<sup>102</sup> The related federal rules of plea bargaining require that the plea agreement be disclosed, normally in open court. See: FEDERAL RULES OF CRIMINAL PROCEDURES Rule 11(c)(2) (2<sup>nd</sup> ed., 2006).

lessons parts. Categories and sub-categories should be used to create a settlement report that could be compared to others without further costs and could be a basis for the development of a settlement reports' reading and writing know-how. This categorization process enables the SDRs to efficiently control both side of the equation: efficient information supply and minimum costs.

*Third*, a requirement to use plain language in the settlement reports, including common professional terms, legal and medical, with their clear definitions would enable both the public and professionals to use it efficiently.

An *Adequate Information Rule* should be set to address the question of the quantity and quality of facts, legal explanations and medical lessons that should be disclosed. A *materiality* criterion could be a favorite candidate for this task.<sup>103</sup> Like categorization, the adequate information criterion will enable the SDRs to efficiently balance efficient information supply with minimum costs and is therefore required.

A key role in this process is reserved for the *Court Supervision Rule* that will entitle and require the court to oversee the parties' success in meeting those SDR requirements as they are reflected in the settlement reports before approving its validity.<sup>104</sup> Hence, liability insurers, plaintiffs and the court will all act as efficient gatekeepers of the healthcare market; moreover, future patient will be part of this supervision mechanism by using the public data – all in order to solve the market's inherent and yet unsolved incomplete information problems.

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<sup>103</sup> In the regulation of securities markets, the *materiality* criterion serves to determine the law's requirements regarding the content of the registration statement, prospectus and other reports to the SEC. See, for example, LOUIS LOSS & JOEL SELIGMAN, *FUNDAMENTALS OF SECURITIES REGULATION* 170-71 (5<sup>th</sup> ed., 2004).

<sup>104</sup> The related rules of plea bargaining determine that the decision to accept or reject a plea agreement is within the sound discretion of the court. For the discretion of the court in rejecting or accepting a plea agreement see, for example, LAFAVE, ISRAEL & KING, *supra* note 3, at 1006-17; 21 Am. Jur. 2<sup>nd</sup> Criminal Law § 698-99.

**D. “Haircuts”, Post-Verdict Settlements and the Under-Insurance Problem**

As described above, Hyman, Black, Silver and Sage recently presented the *post-verdict* “haircuts” phenomenon.<sup>105</sup> Using data on all insured medical malpractice cases in Texas in 1988-2003 in which the plaintiff received at least \$25,000 following a jury trial, they found out that jury awards tend to be reduced and that the plaintiffs receive only part of the verdict damages awards; that the mean per-case haircut was 29% and the plaintiffs actually received on average only 44% relative to the adjusted verdict;<sup>106</sup> and that the higher the award, the more likely it is to be substantially reduced so that in cases with adjusted verdicts of over \$2.5 million, 98% of the plaintiffs received a payout with a mean per-case haircut of 56% (!).

Hyman, Black, Silver and Sage also found that post-verdict judicial oversight, *inter alia* by appellate reversal, can explain only 3% of the aggregate haircut; that statutory damages caps can explain 30% of the aggregate haircut; and that insurance policy limits are the most important factor, explaining at least 73% of the aggregate haircut (in cases where they had sufficient data).

However, the reasons for the *post-verdict* “haircuts” phenomenon are not so clear.<sup>107</sup> Hyman, Black, Silver and Sage discussed possible reasons including a strong norm of not pursuing personal assets causing the plaintiffs’ attorneys to collect mainly from insurance companies; and asset-protection strategies used by many physicians.

Hyman, Black, Silver and Sage's findings suggest that we should take into

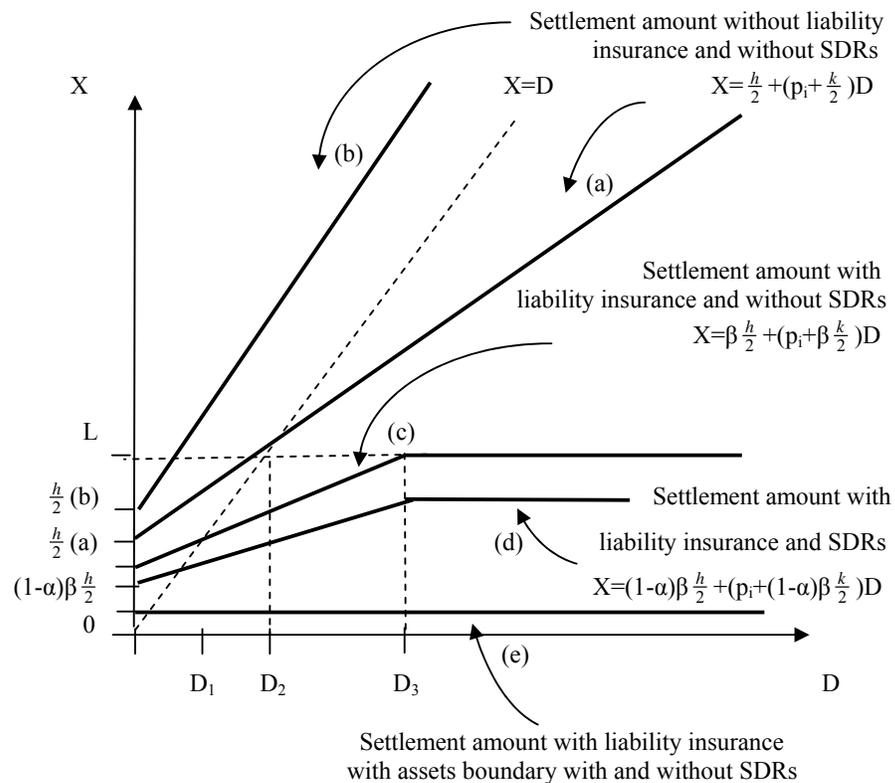
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<sup>105</sup> See Hyman, Black, Silver & Sage, *supra* note 41 and the accompanying text.

<sup>106</sup> Hyman, Black, Silver & Sage defined the term *adjusted verdict* as follows: “Jury verdict plus pre-judgment interest (as reported or, when not reported, as estimated), plus post-judgment interest (estimated based on statutory rate)...” Hyman, Black, Silver & Sage, *ibid*, at Appendix C.

<sup>107</sup> See: Hyman, Black, Silver & Sage, *ibid*, at 41-46.

consideration the expected actual payments to the plaintiff rather than the expected verdict awards. Thus, in our model, the definition of  $D$  should be adjusted to reflect the expected *actual* payments to the plaintiff. If the actual payments are effectively blocked by a ceiling policy, SDRs with liability insurance are expected to have even weaker effects on litigation outcomes compared to the outcomes in an environment with liability insurance, as shown in Figure 3 below.



**Figure 3: Under-compensation and over-compensation of medical malpractice plaintiffs with liability insurance policy limit and without and with SDRs**

Figure 3 demonstrates the effects of SDRs on settlement amounts in the situation of Example 5 where the parties' costs at the different stages of trial are symmetric. We suppose that the post-trial bargaining and appeal are without cost and that the court of appeal is

expected to rule that the insurance company is obliged to pay with probability  $p_i$  the lower of the two sums: true damages,  $D$ , and the insurance policy limit ( $l_1$ ). In a case where all the defendants are covered with liability insurance, if the insurance policy limit ( $l_1$ ) is binding, meaning that  $\beta \frac{h}{2} + (p_i + \beta \frac{k}{2})D > \beta \frac{h}{2} + (p_i + \beta \frac{k}{2})l_1$ , then the settlement amount would be

$$X = L = \beta \frac{h}{2} + (p_i + \beta \frac{k}{2})l_1, \quad (27)$$

and with SDRs it would be

$$X \cong p_i l_1 + \frac{1}{2} \beta (\Delta J_2 - Z) = p_i l_1 + \frac{1}{2} \beta (1 - \alpha)(h + k l_1) = (1 - \alpha) \beta \frac{h}{2} + (p_i + (1 - \alpha) \beta \frac{k}{2}) l_1. \quad (28)$$

Those outcomes are presented in Figure 3, in lines *c* and *d*, respectively, together with all the other outcomes of the litigation process, the changes are insignificant, and only in cases where the parties expected the policy limit to be binding. In this case, for example, as could be seen in Equations (25) and (26), some of the NEV cases might lose the credible threat they had without a policy limit.

Importantly, when the plaintiff faces a defendant without liability insurance, but rather a binding asset boundary, litigation outcomes change dramatically, with a very small settlement amount, as demonstrated in Figure 3, line *e*. Consequently, almost all or even all NEV claims might be defeated. This, when we assume that PEV cases would not be defeated, which might be the case if the assets limit is small enough.

Those outcomes are expected when the plaintiff faces defendants with liability insurance with policy limits, or non-covered defendants with an asset boundary, which, as shown by Hyman, Black, Silver and Sage, if the defendants do not have liability insurance is almost always the case. However, the SDRs will cause only insignificant change in this environment, as explained above.

Two main suspected severe outcomes of the *post-verdict* “haircuts” phenomenon are huge increase in under-deterrence in the healthcare market and a formidable obstacle for the liability insurers in their role as risk distribution managers. This means that many patients

might lose any protection against medical professionals' "bankruptcies" or payment avoidance. Moreover, it might have another devastating effect. Since, in many cases, there are two types of defendants, those who have liability insurance and those who do not, the juries who are not able or allowed to distinguish between them might strategically increase the verdict amount in order to oblige the insurer to pay. This means that in cases where the appellate reversal cannot correct all of the possible juries' bias it might cause a shift of the obligation to pay from the non-insured to the insured professionals. In turn, in the liability insurance market doctors and HMOs who buy insurance policies might subsidize the medical activities of those who do not. This suspected free-riding phenomenon can explain part of the claim for high premiums in the medical liability insurance market. Hence, beside SDRs, further tools of mandatory medical liability insurance and regulatory intervention in policy limits should be examined.

### **Chapter V: Summary**

With liability insurance, which is socially desirable in itself, and incomplete information, SDRs would have positive effects both on the healthcare market – by increasing the positive effects of the gate-keeping role of liability insurers and decreasing its negative effects – and at the same time on the malpractice litigation process – through their contribution to creating more information with already existing mechanisms such as expert opinions, and without any significant change in litigation outcomes. Hence, properly designed SDRs should be considered by regulators as a powerful tool for promoting social welfare.