

# **The Determinants of the Cost of Medical Liability Insurance**

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## **Executive Summary**

This paper investigates the determinants of malpractice premiums. It reports three key findings. First, increases in tort awards, settlement payments, and defense costs explain why premiums have risen. Second, reforms to states' tort laws, such as reasonable caps on non-economic damages, substantially reduce the cost of claims, and in turn, premiums. Third, anticompetitive behavior by insurers, health care costs, weak state oversight, declines in investment income, and other features of capital markets are not important determinants of premiums. The policy implications of this evidence are clear. Tort reforms are the best proven instrument for reducing malpractice premium growth and its adverse consequences.

## Introduction

Over the past decade, medical malpractice insurance premium rates have had an increasing impact on physicians, patients, and payers. Premiums have risen substantially. According to one index, the professional liability insurance component of the Centers for Medicare and Medicaid Services (CMS) Medicare Economic Index Market Basket, real rates increased by 71 percent from 1991 to 2003.<sup>1</sup> The resulting liability pressure on physicians has had important effects on markets for health care.<sup>2</sup> For example, a recent Government Accountability Office (GAO) study cites rising premiums as reportedly influencing physicians to move or close practices, reduce high-risk services, or alter their practices to avoid legal liability.<sup>3</sup>

In theory, many factors may affect premiums, including the size of awards in malpractice cases, the cost of resolving malpractice claims, the returns paid to investors in insurers, the income earned by insurers on premium receipts held in reserve, and the extent of state regulation of the insurance industry. The appropriate policy response to premium increases depends on the relative importance of each of these factors in practice. On one hand, if tort awards and increased claims costs are primarily responsible for premium increases, then reform of the tort system such as reasonable caps on noneconomic damages could reduce premiums, improve access to care, and reduce health spending. On the other hand, if anticompetitive behavior, weak state oversight, and the investment decisions of malpractice insurers are primarily responsible, then more

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<sup>1</sup> See [www.cms.hhs.gov/statistics/market-basket/economic-index.pdf](http://www.cms.hhs.gov/statistics/market-basket/economic-index.pdf).

<sup>2</sup> See, for example, Daniel P. Kessler, William Sage, and David Becker, "Impact of Malpractice Reforms on the Supply of Physician Services," *JAMA* 293 (6/1/05): 2618-25; Daniel P. Kessler and Mark B. McClellan, "Malpractice Law and Health Care Reform: Optimal Liability Policy in an Era of Managed Care," *Journal of Public Economics* 84 (2002): 175-97.

<sup>3</sup> GAO, "Implications of Rising Premiums on Access to Health Care," GAO-03-836 (2003), Highlights.

stringent insurance regulation could better address the adverse effects of premium growth. Thus, the determinants of malpractice premiums have been the subject of considerable policy debate.

This paper investigates the determinants of malpractice premiums. It reviews the existing empirical literature and performs original calculations with data from the Texas Department of Insurance (TDI) and the National Association of Insurance Commissioners (NAIC) in order to identify which determinants are most important. In the following three sections, it presents three main findings. First, increased claims costs are the primary driver of premium rate increases (Section I). Second, tort reforms decrease claims costs and, in turn, premiums for physicians (Section II). Third, there is no evidence that anticompetitive behavior, weak regulation, insurer investment decisions, or other features of capital markets are important contributors to rising premiums (Section III). It concludes that tort reforms are the best proven policy instrument for reducing malpractice premium growth and its adverse consequences.

## **I. The cost of resolving malpractice claims**

The cost of resolving malpractice claims accounts for the vast majority of malpractice insurers' expenses. Table 1 presents the expenses of malpractice insurers, by type of expense, for 1992 and 2002. The first row of the table shows that direct losses -- court awards plus settlement payments to claimants -- account for approximately two-thirds of expenses in both years. Loss Adjustment Expenses -- the costs of investigating the validity of and defending physicians against claims -- account for approximately another fifth of expenses. All remaining costs -- marketing, administration, commissions,

taxes, and fees -- account for at most 13 percent of expenses.

**Table 1: Expenses of Medical Malpractice Insurers, 1992-2002 (2002 \$)**

	1992		2002	
	\$	% of total	\$	% of total
Direct Losses Incurred	\$4,343,881,194	66.36%	\$6,144,312,197	66.96%
Loss Adjustment Expenses	1,422,932,265	21.74%	1,882,049,986	20.51%
General Expenses	351,100,485	5.36%	460,162,595	5.02%
Taxes, Licenses, Fees	123,443,305	1.89%	177,576,558	1.94%
Commission and Brokerage Expenses	304,527,327	4.65%	511,485,252	5.57%
Total	\$6,545,884,575	100.00%	\$9,175,586,588	100.00%

Notes: Dollar values deflated using the GDP deflator. Source is Eric Nordman, Davin Cermak, and Kenneth McDaniel, Medical Malpractice Insurance Report: A Study of Market Conditions and Potential Solutions to the Recent Crisis, Presented to the NAIC Property and Casualty Committee, September 12, 2004, tables 7, 11, 14.

It is therefore unsurprising that industry regulators, government researchers, and academics have all concluded that increases in losses and other claims costs are the primary reason why premiums have risen:

- A 2004 analysis by the National Association of Insurance Commissioners concluded that "losses are the major contributing factor in determining medical liability rates";<sup>4</sup>
- A 2003 study by the General Accounting Office (now the Government Accountability Office, or GAO) contains a entire subsection entitled "Increased Losses on Claims Are the Primary Contributor to Higher Medical Malpractice Premium Rates";<sup>5</sup>

<sup>4</sup> Eric Nordman, Davin Cermak, and Kenneth McDaniel, "Medical Malpractice Insurance Report: A Study of Market Conditions and Potential Solutions to the Recent Crisis," Presented to the NAIC Property and Casualty Committee, September 12, 2004.

<sup>5</sup> GAO, "Medical Malpractice Insurance: Multiple Factors Have Contributed to Increased Premium Rates," GAO-03-702 (2003).

- A 2003 study by the U.S Department of Health and Human Services concluded that medical malpractice premiums "can best be reduced by controlling the increases in the amounts that [insurers] must pay out";<sup>6</sup>
- A long line of academic research finds that "there is little doubt that much of the volatility in insurance premium rates -- whether for general liability insurance or other types of coverage -- is attributable to variation in the discounted value of expected claims costs."<sup>7</sup>

Three new papers seem to provide evidence to the contrary. Chandra, Nundy, and Seabury (CNS) conclude that the growth in payments to claimants, as reported to the National Practitioner Data Bank (NPDB), is slower than was previously thought.<sup>8</sup> Baicker and Chandra (BC) conclude that the correlation across states between the growth in premiums, as measured by the average premium reported in the Medical Liability Monitor, and the growth in payments reported to the NPDB is weak.<sup>9</sup> Black, Silver, Hyman, and Sage (BSHS) conclude that the number of paid claims and the amount paid per paid claim in Texas was roughly stable over the 1988-2002 period.<sup>10</sup> Properly interpreted, however, these papers do not disprove that growing claims costs have driven the rise in premiums. I discuss each of the papers in turn.

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<sup>6</sup> U.S. Department of Health and Human Services, "Addressing the New Health Care Crisis: Reforming the Medical Litigation System to Improve the Quality of Health Care," March 3, 2003, p. 34.

<sup>7</sup> Scott E. Harrington, "Tort Liability, Insurance Rates, and the Insurance Cycle," Brookings-Wharton Papers on Financial Services 97-126 (2004), p. 126. For analysis and review of earlier data, see Scott Harrington and Robert E. Litan, "Causes of the Liability Insurance Crisis," *Science* 239 (2/12/88): 737-41.

<sup>8</sup> Amitabh Chandra, Shantanu Nundy, and Seth A. Seabury, "The Growth of Physician Medical Malpractice Payments: Evidence From the National Practitioner Data Bank," *Health Affairs Web Exclusive* W5-240 (May 31, 2005).

<sup>9</sup> Katherine Baicker and Amitabh Chandra, "The Effect of Malpractice Liability on the Delivery of Health Care," in David M. Cutler and Alan M. Garber, eds., *Frontiers in Health Policy Research*, Volume 8, forthcoming from the MIT Press.

<sup>10</sup> Bernard Black, Charles Silver, David Hyman, and William M. Sage, "Stability, Not Crisis: Medical Malpractice Claims Outcomes in Texas, 1988-2002," *Journal of Empirical Legal Studies* 2: 207-259 (2005).

CNS. Table 2 shows how data limitations lead CNS's estimates to understate the true growth in claims costs. Table 2 compares malpractice claims costs calculated with the NPDB to costs based on insurer reports to the NAIC from 1991 and 2003. The first column of panel A of table 2 presents total payments to claimants from the NPDB. This column contains the product of the number of payments and the average payment as reported in Exhibit 1 of CNS. Following CNS, panel A does not consider loss adjustment expenses and converts payments to 2003 dollars using the GDP deflator. The last column of table 2, panel A divides payments by population (as reported in the Statistical Abstract of the US) to calculate how real payments per person changed over the 1991-2003 period.

**Table 2: Malpractice Claims Costs in the US, 1991-2003  
Data from the National Practitioner Data Bank (NPDB) and  
the National Association of Insurance Commissioners (NAIC)**

	Payments to Claimants (NPDB) or Direct Losses (NAIC)	Loss Adjustment Expenses	Total Claims Costs	Real Claims Costs, 2003 \$	Population	Costs per person	Costs per person (2003 \$)
<u>Panel A: NPDB closed claims</u>							
1991	\$1,953,965,807	\$0	\$1,953,965,807	\$2,446,365,190	252137000	\$7.75	\$9.70
2003	\$4,003,269,043	\$0	\$4,003,269,043	\$4,003,269,043	290810000	\$13.77	\$13.77
% change	104.88%	0.00%	104.88%	63.64%	15.34%	77.63%	41.88%
<u>Panel B: NAIC, Losses Paid</u>							
1991	\$2,287,206,135	\$916,791,332	\$3,203,997,467	\$4,011,404,829	252137000	\$12.71	\$15.91
2003	\$5,577,633,804	\$1,998,492,069	\$7,576,125,873	\$7,576,125,873	290810000	\$26.05	\$26.05
% change	143.86%	117.99%	136.46%	88.86%	15.34%	105.01%	63.75%
<u>Panel C: NAIC, Losses Incurred</u>							
1991	\$2,854,964,035	\$1,195,276,489	\$4,050,240,524	\$5,070,901,136	252137000	\$16.06	\$20.11
2003	\$8,459,389,539	\$2,807,552,170	\$11,266,941,709	\$11,266,941,709	290810000	\$38.74	\$38.74
% change	196.30%	134.89%	178.18%	122.19%	15.34%	141.19%	92.64%

Notes: Dollar values deflated using the GDP deflator.

Panels B and C present NAIC data on direct losses paid, loss adjustment expenses paid, direct losses incurred, and loss adjustment expenses incurred. Comparing panel A to panels B and C shows that the NPDB gives much smaller estimates of claims cost

growth than the NAIC. According to the NPDB, costs per person grew by 41.9 percent from 1991 to 2003. But according to the NAIC, costs per person grew by between 63.8 and 92.6 percent over the same period.

The NPDB-based estimates in CNS understate true trends in claims costs for three reasons. First, their estimates exclude loss adjustment expenses (LAE) -- a significant component of costs and cost growth that grew more rapidly than NPDB-estimated payments to claimants. Second, malpractice payments in the NPDB suffer from underreporting problems that, in practice, have been growing over time, leading trends in NPDB-based aggregates to understate true trends in payments. Third, the NPDB is a closed-claim database, and trends in payments to closed claims will understate true trends in claims costs when claims costs are growing.

NPDB underreporting problems are well-known. The most noted of these is the use by some practitioners of the "corporate shield" to avoid filing NPDB reports. According to the GAO, NPDB regulations require only that doctors named in final malpractice settlements be reported.<sup>11</sup> Thus, plaintiffs, doctors, and health care institutions may find it in their collective interest to remove the doctor's name from the claim, and leave only a hospital or another corporate entity as the responsible party. Doing so does not affect either the total settlement payment or the apportionment of financial responsibility among defendants, but avoids disclosure of the doctor's identity to the public. In addition, the NPDB data capture the value of the first payment made on a

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<sup>11</sup> GAO, "National Practitioner Data Bank: Major Improvements Are Needed to Enhance Data Bank's Reliability," GAO-01-130 (2000).

claim, but not subsequent payments.<sup>12</sup> Underreporting to the NPDB is sufficiently serious that both the operator of the NPDB (the Health Resources and Services Administration of the U.S. Department of Health and Human Services, or HRSA) and the GAO have concluded that it has weakened the NPDB's reliability.<sup>13</sup>

Comparing panel B to panel A of table 2 shows how underreporting leads NPDB-based aggregates to understate the extent of true claims cost growth. Table 2 extends the approach of the HRSA, which has used NAIC data to validate the NPDB before.<sup>14</sup> Payments to claimants from the NPDB are a decreasing fraction of paid direct losses from the NAIC. In 1991, the NPDB-based estimate of total payments to claimants is 85.4 percent of direct losses (\$1,953,965,807/\$2,287,206,135); but in 2003, the NPDB-based estimate is only 71.8 percent of direct losses (\$4,003,269,043/\$5,577,633,804). As a consequence, direct losses per person grew in real terms by 68.8 percent from 1991 to 2003,<sup>15</sup> whereas malpractice payments in the NPDB grew by only 41.9 percent over the same period.

NPDB-based aggregates understate growth in claims costs for a third reason that is fundamental to the closed-claim nature of the data. Payments to closed claims in a given year represent a combination of payments for alleged injuries that occurred recently and alleged injuries that occurred many years before (four to five years elapse on average between an alleged injury and payment in a medical malpractice claim<sup>16</sup>). For this

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<sup>12</sup> See Lawrence E. Smarr, "A Comparative Assessment of the PIAA Data Sharing Project and the National Practitioner Data Bank: Policy, Purpose, and Application," *Law and Contemporary Problems* 60: 59-80 (1997).

<sup>13</sup> "National Practitioner Data Bank: Major Improvements Are Needed to Enhance Data Bank's Reliability."

<sup>14</sup> See HRSA, "National Practitioner Data Bank 2003 Annual Report," p. 14.

<sup>15</sup>  $0.688 = [(5577633804 / 290810000) - (2287206135 * 1.252 / 252137000)] / (2287206135 * 1.252 / 252137000)$ , where 1.252 is the GDP deflator for 1991-2003.

<sup>16</sup> See, e.g., "National Practitioner Data Bank 2003 Annual Report," p. 19.

reason, actuaries generally estimate claims costs based on both closed and open claims, because open claims may be more reflective of the current claims cost environment.<sup>17</sup>

Thus, when claims costs are rising -- as they were over this period -- the growth in payments to closed claims will increasingly understate the true growth in claims costs.

*Incurred* losses are a better measure of a year's claims costs than either payments to closed claims or *paid* losses. Because incurred losses include the expected value of all future costs associated with a given year's exposures, a year's incurred losses will incorporate information on that year's claims costs that closed claims and paid losses will not.

Comparing panel C to panel B of table 2 shows the extent to which closed-claim payments and paid losses understate growth in incurred losses in practice over the 1991-2003 period. Incurred losses per person grew by 92.6 percent over the period, but paid losses grew by only 63.8 percent.

*BC*. Data limitations also explain the weak correlation reported by *BC* between the growth in premium rates and the growth in malpractice payments. As discussed above, NPDB-based closed-claim payments measure both true claims cost and cost growth with error. Because premiums are determined by true claims costs, *BC*'s regression estimates of the effects of NPDB-based payments on premiums will understate the actual correlation between premiums and claims costs.<sup>18</sup> In addition, true premiums are only imperfectly correlated with the measure of premiums used in *BC*, which would also lead *BC* to find a weaker correlation between premiums and claims cost than there

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<sup>17</sup> The American Academy of Actuaries makes this point in "Important Considerations When Analyzing Medical Malpractice Insurance Closed-Claim Databases," Medical Malpractice Subcommittee, American Academy of Actuaries, April 20, 2005.

<sup>18</sup> See, e.g., Jeffrey M. Wooldridge, *Introductory Econometrics*, South-Western (2000), Section 9.3.

actually is. BC analyze the average base or "manual" rate reported to the MLM for a \$1 million/\$3 million claims-made policy. These manual rates do not include any of the numerous adjustments (e.g., credits, debits, dividends, and other factors) that reduce and increase actual premiums. The MLM itself warns that the rates reported should not be interpreted as the actual premiums an individual physician pays for coverage. In addition, because many firms filing rates sell few or no policies, a simple average of the rates reported to the MLM will differ from the premium volume-weighted average. Research by Viscusi shows that these concerns are important in practice: actual premiums paid per exposure unit are only imperfectly correlated with manual rates.<sup>19</sup>

The fact that very large jury awards became increasingly frequent over this period<sup>20</sup> further weakens the correlation between premiums and closed-claim payments. Because the value of jury verdicts set the bar for settlements on similar claims, the increased proportion of very large awards implies that the volatility as well as the mean cost of a year's alleged injuries was rising over the period as well. But as volatility rises, an insurer that wants to protect itself, its policyholders, and its claimants against bankruptcy must either increase its reserves or purchase costly reinsurance, both of which must be passed on as higher premium rates -- but have no effect on closed-claim payments.

*BSHS*. Table 3 shows how econometric modeling assumptions and data limitations lead *BSHS*'s estimates to understate the true growth in claims costs. Panel A of table 3 reports trends in closed-claim payments based on the TDI data used by *BSHS*.

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<sup>19</sup> W. Kip Viscusi, "Tort Reform and Insurance Markets," *Risk Management and Insurance Review* 7: 9-24 (2004).

<sup>20</sup> See, e.g., U.S. Department of Health and Human Services, "Confronting the New Health Care Crisis: Improving Health Care Quality and Lowering Costs by Fixing Our Medical Liability System," July 24, 2002, p. 9.

Unlike CNS, BSHS does not report simple aggregate statistics on payments over their study period. However, the data underlying BSHS is publicly available from the Texas Department of Insurance website.<sup>21</sup> I chose 1991 as the initial year because BSHS report that this was the first year in which TDI data were reliable; 2003 was the most recent year available. The first column calculates payments to claimants as the sum of payments to nonduplicate claims reported in the claims-level data (e.g., claims of \$10,000 or more) covered by medical professional liability insurance plus payments to claims of less than \$10,000 covered by medical professional liability insurance reported in the summary closed claim report of the Texas Department of Insurance's Closed Claim Annual Report.<sup>22</sup> The second column calculates total loss adjustment expenses for nonduplicate claims reported in the claims-level data only. The fourth column converts

**Table 3: Malpractice Claims Costs in Texas, 1991-2003  
Data from the Texas Department of Insurance (TDI)  
and the National Association of Insurance Commissioners (NAIC)**

	Payments to Claimants (TDI) or Direct Losses (NAIC)	Loss Adjustment Expenses	Total Claims Costs	Real Claims Costs, 2003 \$	Population	Costs per person	Costs per person (2003 \$)
<u>Panel A: TDI closed claims data</u>							
1991	\$297,619,563	\$33,790,371	\$331,409,934	\$414,925,237	17352000	\$19.10	\$23.91
2003	\$567,865,354	\$84,499,008	\$652,364,362	\$652,364,362	22119000	\$29.49	\$29.49
% change	90.80%	150.07%	96.85%	57.22%	27.47%	54.42%	23.34%
<u>Panel B: NAIC, Losses Paid</u>							
1991	\$137,924,028	\$58,355,179	\$196,279,207	\$245,741,567	17352000	\$11.31	\$14.16
2003	\$293,802,622	\$127,347,482	\$421,150,104	\$421,150,104	22119000	\$19.04	\$19.04
% change	113.02%	118.23%	114.57%	71.38%	27.47%	68.32%	34.44%
<u>Panel C: NAIC, Losses Incurred</u>							
1991	\$208,815,505	\$72,344,548	\$281,160,053	\$352,012,386	17352000	\$16.20	\$20.29
2003	\$567,556,092	\$157,913,261	\$725,469,353	\$725,469,353	22119000	\$32.80	\$32.80
% change	171.80%	118.28%	158.03%	106.09%	27.47%	102.42%	61.68%

Notes: Dollar values deflated using the GDP deflator. The level of claims costs in panel A is not directly comparable to the level in panels B and C because the largest carrier in Texas, the Texas Medical Liability Trust, does not report to NAIC.

<sup>21</sup> <http://www.tdi.state.tx.us/general/forms/report4.html>.

<sup>22</sup> Payments of less than \$10,000 amount to \$1,724,207 in 1991 and \$1,380,037 in 2003.

payments to 2003 dollars using the GDP deflator (following CNS). The last two columns divide payments by the Texas population (as reported in the Statistical Abstract of the US) to calculate how payments per person changed over the 1991-2003 period.

The fourth column shows that the sum of real payments to closed claims in the TDI data rose over the study period, by 57.2 percent; according to the last column, this translated into a 23.3 percent increase on a per capita basis. This indicates that the conclusion that growth in payments to claimants in Texas was slow must be an artifact of the assumptions behind the regression models in BSHS.

In addition, NAIC data suggest that the closed-claim nature of the TDI data lead TDI-based aggregates to understate true growth in claims costs in Texas, just as the NPDB does at the national level. Panels B and C present NAIC data from Texas on direct losses paid, loss adjustment expenses paid, direct losses incurred, and loss adjustment expenses incurred. Comparing panels B and C shows that although real paid losses rose by 34.4 percent per capita, real incurred losses rose much faster (61.7 percent). As in the national data, as claims costs rise, a given year's paid losses and closed claims will represent a smaller and smaller fraction of that year's incurred losses.

In summary, basic economics and the weight of empirical research show that the cost of resolving malpractice claims is the most important determinant of premiums. The findings of three new papers do not provide evidence to the contrary.

## II. Tort Reforms

An extensive review of the empirical literature finds that tort reforms reduce claims costs, and in turn, reduce malpractice premiums. Early papers analyzed the effect of tort reforms adopted in the 1970s and 1980s. This work finds that tort reforms such as caps on damages, evidentiary and mandatory collateral-source offsets (coupled with a prohibition of subrogation), and statute-of-limitations reforms reduce payments per claim, the frequency of malpractice claims, or both.<sup>23</sup> In turn, the effect of reforms on claims costs carries over into insurance markets: these same reforms also reduce loss ratios and malpractice insurance premiums.<sup>24</sup>

More recent work confirms the robustness of these results. In particular:

- A 2002 analysis by Kessler and McClellan finds that physicians from states adopting malpractice reforms such as caps or collateral-source offsets show lower trend growth in claims rates than do physicians from non-reform states;<sup>25</sup>
- A 2002 analysis by the U.S. Department of Health and Human Services finds that the highest growth in jury verdicts, premiums, and loss ratios occurred in states without caps on non-economic damages. For example, states with caps

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<sup>23</sup> In "The Frequency and Severity of Medical Malpractice Claims" (RAND R-2870-ICJ/HCFA (1982)) and "New Evidence on the Frequency and Severity of Malpractice Claims" (RAND R-3410-ICJ (1986)), Patricia Danzon finds that caps and collateral-source offsets reduce payments per claim. Danzon's 1986 paper also finds that collateral-source offsets and statute-of-limitations reforms reduce claim frequency. In "Effects of Tort Reforms on the Value of Closed Medical Malpractice Claims: A Microanalysis" (Journal of Health Politics, Policy, and Law 14: 663-89 (1989)), Sloan, Mergenhausen, and Bovbjerg find results consistent with Danzon.

<sup>24</sup> In "The Effects of Tort Reform on Medical Malpractice Insurance Markets: An Empirical Analysis" (Journal of Health Politics, Policy, and Law 17: 143-61 (1992)), Barker finds that caps on damages reduce loss ratios. In "Effects of Tort Reforms and Other Factors on Medical Malpractice Insurance Premiums" (Inquiry 27: 167-82 (1990)), Zuckerman, Bovbjerg, and Sloan find that caps on damages and statute-of-limitations reforms reduce malpractice premiums, but see the limitations of this analysis in section III below.

<sup>25</sup> Daniel P. Kessler and Mark B. McClellan, "How Liability Law Affects Medical Productivity," Journal of Health Economics 21: 931-955 (2002).

on noneconomic damages of \$350,000 or less experienced 2000-01 premium growth of 13 percent, whereas states without caps experienced growth of 44 percent;<sup>26</sup>

- A 2003 analysis by the GAO finds that premiums for general surgery, internal medicine, and obstetrics/gynecology rose more slowly in states with certain types of noneconomic damage caps;<sup>27</sup>
- A 2004 analysis of proposed federal limitations on liability by the Congressional Budget Office found that they would lower premiums nationwide by an average of 25-30 percent from the levels likely to occur under current law (the savings in each state would depend in part on the restrictions already in effect there);<sup>28</sup>
- A 2004 analysis by Thorpe finds that premiums in states with caps on awards are 17.1 percent lower than premiums in states without caps;<sup>29</sup> and
- A 2005 analysis by Viscusi and Born finds that limits on noneconomic and punitive damages reduce loss ratios and lower premiums.<sup>30</sup>

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<sup>26</sup> "Confronting the New Health Care Crisis."

<sup>27</sup> "Implications of Rising Premiums on Access to Health Care."

<sup>28</sup> Congressional Budget Office, "Limiting Tort Liability for Medical Malpractice," Economic and Budget Issue Brief, January 8, 2004.

<sup>29</sup> Kenneth E. Thorpe, "The Medical Malpractice 'Crisis': Recent Trends and the Impact of State Tort Reforms," Health Affairs Web Exclusive W4-20, January 21, 2004.

<sup>30</sup> W. Kip Viscusi and Patricia H. Born, "Damages Caps, Insurability, and the Performance of Medical Malpractice Insurance," *The Journal of Risk and Insurance* 72: 23-43 (2005).

### III. Other potential determinants of malpractice insurance premiums

Other potential determinants of malpractice insurance premiums have at most a small effect. I discuss each of them in turn.

*Anticompetitive behavior by insurers.* Economic theory, simple descriptive statistics, and a wide range of empirical evidence are all inconsistent with the hypothesis that anticompetitive behavior by insurers explains increases in malpractice premiums. To begin with, entry into any particular line of business in a state is easy. Second, pricing of policies is highly specific to individual policyholders, making it difficult for a would-be cartel to enforce an agreement to raise premiums. Third, it would be contrary to self-interest for the physician-owned mutuals that have come to dominate the market to seek to collusively raise premiums, since the result of this would simply be accumulation of profits that they would return to their policyholders in the form of lower premiums.

Simple statistics about the industry's structure reinforce this view. According to the NAIC, 107 firms with nontrivial market shares (at least 2 percent) in at least one state were writing malpractice insurance in 2002.<sup>31</sup> Although each of these firms does not currently write in every state, each is surely a potential entrant. Table 4 shows that this translates into actual competition in every state. As the table shows, every state had at least 4 active insurers in that year, with many large states enjoying competition from more than 10 firms. Over time, the industry has become more, not less, competitive.

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<sup>31</sup> Eric Nordman, Davin Cermak, and Kenneth McDaniel, "Medical Malpractice Insurance Report: A Study of Market Conditions and Potential Solutions to the Recent Crisis," Presented to the NAIC Property and Casualty Committee, September 12, 2004.

**Table 4: Number of Medical Malpractice Insurers with Market Share of 2% or More, by state, 2002**

AK	8	KY	14	NY	6
AL	5	LA	9	OH	10
AR	10	MA	6	OK	5
AZ	7	MD	8	OR	8
CA	12	ME	4	PA	13
CO	7	MI	7	RI	8
CT	11	MN	6	SC	9
DC	8	MO	12	SD	6
DE	9	MS	12	TN	8
FL	12	MT	9	TX	11
GA	9	NC	8	UT	9
HI	6	ND	7	VA	15
IA	10	NE	10	VT	8
ID	9	NH	9	WA	9
IL	8	NJ	6	WI	6
IN	7	NM	7	WV	6
KS	12	NV	13	WY	5

Notes: Source is Eric Nordman, Davin Cermak, and Kenneth McDaniel, Medical Malpractice Insurance Report: A Study of Market Conditions and Potential Solutions to the Recr Presented to the NAIC Property and Casualty Committee, September 12, 2004, table 28.

The "loss ratio" of malpractice insurers -- a measure of the inverse of their profitability<sup>32</sup> - has risen over the past decade, from 80.84 percent in 1991 to 100.26 percent in 2003.<sup>33</sup>

More formal studies analyzing the effect of state-level measures of insurance market competition on premiums also reject the hypothesis that anticompetitive behavior can explain premium increases. Early work rejected the possibility that collusion among insurers was responsible for the premium increases and insurance crises of the 1980s.<sup>34</sup> The findings of recent work are more ambiguous. Viscusi and Born find that decreases in competition lead to *decreases* in premiums.<sup>35</sup> By contrast, Thorpe finds that, at least in some states, decreases in competition have contributed to higher premiums.<sup>36</sup> Still,

<sup>32</sup> See, e.g., "Damages Caps, Insurability, and the Performance of Medical Malpractice Insurance."

<sup>33</sup> Author's calculations using NAIC data.

<sup>34</sup> Richard N. Clarke et al., "Sources of the Crisis in Liability Insurance: An Economic Analysis," Yale Journal on Regulation 5 (1988): 367-95.

<sup>35</sup> "Damages Caps, Insurability, and the Performance of Medical Malpractice Insurance."

<sup>36</sup> "The Medical Malpractice 'Crisis': Recent Trends and the Impact of State Tort Reforms."

according to Thorpe, decreases in competition can explain only a small fraction of premium increases, even in states with substantial decreases. In West Virginia, for example, Thorpe's analysis indicates that the 20 percent rise in the Herfindahl index from 1996-2001 accounts for only 4 percentage points of the 30 percentage-point increase in premiums earned over the period.<sup>37</sup>

In a recent review, Harrington summarizes the literature as follows: "most studies argue that collusive price increases can not be reconciled with the industry's competitive structure, with the modern operation of advisory organizations, and with pricing discretion exercised by the underwriters of commercial lines."<sup>38</sup> Consistent with this, the NAIC has concluded that "insurance regulators have not seen evidence that suggests medical malpractice insurers have engaged or are engaging in price fixing, bid rigging, or market allocation."<sup>39</sup>

*Health care costs.* Simple calculations show only a small portion of the growth in premiums can be accounted for by the increasing cost of medical care. According to the GAO, approximately 60 percent of indemnity payments to malpractice claims are for economic losses, and 26.5 percent of economic losses are for medical care expenses, so approximately 16 percent of indemnity payments are for medical expenses ( $=0.6 * 0.265$ ).<sup>40</sup> From 1991 to 2003, the Medical Consumer Price Index rose from 177.0 to 297.1, or by 68 percent ( $177.0/297.1 - 1$ ). Thus, increases in the real cost of medical care can account for approximately 11 percentage points of the growth in payments to malpractice claimants ( $0.68 * 0.16$ ). This is a small fraction of the increase in real

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<sup>37</sup> Ibid and author's calculations of premiums earned in West Virginia using NAIC data.

<sup>38</sup> "Tort Liability, Insurance Rates, and the Insurance Cycle."

<sup>39</sup> Letter of February 7, 2003, from Mike Pickens, Arkansas Commissioner of Insurance and NAIC President, to Senator Judd Gregg, Chairman of the Committee on Health, Education, Labor and Pensions.

<sup>40</sup> GAO, "Medical Malpractice: Characteristics of Claims Closed in 1984," GAO HRD-87-55 (1987).

incurred losses per capita of 94.5 percent (table 2) or the real increase in the professional liability insurance component of the CMS Medicare Economic Index Market Basket of 71 percent.

*Weak state oversight.* Early research finds that stringent regulation -- in the form of prior-approval laws -- is associated with lower premiums, and conversely, weak regulation is associated with higher premiums.<sup>41</sup> However, a recent study by Viscusi suggests that this is not the case, but instead is due to the analysis of manual rates rather than actual premiums per exposure unit in this work.<sup>42</sup> He shows that although state prior-approval and other forms of regulation are associated with reductions in manual rates, they are also associated with increases in premiums per exposure unit -- a more accurate measure of what policyholders actually pay -- holding manual rates constant. According to his results, the regulation-induced increases in premiums per exposure unit more than offset the decreases in manual rates (Operationally, this could be achieved by making greater use of credits, debits, dividends, and other factors in states with rate regulation). He also reports that regulation reduces the quantity of insurance purchased, as measured by the number of exposures, consistent with the hypothesis that regulation increases the true price per unit of insurance. Analysis from the U.S. Department of Health and Human Services confirms the validity of this finding.<sup>43</sup>

*Declines in investment income.* Although investment income contributes to malpractice insurers' revenues, the decline in investment income insurers experienced in the 1990s can explain only a small fraction of the increase in premiums. According to the NAIC, net investment income earned by firms with the majority of their business in

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<sup>41</sup> "Effects of Tort Reforms and Other Factors on Medical Malpractice Insurance Premiums."

<sup>42</sup> "Tort Reform and Insurance Markets."

<sup>43</sup> "Addressing the New Health Care Crisis."

medical malpractice who had a nontrivial market share (at least 2 percent) in any state fell from \$1.317 billion in 1992 to \$1.1 billion in 2002, or \$217 million.<sup>44</sup> Over this period, earned premiums rose from \$3.556 billion to \$5.479 billion, or \$1.923 billion.<sup>45</sup> Thus, even if insurers recovered every dollar of the decline in investment income through increased premiums, declines in investment income could account for at most 11.3 percent ( $= 217 / 1,923$ ) of the increase.

In any event, to the extent that trends in investment income did affect premiums, the effects were due to broad macroeconomic forces rather than the investment decisions of insurers. As the GAO observes, state laws restrict medical malpractice insurers to conservative investments, primarily bonds.<sup>46</sup> In 2002, for example, firms with the majority of their business in medical malpractice who had a nontrivial market share (at least 2 percent) in any state held 86.2 percent of their assets in bonds or cash.<sup>47</sup> Indeed, the average return on malpractice insurers' investments closely tracks the interest rate on U.S. Treasury bonds that have a maturity equal to the average time it takes to resolve a malpractice claim. Over the 1992-2002 period, the average investment yield of malpractice insurers was 5.6 percent, between the average yield on 3-year (5.3 percent) and 10-year (6.0 percent) Treasuries.<sup>48</sup>

*Other features of capital markets.* Researchers have proposed several theoretical models in which capital market imperfections might explain premium growth. These models hypothesize that periodic episodes of high prices and constrained supply in the

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<sup>44</sup> "Medical Malpractice Insurance Report: A Study of Market Conditions and Potential Solutions to the Recent Crisis," table 20.

<sup>45</sup> Ibid.

<sup>46</sup> "Medical Malpractice Insurance: Multiple Factors Have Contributed to Increased Premium Rates," p. 24.

<sup>47</sup> "Medical Malpractice Insurance Report: A Study of Market Conditions and Potential Solutions to the Recent Crisis," table 19.

<sup>48</sup> Compare Ibid., table 20, to the Economic Report of the President (2005), table B-73.

property-casualty industry, or "insurance cycles," are the result of temporary capital shortages.<sup>49</sup> This could occur if, for example, the cost to insurers of raising capital on the open market were greater than the cost of foregone investment income on retained earnings. In these models, negative shocks from catastrophes or unexpected changes in the costs of claims produce short-run increases in premiums beyond the level implied by perfect capital markets. These price increases, in turn, help insurers to replenish capital through retained earnings, which along with external financing, gradually eliminate the effect of the shock.

Empirical evidence about the validity of these models is inconclusive.<sup>50</sup> For example, Gron finds that the price of insurance increased following negative capital growth in the industry, but that prices did not decline significantly following positive capital growth, suggesting a different connection between price and capacity in hard versus soft markets.<sup>51</sup>

But even if these models are valid, more stringent insurance regulation will not keep premiums down. As Harrington points out, these models imply that the adverse consequences of capital market imperfections are magnified by rate regulation.<sup>52</sup> Because premium increases in hard markets are the result of competition, regulation that constrained rate increases would inhibit the accumulation of reserves following a shock and prolong the period of constrained supply. Any regulation that increased the costs of raising external capital or delayed the entry of new firms would have the same effect.

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<sup>49</sup> See, e.g., Ann Gron, "Capacity Constraints and Cycles in Property-Casualty Insurance Markets," *RAND Journal of Economics* 25: 110-27 (1994).

<sup>50</sup> See "Tort Liability, Insurance Rates, and the Insurance Cycle" for an excellent and comprehensive summary of this work.

<sup>51</sup> "Capacity Constraints and Cycles in Property-Casualty Insurance Markets."

<sup>52</sup> "Tort Liability, Insurance Rates, and the Insurance Cycle."

#### **IV. Conclusion**

What are the important determinants of malpractice insurance premiums? In theory, many factors could be responsible for the substantial increase in premiums over the 1990s and early 2000s. In practice, however, the rising cost of resolving malpractice claims -- primarily the direct costs, but also the indirect costs -- explain why premiums have risen. Direct losses plus loss adjustment expenses incurred account for approximately 87 percent of malpractice insurers' expenses. According to the NAIC, total incurred losses in medical malpractice increased in real terms by 178.2 percent from 1991 to 2003, or 94.5 percent per capita. If other expenses of insurers remained roughly constant, a very simple, competitive model of the industry would predict that premium rates should have increased by approximately 82 percent ( $= 0.87 * 94.5$ ) -- strikingly similar to the increase of 71 percent in the professional liability insurance component of the CMS Medicare Economic Index Market Basket.

Other factors have at most a marginal effect on premiums. Low entry barriers and a large number of insurance firms make anticompetitive or collusive behavior implausible. Even studies that report an effect of insurance-market competition find that the effect is small. Similarly, declines in insurer investment income or increases health care costs can account for at most a small fraction of the increase in premiums. Empirical evidence on the effects of premium rate regulation -- in the form of prior-approval laws -- is equivocal at best, with early studies finding that regulation reduces prices but more recent work finding that regulation increases prices. Empirical evidence about the importance of other features of capital markets is inconclusive.

In contrast, there is substantial evidence that reforms to states' tort systems reduce the cost of claims and, in turn, premiums. A long line of empirical research finds that tort reforms such as reasonable caps on noneconomic damages directly reduce jury awards and settlement payments to claimants. Caps can also reduce the indirect costs of claims by reducing physicians' legal defense expenses and the volatility of direct costs. This research confirms that reform-induced reductions in insurer expenses translate into lower premiums.

The policy implications of this evidence are clear. Tort reforms are the best proven instrument for reducing malpractice premium growth and its adverse consequences. Alternative proposals, such as the repeal of the antitrust exemption for insurers in the McCarran-Ferguson Act, rate regulation, and enhanced oversight of insurer investment decisions are unlikely to keep premiums down.