MICRA
AND ACCESS TO HEALTH CARE

BY LOWERING HEALTH CARE COSTS, MICRA IMPROVES CALIFORNIANS' ACCESS TO CARE

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This report is an update of the Hamm-Frech-Wazzan report published in 2014. The original report has been revised to incorporate the latest data on health care expenditures and medical liability claim payments, as well as the latest scholarly research on the relationship between non-economic damages caps and the incidence of defensive medicine.

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EXECUTIVE SUMMARY

In 1975, the California Legislature enacted, and Governor Edmund G. Brown Jr. signed, the Medical Injury Compensation Reform Act, commonly known as "MICRA."

The purpose of MICRA, as its author – Assemblyman Barry Keene – explained, was to address:

> . . . a persistent <u>problem</u> of enormously escalating medical costs [that have] evolved, in my judgment, into a <u>crisis</u> . . . [that] threatens to degenerate further into a <u>catastrophe</u> of immense proportions to the health care consumer.[1] (Mr. Keene's emphasis)

A. Purpose of this Report

The purpose of this paper is to help policymakers, opinion leaders, and the public evaluate (1) the effects that the MICRA cap has had on California's health care system, and (2) how an increase in the cap would affect Californians' access to the care they need. Our conclusions reflect the findings of scholarly literature and the latest data on health care expenditures; the bases for these conclusions are cited throughout the report so that interested parties can confirm their validity.

B. Summary of Findings

Our primary findings and conclusions can be summarized as follows:

1. **A cap on non-economic damages reduces health care costs, thereby making health care more affordable.** A cap lowers loss costs by (a) reducing the incentive for individuals and their lawyers to litigate weak and invalid claims, and (b) limiting the average size of liability awards. In addition, a cap on non-economic damages awards reduces the incentive for health care providers to order costly and medically unnecessary tests and procedures that reduce the provider's vulnerability to lawsuits but do nothing to improve patients' health and well-being. (Such unnecessary tests and procedures are commonly called "defensive medicine.") By reducing the costs of medical liability insurance and the incentive to practice defensive medicine, a cap makes health care more affordable and increases the public's access to physicians and hospitals when they require care.

2. **An increase in the cap on non-economic damages would significantly increase the cost of health care in California.** The real-world experience of states that have adopted or eliminated a cap on non-economic damages awards demonstrates that an increase in the MICRA cap would lead to more lawsuits, larger awards, and significantly greater litigation-related expenses. Scholarly research demonstrates that a higher cap would also increase the cost of providing health care to Californians without improving medical outcomes.

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[1] Opening Remarks of Assemblyman Barry Keene to the Joint Health-Judiciary Committee Meeting on Medical Malpractice, June 5, 1975.

3. **An increase in the MICRA cap would raise the annual cost of California's health care system by $11.4 billion.** Based on the best data available, we estimate that raising the cap on non-economic damages from $250,000 to $1,000,000 or more would increase health care costs in California by approximately <u>$11.4 billion per year</u>. The increase in costs for the average California resident would be $285, or <u>$1,141 for a family of four</u>.

4. **The additional $11.4 billion in health care costs resulting from a higher cap would be borne by three groups of Californians: consumers, workers, and taxpayers.** If the MICRA cap is raised:

   a. **Consumers** will be forced to pay more for the health care they receive.

   b. **Workers** who are covered by employer-subsidized health insurance will suffer a reduction in their disposable income because their employers will recoup part of the higher cost of providing insurance by holding down wages and salaries and/or by increasing deductibles and copayments.

   c. **Taxpayers** will have to pay more per year because whenever the cost of health care goes up, the State and local governments must pay more:

      (1) To provide health care to individuals, such as patients in State and county hospitals; and

      (2) To fully or partially cover the cost of health care that doctors and hospitals provide to other Californians, such as government employees and children from low-income families.

5. **A higher cap on non-economic damages would reduce Californians' access to quality health care.** It would do so primarily in three ways:

   a. By making health care and health insurance more expensive and less affordable for California residents;

   b. By reducing the number of health care providers – doctors and hospitals – in California, particularly in rural, minority, and low-income areas; and

   c. By discouraging doctors from delivering babies and performing high-risk, but potentially life-saving surgeries, where the risk of a lawsuit is disproportionately high.

6. **The MICRA cap has not reduced access to the courts for individuals with meritorious claims.** There is no evidence that MICRA's cap on non-economic damages awards has materially reduced access to the courts for individuals with meritorious claims of medical liability. In fact, since 1985 (when the constitutionality of MICRA was upheld) tort claims for personal injury other than those involving medical liability have declined more rapidly than claims subject to the MICRA cap.

7. **Notwithstanding the MICRA cap, the rate of increase in medical liability damages awards in California far exceeds the rate of inflation.** Even with the $250,000 cap on non-economic damages, the average size of paid claims has increased since 1976 at a rate that is more than 2.7 times the rate of inflation. The rate of increase is also substantially larger than the rate at which health care spending has been growing.

C. Other States Have Followed California's Lead

California was the first state to reform its medical liability tort system, and in the intervening years many other states have followed its lead. For example, in response to a medical liability crisis similar to the one California experienced in the mid-1970s, Texas in 2003 enacted medical liability reforms that included caps on non-economic damages.[2] Currently, 31 states limit the size of non-economic damages awards.

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[2] The caps limit awards for non-economic damages to $250,000 for any and all doctors sued, plus $250,000 for up to two medical care institutions. Texas Civil Practice and Remedies Code Section 74.301.

Acknowledgements

About the Authors

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William G. Hamm is an economics consultant with high-level experience in both government and business. An expert on public finance, financial institutions, and mortgage finance, Dr. Hamm headed the non-partisan Legislative Analyst's Office in California, where he earned a nationwide reputation for objectivity, expertise and credibility on public policy issues ranging from taxation to health care. He also spent eight years in the Executive Office of the President in Washington, D.C., where he headed a division of OMB responsible for analyzing the programs and budgets of three cabinet-level federal agencies, including the largest integrated health care system in the United States. After leaving public service, Dr. Hamm was the executive vice-president/chief operating officer of an AAA-rated $50 billion bank. He has also run a $1.5 billion loan servicing business for an S&P 500 company.

As a consultant, Dr. Hamm specializes in helping courts, legislative bodies, and the public develop a better understanding of complex economic and public policy issues. He assists businesses and public agencies analyze existing and proposed government policies, develop sound policy alternatives, and communicate the results to decision-makers. He is also recognized as an effective expert witness who can clarify complex litigation issues for triers of fact.

Dr. Hamm has a B.A. from Dartmouth College and a Ph.D. in Economics from the University of Michigan. He is a member of the American Economic Association and the American Law and Economics Association. He is also a Fellow of the National Academy for Public Administration, a Founding Principal of the Council for Excellence in Government, and a member of Grameen Foundation USA's Board of Directors. (Grameen Foundation bring financial, agricultural, and health services to very poor women in poor countries to help them lift their families out of poverty and achieve self-sufficiency.)

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He has been a visiting professor at Harvard and at the University of Chicago, and an economist in the U.S. Government. He has served as a consultant or expert witness for governmental agencies and private parties. In the area of health care antitrust, for example, he testified for the physician plaintiffs in Kartel v. Blue Shield of Massachusetts, and also for the Attorney General of Maryland in its case against the Blue Cross plans of Maryland and the District of Columbia.

He is North American Editor of the *International Journal of the Economics of Business*. He has published numerous articles and written or edited several books on many topics, including industrial organization, health economics, insurance, energy economics, land use controls, the Coase Theorem and the property rights theory of the firm.

One of his books is Competition and Monopoly in Medical Care, published by the American Enterprise Institute. The journals in which he has published include the *American Economic Review*, *Journal of Political Economy*, *Journal of Law and Economics*, *Quarterly Journal of Economics*, *Journal of Institutional and Theoretical Economics*, *De Economist* and *Review d'Economie Politique*.

Professor Frech has given lectures at numerous conferences and institutions in North America and in Europe. H.E. Frech specializes in industrial organization, economic theory, health economics, and political economy, and holds a Ph.D. in Economics from the University of California Los Angeles.

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I.   Introduction

In 1975, the California Legislature enacted, and Governor Edmund G. Brown Jr. signed, the Medical Injury Compensation Reform Act, commonly known as "MICRA." The purpose of the act, as its author – Assemblyman Barry Keene – explained, was to address:

> . . . a persistent *problem* of enormously escalating medical costs [that have] evolved, in my judgment, into a *crisis* . . . [that] threatens to degenerate further into a *catastrophe* of immense proportions to the health care consumer.[3] (Mr. Keene's emphasis)

Newspaper headlines highlight the severity of the crisis that engulfed California's health care system in 1975:

> **Insurance Rates Peril Medical Care** (*San Jose Mercury News*, 2/23/75)
> Premiums have reached the point that some physicians are leaving California or retiring from active practice and some other physicians in high-risk categories are unable to obtain liability insurance.

> **Doctors Face Insurance Crisis-May Affect 8,000 in Southland** (*Los Angeles Times*, 2/22/75)
> Eight thousand physicians in seven Southern California counties face loss of their malpractice insurance coverage… The seven counties are Los Angeles, Orange, San Bernardino, Ventura, Santa Barbara, Kern and San Luis Obispo. The 8,000 doctors make up the bulk of medical practitioners in those counties.

> **New Bay Area Crisis in Medical Care: Doctors Might Halt Practice** (*San Francisco Chronicle*, 1/31/75)
> A major health care crisis loomed yesterday with the cancellation of malpractice insurance, effective May 1, for most of the doctors in eight Northern California counties.

A. California State Supreme Court Upholds MICRA

The passage of MICRA was not sufficient to stabilize medical liability insurance premiums as the Legislature intended. After the measure became law, there was great uncertainty as to whether the cap on non-economic damages awards would withstand court challenges. Until these challenges were resolved, insurers could not be certain that the cost of medical liability claims would stabilize, thereby allowing them to reduce insurance premiums.

In 1985, the California Supreme Court removed this uncertainty by upholding the constitutionality of MICRA. The Court ruled that:

> [I]n enacting MICRA the Legislature was acting in a situation in which it had found that the rising cost of medical malpractice insurance was posing serious

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[3] Opening Remarks of Assemblyman Barry Keene to the Joint Health-Judiciary Committee Meeting on Medical Malpractice, June 5, 1975.

problems for the health care system in California, threatening to curtail the availability of medical care in some parts of the state and creating the very real possibility that many doctors would practice without insurance, leaving patients who might be injured by such doctors with the prospect of uncollectible judgments. In attempting to reduce the cost of medical malpractice insurance in MICRA, the Legislature enacted a variety of provisions affecting doctors, insurance companies and malpractice plaintiffs.

[The limitation on recoverable non-economic damages] is, of course, one of the provisions which made changes in existing tort rules in an attempt to reduce the cost of medical malpractice litigation, and thereby restrain the increase in medical malpractice insurance premiums. It appears obvious that this section – by placing a ceiling of $250,000 on the recovery of noneconomic damages – is rationally related to the objective of reducing the costs of malpractice defendants and their insurers.[4]

B. Compensation Available Under MICRA to Individuals Who Have Experienced Medical Malpractice

MICRA allows successful plaintiffs in medical liability cases to receive the following forms of financial compensation:

- Unlimited monetary awards for any and all past and future medical costs;
- Unlimited monetary awards for lost wages and lifetime earning potential;
- Unlimited monetary awards that a court may grant as punitive damages to deter future malpractice and to punish the defendant for malicious or willful misconduct; and
- Monetary awards of up to $250,000 for non-economic damages, which by their very nature are difficult or impossible to verify and measure.[5]

C. Objectives of this Report

The purpose of this report is to provide interested parties, including Members of the California Legislature, other government officials, the media, and the public, with an objective analysis of various economic issues pertaining to California's MICRA cap on non-economic damages, including the likely economic effects of increasing the cap. The authors take no position on whether the existing $250,000 cap should be raised or lowered, and we acknowledge that other considerations besides the cap's effect on the cost of, and access to, health care in California may be relevant when deciding whether the cap should be changed.

D. Organization of the Report

The balance of this report is organized as follows:

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[4] *Lawrence Fein, v. Permanente Medical Group,* S.F. No. 24336, Supreme Court of California, 38 Cal. 3d 137; 695 P.2d 665; 211 Cal. Rptr. 368; 1985. (Intervening footnotes omitted.)
[5] Non-economic damages are sometimes referred to as "pain and suffering damages."

- Part II draws on well-established economics principles and the findings of empirical research to show how caps on non-economic damages awards affect the incentives of individuals and their lawyers to file lawsuits against doctors and hospitals.

- Part III tests the hypothesis advanced by some of MICRA's critics that the cap has reduced access to California's court system.

- Part IV compares the trend in the average payment per medical liability claim with the rate of inflation since the MICRA cap took effect.

- Part V analyzes the MICRA cap's impact on medical liability insurance premiums in California.

- Part VI tests the hypothesis, also advanced by some of MICRA's critics, that medical liability insurance companies have used the cost-savings from MICRA to generate excess profits, rather than pass these savings along to the doctors and hospitals they insure.

- Part VII draws on the results of scholarly research and studies by highly regarded government agencies to estimate how an increase in the $250,000 MICRA cap would affect the cost of health care to Californians.

- Part VIII shows who would be required to pay the increased health care costs resulting from an increase in the MICRA cap.

- Part IX analyzes how an increase in the MICRA cap would affect the number of uninsured persons in California.

- Part X draws upon well-established principles of economics and Texas's real-world experience to show how an increase in the cap would affect Californians' access to doctors and hospitals.

- Part XI analyzes how a higher MICRA cap would affect the willingness of doctors to treat high-risk patients when the probability of a successful outcome from even the best medical care is relatively low.

- Part XII analyzes how an increase in the MICRA cap would affect California's social safety net.

- Part XIII briefly summarizes our conclusions.

E. **Summary of Findings**

Our findings may be summarized as follows:

- The MICRA cap reduces the incentive for individuals and their lawyers to litigate weak or non-meritorious claims against doctors and hospitals.

- Data on claim filings indicates that the MICRA cap has not reduced access to the court system for individuals with meritorious claims.

- Data on claims paid by medical liability insurance companies shows that since the MICRA cap was imposed, the average monetary payment to successful claimants has risen at a rate that is more than two-and-one-half times the rate of inflation.

- The MICRA cap, by limiting awards for non-economic damages and reducing the number of lawsuits filed against doctors and hospitals, has reduced medical liability insurance premiums by as much as 48%.

- MICRA does not generate excess profits for California medical liability insurers for at least three reasons

  (1) Most of these insurers are owned by premium-payers that have both the motivation and ability to ensure that insurance rates are not excessive;

  (2) When losses are less than anticipated, the resulting excess premiums are returned to the policy holders; and

  (3) For-profit medical liability insurance companies earn relatively modest returns on their invested capital, especially given the risks they assume.

- Raising the MICRA cap would increase the cost of providing health care to Californians by more than $11 billion per year because a higher cap would (1) increase both the number of lawsuits filed against doctors and hospitals, and the size of awards, thereby increasing the medical liability insurance premiums that health care providers must pay, and (2) increase the incentive for care providers to order costly and medically unnecessary tests and procedures, as a means to offset their increased vulnerability to lawsuits.

- The more than $11 billion per year increase in the cost of health care resulting from a higher cap would be borne by three groups of Californians: consumers, workers, and taxpayers. The increase would amount to $285 per California resident, or over $1,100 for a family of four annually.

- By increasing the cost of health care and making health insurance more expensive, a higher MICRA cap would cause the number of uninsured persons in California to increase.

- An increase in the MICRA cap would reduce the number of doctors practicing in California – especially in minority and rural areas, and would cause some poorly capitalized hospitals and community health centers to close, thereby further impairing Californians' access to high-quality and affordable health care.

- A higher MICRA cap would decrease the willingness of physicians to treat high-risk patients when the probability of a successful outcome from even flawlessly delivered medical care is relatively low.

- By adding to the financial problems of hospitals and clinics, an increase in the MICRA cap would reduce the health care services available to the poor, thereby negatively affecting California's social safety net.

II. THE MICRA CAP REDUCES THE INCENTIVE TO LITIGATE WEAK OR NON-MERITORIOUS CLAIMS

Economic principles hold that individuals tend to act in their self-interest, given the costs and benefits associated with the alternative courses of action available to them. Empirical research has validated the theory's applicability to many types of behavior, including the propensity of individuals to file lawsuits. As a result, we know that, other things being equal, a larger expected payoff from filing a lawsuit will lead to more claims of alleged medical liability being pursued.

A. Expected Return from Filing a Lawsuit

Three factors determine the size of the payoff expected from filing a lawsuit: (1) The probability of obtaining a favorable outcome, such as a jury verdict in the plaintiff's favor or a negotiated settlement with the defendant (Pr); (2) the size of the expected award (A), conditional on there being an award; and (3) the expected cost of litigating the claim (C). We can represent the interplay of these factors in determining the expected payoff from filing a lawsuit (E*) as follows:

$$E^* = (Pr \times A) - (C)$$

B. The Probability of Obtaining a Favorable Outcome

The likelihood that an individual plaintiff will prevail in litigation claiming medical liability depends primarily on the strength of his or her case, although the probability may be increased if the jury views the plaintiff as especially sympathetic. A sympathetic plaintiff with a weak case may be as successful in obtaining a favorable award as a less-sympathetic plaintiff with a strong case.

C. The Size of the Expected Award

The size of the expected award is a function of two sets of factors: (1) the magnitude of the plaintiff's alleged damages; and (2) any limiting or enhancing considerations. A limiting factor would be a cap on non-economic damages awards. An enhancing factor would be the availability of punitive damages.

D. The Cost of Medical Liability Litigation

It is costly to pursue damages claims, just as it is costly to defend against them. In California, 72.3 percent of claims from 2013 through 2017 resulted in no indemnity payment being made.[6] The AMA in 2015 found that on average in the U.S., 68.2 percent of all closed claims were dropped, dismissed, or withdrawn. Each of these claims cost an average of $30,425 to defend, representing about 38.4 percent of total defense costs across all types

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[6] MPL Association. (2019). Queried data by special request. Data Sharing Project.

of claim dispositions.[7] Additionally, only about 7 percent of claims are decided by trial verdicts, of which 87.5 percent of these claims are won by the defendant. Overall, of the total closed claims analyzed, only 24.8 percent of these claims resulted in a plaintiff indemnity payment.[8]

Thus, the tort system is far less efficient than ordinary health insurance. In addition to the out-of-pocket costs associated with litigation, lawsuits require a heavy investment of the plaintiff's and defendant's time. The time spent on a lawsuit cannot be spent on other activities.[9] For example, when a doctor is sued, he or she will have to take time away from seeing patients in order to prepare a defense, testify at a deposition, and attend the trial.

The cost of pursuing litigation has both fixed (C_f) and variable (c_v) components. The variable component is a function of the amount potentially at stake. Other things being equal, a defendant will fight harder to avoid paying a larger award, and a plaintiff will make a greater effort to obtain such an award. The expected payoff formula can be refined to take account of the fixed and variable cost components, as follows:

$$E^* = (Pr \times A) - (C_f + c_v A)$$

This formula shows that the decision to pursue a malpractice claim is contingent on the probability of proving liability in court, as well as on the expected size of the settlement or damages award.[10] If the expected size of the settlement or award is sufficiently large, even attorneys for plaintiffs with weak or non-meritorious claims and a relatively small probability of successfully proving liability will determine that it is in their economic interest to file a lawsuit.

E. The Propensity to Pursue Medical Liability Claims

A meaningful cap[11] on non-economic damages limits the reward that might otherwise be expected from filing a medical liability lawsuit. Accordingly, a cap will reduce the incidence and cost of malpractice claims by discouraging the weakest claims, and by encouraging out-of-court settlements. In the following paragraphs, we

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[7] The study defines these costs as "defense and cost containment expenses incurred in the process of administering or adjudicating a claim, such as for defense attorneys and expert witnesses." See, Jose R. Guardado, Ph.D., "Medical Professional Liability Insurance Indemnity Payments, Expenses and Claim Disposition, 2006-2015," Policy Research Perspectives, American Medical Association, January 24, 2018 (https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/public/government/advocacy/policy-research-perspective-liability-insurance-claim.pdf).

[8] Jose R. Guardado, Ph.D., "Medical Professional Liability Insurance Indemnity Payments, Expenses and Claim Disposition, 2006-2015," Policy Research Perspectives, American Medical Association, January 24, 2018 (https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/public/government/advocacy/policy-research-perspective-liability-insurance-claim.pdf).

[9] In economic terms, the time and money spent bringing or defending a lawsuit can be thought of as the opportunity cost of litigation – the value of the time and resources that could have been spent elsewhere. Opportunity costs can be measured and expressed in dollar terms, although we do not do so here.

[10] See, for example, Patricia M. Danzon and Lee A. Lillard, "Settlement out of Court: the Disposition of Medical Malpractice Claims," *Journal of Legal Studies*, Vol. XII (June 1983), p. 356; and Henry S. Farber and Michelle J. White, "Medical Malpractice: An Empirical Examination of the Litigation Process," *RAND Journal of Economics* 22 (2) (Summer 1991), pp. 199-217.

[11] Not all caps on non-economic damages awards are meaningful. A high cap, or a cap with significant exceptions, may not materially alter the plaintiff's and defendant's assessment of the expected award's size, and therefore may not be effective in altering the economic incentives to pursue non-meritorious medical liability claims.

model the effects of having no cap, as well as caps of $250,000, $500,000 and $1,250,000, on a claimant's incentive to file suit.

Consider a claim of alleged medical liability consisting of $400,000 in economic damages and $600,000 in non-economic damages. Assume that the probability of success in filing a lawsuit is 80 percent for meritorious claims and 20 percent for non-meritorious claims.[12] Further, assume that the fixed costs of litigating the claim (C_f) amount to $100,000, and the variable costs (c_v) amount to 5 percent of the maximum potential award. Table 1 shows the impact of various caps on meritorious and non-meritorious claimants.

[12] Research supports probabilities for success (payouts) in this range for meritorious and non-meritorious claims. See David M. Studdert, *et. al.* "Claims, Errors, and Compensation Payments in Medical Malpractice Litigation," *New England Journal of Medicine*, 354 (19) (May 11, 2006), pp. 2024-2033 and cites within.

Table 1:
Impact of Caps on "Meritorious" and "Non-Meritorious" Claimants

Economic Damages	Non-Economic Damages	Cap	Prob. of Win	Expected Gross Return	Fixed Cost of Litigating	Variable Cost of Litigating (as % of Award)	Variable Cost of Litigating ($)	Expected Value
a	*b*	*c*	*d*	*e*[1]	*f*	*g*	*h*[2]	*i*[3]
PANEL A (Non-Meritorious)								
$400,000	$600,000	No cap	20%	$200,000	-$100,000	5%	-$50,000	$50,000
$400,000	$600,000	$250,000	20%	$130,000	-$100,000	5%	-$32,500	-$2,500
PANEL B (Meritorious)								
$400,000	$600,000	No cap	80%	$800,000	-$100,000	5%	-$50,000	$650,000
$400,000	$600,000	$250,000	80%	$520,000	-$100,000	5%	-$32,500	$387,500
PANEL C (Non-Meritorious)								
$400,000	$600,000	No cap	20%	$200,000	-$100,000	5%	-$50,000	$50,000
$400,000	$600,000	$250,000	20%	$130,000	-$100,000	5%	-$32,500	-$2,500
$400,000	$600,000	$500,000	20%	$180,000	-$100,000	5%	-$45,000	$35,000
$400,000	$600,000	$1,250,000	20%	$200,000	-$100,000	5%	-$50,000	$50,000
PANEL D (Meritorious)								
$400,000	$600,000	No cap	80%	$800,000	-$100,000	5%	-$50,000	$650,000
$400,000	$600,000	$250,000	80%	$520,000	-$100,000	5%	-$32,500	$387,500
$400,000	$600,000	$500,000	80%	$720,000	-$100,000	5%	-$45,000	$575,000
$400,000	$600,000	$1,250,000	80%	$800,000	-$100,000	5%	-$50,000	$650,000

[1] e=d*{a+if(c>0,min(b,c),b)}
[2] h=g*{a+if(c>0,min(b,c),b)}
[3] i=e+ f+ h

1. The Effect of a $250,000 Cap

As Panel A shows, a cap of $250,000 on non-economic damages awards discourages weak or non-meritorious claimants from filing a medical liability suit, by changing the suit's expected payoff from positive ($50,000) to negative (-$2,500). The cap however would not discourage the strong claimant (Panel B) from pursuing a claim.

2. The Effect of Raising the Cap

Panel C shows that while a cap of $250,000 discourages weak claimants from filing suits, the disincentive goes away when the cap is raised to either $500,000 or $1,250,000. Since a $250,000 cap does not discourage individuals from litigating meritorious claims, it is not surprising that both a $500,000 cap and a $1,250,000 cap would leave such claimants with an even stronger economic incentive to litigate their claims, as Panel D shows.

In sum, increasing the cap on non-economic damages would increase the number of medical liability lawsuits filed against doctors and hospitals – primarily by making it economically attractive for individuals with weak or non-meritorious claims to file suit.

The increase in the number of lawsuits against doctors and hospitals resulting from a higher cap would increase insurers' litigation expenses in two main ways. First, it would increase the cost of claims paid because some of the additional suits would be successful, despite the weaknesses in the plaintiffs' claim. Second, it would make plaintiffs less inclined to accept out-of-court settlements, thereby further increasing the insurers' defense costs.

III.   THE MICRA CAP DOES NOT REDUCE ACCESS TO THE COURTS

Some opponents of MICRA have argued that the cap on non-economic damages awards has reduced Californian's access to the court system by preventing injured plaintiffs with meritorious claims from finding attorneys willing to take their cases. We can test this hypothesis by examining data on the number of medical liability lawsuits filed in California since MICRA was enacted, and comparing the trend to the corresponding trend for other personal injury lawsuits.[13]

A.   Medical Liability Suits Have Not Declined as Much as Personal Injury Suits That Are *Not* Subject to a Cap on Damages Awards

Since the mid-1980s, there has been a significant decline in the number of personal injury lawsuits filed. Despite the $250,000 cap on non-economic damages awards, however, the number of medical liability lawsuits has not declined as much as the number of personal injury lawsuits that are not subject to a cap on awards.

Figure 1 shows the trend in medical liability filings for California's most-populous county – Los Angeles[14] – during the 1985-2011 period, and compares it to the trend in all other personal injury filings. To facilitate a comparison between the two data series, we have indexed both to the number of filings in 1985.

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[13] The incidence of *lawsuits* is somewhat different from "frequency." The insurance industry uses the term "frequency" to refer to the rate of *claim* filings.

[14] Los Angeles County is home to more than one of every four residents in California. See, "E-1 Population Estimates for Cities, Counties, and the State – January 1, 2017 and 2018" State of California Department of Finance (available at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-1/).

Figure 1:
Trends in Medical Liability and Personal Injury-Other
(Excluding Medical Liability) Lawsuits per Capita Filed in Los Angeles County
1985-2011 (1985=100%) [a]

As the figure shows, other personal injury filings in Los Angeles have declined more rapidly than medical liability filings, even though awards in these cases are not subject to caps on either economic or non-economic damages awards. This comparison undercuts the claim that the MICRA cap is responsible for the decline in medical liability cases.

Los Angeles County was unable to provide medical malpractice filings for 2012 and later years. As a result, we were not able to update the comparison shown in Figure 1. To determine if the conclusions drawn from Figure 1 continue to be valid, we gathered data on medical liability and other personal injury filings for six large California counties: San Diego, Santa Clara, Orange, Kern, Sacramento, and San Francisco. Together, these counties are similar in size to Los Angeles Country. As Figure 2 shows, the trends in filings reported for these counties during

the 2012-2017 period are fully consistent with the trends reported for Los Angeles County during the 1985-2011 period: medical liability filings have not declined more than other personal injury filings that are not constrained by a cap.

Figure 2:
Recent Trends in Medical Liability and Personal Injury-Other
(Excluding Medical Liability) Lawsuits per Capita Filed in San Diego, Santa Clara, Orange, Kern,
Sacramento, and San Francisco Counties
2012-2017 (2012=100%) [a]
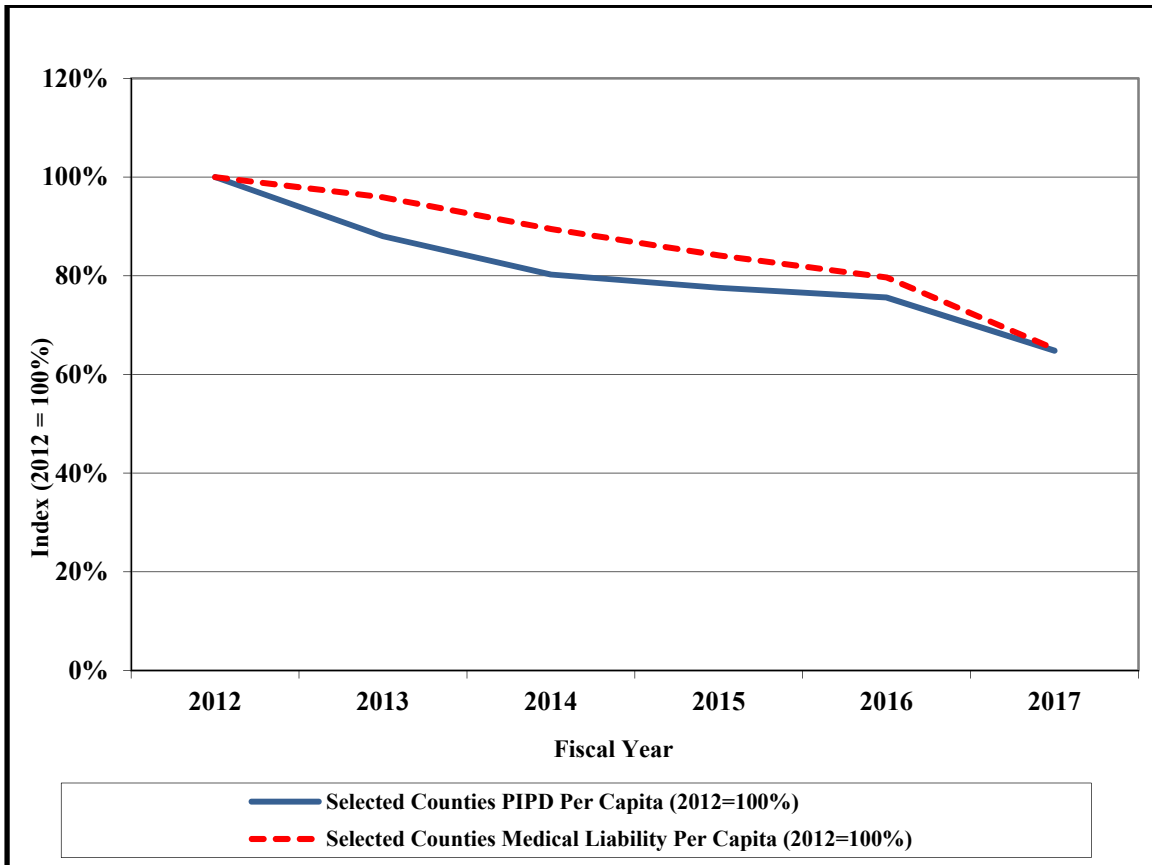
[a] SOURCE: Data from Superior Court of California records regarding Total Medical Malpractice claims filed in San Diego, Santa Clara, Orange, Kern, Sacramento, and San Francisco Counties; and Resident Population, Thousands of Persons, Annual, Not Seasonally Adjusted, Federal Reserve Economic Data, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/categories/27521).

In sum, the available evidence indicates that the cap has not reduced access to the judicial system to any significant degree for individuals with meritorious claims. Notwithstanding the cap, Californians who believe they have experienced medical malpractice continue to find attorneys willing to take their cases, and for these claimants the door to the courthouse remains open. While there has been a drop in the number of medical liability cases on a per capita basis, the evidence strongly suggests that the drop is primarily because weak or non-meritorious claims are not being pursued.

13

B. MICRA Has Not Significantly Reduced the Number of Claims Made Against Physicians in California

Another important perspective on the incidence of medical liability claims both before and after 1985, when the MICRA cap was upheld by the California Supreme Court, can be gained by comparing the number of such claims with the number of physicians practicing in the State. As Table 2 indicates, during the seven years prior to 1985, claims frequency in California averaged 23.4 percent.[15] During the next thirty-one years (1986-2017), the average decreased to 15.9 percent.

Does this decline suggest that the MICRA cap is discouraging California residents with valid medical liability claims from filing suit? Based on the available evidence, which shows that the claims frequency in California remains above other states, the answer is "no."

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[15] We do not include 1976-1977 in our sample, as the number of insured doctors outside California in The Doctors Company's data is not sufficient to provide a representative sample.

Table 2:
California vs. Non-California Medical Liability Claims Frequency Rates [a]

	CALIFORNIA			NON-CALIFORNIA			
Year	[a] Claims	[b] Insured Doctors	[c]=[a]/[b] Claim Frequency	[d] Claims	[e] Insured Doctors	[f] = [d]/[e] Claim Frequency	[g] = [c]/[f]-1 Difference
1976	40	678	5.9%	0	n/a	0.0%	n/a
1977	251	106	236.8%	0	n/a	0.0%	n/a
1978	506	2,691	18.8%	1	11	9.1%	107.2%
1979	640	3,575	17.9%	12	94	12.8%	40.2%
1980	783	4,399	17.8%	24	240	10.0%	78.0%
1981	1,075	5,000	21.5%	74	313	23.6%	-9.1%
1982	1,171	5,472	21.4%	114	378	30.2%	-29.0%
1983	1,465	5,880	24.9%	144	484	29.8%	-16.3%
1984	1,571	5,958	26.4%	170	653	26.0%	1.3%
1985	1,873	5,783	32.4%	213	699	30.5%	6.3%
1986	1,721	5,941	29.0%	268	865	31.0%	-6.5%
1987	1,780	6,388	27.9%	385	1,412	27.3%	2.2%
1988	1,823	6,798	26.8%	645	2,725	23.7%	13.3%
1989	1,512	6,981	21.7%	652	3,475	18.8%	15.4%
1990	1,545	7,179	21.5%	651	4,058	16.0%	34.2%
1991	1,614	7,232	22.3%	702	4,759	14.8%	51.3%
1992	1,877	6,855	27.4%	894	5,348	16.7%	63.8%
1993	1,776	7,203	24.7%	1,100	5,698	19.3%	27.7%
1994	1,857	7,221	25.7%	1,173	6,069	19.3%	33.1%
1995	1,730	7,034	24.6%	1,232	6,164	20.0%	23.1%
1996	1,781	6,864	25.9%	1,244	6,698	18.6%	39.7%
1997	1,934	6,711	28.8%	1,085	6,096	17.8%	61.9%
1998	1,855	6,449	28.8%	1,342	6,340	21.2%	35.9%
1999	1,573	6,184	25.4%	1,038	5,638	18.4%	38.2%
2000	1,455	6,162	23.6%	1,021	5,474	18.7%	26.6%
2001	1,420	6,448	22.0%	1,297	6,928	18.7%	17.6%
2002	1,468	6,741	21.8%	1,592	9,608	16.6%	31.4%
2003	1,509	6,937	21.8%	1,721	11,006	15.6%	39.1%
2004	1,214	7,793	15.6%	1,210	11,487	10.5%	47.9%
2005	1,152	8,815	13.1%	1,018	12,259	8.3%	57.4%
2006	1,233	9,093	13.6%	986	12,826	7.7%	76.4%
2007	1,224	9,439	13.0%	1,153	14,610	7.9%	64.3%
2008	1,199	9,664	12.4%	1,453	15,775	9.2%	34.7%
2009	1,848	16,252	11.4%	1,609	17,075	9.4%	20.7%
2010	1,871	15,980	11.7%	1,539	18,658	8.2%	41.9%
2011	1,873	15,915	11.8%	1,649	20,177	8.2%	44.0%
2012	1,788	15,775	11.3%	1,824	24,211	7.5%	50.4%
2013	1,434	16,215	8.8%	1,814	35,561	5.1%	73.4%
2014	1,244	16,341	7.6%	1,860	40,646	4.6%	66.4%
2015	1,188	16,107	7.4%	1,861	40,246	4.6%	59.5%
2016	1,162	17,247	6.7%	2,090	39,851	5.2%	28.5%
2017	1,069	17,258	6.2%	1,517	38,203	4.0%	56.0%
1994-2017	**36,081**	**258,645**	**13.9%**	**34,328**	**411,607**	**8.3%**	**67.3%**
1978-1985	**9,085**	**38,758**	**23.4%**	**752**	**2,872**	**26.2%**	**-10.5%**
1986-2017	**49,729**	**313,222**	**15.9%**	**39,625**	**439,947**	**9.0%**	**76.3%**

[a] Underlying exposures have not been adjusted to a base classification. The data does not reflect the claims-made experience of large medical groups or medical schools. Claim counts have been updated for all years, based on observed changes to allocated claim conversions. (SOURCE: The Doctors Company).

We have obtained a complete data set from the U.S.'s second-largest[16] medical liability insurer, The Doctors Company, showing both the number of physicians it insures and the number of claims made against its policyholders, for the period 1976-2017. This data covers all 50 states, allowing us to compare claims frequency rates in California with the corresponding rates in other states.[17]

The data shows that, although MICRA represents the strongest set of medical liability reforms enacted in the U.S. to date, the incidence of medical liability claims in California remains significantly greater than the corresponding rate outside California. In 2017, for example, the claims frequency rate was 6.2 percent in California – 56 percent higher than the average rate for the other 49 states.

Moreover, while the claims frequency rate in California has dropped to an average rate of 15.9 percent since the MICRA cap was found to be constitutional, the rate in the other states has, on average, gone down to 9 percent which is 76.3 percent lower than the rate in California.

In sum, a comparison of medical liability claims frequency in California with claims frequency in the other 49 states further undermines the contention that the MICRA cap, rather than other factors unrelated to the cap, is responsible for the reduction in the rate at which medical liability lawsuits are filed. Individuals and their lawyers are suing California doctors and hospitals at a much higher rate than their counterparts in other states, notwithstanding the fact that MICRA limits the recovery of non-economic damages.

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[16] "Top 15 medical malpractice insurance carriers in 2017, as ranked by the NAIC," by Elana Ashanti Jefferson (available at https://www.propertycasualty360.com/2018/04/15/top-15-medical-malpractice-insurance-carriers-in-2/).

[17] Different insurers (and self-insured entities) define 'claim' and count 'claims' in different ways. Some insurers report notices of claims, or potential claims, received from physician; others report only actual lawsuits filed and served upon insured physicians. Some companies count claims by plaintiff; others count them by defendant (in other words, when a plaintiff sues 4 doctors and a hospital, the suit could be counted as one, four or five claims, depending on how one defines a "claim"). Because no single uniform standard for measuring claims frequency exists, it would be misleading to aggregate historical data from multiple insurance firms. To overcome this obstacle, we present data from a single large firm (The Doctors Company) which, because it underwrites in all 50 states, is representative of the medical liability insurance industry.

IV. THE AVERAGE PAYMENT TO MEDICAL LIABILITY CLAIMANTS HAS OUTPACED THE RATE OF INFLATION

While the MICRA cap has discouraged the filing of weak and non-meritorious lawsuits, and limited non-economic damages awards, it has not prevented the average payment to medical liability claimants from increasing in real terms (that is, rising at a rate exceeding the rate of inflation).

A. The Average Size of All Paid Claims Has Continued to Increase

Figure 3 shows the average payment per claim for each year from 1976 through 2017, as well as what the average *would have been* if it had merely kept pace with the rate of inflation since the cap was imposed in 1975.

Figure 3:
Increase in the Average Payment per Paid Claim in California vs. the Rate of Inflation[a]
1976-2017
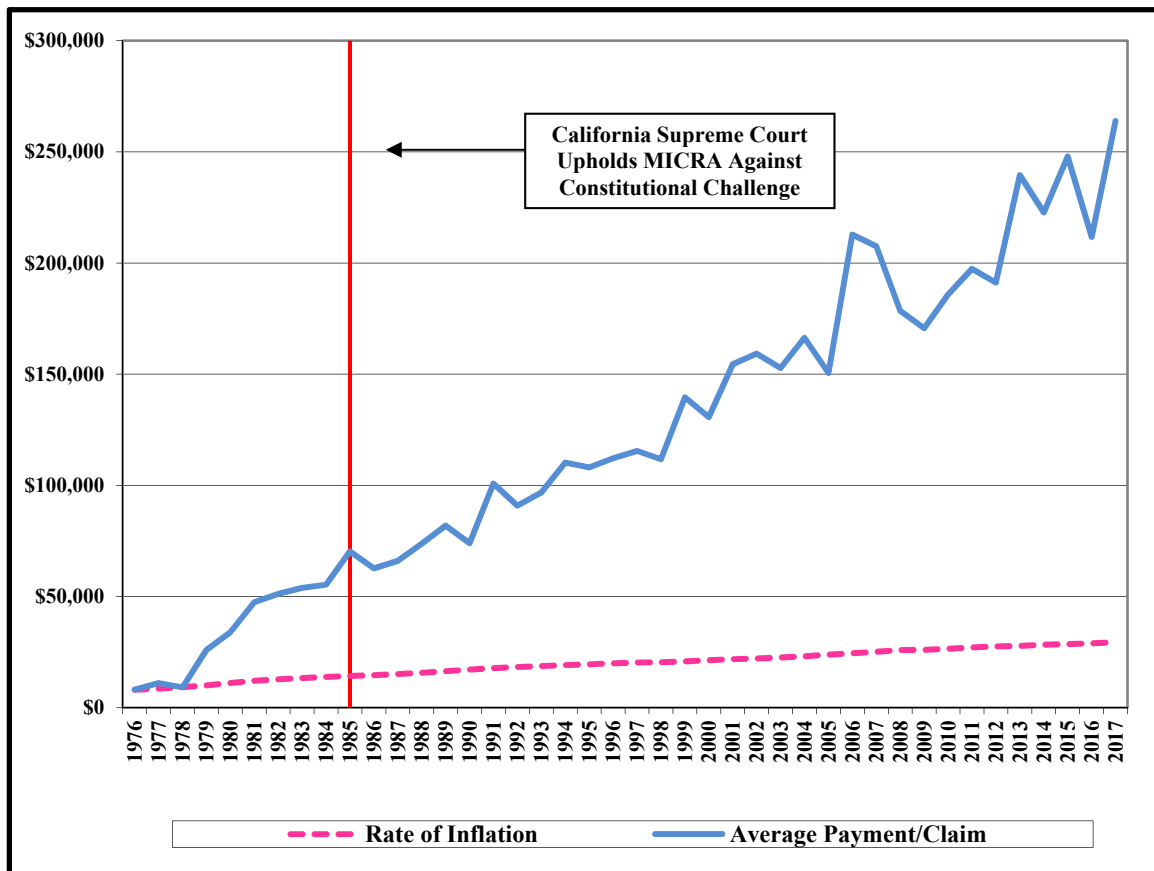
[a] SOURCES: Cooperative of American Physicians, Medical Insurance Exchange of California, NORCAL Mutual Insurance Company, and The Doctors Company; and U.S. Department of Commerce, Bureau of Economic Analysis, Table 1.1.9, Implicit Price Deflators for Gross Domestic Product, Personal Consumption Expenditures.

As the figure demonstrates, since 1976 the average size of paid medical liability claims in California has increased at an average annual rate that is 2.77 times the average annual rate of inflation, notwithstanding the $250,000 MICRA cap. As a result, the average payment per claim in 2017 ($263,881) was about nine times what the average would have been if it had merely kept pace with the rate of inflation ($29,510).

Taken together, Figures 1 through 3 demonstrate that MICRA is achieving the purpose envisioned by the California Legislature when it adopted the cap. It is holding down the cost of the medical liability tort system without decreasing access to the courts for those individuals with valid medical liability claims.

B. States with Caps Exhibit Smaller Average Per-Claim Medical Liability Payments

Sixty percent of the 50 states have followed California's lead and enacted caps on non-economic damages awards in order to discourage non-meritorious claims, restrain the rate of growth in health care costs, and preserve access to affordable health care for their residents. These caps, however, are not equally effective. Some states, such as Hawaii, have adopted caps but provide for liberal exceptions that make it easy for plaintiffs to evade the statutory limitation. Other states have set caps on non-economic damages at relatively high levels, thereby weakening or eliminating the disincentive for individuals and their attorneys to pursue non-meritorious claims. Nevertheless, as a group, states with caps, report smaller average per-claim payments than states without caps.

Table 3 shows average payments per medical liability claim, by state, for 2017.[18] As the table indicates, California had the seventh lowest average payment – $199,367 – despite being a relatively high-cost state. Several heavily populated, industrialized states without non-economic damages caps had average payments that were significantly higher. For example, New York's average payment per claim, at $430,613, was 2.2 times the average for California. Part of the explanation for this disparity is that California's cap discourages attorneys from filing weak or non-meritorious claims – the type of claim that is potentially viable in an uncapped state such as New York.

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[18] National Practitioners Data Bank ("NPDB"). Data through June 2018. Note that the Data Bank's rules require the reporting only of doctors named in final medical liability settlements, so a payment doesn't have to be reported when a doctor's name is removed from the claim. Consequently, the Data Bank is missing information on some medical liability payments. It is not clear what effect the missing data might have. See, for example, "Doctor Is Out: Attempt to Track Malpractice Cases Is Often Thwarted; Deleting a Physician's Name From a Suit Before Settling Keeps It Out of Data Bank; Dubbed the 'Corporate Shield,'" Joseph T. Hallinan, *Wall Street Journal* (Eastern Edition), Aug 27, 2004, p. A.1.

Table 3:
2017 Average Payments per Medical Liability Claim [a]

State (Listed From Highest to Lowest)[b]	Average Payment	Cap	State (Listed From Highest to Lowest)[b]	Average Payment	Cap
Illinois	$675,274		Missouri	$312,992	Yes
District of Columbia	$647,044		Maryland	$310,220	Yes
Maine	$623,091		Tennessee	$301,439	Yes
Connecticut	$619,411		Iowa	$295,317	Yes
Oregon	$572,337	Yes	North Dakota	$292,083	Yes
Rhode Island	$547,545		Nebraska	$275,111	Yes
New Hampshire	$546,964		Colorado	$273,491	Yes
Massachusetts	$535,364	Yes	West Virginia	$270,899	Yes
Georgia	$478,499		North Carolina	$269,514	Yes
New Jersey	$472,969		Oklahoma	$253,472	Yes
Hawaii	$462,941	Yes	Alaska	$251,364	Yes
Washington	$449,407		Florida	$238,803	
New York	$430,613		Louisiana	$238,227	Yes
Virginia	$422,479	Yes	Mississippi	$238,106	Yes
Alabama	$402,366		Michigan	$238,061	Yes
Pennsylvania	$392,718		South Carolina	$231,192	Yes
Arkansas	$373,341		Indiana	$227,728	Yes
New Mexico	$363,095	Yes	Wyoming	$224,318	
Montana	$362,060	Yes	**California**	**$199,367**	**Yes**
Utah	$361,311	Yes	Nevada	$180,332	Yes
Ohio	$345,754	Yes	Texas	$189,255	Yes
Arizona	$343,650		Vermont	$170,444	
Idaho	$336,250	Yes	South Dakota	$148,625	Yes
Delaware	$335,886		Wisconsin	$145,806	Yes
Kentucky	$331,893		Kansas	$135,874	Yes
Minnesota	$316,130				

[a] SOURCE: National Practitioners Data Bank ("NPDB"). Data through June 2018.

[b] Includes District of Columbia. Data for Federated States of Micronesia, Puerto Rico, Armed Forces – Europe, Armed Forces – Pacific, and Armed Forces – Americas not reported.

Texas's experience also illustrates the efficacy of caps on non-economic damages awards. In 2004, Texas's average payment per medical liability claim was $214,971 – $273,613 in 2017 dollars. By adopting a $250,000 cap on non-economic damages, Texas was able to reduce the average payment to $189,255 in 2017 – the fifth lowest among states.

V. THE MICRA CAP HAS REDUCED MEDICAL LIABILITY INSURANCE PREMIUMS BY AS MUCH AS 93%

The evidence shows that the MICRA cap (1) discourages weak and non-meritorious claims, and (2) reduces the average payment per successful claim, thereby reducing the cost of the medical liability tort system and making possible significant reductions in medical liability insurance premiums. We now consider whether the MICRA cap has, in fact, resulted in lower premiums.

A. Incurred Losses Are Strongly Correlated With Medical Liability Insurance Premiums

Figure 4 illustrates the close connection between incurred losses (including paid losses and loss adjustment expenses) and medical liability insurance premiums in California. It shows, for example, that both incurred losses and direct premiums earned fell after 1985 (the year in which the constitutionality of MICRA was upheld by the California Supreme Court), and that both have remained below the peak levels of 1986.[19]

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[19] It is reasonable to assume that several years passed after the Court's decision before the full effect of MICRA was felt.

Figure 4:
Incurred Losses and Medical Liability Insurance Premiums
are Strongly Correlated (In 2016 dollars) [a]
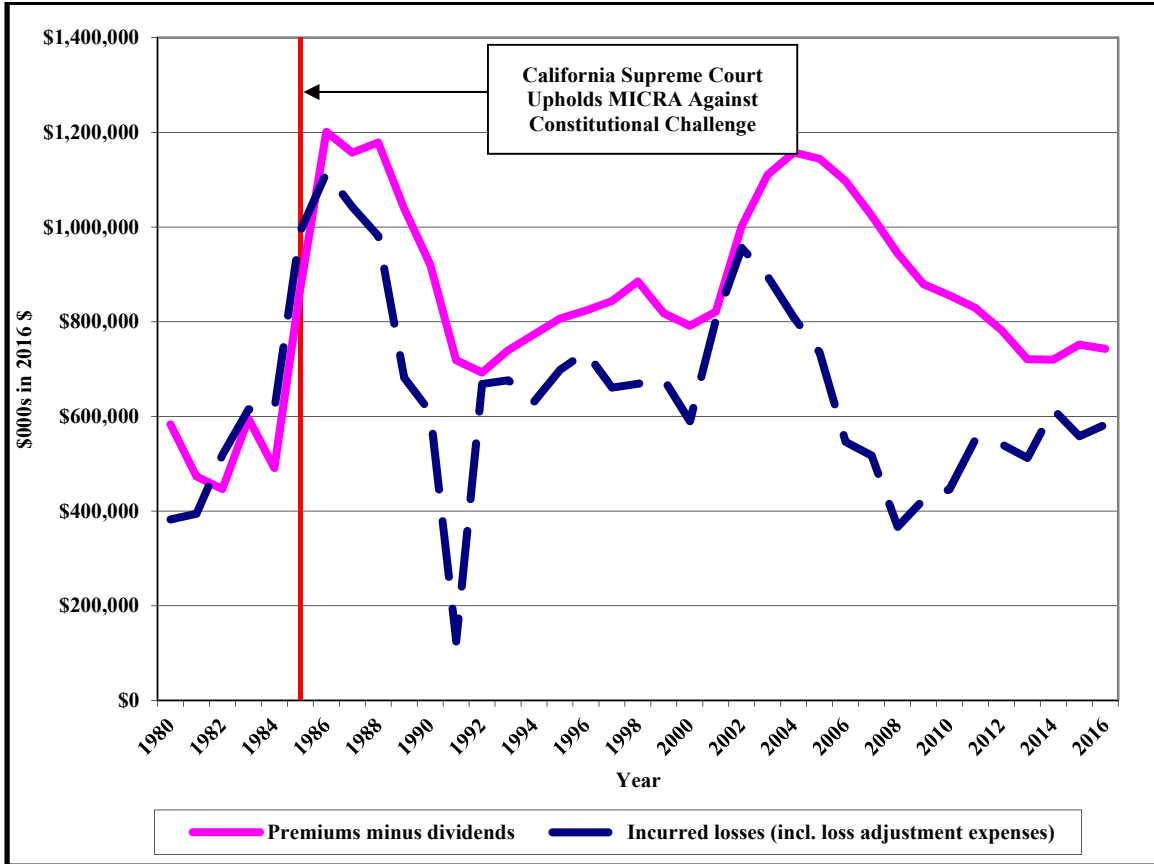
[a] SOURCES: 1980-2017 NAIC Medical Malpractice Insurance Profitability Reports; and U.S. Department of Commerce, Bureau of Economic Analysis, Table 1.1.9, Implicit Price Deflators for Gross Domestic Product, Personal Consumption Expenditures.

The strong correlation between losses and medical liability insurance premiums is evidence that the MICRA cap has resulted in lower medical liability insurance premiums. As losses decline *and are expected to remain at the lower level or decline further,* competitive forces in the insurance industry will tend to reduce insurance premiums. The correlation also means that an increase in the cap on non-economic damages awards will lead to an increase in the premiums that doctors and hospitals must pay.[20]

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[20] Note that losses and premiums immediately following the Supreme Court's decision in 1985 continue to trend upwards before coming down. This is a result of the long lag between collecting premium income and paying claims. Premium rates for the next year must be high enough to cover claims that will be reported that year, the majority of which will be paid over the next 3 to 5 years. Due to the volatility of the ultimate payouts on medical liability claims, it is difficult for insurers to predict the amount of those payouts with great certainty. See, for example, United States General Accounting Office, Report to Congressional Requesters, "Medical Malpractice Insurance: Multiple Factors Have Contributed to Increased Premium Rates," GAO-03-702, June 2003, p. 44.

B. Does MICRA or Proposition 103 Deserve the Credit for Lower Premiums?

Some critics of MICRA have argued that the cap does not deserve credit for reducing medical liability insurance premiums. Rather, these critics assert that credit should be given to the Insurance Rate Reduction and Reform Act (Proposition 103), which the voters approved on November 8, 1988.

Medical liability insurance premiums, like all insurance premiums, are primarily determined by the insurer's cost of providing insurance and paying claims. This is a result of competitive pressures described in more detail below. Over time, increases in these costs must be passed along to policyholders, in the form of higher insurance premiums, or the insurance company will go out of business. Rate regulation cannot hold down rates when those rates do not yield sufficient revenues to cover costs.

Proposition 103 sought to control insurance *rates*, but did nothing to limit the determinants of insurance rates – insurance *costs*. Therefore, there is no reason to believe that the measure was effective in limiting rates.

More importantly, the factual evidence clearly shows that Proposition 103 cannot be credited with the reduction in medical liability insurance premiums. As the authors have demonstrated, medical liability insurance premiums declined sharply during the three years after Proposition 103 took effect – a period that also followed the California Supreme Court's decision upholding MICRA's constitutionality. During the same three-year period, the average rates for other insurance lines subject to Proposition 103's rate controls *increased*. [21] The obvious explanation for this discrepancy is that MICRA reduced medical liability claim costs, but had no effect on claim costs for other lines of personal injury insurance.

C. California's Experience under MICRA is Consistent with the Experience of Other Reform States: Doctors in States with Caps Benefit from Lower Medical Liability Insurance Premiums

In addition to documenting the correlation between loss costs and insurance premiums, we compared medical liability insurance premiums in states with and without caps. Figure 5 shows premiums for various medical specialties in the five states with the largest share of the medical liability insurance market. It illustrates MICRA's effectiveness in holding down medical liability insurance premiums. [22]

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[21] H. E. Frech III, William G. Hamm, and C. Paul Wazzan, "Controlling Medical Malpractice Insurance Costs – Congressional Act or Voter Proposition?" *Indiana Health Law Review*, Volume 3, Issue 1 (2006).

[22] Data represent "manual rates for specific mature claims-made specialties with limits of $1 million/$3 million – by far the most common limits." (see Rate Survey, Medical Liability available at http://medicalliabilitymonitor.com/rate-survey/). Rates reported should not be interpreted as the actual premiums an individual physician pays for coverage. They do not reflect credits, debits, dividends or other factors that may reduce or increase premiums. These five states represent almost forty-four percent of the physician liability insurance market. The amounts shown represent the highest rate (by county and provider) in each state. For comparison, average rates for internal medicine (across all counties and providers) are $9,347 and $27,383 for California and Florida, respectively – a difference of 193%.

Figure 5:
2018 Liability Insurance Premiums
By State and Specialty [a]

As Figure 5 illustrates, medical liability insurance premiums are significantly lower in California than in the other four states, each of which lacks strong MICRA-type reforms.[23] For example, in Florida which caps non-economic damages at $500,000 – double the limit in California, internists pay $47,707 (184 percent) more per year than their counterparts in California; General Surgeons pay $190,829 (220 percent) more; and Obstetricians pay $190,829 (146 percent) more. This comparison provides strong evidence that MICRA's $250,000 cap has been effective in holding down medical liability insurance premiums. It also indicates that an increase in the cap to a level at or above $500,000 – the limit in Florida – would lead to significantly higher premiums for California providers, and ultimately to higher costs for Californians.

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[23] Illinois, New York, and Pennsylvania have no non-economic damages cap. Florida had a $500,000 non-economic damages cap until June 2017, when the cap was ruled unconstitutional.

D. Emasculating the Cap Would Cause Significant Increases in Liability Premiums

Oregon's experience also provides compelling evidence of caps' effectiveness in holding down medical liability insurance premiums. In 1987, the Oregon legislature passed medical liability reforms that included a cap of $500,000 on non-economic damages. Twelve years later, in 1999, the Oregon Supreme Court removed the cap. Figure 6 shows the premiums paid by internal medicine specialists before, during, and after the cap was in effect.

Figure 6:
Impact of Non-Economic Damages Caps on Medical Liability Insurance Premiums in Oregon, 1983-2017 [a]
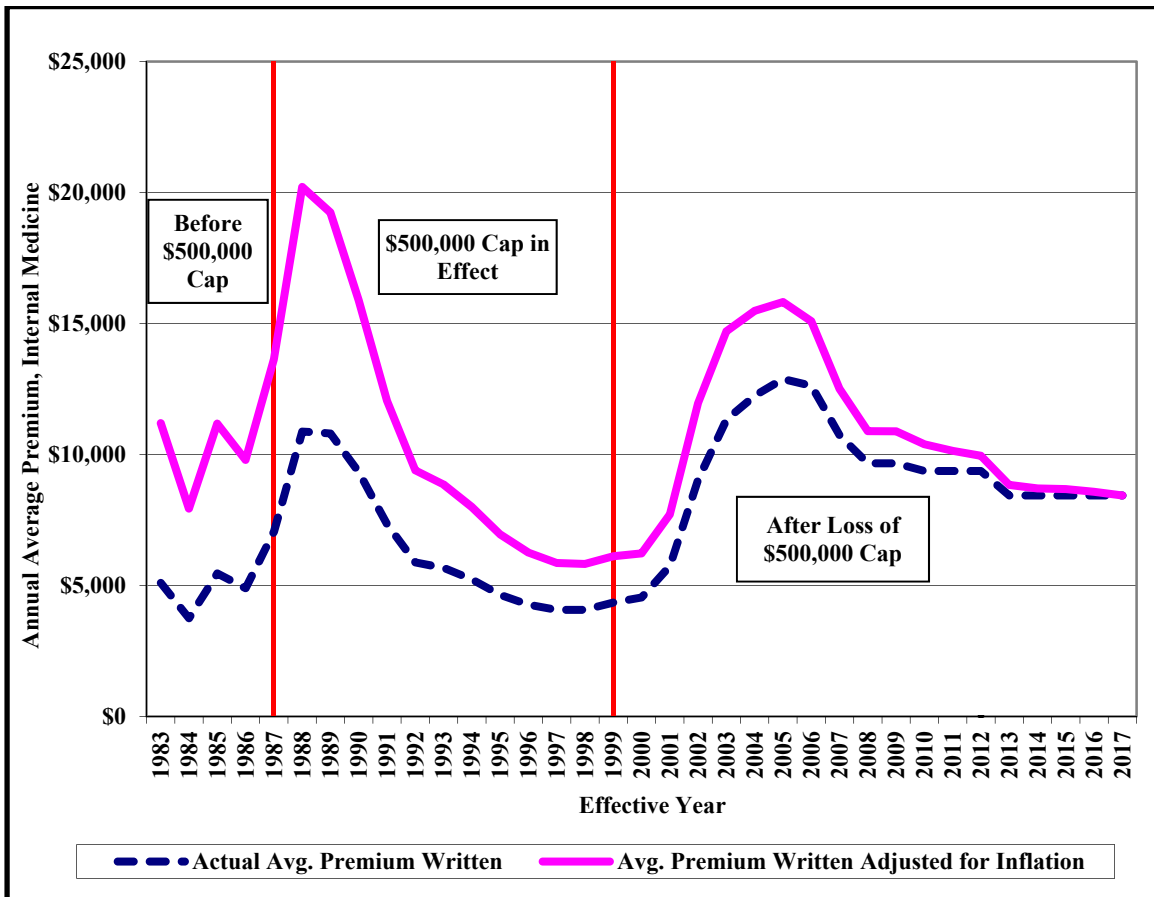
[a] SOURCES: The Doctors Company; and U.S. Department of Commerce, Bureau of Economic Analysis, Table 1.1.9, Implicit Price Deflators for Gross Domestic Product, Personal Consumption Expenditures.

In 1999, when the cap was still in effect, the average inflation-adjusted premium (in 2017 dollars) for internal medicine was $6,113. By 2017, the premium had risen to $8,436, an increase of 38 percent. It is most unlikely that physicians in Oregon became 1.4 times more prone to commit malpractice during this 18-year period. Rather, the difference in rates almost certainly reflects (1) a 20 percent increase in the number of lawsuits brought against doctors and hospitals, and (2) a significant increase in non-economic damages awards that followed removal of the cap.

E. Increasing the MICRA Cap Would Cause Medical Liability Premiums Paid by California Providers to Increase by up to 93 percent

To what extent would an increase in the MICRA cap bring about an increase in the medical liability insurance premiums paid by California doctors and hospitals? In answering this question, we consider both nationwide data and the experience of two Western states that in recent years raised or lowered their caps on non-economic damages. Based on our analysis of the data, we estimate that an increase in the MICRA cap to $1 million or more would cause medical liability premiums to increase by 21 to 93 percent.[24]

1. Estimates of the premium increase based on nationwide data

Several studies have analyzed the efficacy of caps on non-economic damages awards. One study finds that premiums in states that limit awards are approximately 17 percent lower than they are in states that have no cap. This finding suggests that removing the caps in these states would cause medical liability premiums to go up by 20.5 percent.[25] In California, however, the premium increase would almost certainly exceed 20.5 percent if the MICRA cap was removed or dramatically increased. This 20.5 percentage is based on an average for all states that limit non-economic damages awards, and the average cap in these other states is significantly higher than California's cap of $250,000.

2. Estimates of the premium increase based on CBO's analysis

In April 2019, the Congressional Budget Office ("CBO") estimated that if Congress adopted caps and other direct reforms that applied in all states (including those that already cap non-economic damages awards), medical liability premiums nationwide would average about 20 percent less than under current law, once the full effect of the change was felt.[26] This estimate suggests that removing or significantly increasing a nationwide cap would bring about an increase in medical liability insurance premiums of 25 percent.[27] Once again, the increase in California would be significantly larger than 25 percent because the MICRA cap is significantly lower than the average cap in other reform states.

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[24] See, Table 4 and 4A of this report.

[25] See, Thorpe, Kenneth E. "The Medical Malpractice 'Crisis': Recent Trends and the Impact of State Tort Reforms" *Health Affairs*, January 21, 2004, p. w4-w20. The reason why the percentage increase in premiums when a cap is lifted is greater than the percentage reduction when a cap is imposed is that, in the former case, the base for calculating a percentage is lower. For example, if the average premium is $100 and a cap reduces it to $75, the cost-savings will be 25.00% ($25/$100). If the cap is then removed and the average premium returns to $100, the cost increase will be 33.33% ($25/$75).

[26] Karen Stockley, "How Do Changes in Medical Malpractice Liability Laws Affect Health Care Spending and the Federal Budget?," Working Paper 2019-03, Congressional Budget Office, April 2019, p. 17 (https://www.cbo.gov/system/files/2019-04/55104-Medical%20Malpractice_WP.pdf).

[27] See footnote 25 for an explanation of why the percentage change in premiums when a cap is increased is greater than the percentage change when a cap is imposed.

3. Estimates of the premium increase based on the experience in Texas and Oregon

An alternative method for estimating the increase in medical liability insurance premiums that would result from a higher MICRA cap draws on the experience of two other Western states: Oregon and Texas.

In making this estimate, one must take into account two likely consequences of a higher cap: (1) the increase in the average award for those cases that would have been filed if the $250,000 cap was still in effect, and (2) the increase in the number of lawsuits filed because of the higher cap.

a. Impact of a higher cap on the average award in successful medical liability cases

In 2004, the RAND Corporation analyzed 257 verdicts for the plaintiffs in medical liability cases adjudicated during the period 1995-1999.[28] Its analysis found that if the MICRA cap during those five years had been approximately $750,000, instead of $250,000, the final judgments in these 257 cases would have been approximately 13 percent larger.[29] Although this estimate is now 20 years old, there is no reason to believe that the percentage increase today would be lower, and it is possible that it would be higher.

b. Impact of a higher cap on the number of lawsuits filed

By increasing the expected payoff from weak and non-meritorious claims, a higher cap would incent plaintiffs and their lawyers[30] to file more lawsuits against doctors and hospitals.

To estimate the number of new cases likely to result from a higher cap, we looked at trends in the number of claims filed in two states that, in recent years, significantly altered the limits on non-economic damages awards in medical liability cases: Oregon and Texas.

- Oregon limited non-economic damages awards to no more than $500,000 from 1987 until 1999, when the state's Supreme Court invalidated the cap. After the cap was taken away, the number of medical liability claims per capita increased by 10 percent.[31]

- Prior to 2003, Texas did not limit non-economic damages awards. After the Legislature imposed a $250,000 cap, the number of medical liability claims declined by about 46 percent.[32]

Using Oregon's experience, we estimate that raising the MICRA cap to a level four times the current level (that is, to $1 million) would increase medical liability awards by 25 percent, as shown in Table 4.

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[28] RAND Institute for Civil Justice, *Capping Non-Economic Awards in Medical Malpractice Trials: California Jury Verdicts Under MICRA* (2004).

[29] *Ibid.*, p. 44.

[30] Attorney fees typically are equal to a percentage of the medical liability award. Because a higher cap increases the expected award, it will increase the amount that the plaintiff's attorney expects to earn from the lawsuit.

[31] See Appendix A for details.

[32] See Appendix A for details. Note that, unlike California, Texas has a tiered cap that, in the case of multiple defendants, allows awards for non-economic damages up to $750,000.

Table 4:
Likely Impact on Claim Payments if the MICRA Cap is Increased: Based on Oregon's Experience

Estimated Increase in Average Claim Costs		
Average payment per claim filed in CA (2017)[a]	$199,367	[A]
Estimated increase in claim costs (per RAND)[b]	13%	[B]
Estimated average payment per claim filed in CA - MICRA cap increased	$225,285	[C] = [A] x [B]
Estimated Increase in Claim Costs: Additional Medical Malpractice Claims Filed		
Number of medical malpractice claims filed in CA (2017)[a]	1,106	[D]
Percent increase in medical malpractice claims filed in CA[c]	10%	[E]
Estimated number of additional medical malpractice claims filed in CA	114	[F] = [D] x [E]
Additional medical malpractice claim costs	$25,794,256	[G] = [C] x [F]
Estimated increase due to additional medical malpractice claim costs	12%	[H] = [G] / ([A] x [D])
Estimated percentage increase in premiums		
Total increase in claim costs	25%	[I] = [B] + [H]
Claim costs as a percent of premiums[d]	86%	[J]
Estimated Percentage Increase in Premiums	**21%**	**[K] = [I] x [J]**

[a] SOURCE: National Practitioners Data Bank. Data through June 2018.

[b] SOURCE: N. Pace, D. Golinelli, and L. Zakaras, "Capping Non-Economic Awards in Medical Malpractice Trials - California Jury Verdicts under MICRA," RAND Institute for Civil Justice, 2004, p. 44.

[c] The average change in the number of claims filed per capita in Oregon between 1994 and 1998, when Oregon had a $500,000 non-economic cap, and 2000 to 2004 when Oregon no longer had a cap on non-economic damages. See Appendix A for details.

[d] SOURCE: NAIC Report of Profitability by Line by State for 2001 to 2017. See Appendix B for details.

If, instead, we use Texas's experience, the increase in claim costs would be approximately 107 percent.[33]

Table 4A:
Likely Impact on Claim Payments if the MICRA Cap is Increased: Based on Texas' Experience

Estimated Increase in Average Claim Costs		
Average payment per claim filed in CA (2017)[a]	$199,367	[A]
Estimated increase in claim costs (per RAND)[b]	13%	[B]
Estimated average payment per claim filed in CA - MICRA cap increased	$225,285	[C] = [A] x [B]
Estimated Increase in Claim Costs: Additional Medical Malpractice Claims Filed		
Number of medical malpractice claims filed in CA (2017)[a]	1,106	[D]
Percent increase in medical malpractice claims filed in CA[c]	83%	[E]
Estimated number of additional medical malpractice claims filed in CA	923	[F] = [D] x [E]
Additional medical malpractice claim costs	$208,030,171	[G] = [C] x [F]
Estimated increase due to additional medical malpractice claim costs	94%	[H] = [G] / ([A] x [D])
Estimated percentage increase in premiums		
Total increase in claim costs	107%	[I] = [B] + [H]
Claim costs as a percent of premiums[d]	86%	[J]
Estimated Percentage Increase in Premiums	**93%**	**[K] = [I] x [J]**

[a] SOURCE: National Practitioners Data Bank. Data through June 2018.

[b] SOURCE: N. Pace, D. Golinelli, and L. Zakaras, "Capping Non-Economic Awards in Medical Malpractice Trials - California Jury Verdicts under MICRA," RAND Institute for Civil Justice, 2004, p. 44.

[c] The average change in the number of claims per capita filed in Texas between 1999 and 2003, when Texas did not have a non-economic cap, and 2005 to 2009 when Texas instituted a $250,000 cap on non-economic damages. See Appendix A for details. Percentage increase is equal to .46/(1-.46) = 83%. The 46 percent represents the average reduction in the number of claims filed per capita after the cap was enacted.

[d] SOURCE: NAIC Report of Profitability by Line by State for 2001 to 2017. See Appendix B for details.

c. Relationship between increased claim costs and increased premiums

An increase in claim costs does not imply a corresponding percentage increase in medical liability insurance premiums, since part of the premium is intended to cover costs such as overhead and administration that are less sensitive to changes in the average damages award. For purposes of estimating how an increase in claim costs would affect medical liability insurance premiums, we calculated the average ratio of indemnity payments, general

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[33] See Appendix C for details.

and selling expenses, and dividends paid to policyholders to direct premiums earned. We used this ratio (86 percent[34]) to calculate the increase in premiums that would result from an increase in claim costs.

4. Conclusion

In sum, the available data indicates that an increase in the MICRA cap would lead to an increase in medical liability insurance premiums ranging from 21 percent to 93 percent. As explained above, it is highly likely that the actual increase would be significantly higher than the bottom of this range.

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[34] See Appendix B for details.

VI. MICRA DOES NOT GENERATE EXCESS PROFITS FOR CALIFORNIA INSURERS

Some opponents of MICRA contend that the reduction in incurred losses made possible by the $250,000 cap has not resulted in savings for either providers (doctors and hospitals) or consumers. Instead, they argue that the savings have been retained by medical liability insurance companies, allowing them to make supra-competitive profits.[35] There is no reliable evidence to support this contention, which is not surprising given the structure of the medical liability insurance market and the nature of competitive forces in that market.

A. Medical Liability Insurance Companies Face Strong Market Competition

Bedrock economics principles hold that in competitive markets, prices must be high enough to enable firms to cover their costs and earn a competitive after-tax return on their capital. If market conditions temporarily allow firms to earn returns exceeding their costs (including the cost of capital), new firms will enter the market or existing firms will expand and drive down prices, thereby eliminating the excess profits. Similarly, if competition pushes prices below the point where firms are able to earn a reasonable return on their capital, some firms will leave the market, causing prices to rise. Thus, the competitive process tends to force prices to the level where firms are able to cover their costs and earn a competitive return on their capital, but not an excessive return.

Medical liability insurance companies are not exempt from the competitive forces that keep prices and profits in check elsewhere in the economy. To the contrary, the evidence indicates that competition within the insurance industry is especially vigorous. In fact, the U.S. General Accounting Office ("GAO") found that "competition among insurers can put downward pressure on premium rates, even to the point at which the rates may, in hindsight, become inadequate to keep an insurer solvent."[36]

Real-world evidence of the medical liability insurance market's competitiveness is provided by the recent experience of firms that have competed in this market. Since 2002, eight medical liability insurers have succumbed to competitive pressures and become insolvent.[37] In addition, the St. Paul Companies – the United States' largest underwriter of medical liability insurance during the 1990s – pulled-out of the market in 2002. According to Jay Fishman, the company's chairman and chief executive officer, staying in the medical liability insurance business

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[35] Supra-competitive profits are defined here as profits superior to those that would exist in an unregulated, perfectly competitive market.

[36] United States General Accounting Office, Report to Congressional Requesters, June 2003, "Medical Malpractice Insurance: Multiple Factors Have Contributed to Increased Premium Rates," GAO-03-702, p. 35. The GAO subsequently changed its name to the Government Accountability Office.

[37] These firms have been liquidated due to insolvency: Galen Insurance Company (2017), Oceanus Insurance (2017), Professional Liability Insurance Company of America (2014), PIE Mutual (2009), Frontier Insurance (2012), MIIX-New Jersey (2008), PHICO Insurance Company (2002), and Reciprocal of America (2003).

"would threaten the solvency of the company."[38] The experience of these seven insurers cannot be reconciled with the claims of MICRA's opponents that insurers are able to earn supra-competitive profits writing medical liability insurance.

Medical liability premiums are determined primarily by the insurers' cost of providing insurance (including the cost of capital). Therefore, the increase in costs that would result from an increase in the MICRA cap on non-economic damages awards ultimately would be reflected in the insurance premiums paid directly by health care providers (and indirectly by consumers, workers, and taxpayers). Competition in the medical liability insurance market ensures that there will be no ongoing "excess profits" available to absorb the increased costs.

B. Physician-Owned Medical Liability Insurance Companies Have No Incentive to Earn or Retain Excess Profits

A second reason why we would not expect insurers in California to earn excess profits is that most medical liability insurance in the state is provided by physician-owned, nonprofit mutual insurance companies. These companies include Medical Insurance Exchange of California, NORCAL Mutual Insurance Company, and The Doctors Company, which collectively in 2017 had about 41.1 percent of the market.[39] If these mutually-owned companies were temporarily able to earn excess profits in any year, we would expect them to distribute the excess to their insurance customers. These distributions may be called either dividends or rebates, but the term used does not matter. The rebates reduce the effective price of the insurance. Mutual companies cannot distribute profits to anyone who is not a customer.

Because doctors are both shareholders and customers of mutual insurance companies, the companies have a built-in incentive to pass along to them any savings resulting from MICRA reforms. Thus, even if these companies had sufficient market power to raise premiums above competitive levels (which they do not), they would have no incentive to do so. While non-mutual insurance companies lack this built-in incentive to distribute excess profits to their policyholders, they must compete with mutual companies for business, meaning that they have little ability to raise rates above competitive levels (assuming, counterfactually, they have the power to do so).

C. California Medical Liability Insurers Do Not Earn Excessive Profits

One way to determine if California medical liability insurers are earning supra-competitive profits is to examine the companies' average return on equity and compare it to the average returns earned by firms in similar

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[38] *See* Milt Freudenheim, "St. Paul Cos. Exits Medical Malpractice Insurance," *New York Times,* December 13, 2001.
[39] NAIC 2017 Market Share Reports for Property/Casualty Groups and Companies by State and Countrywide, p. 241 (https://www.naic.org/prod_serv/MSR-PB-18.pdf). Some carriers, such as Cooperative of American Physicians, are required by law to operate at a break-even level. See California Insurance Code 1280.7.

industries, with appropriate adjustments made for differences in the perceived riskiness of each industry.[40] As a proxy for an industry's market riskiness, we use – where available – the *beta* statistic calculated for the industry.[41]

Table 5 shows that, as measured by return on equity, medical liability insurers operating in California are earning relatively modest profits. During the 1990-2017 period, annual returns for these firms ranged from –13.6 percent to +20.2 percent, with an average annual return of 5.74 percent.[42] During this same period, the rate of return on long-term U.S. Government Bonds averaged +5.11 percent per year.[43]

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[40] We use return on equity (ROE) as the measure of an insurer's profitability because it is the accepted measure of profitability among economists and financial analysts. The "return" in ROE is the revenue earned by the insurer that is not needed to pay claims, loss adjustment expenses, operating expenses, overhead expenses, premium taxes, and income taxes. The "equity" in ROE is the capital that the shareholders have committed to the business, instead of investing it elsewhere in the economy.

Some authors have attempted to show that California medical liability insurers earn excess profits by calling attention to their *loss ratios*. (See, for example, Jay Angoff, "Less than zero: The effect on clinics of raising MICRA's $250,000 cap" at http://www.38istoolate.com/assets/Angoff-Raising-MICRAs-250000-cap-wont-hit-clinics-7-31-2013.pdf). Loss ratios, however, tell us nothing about an insurer's profitability, either on an absolute or relative basis, because these ratios make no allowance for the insurer's operating expenses and taxes. Nor do they reflect the amount of capital the insurer has committed to the business. An insurer could have a relatively low loss ratio and still lose money if factors beyond its control saddled it with high expenses or its investments performed poorly due to a downturn in the stock market.

Furthermore, an insurer that settles claims relatively quickly, as is true for California medical liability insurers (a benefit often attributed to MICRA), will not have its reserves invested in income-producing instruments for as long as insurers in other states, and it will need to have a lower loss ratio in order to achieve the same degree of profitability as these other insurers.

In sum, a comparison of loss ratios reported by medical liability insurers in different states cannot shed any light on whether California insurers are realizing excess profits. Nor can such a comparison indicate whether California insurers could incur the additional costs that an increase in the MICRA cap would impose on them without having to raise the premiums they charge doctors and hospitals.

[41] *Beta* measures how sensitive a security – or a portfolio of securities – is to equity market movements. The higher the *beta*, the more volatile (risky) the security. *See,* for example, Richard A. Brealey and Stewart C. Myers. *Principles of Corporate Finance,* Seventh Edition, p. 175.

[42] Calculated by the authors from data provided by Cooperative of American Physicians, Medical Insurance Exchange of California, NORCAL Mutual Insurance Company, and The Doctors Company.

[43] Duff & Phelps 2018 SBBI Yearbook: US Capital Markets Performance by Asset Class 1926 – 2017.

Table 5:
Return on Equity for California Medical Liability
Insurance Providers [a]

Year	Total Shareholder Equity	Net Income After Rebates and Tax	Return on Equity	Income Return on Long-Term U.S. Gov't Bonds
1990	$ 258,675,160	$ 14,042,355	5.43%	8.19%
1991	$ 294,281,331	$ 22,453,900	7.63%	8.22%
1992	$ 329,931,078	$ 23,305,219	7.06%	7.26%
1993	$ 355,890,808	$ 19,715,366	5.54%	7.17%
1994	$ 388,624,908	$ 52,597,994	13.53%	6.59%
1995	$ 691,721,124	$ 59,676,466	8.63%	7.60%
1996	$ 744,214,302	$ 48,984,643	6.58%	6.18%
1997	$ 811,915,697	$ 69,822,289	8.60%	6.64%
1998	$ 851,552,288	$ 66,324,728	7.79%	5.83%
1999	$ 841,356,537	$ 55,348,931	6.58%	5.57%
2000	$ 839,121,338	$ 52,342,110	6.24%	6.50%
2001	$ 777,665,996	$ (74,585,008)	-9.59%	5.53%
2002	$ 742,336,385	$ (100,801,838)	-13.58%	5.59%
2003	$ 729,665,066	$ (87,656,969)	-12.01%	4.80%
2004	$ 826,086,543	$ 54,069,256	6.55%	5.02%
2005	$ 973,780,964	$ 109,362,047	11.23%	4.69%
2006	$ 1,189,044,548	$ 209,860,631	17.65%	4.68%
2007	$ 1,420,189,558	$ 241,650,424	17.02%	4.86%
2008	$ 1,406,468,049	$ 77,712,131	5.53%	4.45%
2009	$ 1,753,780,091	$ 256,866,395	14.65%	3.47%
2010	$ 2,023,785,593	$ 407,963,717	20.16%	4.25%
2011	$ 1,834,380,399	$ 259,396,071	14.14%	3.82%
2012	$ 1,988,203,127	$ 170,764,473	8.59%	2.46%
2013	$ 2,352,593,727	$ (11,572,498)	-0.49%	2.88%
2014	$ 2,460,061,596	$ (2,489,282)	-0.10%	3.41%
2015	$ 2,465,068,860	$ (88,459,069)	-3.59%	2.47%
2016	$ 2,613,511,308	$ (60,031,681)	-2.30%	2.30%
2017	$ 2,859,457,644	$ 147,346,179	5.15%	2.67%
Average (1990-2017)			**5.74%**	**5.11%**

[a] SOURCES: Medical Insurance Exchange of California, NORCAL Mutual Insurance Company, and The Doctors Company; and Duff & Phelps 2018 SBBI Yearbook: US Capital Markets Performance by Asset Class 1926 - 2017.

The yield on Treasury bonds is used by economists as a measure of the risk-free time value of money – that is, the minimum return that investors should expect to receive when they forego the use of their funds so that another entity can put the money to work. When we subtract the average return on U.S. Treasury bonds from the medical

liability insurers' average return on equity during the 1990-2017 period, we find that, on average, the insurers earned 0.63 percentage points more than they would have earned if, instead of investing their capital in the volatile and risky insurance business, they had invested it in financial instruments that carry no risk of default. In effect, 0.63 percent is what these insurance companies were paid annually for assuming medical liability risk from doctors and hospitals.

Is 0.63 percent an excessive return for bearing medical liability risks? Based on the risk premiums earned by firms in similar industries, the answer clearly is "no."

Duff & Phelps has calculated the equity risk premium earned by the average large company during the period 1990-2017 to be 6.2 percent.[44] The average is 884 percent greater than the 0.63 percent risk premium earned by medical liability insurers. As Appendix C shows, the insurers' risk premium also compares unfavorably with the equity risk premiums earned by the average firm in other financial services industries, such as Property/Casualty Insurance (5.2 percent), Brokerage and Investment Banking (7.68 percent), Investments and Asset Management (6.12 percent), Non-bank and Insurance Financial Services (3.76 percent), and Life Insurance (6.25 percent).[45] Based on this comparison, one might agree with the General Accountability Office and question whether the medical liability insurers are being paid enough to take-on medical liability risk.

D. Physicians and Hospitals Are Under Significant Pressure to Hold Down Fees and Limit Profits

While the evidence that medical liability insurers are not using the savings from tort reform to generate excessive profits is compelling, one might ask if these savings ever make it to the consumers, workers, and taxpayers that ultimately pay for health care in California. As is true for medical liability insurers, competitive forces makes it likely that the doctors and hospitals benefiting from the lower insurance premiums made possible by the MICRA cap pass-along much, if not all, of the savings to consumers and other payers.

Health care plans face intense pressure from their customers, consumers, employers and the state to hold down or reduce insurance premiums. In response, the plans exert pressure on providers, such as physicians and hospitals, to limit the fees they charge patients. Managed care plans, such as Health Maintenance Organizations ("HMOs") and certain Preferred Provider Organizations ("PPOs"), encourage competition among physicians and hospitals because it allows them to shift their entire patient pools from higher-cost to lower-cost providers simply by signing or refusing to sign service contracts. The vast majority of health insurance is now provided through managed care plans. As a result, physicians who operate in these increasingly competitive markets are under

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[44] "Valuation Handbook 2018, International Guide to Cost of Capital" Duff & Phelps, Data Exhibit 1-52. The equity risk premium is calculated as the difference between the total return on equity less the income return on long-term government bonds (*i.e.,* the risk-free rate).

[45] We were not able to find a *beta* statistic for medical liability insurers, but we believe the *beta* reported for property and casualty insurers (0.84) is a reasonable proxy. In our opinion, differences between industry *betas* cannot explain the small risk premium reported for medical liability insurers.

pressure to pass-on to health insurers the cost-savings from lower medical liability insurance premiums made possible by MICRA.

In sum, the major beneficiaries of the cost-savings produced by the $250,000 MICRA cap are the consumers, workers, and taxpayers who pay for health care provided to California residents.

VII.   AN INCREASE IN THE MICRA CAP WOULD INCREASE THE COST OF HEALTH CARE TO CALIFORNIA RESIDENTS

The medical liability tort system affects the cost of health care in California, both directly and indirectly. The direct effect is obvious: as the tort system encourages more lawsuits, especially non-meritorious lawsuits, the higher cost of awards and settlements drives-up medical liability insurance premiums. Initially, the additional costs are borne by health care providers who purchase medical liability insurance, and by self-insured providers who must pay higher claims costs. Because providers must cover their costs in order to remain economically viable, however, the higher costs will be passed along primarily to the three groups that ultimately pay for health care in California – consumers, workers, and taxpayers.[46]

Far more important, but less obvious, is the medical liability tort system's *indirect* effect on healthcare costs. As health care providers become more vulnerable to lawsuits, they will seek to insulate themselves from these lawsuits by making greater use of what is commonly known as "defensive medicine." This term refers to the practice of ordering diagnostic tests or treatments that do not improve treatment outcomes but make it easier for the physician to defend herself against medical liability lawsuits. Defensive medicine also drives up the cost of health care to consumers, workers, and taxpayers without necessarily improving the quality or results of that care.

Given this relationship between the medical liability tort system and the cost of health care, it is evident that raising the current $250,000 cap on non-economic damages awards would increase health care costs in California, leaving more California families unable to afford care.

A. An Increase in the MICRA Cap Would Result in Increased Doctors' Fees

Empirical evidence shows that an increase in medical liability insurance premiums results in higher doctors' fees. Danzon, *et al*., modeled the effects of premium increases on doctors' fees and found that every $1.00 increase in premiums raised doctors' total annual fees by an average of $0.16 for office visits, and $0.09-$0.17 for hospital visits.[47] Based on these findings, we estimate that if an increase in the MICRA cap caused the average premium for California obstetricians ($77,683) in 2017 to increase to the level prevailing in Florida ($190,829), the increase

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[46] The GAO found that "hospitals and physicians incur and pass on to consumers additional expenses that directly or indirectly relate to medical liability. Therefore, estimates of higher medical liability premiums – taken by themselves – understate the full effect of medical liability costs on national health expenditures." GAO, "Medical Liability: Impact on Hospital and Physician Cost Extends Beyond Insurance," September 1995.

[47] Patricia M. Danzon, Mark V. Pauly, and Raynard S. Kington, "The Effects of Malpractice Litigation on Physicians' Fees and Incomes," *AEA Papers and Proceedings*, May 1990. The authors caution that the ability of doctors and hospitals to pass on such fee increases to consumers will be determined by the competitiveness of the market. Note also that this study analyzed data from 1976, 1978 and 1982 – before managed care became the dominant form of health insurance. Accordingly, the effect of a higher cap on consumers is likely smaller in today's health care climate. I was unable to locate any recent studies that analyzed these same effects in the current health care market.

($113,146) would raise the annual cost of office visits by $18,103, and the annual cost of hospital visits by $10,183 - $19,235 for each obstetrician in California.[48] There would be a corresponding rise in the cost of physician services for all other doctors practicing in California.

B. Raising the MICRA Cap Would Lead to More Costly and Unnecessary Tests and Procedures ("Defensive Medicine")

It is well-established and beyond dispute that health care providers seek to reduce their exposure to medical liability suits by adopting sub-optimal behaviors ("defensive medicine") that increase the cost of health care provided to patients without improving the quality or effectiveness of care.

Economic principles suggest that as a provider's exposure to lawsuits increases, the amount of defensive medicine goes up, while a reduction in exposure – such as results from medical liability tort reform – will cause the amount of defensive medicine to go down. There are many empirical studies of the effect of the tort system and tort reform on health care costs. In a recent paper in the widely-cited *Journal of Economic Perspectives*, Daniel Kessler cites approximately 90 papers on this topic.[49] While not all the papers find that tort reform reduces costs, we find that the weight of the empirical research supports the conclusion that caps on non-economic damages (the most prominent tort reform) reduce health care costs without adverse effects on health care outcomes. This result is consistent with research showing that the medical malpractice legal system does not effectively target actual harmful malpractice errors, and thus does not provide good incentives for quality or for avoiding errors.[50]

The most widely cited study of the relationship of tort law to health care – sometimes called the seminal study – was published in 2000 by two prominent Stanford University scholars: Daniel Kessler and Mark McClellan. This study found that, on average, direct reforms of the medical liability tort system – primarily caps on non-economic damages – were associated with a 5.44 percent reduction in health care expenditures on elderly patients who had suffered heart attacks or had ischemic heart disease. Despite the reduction in expenditures, however, the study found no increase in adverse medical outcomes.

Kessler and McClellan acknowledged that not all of the cost-savings observed in states with non-economic damages caps can properly be attributed to the caps. In some of the reform states, managed care was relatively more important than it was in non-reform states, and this disparity was responsible for part of the cost-savings observed in these states. When the authors made adjustments for the effect of managed care, they found that the

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[48] See Figure 5 for comparison of premium rates.

[49] Daniel P. Kessler, "Evaluating the Medical Malpractice System and Options for Reform," *Journal of Economic Perspectives* 25 (2) (Spring 2011) pp. 93–110.

[50] For research based on detailed medical expert review of a large sample of actual medical records, see A. Russell Localio, *et. al.* "Relation Between Malpractice Claims and Adverse Events due to Negligence," *New England Journal of Medicine* 325 (4) (July 25, 1991), pp. 245-251.   For related work, focusing on malpractice claims and medical errors, rather than negligence, see David M. Studdert, *et.al.* "Claims, Errors, and Compensation Payments in Medical Malpractice Litigation," *New England Journal of Medicine* 354 (11) (May 11, 2006) pp. 2024-2033.

average reduction in health care expenditures associated with direct tort reform was 3.04 percent,[51] rather than 5.44 percent.[52]

It is important to note that the 5.44 percent figure reflects the average reduction in health care costs for all states that had enacted direct reforms of their medical liability tort system. Since none of the other reform states had a lower cap on non-economic damages than California, and many of these states had significantly higher or less-binding caps, it stands to reason that (1) the percent reduction in California's health care expenditures was significantly greater than 5.44 percent, and (2) when allowance is made for the effects of managed care, the reduction in expenditures properly attributable to the $250,000 MICRA cap is significantly greater than 3.04 percent.

Kessler and McClellan's findings are consistent with the findings of other scholars. For example, Fred J. Hellinger and William Encinosa found that states with caps on non-economic damages have total health care expenditures that are 3-to-4 percent lower than spending in states without caps.[53]   Frank A. Sloan and John H. Shadle found that the average cost of treating an illness requiring hospitalization declined by 3.6 percent after the enactment of direct reforms.[54]   Although the Sloan-Shadle finding is not statistically significant, it is of approximately the same magnitude as the statistically significant impacts found by Kessler and McClellan and by Hellinger and Encinosa.

In his 2011 article, Kessler concludes his review of the literature with the statement that "decreases in malpractice pressure lead to decreases in the supply of care having minimal medical benefit—that is, to decreases in healthcare costs, with essentially no adverse consequences for health outcomes."[55]

More recently, a 2018 study by Michael Frakes and Jonathan Gruber[56] finds that immunity to liability is associated with about a 5 percent reduction in inpatient treatment intensity[57] with no decline in health care outcomes.[58] Frakes and Gruber also estimate that states with medical liability caps reduce treatment intensity by

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[51] 3.04 percent is calculated as the simple average of the effect of a direct reform, long after adoption in high managed care environments, on expenditure reductions associated with heart attacks (3.14% = 3.81% - 0.67%) and IHD (2.93% = 7.07% - 4.14%) as reported in Table 6.

[52] 5.44 percent is calculated as the simple average of the effect of a direct reform, long after adoption, on expenditure reductions associated with heart attacks (3.81%) and IHD (7.07%) as reported in Table 6.

[53] F. Hellinger and W. Encinosa, "The impact of state laws limiting malpractice damage awards on health care expenditures," *Government, Politics, and Law*, 96 (2006) 1375 – 1381.

[54] F. Sloan and J. Shadle, "Is there empirical evidence for "Defensive Medicine"? A reassessment," *Journal of Health Economics,* 28 (2009) 481-491.

[55] Kessler (2011), pp. 105-106.

[56] Dr. Gruber is a well-respected health economist with a strong interest in health policy. He has been described as "a key architect of Massachusetts' ambitious health reform effort, and … served as a technical consultant to the Obama Administration and worked with both the Administration and Congress to help craft the Patient Protection and Affordable Care Act." See, https://economics.mit.edu/faculty/gruberj/short.

[57] Treatment intensity includes total inpatient days, the number of procedures performed, and a Department of Defense-derived intensity metric known as Relative Weighted Product, which is designed to be comparable across direct and purchased care settings.

[58] Michael D. Frakes and Jonathan Gruber, "Defensive Medicine: Evidence from Military Immunity," National Bureau of Economic Research Working Paper 24846 (July 2018).

roughly 2.1 percent relative to states without caps. The study design is unique and especially compelling. When active-duty military personnel receive care in military facilities, they are not allowed to sue for malpractice. They can sue for malpractice, however, if they receive care in non-military facilities, and their dependents can sue no matter what type of facility provides the care. The treatment group used in the Frakes and Gruber study includes active military personnel; thus, these findings are most directly applicable to active adults who are likely to be healthier than the average American. That said, the Frakes and Gruber study generally reinforces the validity of findings in the earlier Kessler and McClellan study, which focused on a much different and less-healthy patient population. A review of the recent literature on defensive medicine published since 2012 is summarized in Appendix D.

C. The Annual Direct and Indirect Costs Resulting From a Higher Cap on Non-Economic Damages Would Be Approximately $11.4 Billion

Using the empirical findings discussed above, we can make a reliable estimate of how an increase in the $250,000 cap on non-economic damages would affect the cost of California's health care system.

Table 6 summarizes our calculations for 2018 -- the year for which we use data on baseline health care costs in California. These calculations assume that, consistent with Proposition 46 (2014), the MICRA cap is raised above $1 million. As the table shows, the higher cap would increase the cost of providing health care to Californians by $11.4 billion. When divided by the State's population, the increase amounts to $285 per California resident,[59] or $1,141 for a family of four. As discussed in the next part of this report, the additional costs would be borne by Californians in their capacity as health care consumers, workers at firms offering group health insurance plans, and taxpayers.

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[59] The per capita calculation uses the California Department of Finance's state population estimate for January 1, 2018 (39,809,693). See http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-1/documents/E-1_2018_InternetVersion.xls.

Table 6:
Measurable Costs of Increasing the Cap on
Non-Economic Damages

Cost of Increased Defensive Medicine Expenditures		
California Projected Personal Health Care Expenditures (2018 projected) [a]	[A]	$354,637,759,089
Estimated increase in personal health care expenditures due to more defensive medicine[b]	[B]	3.13%
Estimated increase in personal health care expenditures in California (2018)	**[C] = [A] x [B]**	**$11,100,145,401**
Medical Liability Premium Increase		
2017 premiums written for California[c]	[D]	$754,064,000
Estimated percentage increase in premiums[d]	[E]	21%
Estimated increase in premiums for California (2017)	**[F] = [D] x [E]**	**$160,553,866**
Cost of Increased Claim Costs for Self-Insured California Hospitals		
2018 estimated loss rate for self-insured California hospitals [e]	[G]	$375,936,000
Estimated increase in claim costs [f]	[H]	25%
Estimated increase in claims cost for self-insured California hospitals	**[I] = [G] x [H]**	**$92,848,917**
Estimated Annual Cost of Increasing the Cap	**[J] = [C]+[F]+[I]**	**$11,353,548,184**

[a] SOURCES: Based on data provided by the National Health Expenditure Projections 2017-2026, Center for Medicare & Medicaid Services, Office of the Actuary, Table 5: Personal Health Care Expenditures; Aggregate and per Capita Amounts, Percent Distribution and Annual Percent Change by Source of Funds: Calendar Years 2010-2026 (https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/Proj2017Tables.zip); and State Health Expenditure Accounts by State of Residence, Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group, Table 1: Total All Payers State Estimates by State of Residence (1991 - 2014) - Personal Health Care (Millions of Dollars) (https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/res-tables.zip). Personal Health Care expenditures for California assumes the state's share of national expenditures remains the same as it was in 2014.

[b] SOURCE: Percentage increase is equal to 3.035/(100-3.035). The 3.035 represents the reduction in health care expenditures for heart attack and ischemic heart disease patients attributed to tort reforms in Daniel Kessler and Mark McClellan, "Medical liability, managed care and defensive medicine", NBER working paper 7537, February 2000, Table 6.

[c] SOURCE: NAIC Profitability Report, 2017.

[d and f] SOURCE: Table 4.

[e] SOURCE: "Aon/ASHRM Hospital and Physician Professional Liability Benchmark Analysis," October 2018, p. 57. Based on total Occupied Bed Equivalents of 140,800 and Loss Rate per OBE of $2,670 for California.

We believe the estimates in Table 6 are conservative, given the empirical evidence that caps higher than $500,000 have no significant effect in reducing medical liability insurance premiums.[60] Additionally, we do not provide a separate estimate of the direct cost impact to Medicaid and other federal programs, due to uncertainty regarding the effects of tort reform on the direct costs of these programs.   A working paper by the CBO estimates that caps reduce Medicaid spending by about 1 percent, but it is unclear whether these reductions are in the form of direct or indirect costs.[61] Although the estimated increase in premium costs for California and claim costs for self-insured California hospitals resulting from an increase in the MICRA cap include the effects on Medicaid and other federal programs, these estimates most likely underestimate the overall impact on these federal programs.

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[60] See, for example, Danzon, Patricia M., Andrew J. Epstein and Scott Johnson, "The 'Crisis' in Medical Malpractice Insurance," The Wharton School, University of Pennsylvania, December 2003, Prepared for the Brookings-Wharton Conference on Public Policy Issues Confronting the Insurance Industry, January 8/9, 2004.

[61] Karen Stockley, "How Do Changes in Medical Malpractice Liability Laws Affect Health Care Spending and the Federal Budget?," Working Paper 2019-03, Congressional Budget Office, April 2019, p. 23 (https://www.cbo.gov/system/files/2019-04/55104-Medical%20Malpractice_WP.pdf).

It is possible that the cost to California's health care system resulting from an increase in the $250,000 cap on non-economic damages awards could be higher or lower than the estimates shown in Table 6. The cost of defensive medicine in connection with the treatment of coronary disease may or may not be representative of the defensive medicine costs associated with other diagnoses.[62] Indeed, the increase in health care costs associated with a higher cap could be larger than 3 percent for some diagnoses and smaller for others. The available evidence, however, provides no basis for assuming that the average increase for all diagnoses is less than 3 percent, nor does it provide a basis for assuming that it is greater than 3 percent.

It should also be kept in mind that Kessler and McClellan's findings are based on the experience of the average tort reform state. Since no state has a lower cap on non-economic damages than California and many reform states have higher caps, the 3.04 percent savings from direct tort reform found by Kessler and McClellan almost certainly understates the cost-savings resulting from the MICRA cap. It is likely, therefore, that the increase in health care costs resulting from a major increase in the MICRA cap would be greater than the 3.13 percent we used in Table 6. Also, we note that the increase in medical liability insurance premiums (21%) assumed in Table 6 is far lower than the increases reported for Oregon physicians (*e.g.,* 194 percent for internists) after the state's Supreme Court removed the cap on non-economic damages.[63]

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[62] The GAO, for example, has questioned whether the results from specific studies, such as Kessler and McClelland's, can be applied to all patients and procedures. See, for example, United States General Accounting Office, Report to Congressional Requesters, "Medical Malpractice Implications of Rising Premiums on Access to Health Care," GAO-03-836, August 2003, pp. 53-54.

[63] Data provided by NORCAL Mutual Insurance Company, and reported in Figure 6. Average premium written in 1999 for internists was $4,353. This amount rose to $8,436 by 2017, an increase of 194%.

VIII. THE INCREASED COSTS RESULTING FROM A HIGHER CAP WOULD BE BORNE BY CALIFORNIA CONSUMERS, WORKERS, AND TAXPAYERS

Participants in California's health care system – physicians, hospitals, employers, government and consumers – would not share equally in the increased costs of health care resulting from a higher cap on subjective, non-economic damages awards. While physicians and hospitals initially would bear the increased costs resulting from the higher cap, most or all of these costs eventually would be passed along to other participants.[64]

A. Employers Would Shift Most of the Increase in the Cost of Employee Health Insurance to Their Employees

As Figure 7 indicates, in 2017, 47 percent of California's population received health insurance through their employers.

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[64] Patricia M. Danzon, Mark V. Pauly, and Raynard S. Kington, "The Effects of Malpractice Litigation on Physicians' Fees and Incomes," *AEA Papers and Proceedings*, May 1990.

Figure 7:
Distribution of the Total Population, by Health Insurance Status,
California and the United States, 2017[a]

	California 39.19	United States 320.36
Non-Group	7%	6%
Medicare	11%	14%
Medicaid/Other Public	27%	22%
Uninsured	7%	9%
Employer	47%	49%

■Employer ■Uninsured ◨Medicaid/Other Public ◻Medicare ◻Non-Group
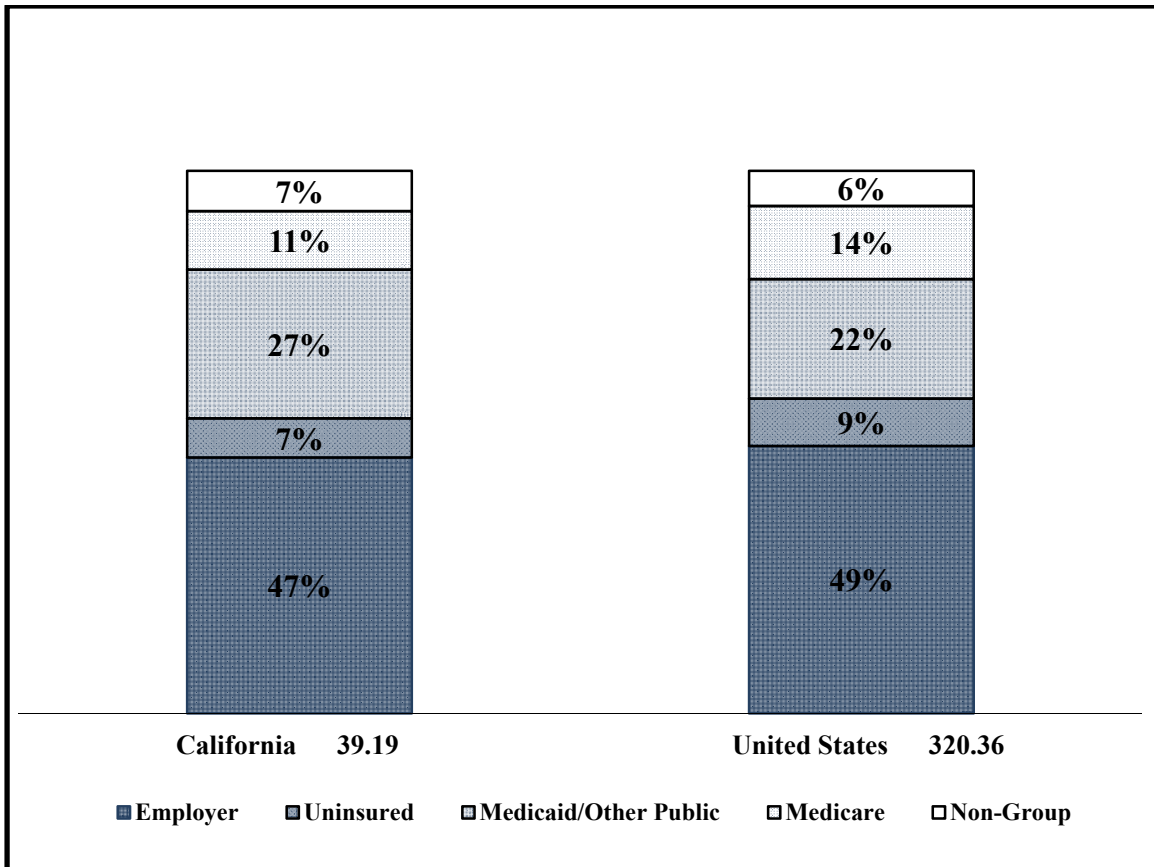
[a] SOURCE: The Henry J. Kaiser Family Foundation, statehealthfacts.org, California: Health Insurance Coverage of the Total Population, states (2017), U.S. (2017), (http://kff.org/other/state-indicator/total-population/?state=CA).

If the MICRA cap is raised, the cost of employer-sponsored health insurance will go up for two reasons. First, the increased cost of medical liability insurance will be reflected in the fees charged by physicians, hospitals, and other affiliated professionals. Second, the significant increase in defensive medicine resulting from the higher cap will increase the costs that health insurers have to pay on behalf of the firm's employees.

An increase in the cost of employer-sponsored health insurance programs would affect employees in at least one of four ways.

- Some employers that continued to offer health insurance to their employees would reduce coverage. Employees would either have to begin paying for the cost of these services out of their own pockets or do without them.

- Other employers that continued to offer health insurance would raise the employees' required contribution toward the cost of their insurance by requiring larger coinsurance payments, higher deductibles, or increases in the employee's share of premiums.

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- A third group of employers that continued to offer health insurance would leave the benefit package intact, but hold down wages and salaries, in order to prevent the employees' total compensation costs from rising by more than the increase in employee productivity.

- A fourth group of employers not subject to the federal employer mandate would decide to terminate health insurance coverage for their employees, or choose not to offer it for reasons of cost.[65]

Reflecting the consensus of economists, the CBO has determined that over the long run, employers pass along most of the increases in the cost of health insurance to their employees.[66] The CBO explains that the cost shift may affect either the demand for, or supply of labor, or both. On the demand side, employers seek to keep employees' "total compensation (wages plus benefits) in line with labor productivity. If the real cost of insurance for employers goes up by a dollar (and the added costs are not accompanied by increased productivity), employers face strong pressures to cut a dollar from some other form of labor compensation, such as real wages."[67] On the supply side, the CBO notes that employees are willing to pay for health care, "which means that they would be willing to give up some of their income to get it, just as they give up income to buy other goods and services."[68] Thus, employees "end up bearing the costs of that insurance because supplies of labor are not elastic."[69]

B. The Taxpayers Would Bear a Large Portion of the Increased Health Care Costs that Result from a Higher Cap

In one way or another, every unit of government in California is in the health care business. As a result, when the cost of health care goes up, the cost of government goes up and the burden on taxpayers increases.

Government's role in the health care business typically takes one of two forms:

- **Provider.** Government provides health care to individuals, such as patients in state and county hospitals, and often is not fully compensated for the costs it incurs in providing this care.

- **Payer.** Government pays for all or part of the health care that doctors and hospitals provide to certain individuals, such as government employees and children from low-income families.

If California were to raise the MICRA cap, the State and its local governments would lose a portion of the cost-savings they currently enjoy as a result of the cap, and government expenditures on health care would increase.

In addition to these higher costs, the State will experience a loss of General Fund revenue, as employers offset the increased cost of employee health insurance premiums by holding down salaries and wages or by

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[65] See, for example, Mark V. Pauly, Health Benefits at Work: An economic and political analysis of employment based health insurance, University of Michigan Press, 1997.

[66] Congressional Budget Office, "Economic Implications of Rising Health Care Costs," October 1992, p. 5.

[67] *Ibid*, at p. 35.

[68] *Ibid.*

[69] *Ibid.* This outcome will depend on the shapes of the labor supply and demand curves. It is likely that the employers would bear some, probably small, part of the costs and their employees would bear most of the costs. See Danzon, Pauly, *op cit*.

increasing the employees' share of the costs. Because salaries and wages are taxable but employer-paid health insurance benefits are not, the offset will reduce the amount of income subject to the State's personal income tax. Moreover, the increased cost of health care that the initiative would impose on Californians would cause some employees to cut-back on taxable purchases, thereby reducing State and local government revenues from the State's sales and use tax.

The proposed fiscal effect resulting from a higher MICRA cap should also make allowances for the increased costs that would occur as the number of doctors and hospitals in California goes down over time. We know that the law of supply and demand will, over time, cause the cost of health care to go up in California as the number of providers goes down. Further, there may be some local markets where having fewer suppliers also reduces competition.

C. Consumers Would Bear a Large Portion of the Increased Health Care Costs Resulting from a Higher Cap

A portion of the increases in physician and hospital fees resulting from a higher cap on non-economic damages eventually would be shifted to consumers who purchase health insurance in the individual market. Uninsured consumers also would have to pay more for their health care. As the next part of this report demonstrates, if the cap is raised and health care in California becomes more expensive, more Californians will fall into the uninsured category as some employers drop coverage for their employees and some participants decide that health insurance has become too costly.

D. Conclusion: Who Would Bear the Additional Costs Resulting From an Increase in the MICRA Cap?

Figure 8 summarizes the incidence of the higher costs that would result from an increase in the $250,000 cap on non-economic damages under MICRA.

Figure 8:
Who Bears the Costs of a Higher Cap?

Text in blue within shaded box – further cost-shifting will occur
Text in red – who ultimately bears the cost

Row	Cost	Initially Imposed On	Shifted To
A	Increased loss costs	Medical liability insurers	Insured providers
		Self-insured providers	Uninsured consumers
			Health care insurers
			Government programs
B	Higher medical liability insurance premiums	Insured providers	Uninsured consumers
			Health care insurers
			Government programs
C	Increased cost of defensive medicine	Uninsured consumers	
		Health care insurers	Employers
			Insured consumers
		Government programs	Taxpayers
D	Increased cost of providing health insurance	Employers	Workers
		Insured consumers	
E	Increased cost of government programs	Federal, state & county agencies	Taxpayers

As the table illustrates, virtually all of the increased costs that would result from raising the MICRA cap will be paid by California consumers, workers, and taxpayers. Although part of the increased costs incurred by medical liability insurance companies as a result of the higher cap (Row A) will be shifted to "Government programs," these costs ultimately will be paid by taxpayers (Row E). Similarly, while part of the increased cost of medical liability insurance premiums will be shifted to health care insurers (Row B), these costs ultimately will be paid by consumers and workers who receive health insurance from their employers (Row D).

IX. AN INCREASE IN THE CAP WOULD INCREASE THE NUMBER OF UNINSURED PERSONS IN CALIFORNIA

In 2017, the percentage of uninsured persons in California was right around the United States average (7 percent vs. 9 percent).[70] California also had a lower rate of employer-based health insurance coverage than the United States as a whole (47 percent vs. 49 percent).[71]

By increasing the cost of health care in California, a higher cap on non-economic damages would reduce both the willingness and ability of Californians to obtain health insurance, making it more difficult for them to secure the medical care they need. It would also reduce the willingness and ability of the state's health care system to provide care – particularly to underserved groups and residents of underserved areas.

The Affordable Care Act ("ACA") mandated that employers with 50 or more full-time equivalent ("FTE") employees offer their employees' health care coverage meeting certain minimum standards or be subject to a financial penalty referred to as the Employer Shared Responsibility payment. The mandate was in effect in 2015 for employers with 100 or more FTE, and starting in 2016 the mandate became effective for employers with 50 more FTE employees.[72] As of the first quarter of 2018, 96.1 percent of the businesses in California had fewer than 50 employees employing 41.1 percent of the working population.[73] These small businesses would likely be the most sensitive to increases in the cost of health care.

A. An Increase in the Cost of Health Care Would Reduce Health Insurance Coverage

A fundamental tenet of economics is that, for the vast majority of goods and services, an increase in price causes a reduction in demand. Thus, an increase in health insurance premiums resulting from a higher cap on non-economic damages would lead to an increase in the number of individuals without insurance coverage. This has been shown empirically by Ronen Avraham and Max Schanzenbach. They also found evidence that tort reform reduces private insurance costs overall.[74]

In some cases, the reduction in coverage would reflect decisions by small businesses not subject to the employer mandate to drop health insurance as an employee benefit. In other cases, employees, themselves, would make the decision to go without coverage because they believe the higher monthly premiums make health insurance

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[70] See Figure 7.
[71] See Figure 7.
[72] "What Small Businesses Need to Know About the Employer Mandate,"
(https://www.coveredca.com/forsmallbusiness/mandate/).
[73] Table 1: Number of Businesses, Number of Employees, an First Quarter Payroll by Size of Business, State of California, 2018 Quarter 1, Employment Development Department, Labor Market Information Division
(https://www.labormarketinfo.edd.ca.gov/LMID/Size_of_Business_Data_for_CA.html).
[74] Ronen Avraham and Max Schanzenbach, "The Impact of Tort Reform on Private Health Insurance Coverage," February 2010, *American Law and Economics Review* 12(2) (2010), pp. 319–355, at p. 348.

too expensive.[75] The extent to which an increase in health insurance premiums leads to reduced coverage depends on the price elasticity of the demand for insurance.[76]

B. Some Businesses Would Respond to Increased Health Insurance Premiums by Decreasing Coverage

Empirical evidence shows that employers which are not required by law to offer health insurance continually evaluate whether to offer or continue offering this benefit to their employees, even when the economy is robust. Research published by the U.S. Department of Labor has shown that an increase in the cost of premiums decreases the likelihood that a firm will offer health insurance.[77]

Rather than discontinue coverage, some employers faced with increases in the cost of health insurance will choose to shift the increased costs to employees by (1) requiring a larger employee co-payment, (2) raising the deductible, (3) increasing the employee's share of insurance premium costs, or (4) reducing the range of health care coverage offered.

C. An Increase in Health Insurance Costs Would Decrease Participation in Health Insurance Programs, Particularly by Low-Income Employees

If employees are required to pay more for health insurance, some will choose not to buy coverage. A growing body of research tests the sensitivity of employee behavior to changes in health insurance costs. Studies have shown that the price elasticity of demand for health insurance ranges from minus 0.1 to minus 2. These findings can be interpreted to mean that a 10 percent increase in the price of health insurance will lead to a 1-20 percent decrease in the number of people who choose to purchase insurance.[78] Taking a conservative view that the range of elasticities is only from minus 0.1 to minus 2, we can calculate the effect of higher health care costs in California. Given California's privately-insured population of approximately 21 million in 2017, a 10 percent increase in the price of health insurance could be expected to reduce the number of Californians who chose to purchase insurance by anywhere between 210,000 and 4.2 million.[79]

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[75] Starting with the 2019 plan year, individuals choosing not to buy health care are no longer required to pay a fee/penalty (https://www.healthcare.gov/fees/fee-for-not-being-covered/).

[76] The price elasticity of demand refers to the sensitivity of demand to a change in the price of a product or service.

[77] Arleen Leibowitz and Michael Chernew, "The Firm's Demand for Health Insurance," U.S. Department of Labor, July 17, 1992.

[78] See, for example, Susan M. Marquis and Stephen H. Long, "Worker Demand for Health Insurance in the Non-group Market," *Journal of Health Economics,* 1995; J. Sheils *et al.,* Health Insurance and Taxes: The Impact of Proposed Changes in Current Federal Policy-Technical Appendix, National Coalition on Health Care, October 1999; Jeanne S. Ringel, Susan D. Hosek, Ben A. Vollaard and Sergej Mahnovski, "The Elasticity of Demand for Health Care: A Review of the Literature and Its Application to the Military Health System," Prepared for the Office of the Secretary of Defense, RAND, undated; and Charles E. Phelps, Health Economics, 6th ed., New York: Routledge (2018), pp. 283-284.

[79] State Health Facts, Henry J. Kaiser Family Foundation (https://www.kff.org/other/state-indicator/total-population/?dataView =1&currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D).

X. AN INCREASE IN THE CAP WOULD REDUCE THE SUPPLY OF HEALTH CARE IN CALIFORNIA

By holding down the cost of medical liability insurance premiums, the MICRA cap has had a favorable effect on both the supply of, and access to, health care for California residents. Just as a lower price causes consumers to buy more, an increase in expected net income from the practice of medicine causes providers to supply more. The reverse is also true: an increase in the costs – financial and non-financial – associated with the medical liability tort system would have an adverse impact on the supply of care.

We have identified five ways in which a higher cap on non-economic damages awards would reduce the supply of health care in California.

A. A Higher Cap Would Discourage Physicians from Setting Up Their Practices in California

Physician supply in any location (as well as in any medical specialty) depends, in part, on the doctors' expected net income. It also depends on doctors' perceptions of their vulnerability to professional liability lawsuits. When a doctor is sued, her expected income is reduced, not just because she must pay higher premiums for insurance coverage; she must also reduce the amount of time she devotes to seeing patients so that she can work with her counsel to mount an effective defense to the suit. There are also significant reputational, psychological, and emotional costs to being sued that are difficult to quantify, but that affect physicians' location decisions.

If the medical liability tort system in one state tends to encourage relatively more lawsuits against physicians – particularly non-meritorious suits – doctors will view the state as a relatively less attractive place to practice medicine. If they choose to locate their practice in the lawsuit-friendly state, (1) their expected incomes will be lower due to higher medical liability insurance premiums they will be charged, and (2) they will be more vulnerable to the most-unpleasant experience of being sued. Over time, the lower expected income and greater vulnerability to non-meritorious lawsuits will reduce the number of physicians that choose to set up or maintain their practices in the state.[80] Texas provides a compelling example of how vulnerability to medical liability lawsuits affects physician supply.

Prior to 2003, Texas experienced a medical liability insurance crisis similar to the one California endured in the mid-1970s. The crisis resulted in a severe shortage of health care providers within the state, as newspapers reported at the time:

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[80] See, for example, Mark A. Satterthwaite, "Competition and Equilibrium as a Driving Force in the Health Services Sector," in Managing the Service Sector, ed. by Robert P. Inman, Cambridge, pp. 239-67, Cambridge: Cambridge University Press, 1985.

Texas' Tort Reform Gives Example For Other States, *Tyler Morning Telegraph*, 5/27/08

[Prior to the reforms] doctors were caught between rising medical malpractice insurance costs and lower compensation from insurance-provided benefit contracts and low Medicare/Medicaid reimbursement levels,' [said former state Rep. Joseph] Nixon writing for the Texas Public Policy Center. 'Combined with increasing hassles and demands to appear in court or in depositions, doctors were choosing to retire or leave Texas. In doctor-per-citizen ratio, Texas ranked 49th out of 50 states. . . . Of the state's 254 counties, more than 150 had no obstetrician in 2003, and more than 120 had no pediatrician.

In response to the crisis, the Texas Legislature in 2003 passed House Bill 4 and the voters approved Proposition 12, capping non-economic damages awards.[81]   Since then, both insurance premiums in Texas and physicians' perceived exposure to non-meritorious lawsuits have decreased dramatically. As a consequence, the Texas Medical Board reports that the number of doctors seeking to establish their practice in Texas has increased sharply, as Figure 9 illustrates.

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[81] The cap was set at $250,000 for any and all doctors sued, with an additional cap of $250,000 for each of up to two medical care institutions found to be liable for the plaintiff's injuries.

Figure 9
New Physician Applications Received by the Texas Medical Board
Applications per 100,000 Residents
(1999-2017)[a]
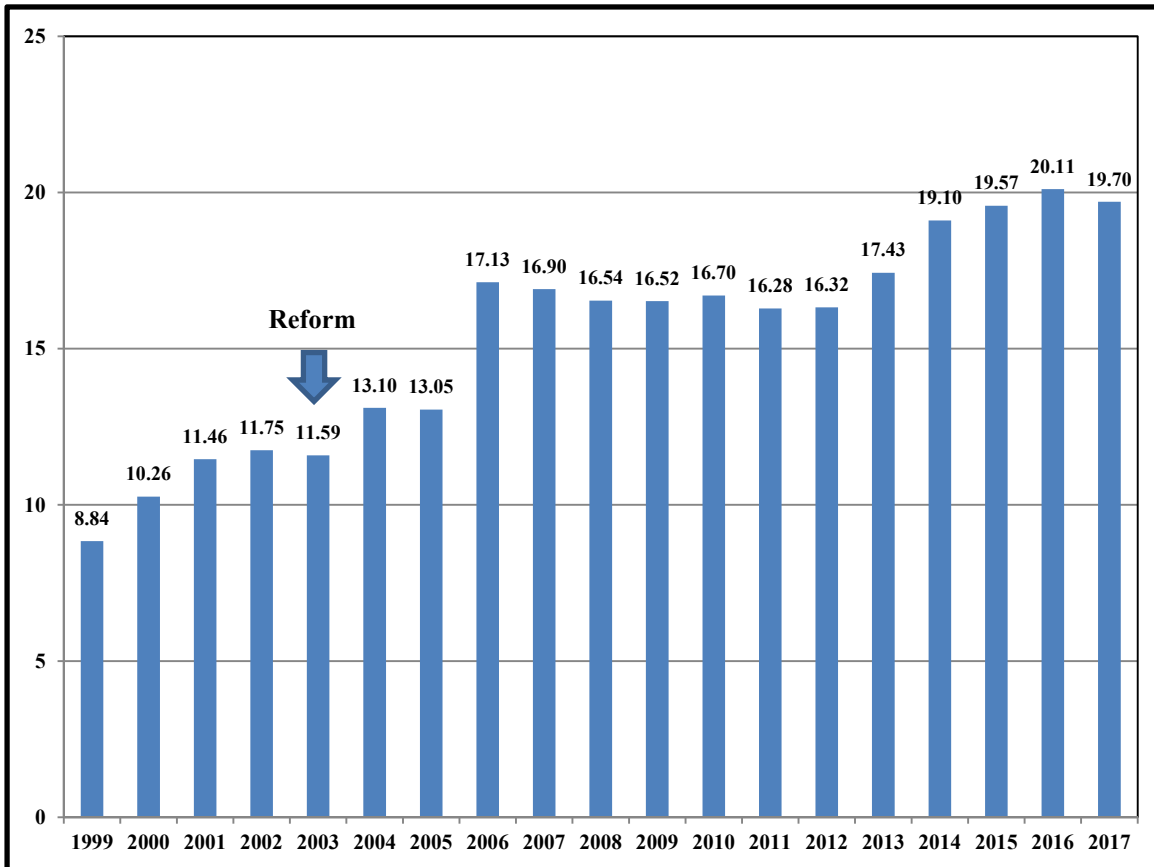
[a] SOURCE: Texas Medical Board, Fiscal Year-End Reports; and United States and Texas Populations 1850-2017 (https://www.tsl.texas.gov/ref/abouttx/census.html).

As the figure shows, during the four years prior to tort reform (1999-2002), new applications for physician licenses averaged 2,230 per year. During the eight years after the cap stabilized insurance premiums and reduced physicians' vulnerability to lawsuits (2006-2013), applications averaged 4,181 per year – an increase of 87 percent.

B. A Higher Cap Would Cause Some California Physicians to Move Their Practices to Other States

Just as a higher MICRA cap would tend to discourage some doctors from setting up their practices in California, it would cause some doctors who are already licensed in the State to move their practices elsewhere. In one survey, 45 percent of responding hospitals indicated that they lost physicians and/or suffered reduced coverage in emergency departments as a result of medical liability insurance costs.[82]

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[82] "Medical Liability Reform – NOW!," American Medical Association, June 14, 2005, p. 4.

C. A Higher Cap Would Encourage Early Retirements by Physicians

Retirement decisions are also influenced by one's future earnings potential and vulnerability to non-meritorious lawsuits. If a physician nearing retirement sees his or her medical liability costs (including non-financial costs such as vulnerability to non-meritorious lawsuits) increase significantly as a result of a higher cap on non-economic damages, the physician will be more likely to accelerate his or her retirement date, thereby reducing the supply of doctors available to serve California residents and disrupting established patient-physician relationships.

D. A Higher Cap Would Discourage Physicians from Continuing to Practice in High-Risk Specialties

Medical specialties that deliver babies (*e.g.,* obstetrics),[83] along with surgery and anesthesiology, are especially vulnerable to medical liability lawsuits because these specialties carry an above-average risk of sub-optimal outcomes, even when the doctor performs flawlessly. Bad outcomes often prompt unhappy patients to file lawsuits. Further, bad outcomes for babies can lead to costly, long-term problems of dependency and future medical costs. The increased vulnerability to lawsuits is reflected in the medical liability insurance premiums that specialists must pay. For example, Table 7 shows the premiums paid by various specialists in Los Angeles, Miami, Long Island, Detroit, and Chicago.

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[83] See, for example, Stephen A. Norton, "The Malpractice Premium Costs of Obstetrics," *Inquiry*, Spring 1997, p. 62.

Table 7:
Medical Liability Premiums, by Specialty [a]
Los Angeles, Miami, Long Island, Detroit, & Chicago
2017

Specialty	Los Angeles, CA [b] (Cap)	Miami, FL [b] (No Cap)	Long Island, NY [c] (No Cap)	Detroit, MI [b,d] (Cap)	Chicago, IL [e] (No Cap)
Allergy	$6,313	$20,235	$9,672	$9,510	$15,100
Psychiatry (Non-Shock)	$6,650	$23,607	$9,672	$12,834	$22,720
Pathology	$11,526	$43,841	$24,568	$16,513	$22,720
Anesthesiology	$17,051	$47,214	$33,612	$20,102	$39,856
Family Practice (Non-Surgical)	$11,009	$43,841	$26,600	$17,608	$34,144
Internal Medicine (Non-Invasive)	$14,427	$48,900	$36,484	$17,838	$39,856
Radiology (Non-Invasive)	$20,078	$92,741	$67,309	$33,220	$43,668
Cardiology (Invasive)	$20,826	$67,448	$47,221	$27,873	$58,900
Pediatrics (Non-Surgical)	$14,296	$30,351	$22,127	$15,961	$20,816
Ophthalmology	$16,254	$48,900	$35,057	$20,759	$32,240
Urology	$25,752	$59,017	$77,893	$38,457	$56,996
Dermatology	$10,431	$20,235	$12,134	$9,542	$22,720
Emergency Medicine	$36,507	$92,741	$75,036	$35,922	$58,900
Otolaryngology	$31,638	$101,173	$57,429	$45,444	$53,188
Proctology	$34,769	$67,448	$77,893	$45,461	$62,708
General Surgery	$51,183	$195,600	$136,398	$74,248	$116,032
Thoracic Surgery	$46,843	$168,621	$136,398	$81,530	$135,076
Cardiovascular Surgery	$46,843	$168,621	$129,572	$81,530	$135,076
Orthopedics	$53,023	$143,328	$133,523	$60,610	$91,276
Plastic Surgery	$34,468	$92,741	$91,512	$36,969	$100,796
OB/GYN	**$67,235**	**$195,600**	**$179,248**	**$77,411**	**$135,076**
Neurosurgery	$85,898	$242,813	$302,351	$149,981	$241,720
Average - All Specialties	$30,137	$91,592	$78,260	$42,242	$69,981

[a] Comparison reflects mature annual premium costs for $1 million maximum per case/$3 million maximum for all cases in a given year unless otherwise noted.

[b] SOURCE: Provided by The Doctors Company for Los Angeles County. Rates as of 2017.

[c] SOURCE: Provided by The Doctors Company for Miami-Dade County. Rates as of 2017.

[d] Provided by Medical Liability Mutual Insurance Company. Rates effective between July 1, 2017 and July 1, 2018.

[e] SOURCE: Provided by ISMIE. Rates are effective 10/1/2017.

The higher premiums and increased vulnerability to non-meritorious lawsuits encourage physicians to switch from high-risk specialties such as obstetrics, as the following news reports illustrate.

Mercy Medical Center: Obstetrics Costs Hurt Bond Rating, End Midwife Services, *Baltimore Business Journal*, October 15, 2013

The rising cost of malpractice insurance in obstetrics is affecting Mercy Medical Center's bond ratings and influenced a decision to severe ties with a midwife practice that delivered more than 200 babies at Mercy last year.

Malpractice Costs Leading To Closings of Maternity Wards, *Philadelphia Bulletin*, May 23, 2008

Since 1995, 36 of the state's hospital obstetrical units have closed, 14 of them in the southeast. But as these wards dwindle in number, demand for care for Pennsylvania's 147,000 annual births doesn't seem likely to subside. At Riddle Memorial Hospital, where the committee held the hearing, doctors, administrators and patients have felt the pressure of tort liability.

Three years ago, the hospital had 12 obstetricians on staff. Today, seven still practice obstetrics, while the other five work only as gynecologists. Demand for obstetrical care, meanwhile, has grown. Births in the hospital have increased from 800 to 1,200 per year in the past decade. … "The crisis in malpractice insurance and the need for tort reform is exacerbating the problem and making it very difficult to recruit obstetricians," [Dan Kennedy, president of Riddle] said.

A Baby-Free New York, *New York Post*, August 1, 2008

New Yorkers may soon have to cross state lines just to have a baby - or maybe even just to see a doctor when they get sick. Raising that frightening prospect is this week's news that Long Island College Hospital plans to close its obstetrics ward in the face of skyrocketing medical-malpractice costs. Malpractice-insurance premiums have gone through the roof - thanks in large measure to state laws (and judges) that favor plaintiffs (and their lawyers).[84]

Malpractice Costs Up 150% Since 1999, Hospitals Say, *New York Times*, January 6, 2005

The cost of medical malpractice insurance in New York City, Westchester County and on Long Island has risen by nearly 150 percent since 1999, creating severe financial strains that have limited patients' access to such specialties as obstetrics and gynecology and made New York a ''crisis state'' for doctors, according to a report released yesterday by a hospital trade group.[85]

In a landmark study of OB-GYN specialists, William F. Rayburn reports:

In some states, for maternal–fetal medicine specialists, the cost of liability insurance has become prohibitive. Quoted premiums in some states, such as New Jersey, exceeded $300,000 for a mature policy with a per claim limit of $1 million and an aggregate of $3 million. Specialists in those states no longer attend deliveries and instead confine their practices to consultative services.[86]

The loss of obstetricians is especially unfortunate. Obstetrical services, such as prenatal care, are among the most cost-effective forms of preventive medical care available. Any improvement in infant health outcomes is likely to provide benefits throughout the individual's lifetime.

Obstetricians have a significant exposure to medical liability lawsuits. The cost imposed by bad birth outcomes can be very high and juries tend to be sympathetic to claims involving infants. High medical liability insurance premiums can serve as a powerful deterrent to establishing or maintaining an obstetrical practice, particularly in areas where reimbursement rates are low. These areas typically include rural areas with lower patient

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[84] "A Baby-Free New York," The New York Post, August 1, 2008.
[85] Thomas J. Lueck, "Malpractice Costs Up 150% Since 1999, Hospitals Say," The New York Times, January 6, 2005 Thursday, Late Edition – Final, Section B; Column 1; Metropolitan Desk; p. 2.
[86] "The Obstetrician-Gynecologist Workforce in the United States: Facts, Figures and Implications, 2017," American Congress of Obstetricians and Gynecologists, p. 87.

density, as well as low-income areas where many patients do not have health insurance and births are more likely to have medical complications.

Texas has demonstrated that a shortage of practitioners in high-risk specialties can be overcome by capping non-economic damages awards. Following the 2003 reforms, the annual rate of increase in the per capita supply of active doctors in Texas either accelerated or went from negative to positive for six of the seven specialties analyzed.

Figure 10
Average Annual Change in the Number of Active Physicians per Capita (per 100,000 residents) Texas[a]
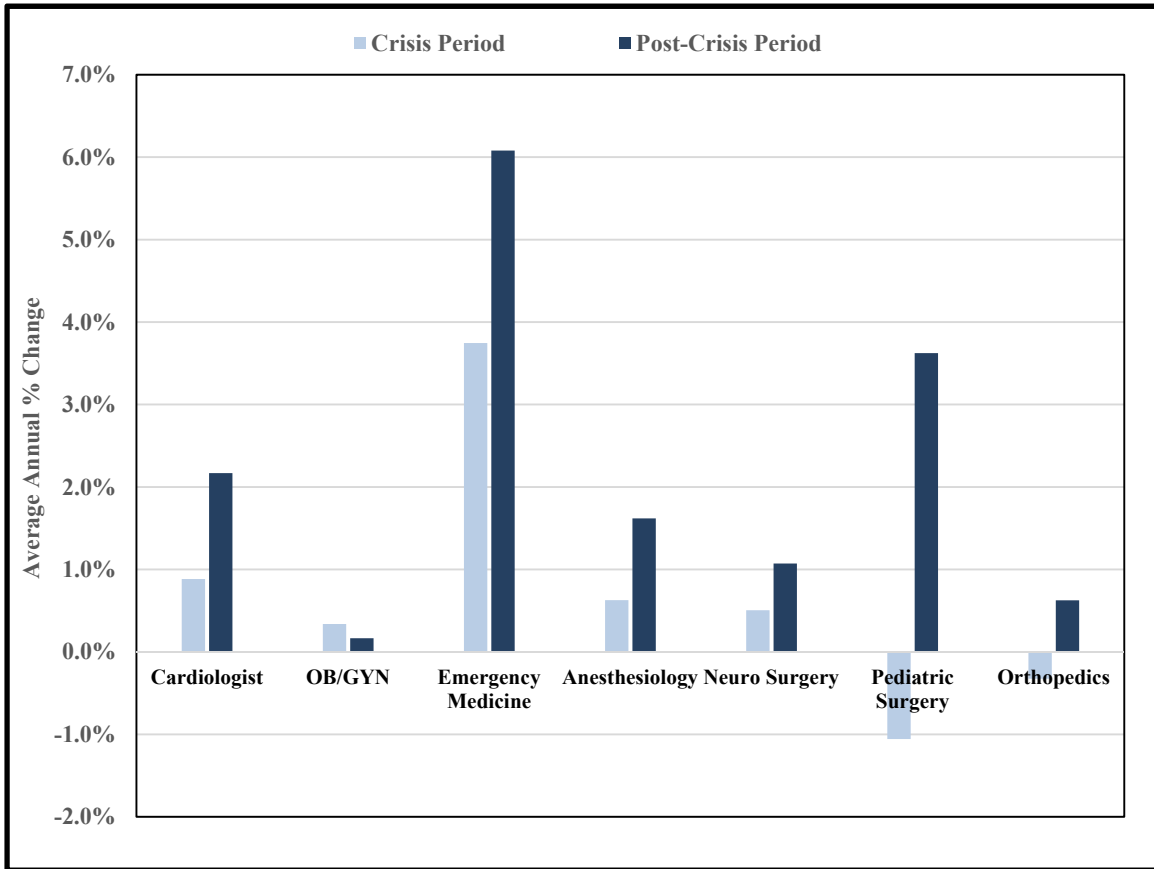
Texas' per capita number of active OB/GYN specialists grew by only 2.3% between 2003 and 2017. A comparison of the Crisis Period and post-Crisis Period average annual per capita growth rates shows that the rate was higher in the earlier period (0.3% versus 0.2%). It would be a mistake to interpret this slow-down in the per

capita growth rate as evidence that the reforms have not had a favorable impact on Texan's access to OB/GYN physicians. In fact, other data indicate that since 2006 Texas has added more OB/GYNs than any other state.[87]

Texas's success in attracting OB/GYN specialists can be reconciled with the decline in the per capita growth rate when we take nationwide trends into account. During the period since Texas' cap on non-economic damages took effect, the total number of new OB/GYN specialists in the United States as a whole has failed to keep pace with the growing number of women of child-bearing age. As a result, the average state has seen the number of child-bearing-age women per OB/GYN specialist go up.[88] In Texas, the increase has been significantly below the national average – almost certainly as a result of the cap.

Texas's experience with caps on non-economic damages awards demonstrates that by holding down medical liability insurance premiums for high-risk specialists, MICRA likewise improves access to health care in California – especially for women and infants.

E. A Higher Cap Would Discourage Medical Students from Entering Certain Specialty Fields

Medical students are keenly aware of liability insurance costs, and they factor these costs into their selection of specialties and practice locations. According to survey data, 50 percent of medical students cite liability insurance costs as an important factor in choosing a specialty, and 39 percent cite these costs as an important factor in choosing where to locate their practice.[89] Consequently, those areas and specialties with relatively higher liability costs and relatively greater vulnerability to lawsuits will tend to be underserved, as students elect to pursue other less-risky or less-costly options.

F. A Higher Cap Would Have a Disproportionate Impact on the Supply of Physicians in Low-Income, Rural, and Minority Areas

While higher medical liability premiums and increased exposure to non-meritorious lawsuits resulting from an increase in the MICRA cap would affect health care providers throughout California, physicians in rural and minority areas would be the ones most adversely affected by the increase. This is because, relative to their suburban counterparts, it is more difficult for them to pass along the increased costs to patients. According to the GAO:

> Actions taken by health care providers in response to rising malpractice premiums have contributed to reduced access to specific services on a localized basis in the five states reviewed with reported problems. We confirmed instances where physician actions in response to malpractice pressures

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[87] William F. Rayburn, "The Obstetrician-Gynecologist Workforce in the United States: Facts, Figures and Implications, 2017," American Congress of Obstetricians and Gynecologists, Table 2. Interstate Relocation Patterns of Obstetrician-Gynecologists Between 2006 and 2015, pp. 17-18. Some 1,826 new obstetricians were added nationally, with 21.4% of them going to Texas. Texas added 390, California added 265, and New York (a state without caps) lost 141 OB/GYNs.

[88] *Ibid.*

[89] "AMA survey: Medical students' opinions of the current medical liability environment," American Medical Association Division of Market Research and Analysis, November 2003.

have resulted in decreased access to services affecting emergency surgery and newborn deliveries in scattered, often rural areas.[90]

Many rural and minority areas are medically underserved because the amounts that residents of these communities can pay toward their health care are more limited, and the cost of serving these residents is often higher, especially those residents receiving health care through Medicare and Medi-Cal. Historically, Medicare and Medi-Cal reimbursement rates have not kept pace with the rate of inflation;[91] further increases in physician expenses would widen this reimbursement gap. To the extent physicians are unable to pass along the higher cost of medical liability premiums to these lower-income families, a higher cap would discourage providers from serving low-income, rural and minority communities, thereby exacerbating the doctor shortages in these areas.

Again, Texas's recent experience shows how caps on non-economic damages awards can improve access to needed medical resources in rural and minority areas. Since Texas imposed a cap in 2003:

- 21 rural Texas counties added a cardiologist, with 13 gaining their first cardiologist.

- 58 rural Texas counties added an emergency medicine physician; 43 of these counties gained their first emergency medicine physician.

- 18 rural Texas counties added an orthopedic surgeon; 10 of these counties gained their first orthopedic surgeon.

- 5 rural Texas counties gained their first geriatrician.

- 33 rural Texas counties added an obstetrician, with 11 gaining their first obstetrician.

- In the 33 counties with the highest concentration of Hispanics, the per capita number of active physicians increased 30.2%, after declining during the five-year period prior to the adoption of the cap on non-economic damages.[92]

We also analyzed data on active physicians in Texas by medical specialty serving predominantly minority communities, where widespread access to health care has historically been more difficult. About 41% of Texas' population identifies as being Hispanic.[93] We identified 33 counties with the highest concentration of Hispanics, accounting for about 19% of Texas' total population.[94] The average annual per capita growth rate for active physicians in these counties increased in for all high-risk specialties after the cap took effect, with largest improvements occurring in Cardiology, Emergency Medicine and Anesthesiology.

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[90] The five states examined are: Florida, Nevada, Pennsylvania, Mississippi, and West Virginia. (See "Medical Malpractice, Implications of Rising Premiums on Access to Health Care," United States General Accounting Office, GAO-03-836. August 2003, p. 12).

[91] See, e.g., John Cherf and Alex Paul, "Unsustainable Physician Reimbursement Rates," American Academy of Orthopedic Surgeons, October 2017 (https://www.aaos.org/AAOSNow/2017/Oct/Cover/cover01/?ssopc=1).

[92] Office of Community Rural Affairs, Texas Medical Board, Physician Demographics, May 2018.

[93] Texas Health and Human Services, Center for Health Statistics, Texas Population, 2017 (https://www.dshs.texas.gov/chs/popdat/ST2017.shtm).

[94] The following counties were used in our analysis of changes in physician supply in predominantly Hispanic counties (population composition of 50% and above) each year from 1997 to 2017: Atascosa; Bee; Bexar; Brooks; Cameron; Castro; Crockett; Culberson; Deaf Smith; Dimmit; Duval; El Paso; Frio; Hidalgo; Hudspeth; Jim Hogg; Jim Wells; Kenedy; Kinney; Kleberg; La Salle; Maverick; Nueces; Pecos; Presidio; Reeves; Starr; Uvalde; Val Verde; Webb; Willacy; Zapata; and Zavala.

Figure 11 shows that during the Crisis Period, five out of the eight specialties had a negative average annual per capita growth rate in Texas' predominantly Hispanic counties. Following the 2003 reforms, the annual rate of increase in the per capita supply of active doctors in these counties turned positive or accelerated for all specialties analyzed.

Figure 11
Average Annual Change in the Number of Active Physicians per Capita, by Specialty, in Predominantly Hispanic Texas Counties [a]
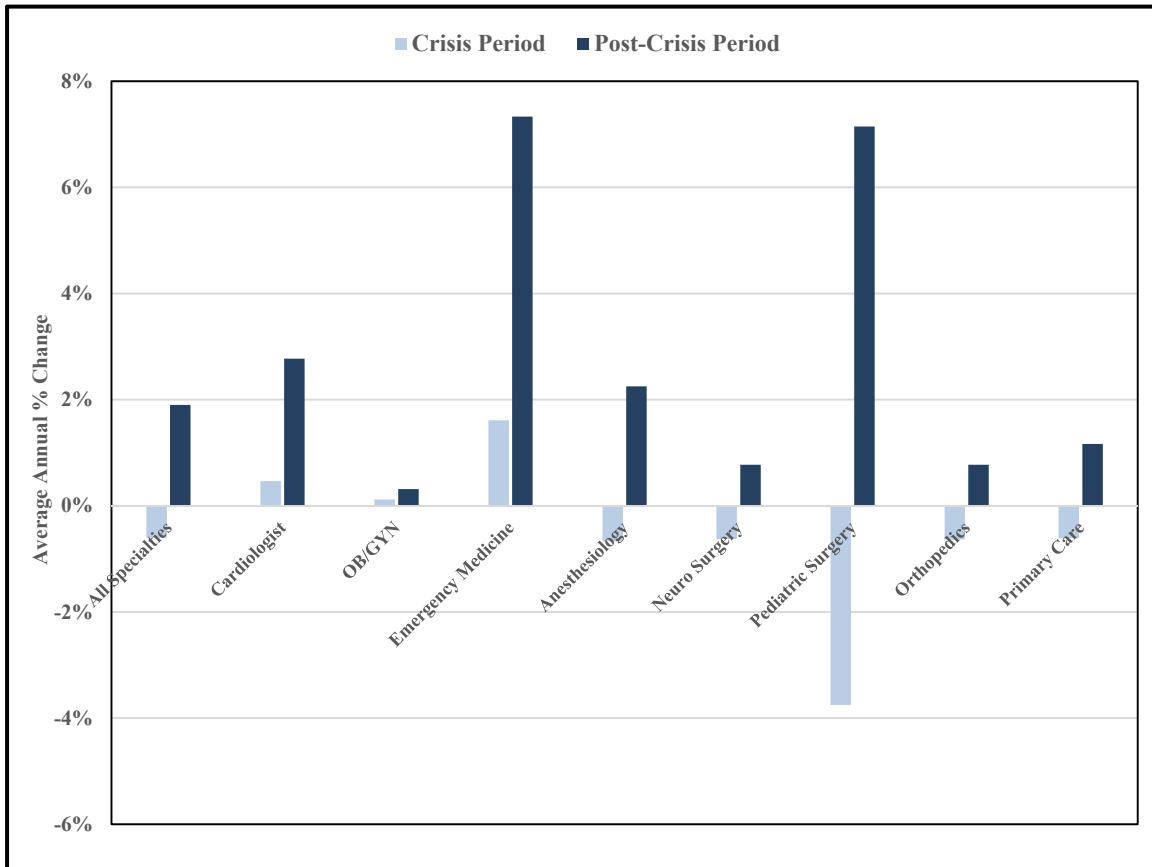
[a] SOURCE: Texas Medical Board; and Texas Department of State Health Services, Texas Population Downloads (https://www.dshs.texas.gov/chs/popdat/downloads.shtm).

Increasing the MICRA cap on non-economic damages awards will cause some physicians to relocate their practices away from California's rural and minority areas. It is much more difficult to replace physicians who practice in rural areas, since the pool of prospects is much smaller than it would be in more heavily populated urban areas. Practicing in isolated, small towns, where doctors do not have the resources or referral sources available in urban areas, appeals to fewer physicians, resulting in rural areas being underserved.

The economics are much the same for hospitals. As hospitals become more exposed to medical liability lawsuits, some will attempt to reduce their exposure by cutting back or eliminating those procedures (*e.g.,* obstetrics) that make them most vulnerable to such suits.

XI. A HIGHER CAP WOULD DECREASE THE WILLINGNESS OF PHYSICIANS TO TREAT VERY HIGH-RISK PATIENTS

Not all medical conditions can be treated successfully, even with state-of-the-art medications and the most advanced surgical procedures performed by the most highly trained and competent doctors. When all other treatments have failed to correct a medical problem, the only option available to a gravely ill patient may be a course of treatment that carries a high risk of a bad outcome. If a provider agrees to perform a procedure with a high risk of a bad outcome, his or her exposure to a medical liability lawsuit will increase sharply. If the provider wishes to avoid this exposure, he or she need only refuse to perform the needed procedure. In some cases, the high-risk procedure may be the patient's best – or only – hope.

The presence or absence of medical liability reform can affect the willingness of physicians to perform high-risk health care procedures.[95] According to a GAO study, during the California medical liability insurance crisis of the 1970's:

> Officials of the California Hospital Association [noted]…that some doctors in California decided to discontinue providing medical care involving high risk procedures . . .[96]

Florida's experience has been similar to California's. A 2005 study revealed a stark trend in the number of physicians performing high-risk procedures in the years leading up to the state's reform in late 2003. The number of physicians performing brain operations increased by 11.8 percent between 1997 and 2000 but decreased by 6.2 percent between 2000 and 2003, when the state was experiencing a medical liability crisis (as defined by the American Medical Association). Similarly, the number of physicians performing high-risk deliveries increased by 4.6 percent between 1997 and 2000 but decreased by 2.6 percent between 2000 and 2003.[97]

Texas' experience provides especially compelling evidence that a cap on non-economic damages awards is effective in improving access to medical care for patients with high-risk diagnoses. The Texas Medical Association conducted a survey of physician attitudes during the period when non-economic damages awards were uncapped. Among other questions, physicians were asked: "In the past two years, have you begun denying or referring complex or high-risk cases?" Of the 1,108 respondents to the survey, 60.7 percent reported that in the last two years, they had begun refusing to treat or referring complex or high-risk cases. Ninety-five percent of these respondents in

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[95] The threat of medical liability suits can also discourage innovation and experimental medicine in the state. *See,* for example, Dorothy Nelkin and Laurence Tancredi, "Medical Malpractice and Its Effect on Innovation," in *The Liability Maze*, Ed. Peter W. Huber and Robert E. Litan, Brookings Institution Press, 1991, pp. 251-273.

[96] United States General Accounting Office, "Medical Malpractice: Case Study on California," GAO/HRD-87-21S-2, December 1986, p. 8.

[97] David Dranove and Anne Gron, "Effects of the Malpractice Crisis on Access to and Incidence of High-Risk Procedures: Evidence from Florida," *Health Affairs*, Vol. 24, No. 3 (2005), pp. 802-810 at pp. 804-805.

2003 said "professional liability pressures" were either a "very important" (76 percent) or a "somewhat important" (19 percent) factor accounting for their actions.[98]

In the years following the establishment of the cap, Texas physicians were asked if they had "[b]egun accepting complex or high risk cases . . . [they] previously referred or denied". The percent of respondents that answered "yes" rose from 4 percent in 2004 to 28 percent in 2010. Of the 2010 respondents, 96 percent stated that "the perceived or expected [medical] liability climate" was either a "very important" (72 percent) or "important" (24 percent) reason for the change in their willingness to treat such patients.[99]

As common sense and the experience of Florida and Texas make clear, the MICRA cap has improved access to needed care for patients requiring higher-risk procedures. Were the cap to be raised, such patients would have much greater difficulty obtaining the care they need.

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[98] Texas Medical Association Liability Survey, 2003.
[99] Texas Medical Association Liability Surveys, 2004, 2006, 2008, and 2010.

XII. AN INCREASE IN THE MICRA CAP WOULD NEGATIVELY AFFECT CALIFORNIA'S SOCIAL SAFETY NET

California's social safety net includes medical care that doctors and hospitals provide to individuals with little expectation that they will be paid for their services. An increase in the cap would have a negative effect on these health care providers because they will find it difficult or impossible to shift the higher costs resulting from the increase to their low-income patients. As a result, a higher cap would reduce the amount of money available to provide health care services to those California residents dependent on the State's social safety net.[100]

A. Higher Medical Liability Premiums Would Decrease Hospitals' Ability to Provide Uncompensated Care

Most medium-size and large hospitals choose to self-insure against medical liability claims, rather than purchase liability coverage from an insurance company.[101] Such hospitals usually retain a portion of their revenues in excess of costs and deposit the money into a self-insurance trust that provides a source of payments for claims as they accrue. The hospitals' contributions are based on actuarial determinations of future payment requirements, which in turn are based on historical and expected losses.

In California today, the levels of reserves that self-insured hospitals retain assume continuation of the $250,000 cap on non-economic damages awards. If the cap is increased, these hospitals will need to set aside a larger percentage of their revenues as reserves for medical liability claims. For example, the University of California, which maintains reserve balances for its teaching hospitals, estimates that raising the MICRA cap would cost the hospitals between $7.2 million (+14 percent) and $10.8 million (+21 percent) annually in increased payments and defense costs.[102]

Both public and private hospitals provide uncompensated care to the uninsured and under-insured. Hospitals have been called the "insurer of last resort."[103] An increase in expenditures on medical liability awards would require these hospitals to cut back on other expenditures in order to free up the money needed in medical liability reserves. This cut-back would reduce their ability to provide needed health care services to those Californians who are unable to pay for them.

Texas' recent experience illustrates the close relationship between medical liability exposure and a hospital's ability to provide care to low-income patients. After the 2003 reforms capped non-economic damages

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[100] See, for example, Lisel Blash, Carol Lee, and Elissa Maas, "Quality Improvement in Solo and Small Group Practice, Strengthening the Private Practice Safety-Net," CMA Foundation, September 24, 2008.

[101] United States General Accounting Office, "Medical Liability: Impact on Hospital and Physician Costs Extends Beyond Insurance," GAO/AIMD-95-169, September 1995. Many hospitals purchase stop-loss insurance policies that provide coverage for awards exceeding $2 million.

[102] The University's response to an August 1, 2013 request from the Legislative Analyst's Office.

[103] Craig Garthwaite, Tal Gross and Matthew J. Notowidigdo, "Hospitals as Insurers of Last Resort," *American Economic Journal: Applied Economics*, 10(1) (Jan. 2018) pp. 1-39.

awards took effect, the amount of charity care provided by Texas hospitals increased sharply. By 2014, the increase was 76 percent, with an average increase per hospital of over $15 million.[104] These results suggest that a significant portion of the cost-savings associated with Texas' liability reforms went towards assisting patients who were underinsured or uninsured, giving these patients greater access to needed medical services.

B. Higher Medical Liability Premium Costs Would Diminish the Viability of Some Community Hospitals and Place a Greater Financial Burden on Local Governments

The uninsured rely heavily on safety net providers for health care. In California, these providers include a network of clinics and public hospitals. County health facilities often fill the gaps in health care available to the uninsured. An increase in the MICRA cap would require counties to increase their budgets for medical liability claims and defense costs. As a result, their ability to provide health care to the near poor would be impaired.

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[104] Data provided by the Texas Hospital Association.

XIII. CONCLUSION

Well-established economic principles and a large body of empirical evidence demonstrate that increasing the cap on subjective, non-economic damages awards in medical liability cases would impose significant costs on California's health care system. The source of the additional costs would be:

1. An increase in the volume of medical liability-related litigation, since a higher cap would encourage more individuals with weak or non-meritorious claims to file suit;

2. An increase in the size of the average claim paid, since a higher cap would enable a relatively small number of plaintiffs to secure very large awards; and

3. An increase in unnecessary medical procedures prescribed in order to reduce the doctor's exposure to medical liability lawsuits – not to improve patient outcomes.

We conservatively estimate that if California's $250,000 MICRA cap is raised to $1 million or higher, the added costs to the State's health care system would total approximately $11.4 billion annually, an amount equivalent to over $1,100 for a family of four. These costs would be borne by three groups:

1. Consumers who purchase health care;

2. Workers covered by employer-provided group health insurance; and

3. Taxpayers who pay for all or part of the health care provided to State employees, low-income families, and patients at State hospitals.

Figure 12 summarizes the effects described in sections III-XII of this report. It illustrates how the different elements of the health care system are interrelated and interdependent, and shows how increased costs resulting from a higher MICRA cap will lead to increased costs throughout the system.

More troubling is the impact that a higher MICRA cap would have on access to needed health care for residents of California. An increase in the cap would leave more residents uninsured or under-insured, while at the same time reducing the ability of Californians to obtain treatment in a hospital or doctor's office. The increase in the number of medical liability suits brought against health care providers – particularly weak and non-meritorious suits – would make California a less-attractive place to practice medicine and weaken many community hospitals. These consequences would be felt disproportionably by low-income persons, as well as by individuals and families residing in rural and minority areas.

Figure 12:
Effects of Increasing the Cap on Non-Economic Damages
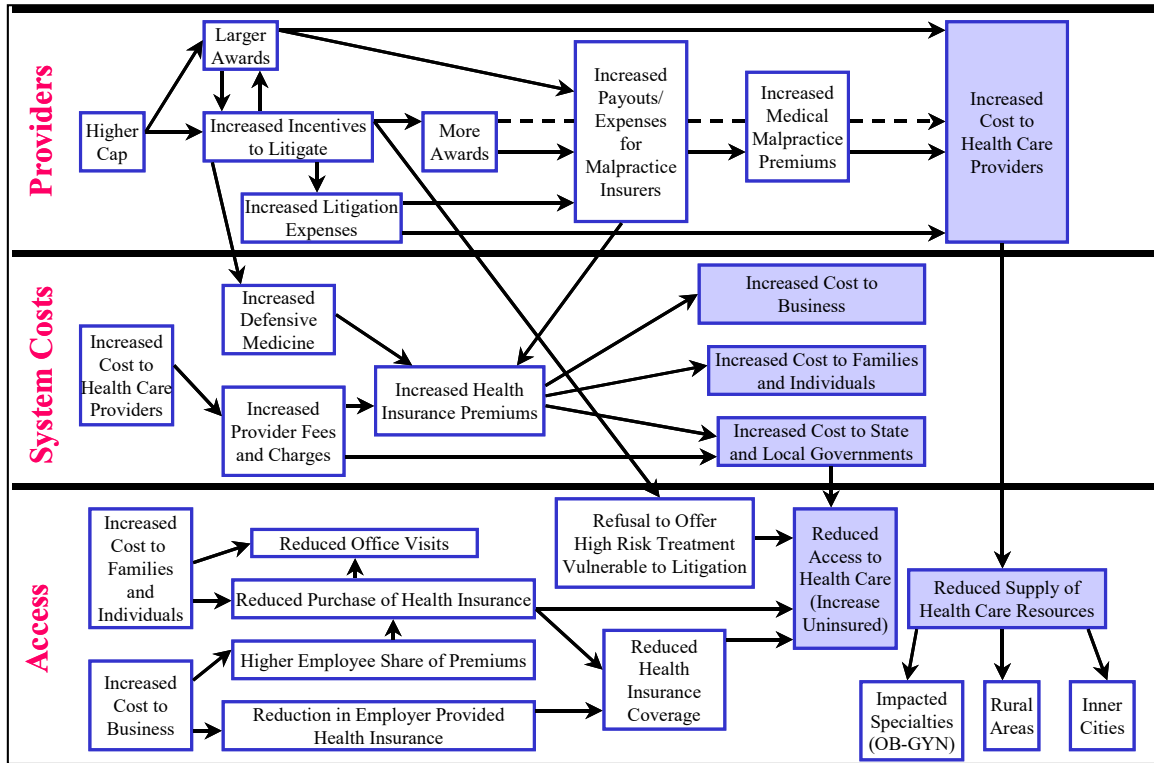
**How a Change in the Cap on Non-Economic Damages Affected the Number of Claims Filed:
Oregon's Experience**

Year	Claims [a]	Population[c]	Claims per Capita[d]
1991	150	2,927,800	5.1
1992	167	2,990,610	5.6
1993	141	3,059,110	4.6
1994	128	3,119,940	4.1
1995	105	3,182,690	3.3
1996	105	3,245,100	3.2
1997	114	3,302,140	3.5
1998	92	3,350,080	2.7
1999	99	3,393,410	2.9
2000	132	3,431,085	3.8
2001	116	3,470,385	3.3
2002	137	3,502,588	3.9
2003	142	3,538,591	4.0
2004	124	3,578,895	3.5
2005	106	3,626,938	2.9
2006	103	3,685,206	2.8
2007	119	3,739,359	3.2
2008	121	3,784,182	3.2
2009	102	3,815,775	2.7
2010	138	3,837,300	3.6
2011	109	3,857,625	2.8
2012	88	3,883,735	2.3
2013	93	3,919,020	2.4
2014	101	3,962,710	2.5
2015	105	4,013,845	2.6
2016	74	4,076,350	1.8
2017	104	4,141,100	2.5
Average With the Cap (1994 to 1998)			3.4
Average With No Cap (2000 to 2004)			3.7
Percentage Change [b]			**10%**

[a] SOURCE: National Practitioners Data Bank.
[b] In 1987, the Oregon legislature passed medical liability reforms that imposed a cap of $500,000 on non-economic damages. In 1999, the Oregon Supreme Court removed the cap.
[c] Table 1. Population and Components of Population Change for Oregon: 1960-2017, Prepared by Population Research Center, PSU, April 2018 (https://www.pdx.edu/prc/sites/www.pdx.edu.prc/files/ORAnnualPopReport_2017_Tables.xlsx).
[d] Per Capita is based on every 100,000 residents.

How a Change in the Cap on Non-Economic Damages Affected the Number of Claims Filed: Texas' Experience

Year	Claims [a]	Population[c]	Claims per Capita[d]
1990	265	17,044,714	1.55
1991	1205	17,339,904	6.95
1992	1292	17,650,479	7.32
1993	1201	17,996,764	6.67
1994	1289	18,338,319	7.03
1995	1269	18,679,706	6.79
1996	1385	19,006,240	7.29
1997	1055	19,355,427	5.45
1998	1251	19,712,389	6.35
1999	1148	20,044,141	5.73
2000	1251	20,949,316	5.97
2001	1314	21,334,855	6.16
2002	1235	21,723,220	5.69
2003	1226	22,103,374	5.55
2004	1255	22,490,022	5.58
2005	1173	22,928,508	5.12
2006	758	23,507,783	3.22
2007	683	23,904,380	2.86
2008	579	24,326,974	2.38
2009	564	24,782,302	2.28
2010	564	25,253,466	2.23
2011	489	25,674,681	1.90
2012	464	26,059,203	1.78
2013	433	26,448,193	1.64
2014	579	26,956,958	2.15
2015	432	27,469,114	1.57
2016	530	27,862,596	1.90
2017	562	28,304,596	1.99
Average With the No Cap (1999 to 2003)			5.8
Average With the Cap (2005 to 2009)			3.2
Percentage Change [b]			**46%**

[a] SOURCE: National Practitioners Data Bank.
[b] In 2003, the Texas Legislature passed a bill enacting a $250,000 cap on non-economic damages.
[c] United States and Texas Populations 1850-2017 (https://www.tsl.texas.gov/ref/abouttx/census.html).
[d] Per Capita is based on every 100,000 residents.

NAIC Profitability Report[a]
California Medical Professional Liability

Year	Direct Premiums Earned	Losses Incurred	Loss Adjustment Expense	General Expense	Selling Expense	Divs to Policyholder	Total Costs/Direct Premiums
2000	$609,712	45.80%	26.0%	7.50%	10.00%	3.70%	93.00%
2001	$644,598	63.50%	31.0%	7.50%	9.80%	3.50%	115.30%
2002	$787,182	55.10%	38.2%	5.40%	10.50%	2.20%	111.40%
2003	$873,789	47.70%	32.6%	5.50%	8.80%	0.40%	95.00%
2004	$933,757	41.80%	27.9%	4.20%	8.60%	0.30%	82.80%
2005	$963,059	35.60%	27.6%	5.20%	9.30%	1.60%	79.30%
2006	$949,011	24.90%	24.1%	5.60%	9.20%	1.60%	65.40%
2007	$913,780	26.30%	23.1%	6.30%	10.70%	2.20%	68.60%
2008	$884,663	18.20%	19.2%	6.50%	11.00%	3.70%	58.60%
2009	$824,207	22.20%	24.3%	7.40%	12.20%	3.70%	69.80%
2010	$816,768	27.30%	22.8%	8.00%	11.60%	3.90%	73.60%
2011	$813,264	33.40%	30.4%	8.60%	11.20%	4.20%	87.80%
2012	$778,904	38.60%	28.0%	8.40%	11.90%	3.80%	90.70%
2013	$730,932	37.90%	30.1%	8.00%	12.00%	4.30%	92.30%
2014	$736,327	47.40%	34.9%	8.10%	12.50%	3.70%	106.60%
2015	$764,849	38.60%	33.5%	8.10%	13.60%	2.90%	96.70%
2016	$754,064	45.90%	31.4%	8.30%	14.00%	1.50%	101.10%
				Weighted Average Total Costs/Direct Premiums			**86.21%**

[a] SOURCE: NAIC Report of Profitability by Line by State 2001 to 2017.

Risk Premiums Earned By Investors in Various Sectors of the Economy

Average Long-Horizon Equity Risk Premium, 1990 to 2017 [a]   ....…..…… 6.20% **[A]**

	[B]	**[C] = [A] x [B]**
Industry	**Beta [b]**	**Risk Premium**
Utility (General)	0.29	1.82%
Banks (Regional)	0.50	3.11%
Medical Liability Insurers		**0.63%**
Hospitals/Healthcare Facilities	1.18	7.31%
Insurance (Prop/Cas.)	0.84	5.20%
Telecom. Services	1.08	6.72%
Brokerage & Investment Banking	1.24	7.68%
Information Services	0.88	5.47%
Investments & Asset Management	0.99	6.12%
Transportation (Railroads)	1.01	6.23%
Financial Svcs. (Non-bank & Insurance)	0.61	3.76%
Cable TV	0.92	5.71%
Insurance (Life)	1.01	6.25%
Total Market	1.00	**6.20%**

[a] SOURCE: "Valuation Handbook 2018, International Guide to Cost of Capital" Duff & Phelps, Data Exhibit 1-52.

[b] SOURCE: Cost of Capital by Sector, as of January 2018, provided by Aswath Damodaran, Professor of Finance at the Stern School of Business at New York University (http://people.stern.nyu.edu/adamodar/New_Home_Page/datafile/wacc.htm).

Review of Empirical Research on Defensive Medicine

1. Summary and Conclusions

Hamm, Frech and Wazzan (2008), cited a finding by Kessler and McClellan that tort reforms which directly limit the amount of damages recoverable by plaintiffs in medical malpractice torts ("direct reforms") reduce long-run non-beneficial medical expenditures ("defensive medicine") on average by 3.04 percent in states with above average managed care enrollment rates.[105] This finding was based on an examination of hospital reimbursement for over six million Medicare beneficiaries treated for heart attacks and heart disease between 1984 and 1994 and state-level implementation of various tort reforms during this time period.

In 2012, we reviewed a number of other studies that had been published since Hamm, Frech and Wazzan (2008) and which used alternative datasets to estimate the impact of tort reform on defensive medicine expenditures for other conditions and in other populations. At that time, we concluded that the original estimate of the impact that an increase in the MICRA cap on non-economic damages would have on medical expenditures attributed to defensive medicine, remained appropriate.

Now, in 2018, we have performed another such review of studies on the effects of tort reform. In the intervening years, additional research has been performed that has attempted to assess the quantitative impact that tort reform, and medical malpractice liability more generally, has on the practice of defensive medicine. Other recent research has sought to examine the causal mechanisms by which tort reform can impact defensive medicine spending as well as the other effects of tort reform.

Section 2 of this appendix summarizes research directly related to the effect of tort reform on the practice and cost of defensive medicine. Section 3 reviews literature relating tort reform to healthcare quality. Section 4 discusses literature linking tort reform to the supply of physicians, while Section 5 covers other issues including the pathways through which tort reform might affect the practice of defensive medicine.

Despite the additional research in this field, we continue to conclude that, to date, no credible study has estimated the impact of tort reform on the use of defensive medicine for a population as varied and diverse as that in California, but that, on balance, research in the last several years supports applying the estimates from Kessler and McClellan (2002) to California.

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[105] Daniel Kessler, and Mark McClellan, "Malpractice law and health care reform: optimal liability policy in an area of managed care," *Journal of Public Economics*, 84 (2002) 175-197. In Hamm, Frech and Wazzan (2008), a February 2000 working paper was cited. The results and conclusions are the same in these two publications.

2. Tort Reform and Defensive Medicine Spending

Several recent studies have examined the relationship between tort reform and the practice and cost of defensive medicine, each focused on a particular subset of the broader population.

Avraham and Schanzenbach (2015)[106] examined the effect of non-economic damages caps on the likelihood that certain cardiac interventions (CABG and PTAC) are performed on patients diagnosed with a heart attack, as well as the hospital costs and mortality rates of those patients. The authors used a nationwide sample of 1.5 million inpatient admissions for heart attacks in patients aged 45 to 90, between 1998 and 2009. The authors implemented a difference-in-difference design based on the roll-out of tort reforms that cap non-economic damages occurring between 1998 and 2009. Avraham and Schanzenbach (2015) controlled for an extensive set of factors, including hospital characteristics, patient characteristics and co-existing health conditions, insurance status, the prevalence of HMO insurance coverage in the state, and state specific time trends. They found that the implementation of non-economic damage caps was associated with a 1.25 to 2 percentage point decline in the probability that a patient receives any major cardiac intervention, but that when doctors have discretion to perform a by-pass and patients have insurance coverage, caps on non-economic damages may result in a shift towards performing more invasive CABG procedures. That result notwithstanding, the authors found that overall costs associated with treating heart attack patients declined by about four percent after the introduction of caps on non-economic damages,[107] with no increase in mortality rates. This cost reduction is in line with previous findings by Kessler and McClellan (2002), which analyzed spending associated with somewhat older (Medicare aged) heart-attack patients.

Frakes and Gruber (July 2018 WP)[108] used a sophisticated difference-in-difference design to estimate the extent of defensive medicine induced by any degree of exposure to medical malpractice liability. Their approach leveraged the fact that active duty military personnel and their dependents can be treated at either military or civilian facilities and that active duty personnel cannot sue military facilities or physicians for negligent care they receive, but their dependents treated in the same facilities can. The authors also used military base closures and shifts to civilian healthcare facilities as exogenous shocks to control for endogenous selection factors. Frakes and Gruber analyze incident-level inpatient hospital admission data for over 2 million hospital admissions of beneficiaries between the ages of 18 and 60 from 2003 to 2013. The authors find that immunity to liability is

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[106] Ronen Avraham and Max Schanzenbach, "The Impact of Tort Reform on Intensity of Treatment: Evidence from Heart Patients," *Journal of Health Economics* (39) (2015), 273-88.

[107] *Ibid.* This result is statistically significant when state trends are included. The authors note that "On balance, the strong upwards trends overtime in medical costs are well-known, and perhaps militate toward a specification that includes state specific trends."

[108] Michael D. Frakes and Jonathan Gruber, "Defensive Medicine: Evidence from Military Immunity," NBER Working Paper 24846, July 2018, (available at: http://www.nber.org/papers/w24846).

associated with an approximately 4-5 percent reduction in inpatient treatment intensity,[109] with no statistically significant decline in health care outcomes. Frakes and Gruber also find that the reduction in treatment intensity is larger in states that do not have damages caps relative to states with damages caps, and use a triple difference approach to estimate that damages caps reduce treatment intensity by roughly 2.1 percent.[110] This finding is not dissimilar to the findings in Kessler and McClellan (2002) and suggests that cost reductions associated with the implementation of damages caps may occur in younger and healthier populations.

In contrast to the above findings, two related studies examining recent tort reforms do not find that damages caps reduce defensive medicine. Paik, Black, and Hyman (2017)[111] utilized a difference-in-difference design that compares changes in aggregate Medicare Part A and Part B spending in the nine states that implemented damages caps between 2002 and 2005 (so called "third wave" tort reform states[112]), with spending in two groups of control states: a group of 20 "no-cap" states[113] and a group of 22 "old cap" states[114] which implemented reforms before 2002. The authors used data on aggregate county-level Medicare spending per beneficiary from 1978 to 2011 and controlled for county level demographic characteristics.[115] They found that the third wave of damages caps did not have a statistically significant effect on aggregate Medicare Part A spending relative to no-cap or old cap states, but that Medicare Part B spending increased by 4 percent relative to control states.[116] The authors also revisited the effect of "second wave" reforms implemented in 1986 and 1987[117] using 29 states that did not have caps as a control group. This sample period and set of states is similar to those studied by Kessler and McClellan, though Kessler and McClellan focused on individual level Medicare Part A claims data for cardiac patients instead of aggregate county-level data. Paik, Black, and Hyman (2017) found similar

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[109] Treatment intensity measures include total inpatient days, the number of procedures performed, and a Department of Defense derived intensity metric known as Relative Weighted Product which is designed to be comparable across direct and purchased care settings.

[110] The structure of the triple difference approach can be expected to control for factors like managed care penetration.

[111] Myungho Paik, Bernard Black and David Hyman, "Damage Caps and Defensive Medicine, Revisited," *Journal of Health Economics* 51 (2017), pp. 84-97.

[112] Third wave states include Florida (2003); Georgia (2005), Illinois (2005), Mississippi (2003), Nevada (2002), Ohio (2003), Oklahoma (2003), South Carolina (2005), and Texas (2003).

[113] No cap states include Alabama, Arizona, Arkansas, Connecticut, Delaware, DC, Iowa, Kentucky, Maine, Minnesota, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Tennessee, Vermont, Washington, and Wyoming.

[114] Old cap states include Alaska, California, Colorado, Hawaii, Idaho, Indiana, Kansas, Louisiana, Maryland, Massachusetts, Michigan, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oregon, South Dakota, Utah, Virginia, West Virginia, and Wisconsin.

[115] Controls include the number of physicians in the county, unemployment rates, disability rates, median income, race, sex, and age estimates from the Census Bureau, managed care penetration as proxied by the ratio of Medicare Advantage enrollees to all Medicare enrollees, and state-level, county-level and year-level fixed effects.

[116] 4% is the author's preferred interpretation of various specifications that yield results ranging between 3% and 4.2%. Paik, Black, and Hyman (2017) also found that the number of large paid medical malpractice claims per 1000 physicians were higher in no cap and third wave states than capped states between 1992 and 2002, and that the number of large paid claims declined in third wave states after the implementation of caps. This finding is consistent with damages caps having an observable effect on medical malpractice risk, which could in turn result in changes in physician behavior including the practice of defensive medicine

[117] Second Wave states include Alaska, Colorado, Hawaii, Idaho, Kansas, Maryland, Massachusetts, Michigan, Missouri, Oregon, Utah, and West Virginia.

results to Kessler and McClellan when they used similar control variables, but found statistically insignificant results when they controlled for managed care penetration and the introduction of the MPPS payment system.

A key assumption implicit in any difference-in-difference design is that the control and treatment groups would have behaved similarly but-for the implementation of the damages caps. This assumption becomes particularly important when data aggregation, or any other data limitation, prevents the researcher from controlling for potential differences between these groups. To the extent that the third wave states implemented caps because healthcare costs were increasing more rapidly in those states than other states, a difference-in-difference design may falsely attribute this divergent trend to the impact of implementing caps. While this assumption is difficult to test, data presented in Paik, Black, and Hyman (2017) suggest that divergent trends in third wave states may be a concern. The authors found that the ratio of Medicare Part A and Part B spending in third wave states relative to no cap states began increasing in 2001 and 2002 respectively, continued increasing throughout the cap implementation period, and then decreased following stabilization after the implementation period. They also found that including controls for state-specific time trends in their model decreased the estimated effect of caps on Part B spending to 0.8 percent and that result became statistically insignificant. Concerns over divergent trends are ameliorated somewhat by the results of robustness checks utilizing propensity scores, but uncertainty remains.

Another assumption implicit in difference-in-difference based studies is that the treated (i.e., reformed) states are actually treated. Depending on the method by which a tort reform is implemented, there may be more or less uncertainty over whether the tort reform will be overturned or otherwise unenforceable. As time passes and challenges to the reform are found wanting, the uncertainty over the permanency of the reform fades. While substantial uncertainty remains, there is little economic incentive for insurance companies to adjust malpractice insurance rates or for doctors to adjust their practice of defensive medicine. The assumption that stakeholders would have fully incorporated reforms during the window of analysis is particularly tenuous for studies based on recent third wave reforms, since challenges to these reforms have had less time to percolate through the legal system and change behavior during the sample period. Indeed, of the nine new-wave states that implemented a reform between 2002 and 2005, reforms in two states (Georgia and Illinois) were invalidated by the state supreme courts in 2010. These two states were included as treatment states until 2010 by Paik, Black, and Hyman (2017) and Moghtaderi, Farmer, and Black (May 2018 WP) (discussed just below). However, there is little reason to expect that knowledgeable industry participants would act on reforms to which significant legal challenges had been mounted and that might not be binding in the future. Further, to the extent industry participants modified their behavior after the reform was passed, they may have reversed such modifications when it became apparent that the state supreme courts were willing to hear challenges to the law. Including such states can be expected to dilute the measured impact of reforms, biasing results towards zero in simple pre/post difference-in-difference designs, and affecting estimates in unpredictable ways in cumulative lag designs where the effect of the change is measured over a longer period.

A second paper, by Moghtaderi, Farmer, and Black (May 2018 WP)[118], used a similar difference-in-difference design based on third wave states as compared to no cap states. The authors' primary data set was a random sample that included 5 percent of all fee-for-service Medicare Part A and B claims and payments that occurred between 1999 and 2011. This patient level data included about 2 million observations per year. The authors study the effect of implementing damages caps on the incidences of cardiac stress tests (stress ECG, stress echo, and SPECT), imaging tests (CT and MRI scans), and invasive cardiac procedures (left heart catheterization ("LHC" or angiography), stenting ("PCI"), and coronary artery bypass grafts "CABG")). The authors also examined the impact of caps on overall Medicare Part A and B spending and on outpatient laboratory and radiology spending. They included a variety of controls for patient-level and county-level characteristics as well as zip code, year, and patient or physician fixed effects. They found that cardiac intervention rates fell 9 percent, 13 percent and 20 percent for CABG, LHC, and PCI respectively when damages caps were introduced. However, they found that radiology spending (which includes stress tests, MRIs, and CTs) increased by between 6 percent and 10 percent. They also found a 1.9 percent to 3.8 percent increase in overall Medicare Part B spending with borderline statistical significance, and a statistically insignificant change in Part A spending. Consistent with a large body of literature, they found that caps do not effect patient mortality rates.

The finding that non-economic damages caps increases radiology spending is, on its face, counter-intuitive, since it is generally believed that physicians respond to malpractice risk by ordering such tests even when they provide little or no health benefit. The authors posit that the observed rise in stress test rates is offset by lower use of more invasive angiography procedures as an initial diagnostic test and that fewer patients progress from less invasive procedures to more invasive procedures. This explanation is consistent with the authors observed drop in major cardiac interventions. The authors also test a specification that includes linear trends within each state. This set of controls reduced the estimated positive effect of cap implementation on stress testing and CT testing, eliminated the positive effect on MRI testing, reduced the positive effect on overall Medicare spending, and lessened the reduction of major cardiac interventions. The magnitude of these changes raises further questions as to whether third wave states and no cap states were systematically different in the pre-reform period and whether no cap states can serve as adequate controls for third wave states in this context.

3. Tort Reform and Health Care Quality

A number of recent studies have examined the relationship between various tort reforms and the quality of health care delivered.

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[118] Ali Moghtaderi, Steven Farmer, and Bernard Black, "Damage Caps and Defensive Medicine: Reexamination with Patient Level Data," Northwestern University Law School, (working paper available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2816969), updated June 2018.

Frakes (2013)[119] examined changes in the standard by which physicians are judged in malpractice disputes. Historically, physicians were judged in court against regional customs and practices. More recently, many states have adopted common nationwide standards. In regions that started off with high initial utilization levels of a particular treatment, a shift to the national standard can be viewed as discouraging those interventions, while a shift to national standards in regions with low initial utilization can be viewed as encouraging additional treatment. Frakes (2013) used a difference-in-difference design to study the effect that changes in malpractice standards have on the utilization of cesarean delivery, cardiac treatment, and diagnostic procedures between 1977 and 2005, as measured by the National Hospital Discharge Survey. The author found that a shift in liability standards reduced the gap between regional and national utilization of cardiac interventions by 30 to 45 percent and of cesarean by 40 percent, with no convergence in neonatal health outcomes.

Frakes and Jena (2016)[120] used a similar difference-in-difference design to estimate the effect that changes in these malpractice standards have on other measures of treatment quality, including inpatient mortality for select conditions, rates of avoided hospitalization, maternal trauma rates, and cancer screening rates as measured using encounter-level treatment records from the National Hospital Discharge Survey from 1979 to 2005. The authors found that implementing a national standard improves health outcomes in previously low quality regions, while moving to national standards in previously high quality regions does not result in a decline in health outcomes. Similarly, they found that implementing tort reforms that cap non-economic damages do not result in a decline in health outcomes.

4. Tort Reform and the Supply of Physicians

Several recent studies have examined the impact of tort reform on the supply of physicians.

Hyman, Silver, Black, and Paik (2015)[121] analyzed whether tort reform that implemented non-economic damages caps in 2003 in Texas affected the supply of physicians in that state. The authors analyzed data from the Texas Department of State Health Services on the number of physicians engaged in direct patient care and the number engaged in three high risk specialties: neurosurgery, orthopedic surgery, and obstetrics/gynecology. They conducted a simple analysis that compared the number of physicians per capita in Texas before and after the reforms, in Texas versus the U.S., and a somewhat more advanced difference-in-difference analysis that compared Texas to two different sets of no-cap states. The authors obtained mixed results that varied across specialties and

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[119] Michael Frakes, "The Impact of Medical Liability Standards on Regional Variations in Physician Behavior: Evidence from the Adoption of National-Standard Rules," *American Economic Review* 103(1) (2013), pp. 257-76.

[120] Michael Frakes, and Anupam B. Jena, "Does medical malpractice law improve health care quality?," *Journal of Public Economics* 143 (2016), pp. 142-58.

[121] Hyman, David A., Charles Silver, Bernard Black, and Myungho Paik, "Does Tort Reform Affect Physician Supply? Evidence from Texas," *International Review of Law and Economics*, 42 2015, pp. 203–18.

specifications and concluded that "any effect of tort reform is too small for us to measure, against the background of other, larger forces affecting physician supply, both in Texas and nationally."

Stewart, West, Schirmer, and Sirinek (2013)[122] also analyzed the 2003 Texas tort reform, but used data produced by the Texas Medical Board on the number of physicians practicing in Texas. The authors also conduct a simplistic analysis that compared trends in the number of physicians in Texas pre and post reform and concluded that reform was associated with a significant increase in the supply of physicians.

Helland and Seabury (2015)[123] studied the impact that implementing non-economic damages caps has on the supply of physicians, using a more credible design that controls for state specific conditions by comparing trends in high risk and low risk specialties. Specifically, they compared the differential impact of implementing the third wave of tort reforms that cap non-economic damages on high- versus low-risk specialties in states that adopt tort reforms as compared to states that do not adopt reforms using a triple difference strategy. The authors used data on the number of physicians, by specialty, in each county from 1995 to 2010 as tracked by the American Medical Association. They found that the adoption of noneconomic damage caps leads to between a 1.5 percent and a 6.6 percent increase in the number of physicians in high risk specialties relative to non-high risk fields (depending on how high risk specialties are defined), but also to a decrease in the supply of non-high risk physicians.[124]

Helland and Seabury (2015) also provided a concise summary of the literature written prior to 2010 linking tort reforms to physician supply:

> "Kessler et al. (2005) found an overall effect of a 2.4% increase in physician supply associated with what they label "direct" tort reforms. Encinosa and Hellinger (2005) found a 2.2% increase in the number of doctors practicing in the state adopting non-economic caps, although the effects largely occurred three or more years after enactment. Klick and Stratmann (2007) found a 3.9 to 6.6% increase in physician supply in high-risk specialties when measured against a low risk control group, compared to a .8 to 2.9% increase for the same group without the control group. Matsa (2007) found a 4 to 7% increase in the supply of physicians to rural counties, but a negative effect overall. Baicker and Chandra (2006) found a negative elasticity of labor supply with respect to increases in premiums and payments but only for OB-GYN, internal medicine and surgical specialties and physicians over 55 although the results are inconsistent and not particularly robust."

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[122]   Ronald Stewart, Molly West, Richard Schirmer, and Kenneth Sirinek, "Tort Reform is Associated with Significant Increases in Texas Physicians Relative to the Texas Population," *J. Gastrointerest Surg*ery, (2013) 17:168-178.

[123]   Eric Helland and Seth Seabury, "Tort Reform and Physician Supply: A Review of the Evidence," *International Review of Law and Economics*, 42(2015), pp. 192-202.

[124]   The authors attribute this finding to endogeneity in which states choose to implement tort reform. In other words, states with low growth in the number of physicians are more likely to implement tort reform, thus biasing results downward.

Paik, Black, and Hyman (2016)[125] also examined the effect of the third wave of tort reforms on physician supply using data on the number of physicians, by specialty and county from 1995 to 2011 as tracked by the American Medical Association. They implemented a variety of difference-in-difference and triple difference approaches and analyzed higher risk specialties both one at a time and as a group. In contrast to Helland and Seabury (2015), Paik, Black, and Hyman (2016) found that "no evidence that the adoption of damage caps increased the overall supply of patient care physicians in the nine new-cap states, relative to either no-cap states, or no-cap and old-cap states taken together." The authors also directly addressed the findings by Helland and Seabury (2015), largely replicating the approach used in that paper, and then arguing that the increase in physician supply observed for high risk specialties were driven, primarily, by errors in the underlying data.

5. Other Literature

Carrier, Reschovsky, Katz, and Mello (2013)[126] took a different approach to analyzing the degree to which malpractice liability effects the practice of defensive medicine. Instead of focusing on the implementation of tort reforms, the authors utilized data on physicians' own perceptions of risk and concern about malpractice liability, obtained from a national survey of physicians in 2008. The authors matched the self-reported perceived malpractice liability risk level of 3,469 physicians with treatment records from 1.9 million Medicare patients who received treatment from those physicians. The authors then examined the relative propensity of physicians who reported perceiving high risk and low risk, to order diagnostic procedures or hospitalize patients who visited the physician's office due to chest pain, headache, or lower back pain.[127] The authors found that physicians that perceived high malpractice risk were more likely to refer patients with chest pain to the emergency department, were 5.1% more likely than low malpractice risk-perceiving counterparts to order advanced imaging for patients with headaches, and were more likely to order both conventional and advanced imaging for patients with lower back pain.

Mello and Kachalia (2016)[128] conducted a comprehensive review of literature on the relationship between tort reforms, including the implementation on non-economic damages caps, on various outcomes. They concluded that "noneconomic damages caps are associated with reduced claims frequency, lower compensation

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[125] Myungho Paik, Bernard Black, and David A. Hyman, "Damage Caps and the Labor Supply of Physicians: Evidence from the Third Reform Wave," *American Law and Economics Review*, Volume 18, Issue 2, 1 October 2016, pp. 463–505, https://doi.org/10.1093/aler/ahw009

[126] Emily R. Carrier, James D. Reschovsky, Michelle M. Mello, Ralph C. Mayrell, and David Katz, "High Physician Concern About Malpractice Risk Predicts More Aggressive Diagnostic Testing In Office-Based Practice," *Health Affairs* 32(8) (2013), pp. 1383-91.
[127] The authors explain that these three sets of symptoms could be associated with benign or very serious conditions and thus may be more likely to result in the practice of defensive medicine in high risk environments.

[128] Michelle M. Mello and Allen Kachalia, "Medical Malpractice: Evidence on Reform Alternatives and Claims Involving Elderly Patients, A Report to the Medicare Payment Advisory Commission," (MEDPAC 2016).

award amounts [on the order of a 20 to 30 percent reduction in average payments], lower liability insurance premium costs for physicians, reductions in some types of defensive medicine, higher physician supply [with results clustered around a 2 percent to 5 percent increase], and shorter time to settlement – but may have disproportionate large effect on claiming by the elderly."

They also observed based on an analysis of medical malpractice claims between 2005 and 2015 as tracked in the National Practitioner Data Bank, that the mean award to Medicare aged claimants was $231,723 while the mean award for younger enrollees was $420,615, but that the implementation of caps may have reduced the propensity of Medicare patients to file a claim to a greater degree than younger patients. These results are particularly relevant since they suggest that incentives to practice defensive medicine in older patents may be different than in younger patients, emphasizing the need for literature that looks at a broad range of populations.