



# Policy Research Perspectives

## **The Impact of Liability Pressure and Caps on Damages on the Healthcare Market: An Update of Recent Literature**

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### **Introduction**

Two years ago, we released a summary of research on the impact of caps on damages on the amounts paid out in medical liability cases, medical liability premiums, physician supply, and defensive medicine.<sup>1</sup> The body of research from the mid-1980s through 2005 clearly showed that losses, or indemnity amounts, are lower in states with caps. The more recent work suggested that caps also lead to lower premiums, and an increased supply of physicians.

This Policy Research Perspective provides an update on the topic and includes a summary of papers published in 2006 and 2007. As we did in our initial PRP, we focus on only those papers that employ statistical techniques to control for factors outside of tort reforms that might affect the healthcare market. We also include a number of papers that, rather than looking at the impact of caps per se, instead look at the impact of liability pressure which caps may help alleviate.

### **Losses**

Our 2005 literature review concluded that caps reduce losses relative to what they would have been without caps. Two recent papers continue in this research vein. They are a nice complement to one another because of the very different data sources that they use and the different way the reforms are modeled. Each is a significant contribution to the literature because it addresses the issue in a unique and untried manner. The first paper, by Waters et al. (2007), uses paid claim level data from the National Practitioner Databank.

Waters et al. examine whether the stringency of reforms in place between 1991 and 2003 matters in terms of their impacts on losses and claim frequency. Theirs is the first paper to take such an approach to this issue. The stringency of a cap is based on the level and type of the cap,

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<sup>1</sup> Kane and Emmons (2005). For ease of use, we have included all papers cited in our 2005 report in the reference section of this report.

economic or non-economic. They consider economic caps to be more stringent than non-economic caps. Measured in this fashion, they don't find an association between cap stringency and either claim payments or frequency. However, when they instead measure whether there was any non-economic cap in place and, separately, whether there was any economic cap in place, they find that non-economic caps are associated with lower average payments per physician and fewer paid claims per physician.

In addition, Waters et al. find that more stringent expert witness requirements are associated with lower average payments per claim and per physician, as well as fewer paid claims per physician. With regard to this type of reform, the most stringent requirements are those with a local standard of care and that require a witness to be currently practicing in the same specialty. While many other papers have also found caps to be associated with lower payments, this is perhaps the only one that finds such an impact for expert witness requirements. Because this is the only paper which has modeled reforms according to their stringency, it is not possible to say whether this discrepant finding is due to this unique modeling structure or to another component of the work.

Another branch of the literature relies on data from the end-of-year statements filed by insurers with state insurance departments and available from the NAIC. The data reported to the state are not at the claim level. Rather, they reflect the aggregate medical liability losses and premium revenues of each insurer across all claims and insured physicians. The paper by Born, Viscusi, and Baker (2006) uses this data.

Because of the long tail in medical liability insurance, when there is a change in tort law, it takes a number of years for payment data on the claims subject to the new law to become available, particularly for higher value claims that take longer to close. This adds to the difficulty in estimating the impact of tort reform because the higher value claims are the ones most likely to be affected. Born, Viscusi, and Baker address this difficulty in an innovative way and one which reinforces the findings from previous research. They look at the impact of tort reform on insurers' ultimate losses, that is, the aggregate amounts that are actually paid out to plaintiffs. Earlier research using NAIC data relied on incurred losses, which are only estimates of the amounts that will eventually be paid out.

The drawback of using ultimate loss data is that while incurred losses for each insurer are available at the state level, ultimate loss data are available only at the national level. Therefore, the authors can not use the typical tort reform variables that measure whether or not a particular reform is in place in each state and year. Instead, for each insurer, the authors calculate the share of nationwide premiums that are earned in states with caps on non-economic damages, and then look at the relationship between that share and ultimate losses.<sup>2</sup>

Born, Viscusi, and Baker find that insurers whose business is concentrated in states with caps have smaller losses than other insurers. On average over the 1984 to 1993 period, a 10 percent increase in the share of business in states with non-economic caps leads to a 4 percent decrease in ultimate losses.<sup>3</sup> The effect is more pronounced for firms with higher losses per premium dollar—these firms have the large claims that are likely to be affected by caps. Similar but

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<sup>2</sup> They calculate similar shares for other types of tort reforms, and look at the relationship between those shares and ultimate losses as well.

<sup>3</sup> The authors obtain NAIC data through 2003. In order to look at 10-year ultimate losses (losses paid out in the 10 years after claims are filed) they have to cut the data off after 1993—claims filed after that year can not be followed for at least 10 years. When they look at incurred losses and at 5-year ultimate losses, they use the data through 2003 and 1998, respectively.

slightly different-sized effects are found for caps on punitive damages. The authors also examine incurred losses and find an impact smaller than for ultimate losses. This suggests that caps have an impact larger than what insurers initially expect.

### **Premiums**

In our 2005 literature review we concluded that the more recent literature showed that medical liability premiums are lower in states with caps on non-economic damages. The one paper published on this topic in the past two years supports this conclusion. It uses data from the Medical Liability Monitor (MLM) annual survey of insurers. MLM collects the manual rates for internal medicine, obstetrics/gynecology, and general surgery for the top insurers in each state. In many states, the data are collected for two or more regions within the state.

Kilgore, Morrisey, and Nelson (2006) investigate the association between a number of different types of tort reforms and medical liability premiums over the 1991 to 2004 period. Their results show that on average, internal medicine premiums in states with caps on non-economic damages are 17.3 percent smaller than in states without caps. The impact of caps on general surgery and obstetrics/gynecology premiums is larger, 20.7 percent and 25.5 percent, respectively. Moreover, and consistent with what one might expect, the authors find that every \$100,000 increase in a cap raised premiums by 3.9 percent. Their results suggest that enacting a \$250,000 cap in states without caps, or with higher level caps, would result in premium savings of \$1.4 billion (8 percent of current premiums).

### **Physician Supply**

The two papers we reviewed in our last update found that caps were associated with increased physician supply. A number of papers have been published on that topic since then and each reaches a similar conclusion. Two of the papers look at the impact of tort reform on the number of physicians per capita. The third examines how physician work hours are affected by expected payouts to plaintiffs in medical liability cases. The two papers that look at the number of physicians per capita use data from the AMA's Physician Masterfile, and the third, on work hours, uses data from the Health Care Financing Administration's 1983 and 1988 Physicians' Practice Costs and Income Surveys.

Matsa (2007) examines how physician supply responds to caps on non-economic or total damages over the period from 1970 to 2000. He finds that the positive impact of caps is largely limited to rural counties, and to surgical and support specialists within those counties. Overall, he finds that the number of physicians per capita in the most rural counties is about 4 percent larger when a state has caps than in similar counties in states without caps. When Matsa looks at particular specialty groups within rural counties, he estimates that caps have an impact of 10 percent and 11 percent for surgical and support specialists, respectively, but no impact on general/family practice physicians, or on medical specialists.<sup>4</sup> His work also suggests that it takes at least six to 10 years for the full effect of caps on physician supply to be felt, and that this long term effect is approximately twice that of the short term effect.

Klick and Stratmann (2007) use a somewhat different approach to examine the impact of caps on physician supply over the 1980 to 2001 period. They recognize that a complicating factor in

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<sup>4</sup> Surgical specialties include obstetrics and gynecology, ophthalmology, and urology. Support specialties include anesthesiology, neurology, pathology, psychiatry, and radiology. Medical specialties include allergy, cardiovascular disease, dermatology, gastroenterology, internal medicine, and pediatrics.

researchers' ability to estimate the impact of caps on physician supply is that forces which are correlated with physician supply may also be a determinant of caps. A way to "net out" this confounding factor is to compare the changes in physician supply after caps between a "treatment" group (physicians likely to respond to caps) and a "control" group (physicians unlikely to respond in this fashion). Using low risk physicians as a control group for high risk physicians, Klick and Stratmann show that depending upon which specialties are defined as high or low risk, the number of high risk physicians per capita in states with caps on non-economic damages is between 4 percent and 7 percent larger than in states without caps.<sup>5</sup>

Helland and Showalter (2006) examine caps on a different measure of physician supply, weekly hours of work, in 1983 and 1988. They find that a 10 percent increase in expected liability costs is associated with a 2.9 percent decrease in weekly hours worked.<sup>6</sup> The effects for physicians in solo practice and for physicians age 55 or older are larger, with decreases of 6.6 percent and 12.2 percent respectively, for those two groups.

### **Defensive Medicine**

A seminal 1996 paper by Kessler and McClellan examined hospital expenditures on Medicare fee-for-service (FFS) beneficiaries admitted to the hospital with heart disease in the mid to late 1980s. It concluded that expenditures were lower in states that adopted direct tort reforms.<sup>7</sup> Because no differences were found in the health outcomes of those patients, the spending differences were attributed to defensive medicine. An open question since that time has been whether a similar relationship exists for other types of Medicare beneficiaries, or for the health care spending of the non-Medicare population.

Three papers published since 2005 address these issues and, in general, reinforce the findings from the 1996 paper. Each examines the physician (Part B) component of FFS Medicare spending (some also examine other measures of spending). This focus allows for a consideration of the response to liability pressures in settings where the individual physician has the most discretion in the care he or she provides. Two of the papers focus on the variation in spending across states and the third looks at the variation across counties in a single state.

CBO (2006) focuses on the relationship between tort reform and hospital and physician expenditures of Medicare FFS beneficiaries and of the U.S. population at large. For the Medicare

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<sup>5</sup> High and low risk specialties are defined based on the number of claims per physician in Florida calculated based on the medical liability closed claim dataset maintained by the Office of Insurance Regulation in that state. When five specialties are included in each category, the high risk specialties are: neurological surgery, thoracic surgery, obstetrics and gynecology, general practice, and emergency room. The low risk specialties are: diabetes, neoplastic diseases, oncology, public health, and psychiatry. When 10 specialties are included in each category, the additional five high risk are: plastic surgery, radiology, anesthesiology, general surgery, and cardiovascular disease. The five additional low risk specialties are: allergy, rheumatology, physical medicine, dermatology, and nephrology.

<sup>6</sup> Expected liability costs are constructed for each specialty, in each state. The estimates are based on the specialty specific data on payouts from the Florida Office of Insurance Regulation's closed claim database, the number of physicians in each specialty and state from the American Medical Association's Masterfile, and data on differences across states in the aggregate amounts paid out in medical liability cases from the NAIC.

<sup>7</sup> Direct reforms include caps on economic, non-economic, or total damages, abolition of punitive damages, no mandatory prejudgment interest, and collateral source rule reform. Indirect reforms include limits on contingency fees, mandatory periodic payments, joint and several liability reform, statute of limitations reform, and existence of a patient compensation fund.

population the analysis covers the 1980 through 2003 period; for the U.S. population it runs only through 2000. CBO finds that Part A (hospital) spending per beneficiary is 5 percent lower in states where non-economic damages were capped. CBO did not find evidence of such a relationship for Part B spending. The impact on Medicare total spending per beneficiary is 4.0 percent. They find some evidence of a relationship between caps and spending on hospital services in the general population, but it is only marginally significant and small in magnitude. Also, CBO finds that about half of the estimated 5 percent impact on Part A Medicare spending might be due to the prospective payment system, which was implemented in 1983.<sup>8</sup>

Baicker, Fisher, and Chandra (2007) focus on malpractice costs and a number of different categories of the healthcare expenditures of Medicare FFS beneficiaries, as well as their utilization of certain types of services. They find that a 10 percent increase in average (per physician) indemnity payments between 1993 and 2001 is associated with about a 1 percent increase in per beneficiary spending on Part B (physician) services. The impact on two subcomponents of Part B spending, evaluation and management and minor procedures, is similar, but the impact on imaging is larger, 2.2 percent.<sup>9</sup> No association was found with spending on diagnostic tests or major procedures. The authors did not examine Part A spending alone, but when they look at malpractice costs and total Medicare spending per beneficiary, they find no impact.

With regard to utilization, Baicker, Fisher, and Chandra find that a 10 percent increase in indemnity payments is associated with a 1.5 percent to 1.8 percent increase in the utilization of a number of diagnostic and imaging procedures, but no impact on surgical procedures. Their results suggest that the 60 percent increase in medical liability premiums between 2000 and 2003 is responsible for increased Part B Medicare spending of \$7.1 billion.<sup>10</sup>

Roberts and Hoch (2007) explore the extent to which defensive practices vary with the degree of local litigation pressure. They look at per-enrollee FFS Part B Medicare expenditures, and utilize a database maintained by the Mississippi Supreme Court that contains information on the number of malpractice filings in each county. Roberts and Hoch note that the number of filings per capita is a good indicator of local malpractice pressure, and that physicians are aware of differences in this measure across counties.

Looking at the 1998 to 2002 period, Roberts and Hoch find that, on average, an additional lawsuit per 100,000 persons leads to another \$1.40 to \$2.49 in Part B Medicare spending per beneficiary. This implies that between 0.9 percent and 1.6 percent of spending is due to the litigation climate (including the direct impact of payouts to plaintiffs on health care costs).<sup>11</sup> In the county with the most lawsuits, 277 per 100,000 persons, 15.9 percent of spending on physician services is due to litigation.

## Conclusion

<sup>8</sup> CBO's work suggests that states which were under greater pressure from the PPS system to reduce expenditures were more likely than other states to enact caps. The 5% estimated impact of caps picks up some of this relationship.

<sup>9</sup> They also measured malpractice costs by average malpractice premiums, which led to similar results.

<sup>10</sup> Part B Medicare spending in 2003 was approximately \$118 billion. If every 10% increase in liability premiums is responsible for a 1% increase in Part B spending, a 60% increase would be responsible for a 6% increase. 6% of \$118 billion is \$7.1 billion.

<sup>11</sup> The lower of the two estimates is from a regression that includes county fixed effects. The percentage impacts are calculated at the mean number of suits per 100,000 (16.05), with average Medicare physician spending per beneficiary of \$2431 ( $\$1.40 * 16.05 / \$2431 = 0.009$ , for example).

This Policy Research Perspective reviews the 2005-2006 literature on the impact of tort reforms and liability pressure on medical liability losses and premiums, physician supply, and defensive medicine. Some of the papers that look at the impact of caps also examine other types of tort reform. With little exception, most of the other reforms are not found to have a significant impact, and we generally do not allude to them in this review. Much of the recent work reinforces the findings of earlier research—that liability pressure has a significant impact on a number of measures of cost and access to care, and that caps on non-economic damages help to alleviate some of these impacts. In addition, a number of the recent papers extend the scope of the literature by using new modeling techniques or by adding content to areas which had not been extensively studied (physician supply and defensive medicine).

The literature on the impact of damage caps on medical liability payouts is well established, and clearly shows that caps lead to lower payouts. Two recent papers in this area add to our understanding not only of whether caps have an impact, but how. Born, Viscusi, and Baker (2006) look for the first time at insurers' ultimate (actual) losses in addition to their incurred (estimated) losses. Their results suggest that the impact of caps on insurers' losses is even greater than insurers estimate when caps are first enacted. Waters et al. (2007) are the first to model the stringency of various tort reforms rather than simply whether or not a reform is in existence. It is surprising that they don't find the stringency of state caps to be a significant correlate of claim level payouts, but that they do find the stringency of expert witness requirements to matter, because prior work has generally not found that reform to be significant.

The paper by Kilgore, Morrissey, and Nelson (2006) looks at the relationship between tort reform and medical liability premiums, and finds that caps on non-economic damages are associated with lower premium levels of at least 17 percent depending on specialty. These estimates are in line with those from earlier research by Zuckerman, Bovbjerg, and Sloan (1990) that focused on reforms in the early 1980s, and that also used physician level measures of premiums, rather than insurer or state level aggregates.<sup>12</sup>

Each one of the three papers that examines physician supply finds that tort reform or liability pressure leads to a decrease in physician supply, measured either by the number of physicians per capita or the number of weekly hours of work. Generally, and including the prior research, the impact of caps on the overall number of physicians per capita is in the neighborhood of 5 percent but may be larger for physicians in high risk specialties.

Perhaps the most significant developments in the recent literature have been in the area of defensive medicine. Until recently, most estimates of the cost of defensive medicine were extrapolations based on estimates from a paper by Kessler and McClellan (1996). It focused on hospital spending for FFS Medicare patients with heart disease in the late 1980s, and found that spending was 5 percent to 9 percent lower in states without direct tort reforms. Recent research sheds some light on whether extrapolations of those estimates to other populations are valid.

A CBO (2006) paper which is similar in method, but uses data from 1980 through 2000, suggests that hospital spending on other Medicare beneficiaries is similarly affected by malpractice pressure, but that Part B spending is not. CBO finds little evidence to suggest that the extrapolations of the 1996 estimates to the non-Medicare population are valid.

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<sup>12</sup> Research that uses aggregate premium revenues, either at the state level, or the insurer level within each state, also has found caps to be associated with lower premiums, but with a smaller effect. See Viscusi and Born (2005) and Thorpe (2004).

In contrast, papers by Baicker, Fisher, and Chandra (2007) and Roberts and Hoch (2007) conclude that FFS Part B spending is affected by malpractice pressure. Baicker, Fisher, and Chandra examine the 1993 to 2001 period and find that a 10 percent increase in malpractice pressure is associated with a 1 percent increase in Part B spending per beneficiary and a 2.2 percent increase in one component of that—spending on imaging services. Roberts and Hoch explore the variation in defensive practices in Mississippi from 1998 through 2002. They find that malpractice pressure, measured by the number of lawsuits per capita, is responsible for about 1 percent of Medicare Part B spending on physician services in the average county, and as much as 16 percent of spending in the most litigious county in that state. Although the results from these two papers are somewhat at odds with those from CBO, the papers were different enough on several bases (time frame, methodology, tort reform/malpractice pressure variables), that one wouldn't expect the results to be perfectly reconcilable. In general, the recent additions to the literature provide support for the extrapolation of Kessler and McClellan's estimates to spending on the broader Medicare population.

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<sup>13</sup> All sources with a web address were last accessed on December 17, 2007.

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