

## ARTICLES

# The Surprising Relevance of Medical Malpractice Law

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*The academic community has largely reached a consensus that medical malpractice reform is unlikely to be a meaningful source of health-care cost containment. This Article suggests that it would be premature to conclude based on the evidence underlying this academic sentiment that physicians are universally insensitive to the parameters of medical malpractice law and that liability reform has no role to play in the health-care-costs debate. On the contrary, this Article demonstrates that the medical-liability system, under particular structures and conditions, may indeed have a meaningful connection to health-care spending patterns.*

*The shortcoming of the existing empirical literature that has likely contributed to this misconception is its failure to fully appreciate the structure of medical-liability rules. By viewing the substantive dimension of malpractice law too abstractly, the literature has overlooked those features of the system—and of the environment in which it operates—that have likely led to the weak connection observed between medical-liability forces and health-care spending. This Article attempts to identify such features, theorizing that the limited empirical findings of the existing literature may be explained, in part, by the fact that the present liability system sets operable standards of care by deference to customary physician practices, which are themselves shaped by financial and other influences that already encourage excessive spending. On the margin, financial motivations to provide unnecessary care may simply be crowding out the influence of the law.*

*Nonetheless, the theoretical framework set forth in this Article identifies various scenarios in which health-care spending may exhibit greater sensitivity to liability pressures. First, despite any present crowd out of liability forces by financial motivations, this model suggests that defensive medicine may become a more noticeable phenomenon should other delivery-system reforms succeed in curbing pernicious financial incentives to overtreat patients. Second, this framework predicts that spending patterns have the potential to diminish considerably upon the adoption of more-structural reforms to the liability system and the manner in which*

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*liability standards are set, as distinct from the remedy-focused reforms—for example, damage caps—implemented by legislatures to date. Finally, this Article supports the various predictions of this model through the presentation of a range of empirical findings. Much of this supporting evidence comes from various facets of the existing literature, including recent papers by this author. However, this Article builds on this empirical precedent by providing new evidence of the sensitivity of defensive medicine to the prevalence of financial motivations to provide excessive care, drawing on previously unavailable data on health-care costs and implementing a sophisticated natural-experiment design.*

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## INTRODUCTION

Despite all the commentary in recent decades by various interest groups and politicians regarding the link between the medical-liability system and health-care spending,<sup>1</sup> the academic community has reached a “loose consensus . . . that malpractice reform is not of much significance for containing costs.”<sup>2</sup> Drawing on various academic studies that have contributed to this sentiment, the Congressional Budget Office (CBO) issued a letter to Senator Orrin Hatch in 2009 predicting that medical costs arising from defensive motivations—that is, from fears over potential tort liability—would fall by only 0.3 percent upon the national adoption of a package of liability reforms designed to reduce the expected harm associated with malpractice liability.<sup>3</sup> The implication is that defensive medicine—the practice of

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<sup>1</sup> Republican congressman Tom Price provides a recent example of a contention that medical-liability forces contribute to excessive health-care spending, suggesting that as much as 26 percent of all money spent on health care (roughly \$650 billion annually) is attributable to defensive medicine. See Tom Price, Press Release, *Gallup: 26% of Health Care Dollars Spent to Fend Off Trial Bar* (Republican Study Committee, Feb 22, 2010), archived at <http://perma.cc/L2G5-GCUU>. These interest group sentiments may correlate with (or even contribute to) a lay perception of a substantial link between medical-liability pressure and health-care costs.

<sup>2</sup> Amitabh Chandra, Anupam B. Jena, and Seth A. Seabury, *Defensive Medicine May Be Costlier Than It Seems*, *Wall St J* A13 (Feb 7, 2013).

<sup>3</sup> Douglas W. Elmendorf, *Letter to Senator Orrin G. Hatch \*2–5* (Congressional Budget Office, Oct 9, 2009), archived at <http://perma.cc/P7KS-SQE8> (“CBO Report”). Such reforms include: (1) a cap of \$250,000 on noneconomic-damage awards; (2) a cap on

which should otherwise fall in connection with such reforms—must not be pervasive in the first place. This Article suggests that it would be premature to take the evidence touted by the academic community to conclude that physicians are universally insensitive to the parameters of medical malpractice law and thus that liability reform has no potential to reduce health-care spending. On the contrary, this Article demonstrates that the medical-liability system may, *under the right structure*, have a substantial role to play in the health-care-costs debate, despite any consensus that has been reached to the contrary.

The shortcoming of the empirical malpractice literature that has likely contributed to this misconception is the literature's failure to fully acknowledge and appreciate the structure of medical-liability rules.<sup>4</sup> The literature has simply viewed the substantive dimension of malpractice law too abstractly and too loosely. It has spoken often of malpractice "pressure," without asking itself what is perhaps the most fundamental question: Pressure to do what? This Article demonstrates that this omission can be detrimental to understanding the connection between medical-liability rules and health-care spending. In essence, this analysis shows that this connection has the *potential* to be substantial, depending, of course, on the structure of the liability rules in place.<sup>5</sup>

To set forth the groundwork for this discussion, I introduce an illustrative model of physician behavior under the threat of liability rules. This model begins with a depiction of this dynamic under the current liability structure—that is, a system that sets the standards of care clinically expected of physicians by deferring to the actual, customary practices of physicians. A driving observation behind this model is that those customary

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punitive damage awards of the greater of \$500,000 or two times the award for economic damages; (3) a modification of the traditional "collateral source" rule that would allow evidence of income from other sources—for example, insurance proceeds—to be introduced at trial or require that such income be subtracted from awards decided by juries; (4) a one-year (for adults) or three-year (for children) statute of limitations; and (5) replacement of the joint and several liability rule with a fair-share rule. See *id.* at \*2. Of these reforms, the one most commonly believed to generate the largest impact on the malpractice landscape is a cap on noneconomic-damage awards. See, for example, Myungho Paik, Bernard Black, and David A. Hyman, *The Receding Tide of Medical Malpractice Litigation: Part 1—National Trends*, 10 *J Empirical Legal Stud* 612, 625 (2013) ("Damage caps are widely seen as the most important med mal liability reforms—and we confirm that general view.").

<sup>4</sup> For a survey of this literature, see Part IV.

<sup>5</sup> See Part III.

practices are likely shaped by a number of influences—financial, ethical, and other. Our fundamental inquiry is to ask what role liability plays on the margin beyond these additional, nonlegal influences on physician behavior. This Article begins by suggesting that, *under a custom-focused liability system*, the answer to that question may be “very little.”

By deferring to these customary influences, the law is, after all, not designed to exert any independent, external influence on practices. It is meant only to reinforce the financial and other nonlegal determinants of clinical behaviors. In this light, if one enacts a reform to this system that simply tries to diminish the force of medical liability—for example, a cap on noneconomic-damage awards (“damage cap”)—one might not be surprised to find that practices change to only a minor degree. Any such reduction in liability would, on balance, do nothing to alter the presence of these additional influences on behavior, which would remain in full force. Of course, the law may elevate spending beyond this customary baseline when one considers the possibility of court error—that is, the possibility that courts will misperceive what customary practices actually are when evaluating physician behavior. Physicians may decide to conduct more treatments, tests, and so forth, because of a fear that courts may expect such behavior. The most critical demonstration of this model is that even this uncertainty-driven role for medical liability may be one that does not substantially induce higher levels of health-care spending on the margin.<sup>6</sup>

The intuition behind this claim stems from consideration of the vast amount of financial and other motivations that are themselves sufficient to increase treatment rates, liability forces aside.<sup>7</sup> Such nonlegal motivations may have already compelled physicians to apply the costly treatments in question to those patients who need them the most. To the extent that physicians in the affected regions want to increase their treatment rates any further—for example, as a result of liability fears—they will have to do so with respect to a set of patients that are rather healthy and in little need of treatment. In other words, since the question is what liability fears will do on top of other influences, one must ask how liability fears will impact the treatment decisions of these *marginal* patients, not how such fears will impact

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<sup>6</sup> See Part II.D.

<sup>7</sup> See Thomas G. McGuire, *Physician Agency*, in Anthony J. Culyer and Joseph P. Newhouse, eds, 1 *Handbook of Health Economics* 461, 506–07 (Elsevier 2000).

the decisions affecting an average patient receiving the treatment (who would have likely received treatment anyway as a result of these other influences). Because of their relatively healthy dispositions, these marginal patients may pose few health risks that would otherwise compel a physician who is already uncertain about what precisely is expected of her to nonetheless provide treatment. If anything, given the risks associated with treatment execution itself, liability forces in these conditions might compel uncertain physicians to ponder performing *fewer*, not more, treatments on such patients.

To put it simply, in an environment generally bent on providing excessive care anyway, one might not predict that the present custom-focused liability rules will place much in the way of additional inflationary pressures on health-care spending. Without necessarily acknowledging these structural points, the literature to date has largely captured the predictions of this model, documenting a weak average relationship between health-care costs and treatment utilization on the one hand and marginal liability forces on the other.<sup>8</sup> It would be misguided, however, to end the discussion here. Taking these findings to conclude that liability reform “is not of much significance for containing costs,”<sup>9</sup> as the academic community appears to have done, overlooks those features of the above model that actually contribute to the diminished marginal role for liability forces. In particular, two implications arise from this analysis that challenge any perception regarding the general irrelevance of liability forces.

The first implication stems from the contextual nature of this analysis. That is, this Article suggests that malpractice forces could be surprisingly more influential in driving up health-care costs in unprecedented environments marked by diminished financial incentives to overtreat patients. Quite simply, if malpractice pressure is left with little work to do in the present market considering that other nonliability-related factors are sufficient to push practices to their upper limits, then reducing the influence of those other factors may leave malpractice forces with a larger role to play, much as taking away one leg of a table may enhance the importance of the remaining legs. Accordingly, to the extent that delivery-system reforms and

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<sup>8</sup> See Part IV.

<sup>9</sup> Chandra, Jena, and Seabury, *Defensive Medicine* at A13 (cited in note 2).

other cost-containment initiatives are successful in substantially curtailing health-care spending moving forward—as it is hoped that they will be—medical-liability forces may take on a role unappreciated by the current set of empirical findings.<sup>10</sup> Part IV.C presents novel empirical evidence using a sophisticated natural-experiment methodology that lends support to this prediction, essentially finding that the relationship between liability pressures and health-care spending increases as financial incentives to deliver more care decrease.

The second and more important implication of this model that demonstrates the ongoing relevance of medical liability to health-care spending stems from consideration of the structure of liability rules. The discussion thus far has addressed a liability system in which physicians are evaluated by reference to what other physicians customarily do.<sup>11</sup> As suggested, liability forces in that system may place little expansionary pressure on treatment patterns in equilibrium. With liability fears exerting little influence on the margin anyway, it may be natural to expect that few cost savings will derive from reforms such as damage caps, which simply blunt the harm associated with malpractice liability without necessarily altering the structure of that system. When contending that liability “reforms” may be of little consequence to spending, such commentators are very likely confining their conceptualization of reforms to those of the traditional damage-cap variety—that is, those reforms that are focused on liability’s remedies.<sup>12</sup> What these commentators overlook is the possibility that a jurisdiction may reform liability rules along a more substantive and structural dimension. Indeed, commentators are viewing liability-reform prospects far

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<sup>10</sup> Proposed cost-containment reforms that are unrelated to liability are too numerous to list here. For an overview of such reforms, see generally Joseph Antos, et al, *Bending the Curve: Effective Steps to Address Long-Term Health Care Spending Growth* (Engelberg Center, Aug 2009), archived at <http://perma.cc/4LRB-J96J> (discussing, among other initiatives, implementing payment-system reforms to Medicare and Medicaid to broaden bundled payments, expanding pay-for-performance, and reducing payment for care of low value relative to cost).

<sup>11</sup> For a statement of the custom-based liability rule in medical malpractice law, see Dan B. Dobbs, Paul T. Hayden, and Ellen M. Bublick, *The Law of Torts* § 292 (West 2d ed 2011).

<sup>12</sup> See, for example, Leonard J. Nelson III, Michael A. Morrissey, and David J. Becker, *Medical Liability and Health Care Reform*, 21 *Health Matrix* 443, 444 (2011) (focusing almost exclusively on the impact of damage caps and concluding that “it is not clear that caps will significantly reduce health care costs or that any savings will be passed on to consumers”).

too narrowly. If the law's influence is presently muted as a result of the precise manner in which liability is currently set, then why not simply change the rules of the game? That is, why not change the way that liability is determined in the first instance? This Article demonstrates that a *substantive* reform of this variety has the potential to shift practices to a new equilibrium altogether—one potentially characterized by significantly lower health-care expenditures.

More concretely, this Article considers the impact of an alteration to malpractice standard-of-care rules that directly and immediately changes the clinical expectations confronting physicians. For instance, consider a set of heart disease patients with severity levels such that physicians would ordinarily perform an intensive intervention—for example, coronary artery bypass grafting (CABG). Despite such a custom, perhaps it is the case that the best scientific evidence to date dictates that performing CABG on these particular patients would be unwarranted in light of the risks and costs of the treatment relative to the ensuing benefits. Assume that the law retreats from setting liability standards according to custom and instead sets standards of care in accordance with the best scientific evidence.<sup>13</sup> Following a reform of this nature, physicians may decide to stop performing CABG on all or at least some of these particular patients. After all, to the extent that physicians maintain this custom, they may immediately expose themselves to liability over the improper use of CABG in these instances. Nothing in the above discussion regarding the limited role of malpractice law under a custom-focused system would suggest otherwise. At issue above was simply a very specific phenomenon altogether, not a general demonstration of the insensitivity of physicians to liability. Importantly, in that initial discussion, the clinical expectations placed on physicians under the law were not in flux. Under this new hypothesized shift in liability standards, the law now affirmatively expects something different of physicians. Any

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<sup>13</sup> Indeed, the evidence-based-medicine (EBM) movement represents such a shift. See Carter L. Williams, *Evidence-Based Medicine in the Law beyond Clinical Practice Guidelines: What Effect Will EBM Have on the Standard of Care?*, 61 Wash & Lee L Rev 479, 481 (2004) (“EBM seeks to shift the focus of physician decisionmaking from experience and opinion to a more stringent review and application of high-grade scientific evidence.”).



desire to remain in conformance with the law will directly lead physicians to alter their practices.<sup>14</sup>

Ultimately, to understand the way in which medical liability may still be relevant to the cost-containment debate, it is helpful to retreat from any conception of medical malpractice as a nebulous, abstract force looming over physicians. How society structures that force matters. Liability reforms aimed at altering the way in which physicians are evaluated in the first instance may be especially influential in reshaping the norms of medical practices. I note that this is more than a mere thought experiment on my part. At least one proposal along such lines has garnered notable discussion by various commentators and politicians: the provision of liability safe harbors to physicians that comply with a delineated set of clinical practice guidelines (CPGs), a proposal that is premised on evidence-based medicine.<sup>15</sup> To the extent that such guidelines are themselves set so as to discourage overutilization of medical care, a reform of this nature could indeed lead to substantial cost savings. Overreliance on the findings from those studies that have simply evaluated the cost savings ensuing from damage-cap adoptions may lead one to underappreciate the savings possible from substantive reforms of this nature.

This Article proceeds as follows. In Part I, I briefly discuss various sources of ambiguity generally surrounding the question of physician responsiveness to malpractice liability. This ambiguity has largely motivated the empirical literature concerning the impacts of medical liability on health-care-utilization patterns and thus serves as a natural place to commence this discussion. In Parts II and III, I set forth the model of physician

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<sup>14</sup> Professor James Blumstein has likewise proposed addressing cost-containment goals through substantive, as opposed to remedial, reforms to liability. See James F. Blumstein, *Medical Malpractice Standard-Setting: Developing Malpractice "Safe Harbors" as a New Role for QIOs?*, 59 Vand L Rev 1017, 1019–20 (2006) (“[T]he approach developed in this Article is designed to deal with the systemic cost-escalation aspects of the medical malpractice issue through modification of the process for determining standards of liability in targeted areas.”). Blumstein likewise raises concerns over the fact that liability standards are presently based on custom, when that custom is shaped by financial and other motivations to overtreat patients. See *id.* at 1021. The analysis in this Article expands on Blumstein’s cursory intuitions through a more comprehensive modeling of physician behavior in the face of both liability-related incentives and financial (and other) incentives, through a more comprehensive modeling of the differing roles of remedial reforms and substantive reforms, and by providing empirical support for the model’s predictions.

<sup>15</sup> See Peter Orszag, *Malpractice Methodology*, NY Times A39 (Oct 21, 2010). See also Part VI.

decisionmaking described above, demonstrating the manner in which liability forces operate in equilibrium with financial and other nonlegal forces simultaneously driving physician behavior. In Part IV, I support the various predictions generated by this framework through a discussion of a range of empirical findings. Many of these findings are provided by the empirical literature to date. As such, this Article can, in part, be seen as setting forth a theoretical framework to reconcile what might otherwise appear to be divergent findings in the literature. However, Part IV introduces novel empirical evidence to support the first implication of the model discussed above regarding the interaction between liability forces and the prevailing financial environment. In Part V, I discuss various mechanisms that may lie behind the observed responses in clinical behavior to an alteration of liability standards. Finally, in Part VI, I address the general implications of this analysis for the ongoing cost-containment debate.

#### I. AMBIGUITY IN PHYSICIAN RESPONSIVENESS TO MEDICAL LIABILITY

For medical-liability reform to have much of an impact on health-care spending, it is necessary that physician behavior be somehow responsive to the parameters of the liability system. To some, this responsiveness may seem obvious. However, in this Part, I discuss various reasons why one should be suspicious of the existence of any such sensitivity in the first place. It is precisely this suspicion that motivates the need for careful theoretical and empirical evaluation of the effects of liability on clinical behaviors, which this Article endeavors to provide.

To begin, are physicians even aware of how the law expects them to behave under certain circumstances? For instance, when confronted by a mother in delivery with a precise set of risk factors and conditions—for example, a mother in protracted labor with a narrow pelvic arch indicating cephalopelvic disproportion—does an obstetrician know whether the law expects that she deliver the child via cesarean section or whether a delivery via other means (for example, forceps) may suffice? This knowledge may possibly come through word of mouth among physicians following the outcome of a recent malpractice suit, or it may come through communications with their medical-liability

insurance providers.<sup>16</sup> However, it is unclear whether this information reaches a physician at a helpful enough level to influence clinical decisions.<sup>17</sup> Of course, perhaps all that physicians need to know is (1) that liability rules generally expect that physicians follow the customary practices of other physicians<sup>18</sup> and (2) what those customary practices actually are. Even in that case, though, there may be reason to doubt whether physicians' knowledge is sufficient along both fronts.

Moreover, even if physicians are aware of the standards expected of them under the law, it is unclear whether they would alter their practices in accordance with such expectations. Given that only a small percentage (less than 2 percent) of those who are harmed by a negligent medical error actually pursue a malpractice claim in the first place,<sup>19</sup> physicians may face relatively blunted incentives to comply with these legal expectations.

Throwing yet another wrinkle into this discussion is the possibility of inefficiency in the sorting of meritorious claims from nonmeritorious claims (that is, those lacking a negligently caused injury). To the extent that plaintiffs are frequently able to prevail with so-called frivolous suits, the law may be inefficiently sending weak signals to physicians regarding its expectations. Early analysis of targeting efficiency sounded some alarms;<sup>20</sup> however, more recent—and arguably more

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<sup>16</sup> In 2009, I informally surveyed several academic physicians and confirmed that they receive information regarding suggested medical practices from their liability insurers. To my knowledge, this information channel has not been the subject of significant academic research.

<sup>17</sup> See Bryan A. Liang, *Medical Malpractice: Do Physicians Have Knowledge of Legal Standards and Assess Cases as Juries Do?*, 3 U Chi L Sch Roundtable 59, 90 (1996) (concluding from a survey that “physicians were ignorant about the common law of tort, and their perceptions regarding the legal definition of negligence were clearly incomplete and incorrect”).

<sup>18</sup> See Part III.

<sup>19</sup> See A. Russell Localio, et al, *Relation between Malpractice Claims and Adverse Events Due to Negligence: Results of the Harvard Medical Practice Study III*, 325 New Eng J Med 245, 247 (1991) (finding, based on a study of medical records and medical malpractice claims, that “[t]he chance that an injury caused by medical negligence would result in litigation was 1.53 percent”).

<sup>20</sup> See, for example, David M. Studdert, et al, *Claims, Errors, and Compensation Payments in Medical Malpractice Litigation*, 354 New Eng J Med 2024, 2029 (2006) (surveying the early literature and noting that “[t]he findings vary widely, with 40 to 80 percent of claims judged to lack merit and 16 to 59 percent of claims without merit receiving payment”). Professor David Studdert and his coauthors contended that these early studies suffered from various limitations, including a reliance on the insurer’s assessment of claim validity. See *id.* In their own investigation, Studdert and his coauthors instead relied on the assessment of independent experts. See *id.* at 2025–26.

robust—research instills greater confidence in the ability of the system to sort the wheat from the chaff.<sup>21</sup>

While perhaps even more sources of ambiguity abound, the final one that I will note concerns the financial consequences of liability for physicians. By and large, even when plaintiffs prevail in a malpractice suit, physicians face few immediate financial costs.<sup>22</sup> After all, physicians are almost universally insured for liability losses,<sup>23</sup> with coverage that is not typically experience rated—that is, coverage for which premiums generally do not rise notably in connection with one’s malpractice history.<sup>24</sup> Furthermore, liability amounts rarely surpass the limits specified in liability insurance contracts.<sup>25</sup> On the other hand, of course, physicians may experience various uninsurable consequences from liability, including reputational damage and psychological costs.<sup>26</sup> Depending on the severity of such costs, it is

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<sup>21</sup> See *id.* at 2027–28 (finding that over 70 percent of nonmeritorious claims received no compensation, while over 70 percent of those claims that involved both injury and negligence did). Moreover, when nonmeritorious claims did receive an award, Studdert and his coauthors found that payments were substantially lower than those extended to meritorious claims (roughly \$313,000 versus \$521,000). *Id.* at 2028.

<sup>22</sup> See David Leonhardt, *A System Breeding More Waste*, NY Times B1 (Sept 23, 2009) (“If you talk to doctors about malpractice, you come to realize that the root of their objections isn’t financial.”).

<sup>23</sup> This is the case because almost all states require that physicians have liability insurance. See Michelle M. Mello, *Understanding Medical Malpractice Insurance: A Primer* \*1 (Robert Wood Johnson Foundation, Jan 2006), archived at <http://perma.cc/E8DM-56CA>. Moreover, many hospitals require that physicians have insurance before they can gain admitting privileges. See *id.* But see Rachel Emma Silverman, *So Sue Me: Doctors without Insurance—As Premiums Rise, Physicians Drop Malpractice Coverage; What It Means for Patients*, Wall St J D1 (Jan 28, 2004) (noting the increasing number of doctors who are choosing to cancel their insurance coverage and self-insure).

<sup>24</sup> See Janet Currie and W. Bentley MacLeod, *First Do No Harm? Tort Reform and Birth Outcomes*, 123 Q J Econ 795, 798 (2008) (“Doctors’ premiums are not experience-rated, but are set at the specialty-area level.”).

<sup>25</sup> See Kathryn Zeiler, et al, *Physicians’ Insurance Limits and Malpractice Payments: Evidence from Texas Closed Claims 1990–2003*, 36 J Legal Stud S9, S10 (2007) (finding that 98.5 percent of the malpractice claims studied were resolved with payments less than or equal to primary malpractice policy limits).

<sup>26</sup> See Michelle M. Mello, et al, *National Costs of the Medical Liability System*, 29 Health Affairs 1569, 1574 (2010) (“Physicians . . . cannot insure against the psychological costs of being involved in litigation. . . . Nor can they avoid the reputation effects of being sued. . . . Whether or not they prevail in a lawsuit, physicians anecdotally report that these effects occur.”). Knowledge of malpractice cases may disseminate, in part, as a result of certain reporting requirements associated with liability. For instance, subject to certain exceptions, hospitals, state medical boards, professional liability insurers, and certain other entities are required to report to the National Practitioner Data Bank regarding malpractice payments made by physicians and other adverse events. See US

certainly possible that liability fears could shape clinical practices.

This cloud of uncertainty naturally causes one to challenge the notion of a physician motivated by the medical-liability system. Empirical analysis is evidently necessary to resolve this issue. As will be more fully surveyed in Part IV, empirical attempts to confront this question have presented arguably mixed results. Studies attempting to elicit the influence of liability by observing how physicians respond to remedy-centric reforms that attempt to diminish the severity of the present system—for example, damage caps—suggest only a modest degree of sensitivity at best.<sup>27</sup> However, studies confronting this inquiry by observing experiences with more-substantive reforms to the manner in which liability itself is determined evidence a more substantial degree of responsiveness.<sup>28</sup> This disparity between the impacts of remedial reforms and substantive reforms creates a puzzle of its own: If the latter studies are indeed accurately depicting a sensitivity in physician behavior to malpractice standard-of-care rules, then how can one explain the modest sensitivity found in the damage-cap (and related) studies? Or should the findings from the damage-cap studies cause one to question the validity of the latter liability-standards-based studies? Ultimately, are physicians at least potentially sensitive to the liability system, such that it could be reformed in a way that will lower costs? These questions animate this Article. To help shed light on these puzzles, I set forth a model of physician behavior in the next two parts that will demonstrate how liability forces—both substantive and remedial—interact with nonliability determinants of practices.

Before turning to this model, however, let us address one concern regarding the use of damage-cap adoptions as an empirical tool to evaluate physician sensitivity to the medical-liability system. While it is not a goal of this Article to scrutinize the methodological foundations of the damage-cap-based studies, this Article's aspiration—to reconcile the findings from the

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Department of Health and Human Services, *About Us*, National Practitioner Data Bank (Health Resources and Services Administration), archived at <http://perma.cc/Y7NR-943B>.

<sup>27</sup> See notes 56–57 and accompanying text.

<sup>28</sup> Similarly suggesting greater physician responsiveness to medical-liability forces are those studies that assess this relationship not through observational data based on actual clinical practices but through surveys of physicians regarding their consideration of liability fears when selecting treatments. For a larger discussion of such surveys, see note 85.

damage-cap studies and the liability-standards-reform studies—arguably presupposes the empirical validity of the damage-cap branch of the malpractice literature. The financial-insensitivity observations made above may immediately cast doubt on the merits of using variations in the incidence of a dollar cap on noneconomic-damage awards as a means of exploring physician responsiveness to liability. After all, to the extent that physicians register only reputational or psychological harms associated with liability, as opposed to immediate financial consequences, one may wonder how liability reforms of a strictly financial sort—for example, damage caps—can be expected to influence physician behavior.

The influence of caps in the face of limited direct financial implications of lawsuits stems from the possible influence of caps on the likelihood that harmed patients will file malpractice suits against their physicians in the first instance. By decreasing the returns of litigation, damage caps may disincentivize both plaintiffs and their attorneys from initiating suit.<sup>29</sup> Indeed, supporting this contention, evidence suggests that malpractice claims fall substantially upon the adoption of damage caps.<sup>30</sup> As such, even if caps may be irrelevant from the perspective of those physicians who are sued, physicians in general may register a decrease in prevailing liability pressure upon the adoption of a cap insofar as such liability limits make it less likely—as a result of the reduced propensity of plaintiffs to sue—that physicians will suffer the reputational and psychological harms associated with liability.

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<sup>29</sup> See Joanna Shepherd, *Uncovering the Silent Victims of the American Medical Liability System*, 67 Vand L Rev 151, 154 (2014) (“In fact, over half of the attorneys responded that they will not accept a case unless expected damages are at least \$250,000, even for a case they are almost certain to win on the merits.”).

<sup>30</sup> See, for example, Myungho Paik, Bernard Black, and David Hyman, *The Receding Tide of Medical Malpractice Litigation: Part 2—Effect of Damage Caps*, 10 J Empirical Legal Stud 639, 649 (2013) (finding a 27 to 36 percent drop in claim frequency in connection with damage-cap adoptions). Another concern with damage-cap-based studies is that they represent only a marginal reduction in liability pressure. To the extent that physician responsiveness to liability pressure is nonlinear, it is possible that the observed responsiveness to caps, even if extrapolated to reflect the most stringent conceivable cap, might understate the true response that would be observed in response to a more substantial reduction in liability forces. However, with an estimated 27 to 36 percent reduction in claim rates associated with cap adoptions, it is arguable that the influence of these adoptions is more than merely marginal. See *id.* In fact, Myungho Paik’s study considered the phase-in of other non-damage-cap reforms in conjunction with damage caps and found that the marginal effect of the non-damage-cap reforms was insignificant. See *id.* at 656–58.

## II. THE MECHANICS OF DEFENSIVE MEDICINE

In this Part, I introduce a simple abstract model of physician decisionmaking in order to demonstrate the contextual nature of the relationship between health-care spending and liability forces. This model also illustrates how, on the margin, liability pressure may be attenuated in the present environment due to the already-excessive pressures placed on medical practice by other forces—for example, reimbursement-related incentives.<sup>31</sup>

In order to convey the basic dynamics at issue, I simplify this analysis by modeling only a simple treatment-versus-no-treatment decision on the part of physicians. This is distinct from the decision of how much care to take in the administration of treatment itself. Malpractice suits may derive from both such decisions. In the first instance, one can be sued for failing to treat when a need for treatment is indicated<sup>32</sup> or for unnecessarily exposing a patient to the inherent risks and harms of treatment.<sup>33</sup> In the second instance, lawsuits may derive from the negligent *execution* of treatment itself (as distinct from the decision to treat).<sup>34</sup> In the Appendix, I expand on the analysis from Parts II and III to include consideration of such negligent-execution lawsuits. As demonstrated in the Appendix, that broader discussion reinforces the predictions derived below.

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<sup>31</sup> This framework is inspired by a similar discussion in my previous work. See Michael Frakes, *Defensive Medicine and Obstetric Practices*, 9 J Empirical Legal Stud 457, 462–63 (2012). This framework likewise builds on the model of physician decisionmaking introduced by Professors Janet Currie and Bentley MacLeod, who similarly account for the competing risks of failing to treat and of executing the treatment, while acknowledging that such risks may be a function of the patient's health status. See Currie and MacLeod, 123 Q J Econ at 804–13 (cited in note 24). The analysis in Parts II and III extends the framework from each of these prior works and generates various additional hypotheses while also incorporating considerations of substantive, as opposed to merely remedial, liability reforms.

<sup>32</sup> See, for example, *Boone v William W. Backus Hospital*, 864 A2d 1, 13–14 (Conn 2005) (holding that a hospital's failure to treat a child who had manifested symptoms indicating an allergic reaction to antibiotics constituted a medical malpractice claim).

<sup>33</sup> See, for example, *Yoshizaki v Hilo Hospital*, 427 P2d 845, 846, 854 (Hawaii 1967) (involving a plaintiff who underwent unnecessary radiation treatment after being misdiagnosed with cancer and suffered burns as a result).

<sup>34</sup> See, for example, *Arnold v Grigsby*, 289 P3d 449, 451–52 (Utah 2012) (involving a plaintiff who suffered a perforated colon after an allegedly negligent colonoscopy).

### A. The Basic Framework of the Model

Consider a simple decisionmaking setting. Patients seek the services of a physician to address an underlying medical condition. Patients present themselves with varying degrees of health and with varying risk factors,  $s$ , which one can specify as being uniformly distributed over a  $[0,1]$  range, with a patient with an  $s$  score of 0 representing the patient with the fewest complications, and a patient with an  $s$  score of 1 representing the patient with the most health complications. Physicians are faced with a simple binary choice: offer treatment to resolve the underlying medical condition (the costlier option) or suggest no treatment. For instance, if this scenario involved the care provided to a patient with a serious heart disease, treatment might indicate an intensive approach such as CABG or angioplasty, whereas no treatment would represent a nonintensive medical-management approach.<sup>35</sup>

Effectively, physicians will decide on a cutoff point,  $\hat{s}$ , along the distribution of risk factors,  $s$ , at which physicians will elect treatment. For some range of complications below this cutoff—that is, for the subset of the healthiest patients below this cutoff—the physician might deem treatment unnecessary. For risk-factor levels above the cutoff point, the physician will elect to treat. Considering that risk factors are assumed to be distributed uniformly over the unit interval, this clinical behavior can be summarized by a treatment rate of  $1 - \hat{s}$ .

### B. Determination of Treatment Rate Based on Clinical Assessments of Competing Health Risks

A range of factors may influence the physician's desired cutoff point: actual clinical beliefs, financial-reimbursement motivations, convenience, and others. To begin, however, consider only the clinical opinions of physicians regarding the appropriateness of treatment given  $s$ . That is, consider their baseline beliefs about the right balance of the relevant health risks in play. The underlying medical condition carries health risks if it is not addressed. These risks increase in severity as the complication

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<sup>35</sup> In modeling care as a choice between intensive intervention and nonintensive intervention, I am essentially following a common approach in the literature on the economics of physician decisionmaking. See, for example, Amitabh Chandra and Douglas O. Staiger, *Productivity Spillovers in Health Care: Evidence from the Treatment of Heart Attacks*, 115 J Polit Econ 103, 106 (2007).



level of the patient,  $s$ , rises. With significant complications, the consequences of failing to address the underlying medical condition are potentially severe. Assume that the imposition of the treatment will address and eliminate the underlying medical condition and the risks associated with the condition. As such, the benefits of treatment can be captured by  $B(s)$ , which represents the condition-related risks eliminated through treatment. As assumed, and as demonstrated by Figure 1, such benefits increase with the complication level,  $s$ .

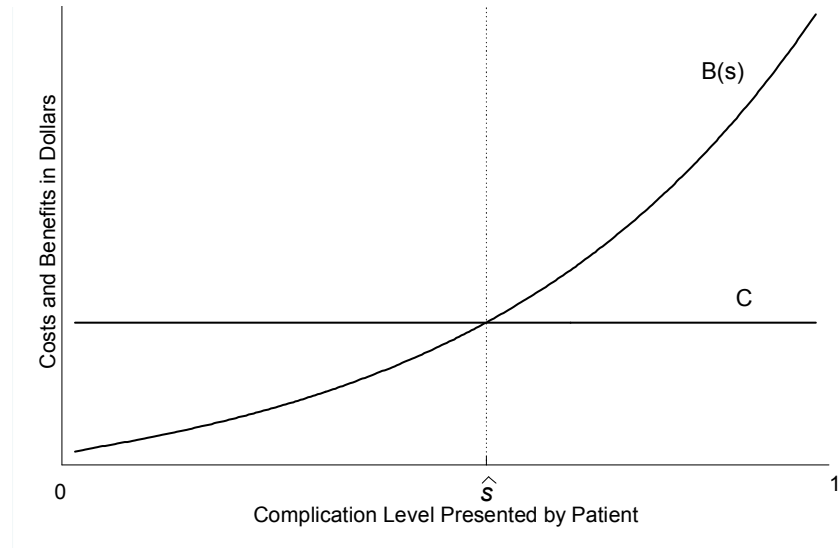
The more that the physician elects to treat the patient in order to avoid these underlying condition-related risks, the more that the physician encounters risks of another sort: treatment-performance risks. After all, in undertaking the treatment, the physician may harm the patient.<sup>36</sup> Thus, in forming her clinical beliefs regarding the appropriateness of treatment for each patient given the patient's complication level, a physician will weigh these respective risks. That is, she will weigh the underlying health risks of failing to address the medical condition against the health risks associated with treatment itself. These risks and harms associated with treatment are captured by  $C$ .<sup>37</sup> To the extent that the physician is motivated *only* by a consideration of her perception of these relative risks, she will consider patients one by one, starting from the healthiest, and will continue to avoid treatment as long as the cost of treatment,  $C$ , exceeds the benefit,  $B$ . The physician will begin to treat once the benefit surpasses the cost. Therefore, an equilibrium will be reached whereby the physician sets a cutoff point,  $\hat{s}$ , at which the benefit and cost curves intersect, as demonstrated by Figure 1.

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<sup>36</sup> At a minimum, it is worth emphasizing that treatment is associated with a level of expected discomfort.

<sup>37</sup> I assume that  $C$  does not vary with the health status of the patient,  $s$ . In other words, while the underlying medical treatment may deliver greater benefits to the sicker patient in resolving the underlying condition, a healthy patient can be just as harmed by the treatment as a sick patient.

FIGURE 1. TREATMENT SELECTION GIVEN THE COSTS AND BENEFITS OF TREATMENT



### C. Marginal Impact of Liability: First-Order Considerations

Now consider how the imposition of a liability threat may impact this equilibrium. That is, what role does malpractice law play on the margin? It is critical to phrase this inquiry in such marginal terms. After all, physician behavior has many determinants. If one were to simply remove the malpractice system or blunt its impact through a damage-cap adoption, such other determinants would remain in place. We want to learn what the law is doing beyond such other influences.

To begin to answer this question, assume that the liability system is free of uncertainty and error. While I will relax this assumption momentarily, it is helpful to begin here in order to understand the most immediate forces in place under the structure of our liability system. To restate this initial assumption, the law will consistently set a particular standard of care that the physician is expected to follow, and the physician is assumed to determine with certainty what this standard is. What exactly will that standard be? Consistent with the historical and largely self-regulatory approach taken in the United States, assume that physicians are held to a negligence standard determined by

the *customary* practices applied by physicians themselves.<sup>38</sup> That is, if a physician follows the care ordinarily and customarily provided by other physicians under similar circumstances, she will be deemed to have satisfied the necessary standard and accordingly not be found negligent.<sup>39</sup> In terms of the above model, the standard expected under the law will be set at  $\hat{s}$ , the cutoff point (with an associated treatment rate of  $1 - \hat{s}$ ) actually implemented by physicians as a result of their nonliability influences. If the physician fails to treat beyond the customary cutoff point—at which physicians otherwise generally elect to treat—she may subject herself to liability. Similarly, if the physician treats at levels of  $s$  below this cutoff point—that is, in situations in which physicians normally do not treat—she may subject herself to liability for unnecessarily exposing the patient to the risk of treatment.

In other words, physicians set their own standards and the law simply catches deviations from those physician-determined standards.<sup>40</sup> In this case, liability only reinforces the preliability equilibrium and incentivizes physicians to continue setting their practices such that they follow a treatment rate of  $1 - \hat{s}$  and a treatment cutoff of  $\hat{s}$ . Thus, as a first-order matter, *liability forces under a custom-based system do not push clinical behaviors in any particular direction*. Consequently, as a first-order matter, if we were to diminish the force of the liability system by adopting a reform that softens the consequences of malpractice liability—for example, a damage cap—one would not expect physician practices to deviate from their initial position.

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<sup>38</sup> That is, unlike most cases of negligence, medical malpractice cases largely do not involve abstract determinations of what a “reasonable prudent person” would do under similar circumstances but instead ask what physicians *actually* do under similar circumstances. Blumstein, 59 Vand L Rev at 1023–24, 1030 (cited in note 14). Professor Philip Peters has documented a recent trend in some states toward modification of the language of standard-of-care instructions in the direction of a “reasonable physician” standard. Philip G. Peters, *The Quiet Demise of Deference to Custom: Malpractice Law at the Millennium*, 57 Wash & Lee L Rev 163, 164 (2000) (noting that a dozen states have expressly rejected the custom-based standard and another nine states have adopted a “reasonable physician” standard). But see Alex Stein, *Toward a Theory of Medical Malpractice*, 97 Iowa L Rev 1201, 1202, 1228 (2012) (contending that the legal developments that Peters references are limited in degree and focus on hospitals’ “setup” efforts, not their treatment efforts, where “setup” refers to the organizing of equipment, personnel, or facilities).

<sup>39</sup> See, for example, *Shier v Freedman*, 206 NW2d 166, 171 (Wis 1973).

<sup>40</sup> See Peters, 57 Wash & Lee L Rev at 163 (cited in note 38).

#### D. Marginal Impact of Liability: Second-Order Considerations

Of course, the notion of a liability system without any uncertainty or error is far from realistic. On occasion, a court may misperceive the customary norms of practice.<sup>41</sup> For instance, consider a patient with a complication level below  $\xi$ , at which physicians would typically opt not to treat someone. Given some proneness for error, a court evaluating the decision of a physician not to treat this patient may make the incorrect assessment that physicians customarily do perform treatment in such circumstances and thus attribute negligence to this physician. Even though, as an immediate matter, custom-based liability standards may not disrupt equilibrium treatment patterns, might physicians alter their clinical behaviors in light of the possibility of an error at court?

In answering this question, one must first wonder how physicians will factor in liability considerations when making treatment elections in a situation in which the law does not provide clear signals. In the face of this legal uncertainty, I effectively assume that physicians will evaluate the legal implications of their actions by simply considering how the health risks facing patients depend on such actions. Consideration of such risks provides a sense of the consequences at stake in the relevant treatment decisions—that is, a sense of the expected damages that could be imposed on physicians should they be found to have negligently managed such patients.<sup>42</sup> If executing the treatment is likely to pose substantial risks to the patient, the physician may be wary of undertaking that action in light of the possibility that she will be found negligent for doing so and responsible for compensating the patient for the associated harms. To be clear, if the physician could be certain that this action would be deemed nonnegligent, she would face few such concerns. On the other hand, if not performing the treatment on a particular patient poses a substantial risk of failing to resolve the underlying medical condition, the physician may be wary of

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<sup>41</sup> See *id.* at 187 (explaining that “even when a widely favored approach actually exists, ascertaining that custom at reasonable cost may be impossible” because “expert witnesses . . . do not know (and typically could not hope to know) the actual percentage of physicians who would act as the defendant did under the specific circumstances posed by the patient’s condition”).

<sup>42</sup> If both patient A and patient B were not treated and claim that they should have been treated, but patient A would have benefited substantially more from treatment than patient B (given their respective health statuses), then I assume that patient A would be able to acquire far more in damages should she prevail than patient B.

not electing treatment in light of the possibility that she will be found negligent under a failure-to-treat theory and likewise be responsible for all the harms associated with the unresolved medical condition. Which way the physician goes—treat or not treat—may depend on which of these two possibilities she finds to be most prevalent *for the given patient*.

Conventional wisdom seems to suggest that physicians would rather err on the side of overtreating in the face of such uncertainty.<sup>43</sup> Why? Perhaps because the perceived consequences of performing an arguably unnecessary treatment are likely less severe than the consequences of failing to address the underlying medical condition—that is, failing to employ treatment.<sup>44</sup> I first suggest that this perception is arguably illusory. As is evident in Figure 1, in the case of those patients who generally receive treatment, the gap between the benefits of treatment and the costs of treatment—the net benefits that would otherwise be at stake in the event that treatment was not performed—are substantial. In fact, those net benefits appear greater on average than the gap between the costs of treatment and the benefits of treatment—that is, the net consequences at stake in the event that treatment were to be performed—for those who generally do not receive treatment. In other words, the average distance between *B* and *C* is greater to the right of  $\hat{s}$  than it is to the left of  $\hat{s}$ . This may give the impression that the stakes of failing to perform a needed treatment are greater than the stakes of performing an unnecessary treatment. The important point to note is that this may be true *on average*; however, it is not necessarily true for the marginal patient, which is where the emphasis should lie. Again, our task is to ask what forces the law is imposing after considering the influence of financial and other determinants of physician practices.

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<sup>43</sup> See *Physicians on Medical Liability Reform Options: An Online Quantitative Research Study* \*5–7 (Jackson Healthcare, Dec 5, 2012), archived at <http://perma.cc/KTB8-L68K> (finding that 75 percent of surveyed physicians practice defensive medicine, primarily “to avoid being named in a potential lawsuit”).

<sup>44</sup> Analysts frequently state that legal uncertainty in the determination of malpractice standards will induce physicians to undertake costlier precautions. See, for example, Blumstein, 59 Vand L Rev at 1031 (cited in note 14). While such analysts are rarely explicit in acknowledging the trade-off in risks between treating and not treating the underlying condition, one might read their conclusions as implicitly assuming greater consequences associated with not treating when the law will erroneously expect a physician to treat, relative to the consequences associated with treating when the law will erroneously expect a physician not to treat.

The above analysis demonstrates that the physician's non-legal influences will cause her to select a cutoff at  $\hat{s}$  and thus treat at a rate equal to  $1 - \hat{s}$ . In this range, since the physician has already treated those most in need of treatment, the most pronounced benefits from treatment have already been exhausted. By the nature of the triage process, the physician will have already brought us to the point at which the benefits and costs of treatment *on the margin* are on par with one another—that is, the point at which the net benefits from treatment are perhaps negligible. Thus, for such marginal patients, one might not expect from the outset that failure-to-treat concerns will trump improper-execution concerns. The two concerns may be a wash, in which event liability forces may again not push practices in one direction or the other.

Nonetheless, to be more rigorous in the demonstration of this point, consider more explicitly the possibility of court error in this setting. That is, consider a situation in which the court may evaluate customary practices by either implicitly overestimating the benefits of treatment, in which case the court's perceived benefits curve is shifted upward to  $B'$ , or implicitly underestimating the benefits of treatment, in which case the perceived benefits curve is shifted downward to  $B''$ . I assume that the magnitude of the error is symmetrical on either side—that is, courts are just as likely to overestimate as they are to underestimate (and by the same amount). How might physicians respond to this uncertainty?

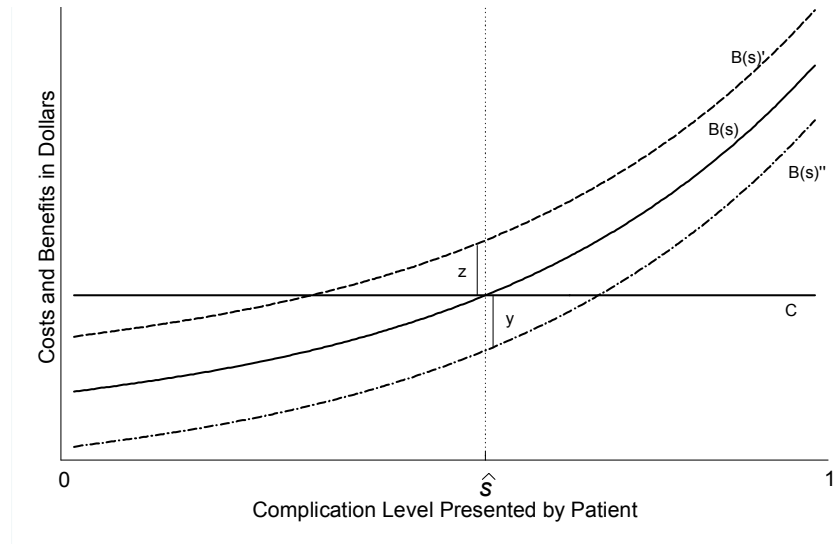
First, let us address the possibility of an overestimation. Take a patient with a complication level just below  $\hat{s}$ . The court-perceived benefits from treating this patient equal the distance between  $B'$  and  $C$  at that point, as indicated by the distance  $z$  in Figure 2. If the physician were to continue to set her customary cutoff at  $\hat{s}$  and thus not treat this particular patient, the physician would be found in breach of the standard that the court has mistakenly set. The level of damages that she might be expected to face in this instance would equal the distance  $z$ . Might this compel her to decide to treat this patient? Bear in mind that she does not know *ex ante* in which direction the court will err, and she will thus balance the likelihood of paying  $z$  in damages with an evaluation of the possibility that the court will assess the customary standard in a way that implicitly underestimates the benefits of treatment at  $B''$ . That is, she will also consider the possibility that the court will mistakenly expect a higher cutoff

point and a correspondingly lower treatment rate. At the benchmark level of practices represented by the treatment cutoff of  $\hat{s}$ , the physician would be treating some patients that the court, given its underestimation of treatment benefits, feels should not be treated. This may create a countervailing incentive to lower one's treatment rate. Consider the patient with a complication level,  $s$ , just to the right of  $\hat{s}$ —a patient who would customarily receive treatment. The harms and risks of treatment for this patient exceed the perceived (underestimated) benefits of treatment by the vertical segment indicated in Figure 2, which carries a length of  $y$ . Similarly, if the physician were to continue to set her customary treatment cutoff at  $\hat{s}$  and thus still treat this patient, she would be found in breach of the mistakenly set standard. The expected level of damages would be captured by this distance,  $y$ .

In the mind of a physician who wishes to maintain her customary practices at  $\hat{s}$  and who understands that the court may err in setting a standard on either side of  $\hat{s}$ , the question becomes: Which set of consequences are greater? That is, how does  $z$  compare with  $y$ ? If she stays at  $\hat{s}$ , she faces not only the possibility of damages for having treated the last marginal patient when she should not have, but also the possibility of damages for not treating the next marginal patient when she should have. If  $z$  trumps  $y$ , then, in expectation, she may sense that the potential damages facing her are greater for the latter possibility, thereby compelling her to treat more on the margin.

So, how does  $z$  compare with  $y$ ? For the sake of simplicity, I do not specify functional forms for the benefits curve,  $B$ , that might facilitate a more rigorous mathematical comparison of the magnitudes of  $z$  and  $y$ —that is, the potential liability amounts for failing to alter behavior in the face of these two different errors. Rather, through a visual depiction of such measures, I simply aim to demonstrate that the magnitudes of such potential liability amounts are nearly or essentially identical.

FIGURE 2. TREATMENT SELECTION UNDER UNCERTAINTY



To summarize, when the court errs symmetrically on either side of the customary standards actually followed by physicians, the potential liability at stake for failing to treat the marginal patient when the court mistakenly expects a physician to treat is of essentially the same magnitude as the potential liability at stake for treating the marginal patient when the court mistakenly expects a physician to avoid treatment. As such, this graphical analysis demonstrates that the conventional perception that court errors might cause one to overtreat due to the relatively greater liability consequences stemming from failure-to-treat scenarios than from inappropriate-treatment scenarios is perhaps unfounded. Rather, considering that these potential consequences are in balance, a physician not knowing ahead of time how the court will err will not feel compelled to either increase or decrease her treatment rates.

On the other hand, physicians may be inclined to overtreat to the extent that they anticipate an *asymmetrical* error on the part of courts in determining liability standards. That is, if physicians think that courts will systematically assess customary practices in a way that implicitly overestimates the benefit of treatments, then physicians will believe that the average potential liability at stake for failing to treat the marginal patient may indeed exceed the average potential liability for improperly treating the marginal patient, compelling additional treatments.



### E. Determination of Treatment Rate Based on Multiple Nonliability Factors

However, even in instances of asymmetrical error on the part of courts, I contend that it is not immediately clear that court error will induce physicians to increase their treatment rates and thus practice expansionary defensive medicine (as just surmised). In illustrating this final contention, I bring myself to perhaps the second most important reason (aside from the observation that liability standards are based on custom) why empirical estimates of defensive medicine may be significantly lower than conventional expectations. This reason stems from consideration of all the additional factors that likewise compel physicians to opt for treatment. The graphical demonstration has thus far simply assumed that the only nonliability factor driving behavior is the physician's clinical beliefs regarding the various health risks at issue. Now, let us expand this graphical analysis to consider a range of additional motivations.

For instance, consider the role of physician-reimbursement structures. Perhaps one of the most recognized features of our health-care system that may contribute to excessive health-care spending is the "fee-for-service" environment in which most health care is administered.<sup>45</sup> Under a fee-for-service approach, physicians are effectively paid more for doing more, thereby providing physicians with a possible incentive to perform an unnecessarily high degree of services—a phenomenon often labeled "physician-induced demand."<sup>46</sup>

Assume that these additional benefits of treatment push the physician's perceived benefit curve,  $B$ , upward by an amount equal to  $m$ .<sup>47</sup> I illustrate this upward shift in Figure 3. I label this elevated benefits curve as  $B^*$ . In deciding their cutoff point now, using the same thought process set forth above, physicians will determine where this new benefit curve,  $B^*$ , crosses the

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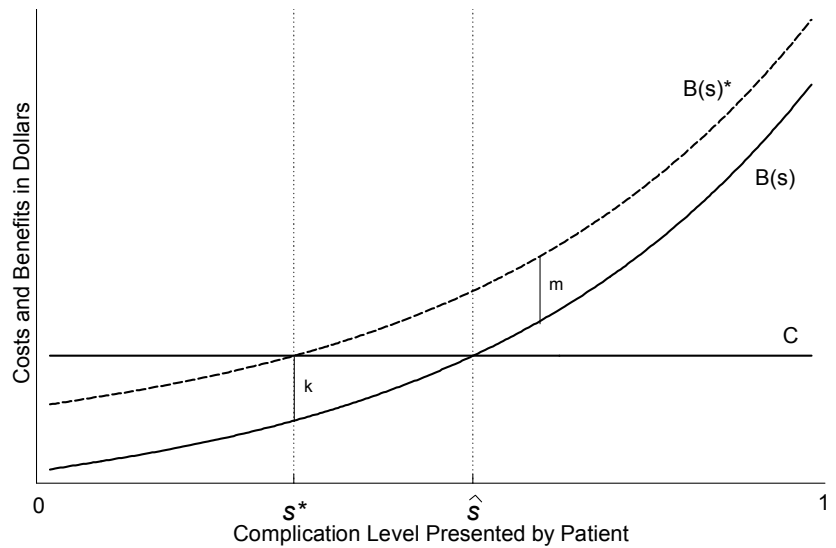
<sup>45</sup> David Orentlicher, *Cost Containment and the Patient Protection and Affordable Care Act*, 6 *FIU L Rev* 67, 71 (2011) ("Whether needed or not, a surgical procedure pays very well, and there is good reason to think that financial incentives in the U.S. lead physicians to perform many unnecessary operations.").

<sup>46</sup> Thomas G. McGuire, *Physician Agency*, in Culver and Newhouse, eds, 1 *Handbook of Health Economics* at 461, 503 (cited in note 7) (defining physician-induced demand as a situation in which "the physician influences a patient's demand for care against the physician's interpretation of the best interest of the patient").

<sup>47</sup> While it is possible that these additional influences may also vary in degree by patient complication level, I simply assume an increase in physician benefits of the same level with respect to patients of all health statuses.

cost-of-treatment curve,  $C$ . Call this point  $s^*$ . As is evident from Figure 3, this new treatment cutoff is to the left of  $\hat{s}$ , thus representing a *higher* treatment rate than was otherwise observed when all that the physician took into consideration were her clinical beliefs regarding the health risks at issue.

FIGURE 3. TREATMENT SELECTION GIVEN ADDITIONAL BENEFITS OF TREATMENT TO THE PHYSICIAN



What is most important to keep in mind when viewing this new equilibrium point is that the marginal patients around this new treatment cutoff are quite healthy. With respect to such marginal patients, the prevailing health risks suggest a greater concern for the harms associated with performing the treatment than for the harms associated with the underlying medical condition. After all, the equilibrium reached when the only considerations were the physician's clinical beliefs was one in which the physician decided to keep performing treatments as long as the benefits from doing so—that is, the elimination of the health risks associated with the underlying medical condition—outweighed the risks and harms associated with executing the treatment itself.<sup>48</sup> Thus, on the margin, such risks were in balance. By increasing treatment rates beyond this starting point

<sup>48</sup> See Part II.B.

through the consideration of factors other than clinical beliefs, physicians begin treating patients of even healthier dispositions. As such, the patients who might not have been treated in the previous framework but who are now treated are exposed to greater risks and harms from treatment than warranted when weighed against the underlying condition-related harms that they avoid through treatment.

Now consider how medical liability impacts this new equilibrium on the margin. As before, in an immediate sense, the deference to customary practices used in determining liability standards serves only to reinforce the idea that physicians should continue to set their treatment rates at the level compelled by all these nonliability determinants—that is,  $s^*$ . What about secondary considerations stemming from the possibility that courts may err in this liability-setting process and thus impose liability standards on either side of  $s^*$ ? To immediately confront the more challenging scenario, let us address the situation in which the court errs more on the side of implicitly overestimating the benefits of treatment. Might this legal uncertainty compel a physician already practicing at the  $s^*$  cutoff to consider treating the marginal patient just to the left of  $s^*$ —that is, marginally increasing her treatment-utilization rate in order to avoid liability for failing to treat this patient?

Given the above arguments regarding the relative health risks facing this marginal patient, any risk assessment actually tips in favor of suggesting that the prevailing concern here is with the decision to treat this healthy patient, not with the failure to treat. As before, if a physician otherwise inclined to stay at  $s^*$  is concerned that the court may not find her decisions around this cutoff to comply with custom, she may gauge her potential liability exposure in the case of such patients by reference to the health risks that they face. To the extent that treatments are not performed, patients may retain their underlying medical risks, which may form the basis for suit (based on a failure-to-treat theory), exposing the physician to some amount of potential damages. To the extent that treatments are performed, patients may be exposed to the risks and harms of treatment—which may also possibly form the basis for suit (based on an improper-decision-to-treat theory)—also exposing the physician to potential damages. Again, whether these possibilities will compel a physician to perform or take away an

additional treatment on the margin may depend on how physicians assess the expected levels of damages coming their way.

The key point here is that this analysis starts from a position in which this expected-damages assessment likely entails greater concern for an unnecessarily high treatment rate—a concern that might compel an uncertain physician to *reduce*, not increase, treatments on the margin. Of course, the operating assumption here is that courts will heavily err on the side of overestimating the benefits of treatment. This overestimation restores balance, elevating the expected damages associated with failing to treat. However, a court would have to substantially overestimate such benefits before a physician might perceive there to be, *on net*, notable consequences at stake for failing to treat a given patient, as suggested by Figure 3. At the customary cutoff between treatment and no treatment,  $s^*$ , the costs of treatment,  $C$ , exceed the *clinical* benefits of treatment,  $B$ , by an amount equal to  $m$  (that is, the net clinical harms of treating this patient are at a level commensurate with the nonclinical or extraneous gains to the physician from treatment). A court would have to misperceive the customary standard of care and implicitly overvalue treatment benefits by an amount equal to  $m$  before these misperceived benefits would even begin to outweigh the expected harms associated with treatment.

The more that a physician succumbs to financial and other motivations to increase her treatment rates, the more that courts will need to overestimate the benefits of treatment before liability forces in the face of such legal uncertainty will really compel physicians to increase their treatment rates any further.<sup>49</sup>

## F. A Summary of Defensive Medicine

An assessment of what liability means for the average patient receiving a particular treatment might drive the lay perception of defensive medicine. If one takes the average mother receiving a cesarean delivery and considers all her indications for surgical treatment—for example, breech presentation, placenta praevia, and so forth—one might conclude that the potential liability for failing to perform this cesarean delivery is

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<sup>49</sup> If anything, liability pressures on the margin, in an environment marked by such expansive treatment styles, might compel physicians to perform *fewer*, not more, treatments.

substantial. Indeed, with respect to many cesareans that are performed, if one asks what would happen if the physician were to decide not to perform that cesarean, the answer could very well be exposure to substantial liability. However, this thought exercise is unhelpful. Why even ask what the liability consequences would be if the physician were not to perform a cesarean on this average cesarean mother, considering that the physician has so many other motivations to treat her?

To be fair, it is not clear that commentators and analysts contemplating defensive medicine are asking this precise question.<sup>50</sup> However, in failing to approach the defensive-medicine discussion in a sufficiently structured manner, it is also unclear exactly what questions these commentators are proposing to answer. Just what subset of patients are they referring to in surmising that medical-liability forces may be compelling the treatment decision? The above analysis is meant to offer helpful guidance in framing this defensive-medicine inquiry and in directing analysts' attention to the more appropriate question: On the *margin*, after considering all the other determinants of physician behavior and in light of the health status of the marginal patient, how do medical-liability forces affect the treatment decision?

With this guidance in mind, the above framework potentially explains the empirical findings of only modest defensive medicine in the present health-care environment, in addition to explaining why the traditional tort reforms embraced to date—which alter the equilibrium only on the margin and do nothing to remove other influences pushing physicians to provide excessive care—may have less of an impact than conventionally expected.<sup>51</sup> At the same time, this framework suggests that these findings may be more of a reflection of the context in which such studies were undertaken, as opposed to a reflection of the universal irrelevancy of medical-liability forces in shaping physician practices. Indeed, one might predict based on this framework that tort reform could lead to a greater reduction in treatment intensity (consistent with general perceptions of

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<sup>50</sup> See, for example, Frank A. Sloan and John H. Shadle, *Is There Empirical Evidence for "Defensive Medicine"? A Reassessment*, 28 *J Health Econ* 481, 481–84 (2009) (emphasizing comparisons of marginal costs and marginal benefits when assessing claims of defensive medicine).

<sup>51</sup> See *CBO Report* at \*2–3 (cited in note 3); Sloan and Shadle, 28 *J Health Econ* at 490 (cited in note 50).

defensive medicine) in certain situations—for example, in the case of diagnostic care or in environments marked by weaker reimbursement-related motivations, both of which I discuss below.

## G. Stronger Defensive-Medicine Contexts

### 1. Diagnostic care.

In the above discussion, when the possibility of court error emerged, the effective stopping force that prevented failure-to-treat liability fears from pushing treatment rates significantly upward was corresponding fears stemming from negligent exposure to treatment risks. If such offsetting fears are absent in certain clinical contexts—for example, in certain diagnostic contexts—then liability forces may lead to expansionary utilization practices on the part of physicians. While this is not always the case with diagnostics, one generally encounters more-minor health risks in receiving a diagnostic procedure than in receiving the more-intensive procedures motivating the above model.<sup>52</sup>

Of course, even in the case of diagnostics, there may be some natural limit to how high diagnostic-utilization rates may go—a limit that may not fit into the above framework. This limit may result from pressures associated with the financial costs of treatment (something not modeled in the above framework for purposes of analytical tractability) or from some sentiment among physicians that “enough is enough.”<sup>53</sup> Driving this latter sentiment may be some inclination to maintain at least the appearance that one’s clinical practice is not subject to motivations beyond the best interests of the patient. Procedure-utilization rates approaching 100 percent would certainly threaten the detection of a bias in clinical practices. To the extent that financial

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<sup>52</sup> The National Cancer Institute, for example, lists the downsides to mammograms and states that “[m]ammograms require very small doses of radiation. . . . The benefits of mammography, however, nearly always outweigh the potential harm from the radiation exposure.” National Cancer Institute, *Fact Sheet: Mammograms* (National Institutes of Health, Mar 25, 2014), archived at <http://perma.cc/BZ23-BE2U>.

<sup>53</sup> Sherry Glied, *Managed Care*, in Culyer and Newhouse, eds, 1 *Handbook of Health Economics*, 707, 716 (cited in note 7) (“[M]anaged care plans also directly monitor service utilization. They do this by placing limits on which providers an enrollee may see and by placing limits on what those providers can do.”). However, the use of utilization review to set this upper limit on treatment is controversial and has prompted significant backlash—namely, external-review statutes that allow patients to appeal adverse utilization-review decisions to a neutral arbitrator. See Russell Korobkin, *The Battle over Self-Insured Health Plans, or “One Good Loophole Deserves Another”*, 5 *Yale J Health Pol, L & Ethics* 89, 98–99 (2005).

motivations already drive diagnostic-utilization rates to this limit, there may again be little left for liability forces to do on the margin.

Ultimately, there may be reason to believe that defensive medicine is more widespread in the case of diagnostic care, though perhaps only to a degree.

## 2. Weakened financial motivations.

A second context in which medical-liability forces may place greater inflationary pressure on health-care spending is when reimbursement-related incentives to overtreat are muted. As above, it is possible that liability fears will push treatment upward in situations in which courts might err in assessing customary standards and in which that error tends on the side of implicitly overestimating the benefits from treatment. However, as demonstrated above,<sup>54</sup> this possibility becomes more remote as other motivations to treat patients emerge, including financial motivations. In our environment of general excess, financial factors may be sufficient to push practices to their natural limits, in which case diminishing liability forces through the adoption of damage caps may be inconsequential.<sup>55</sup> In another environment in which such nonliability motivations are restrained, the liability factor may find itself more influential in bringing practices up to that limit. In this latter circumstance, reducing the liability channel through a damage cap or similar reform may lead to a meaningful reduction in treatment rates.

In other words, if health-care spending can be characterized as a four-legged table, with one of the legs constituting liability, then removing that leg alone may not cause the table to topple. However, if we have already removed the financial-motivation leg, then a subsequent removal of the liability leg may indeed bring the table down. In this light, medical liability may play a role in the health-care-cost-containment debate that is easily overlooked by simply relying on the fact that defensive-medicine studies to date largely document only a modest (at best) reduction in health-care utilization in connection with the adoption of

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<sup>54</sup> See Part II.E.

<sup>55</sup> As above, limits to how high treatment rates can go may arise due to the possibility of liability for exposing patients to treatment-performance risks or some inclination on the part of physicians to avoid detection of bias in their clinical practices.

damage caps and related reforms.<sup>56</sup> Failing to acknowledge a potentially stronger residual role for liability should other delivery-system reforms succeed in eliminating financial and other motivations to overtreat patients, analysts may *overestimate* the ultimate success that would arise from such nonliability-related reforms.<sup>57</sup>

A natural way to investigate these dynamics is to observe our experience to date with Health Maintenance Organizations (HMOs). These organizations—which proliferated heavily during the 1990s and have retreated somewhat during the 2000s—provide health insurance or health care while employing a range of techniques to help contain health-care costs.<sup>58</sup> While some scholars have acknowledged that cost-containment techniques such as HMOs may interact with liability forces and thus alter the defensive-medicine landscape, these scholars have done so in an arguably underdeveloped manner.<sup>59</sup> For instance, in perhaps the most influential of such studies, Professor Daniel Kessler and Dr. Mark McClellan theorize that HMOs and tort reform are substitutes, whereby tort reform is less effective in reducing health-care spending when HMO penetration is already high.<sup>60</sup> They suggest that physicians may be less able to practice defensive medicine—meaning that damage caps would be less able to

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<sup>56</sup> See *CBO Report* at \*2–5 (cited in note 3) (finding that damage caps and related reforms would result in a mere 0.2 percent reduction in total national health-care expenditures).

<sup>57</sup> See James J. Mongan, Timothy G. Ferris, and Thomas H. Lee, *Options for Slowing the Growth of Health Care Costs*, 358 *New Eng J Med* 1509, 1510–12 (2008) (recommending a package of nonliability-related reforms and dismissing the malpractice system as having the “lowest potential for cost saving”).

<sup>58</sup> For an overview of HMOs, see generally Glied, *Managed Care* (cited in note 53). Much of the cost savings achieved through managed-care structures broadly, and variants of HMO structures more specifically, come through certain financial forces—for example, price concessions by physicians contracting to be part of the HMO network or staff or, in some cases, reduced incentives to overtreat patients as a result of a shift toward salaried- or capitated-reimbursement structures. See *id.* at 713–15. However, HMO structures also seek to contain costs through utilization review—for example, by requiring preadmission authorization by the HMO for hospitalization, applying guidelines for treatments of particular conditions, and so forth. See *id.* at 716–17.

<sup>59</sup> See generally, for example, Daniel Kessler and Mark McClellan, *Malpractice Law and Health Care Reform: Optimal Liability Policy in an Era of Managed Care*, 84 *J Pub Econ* 175 (2002).

<sup>60</sup> See *id.* at 177 (“Reductions in liability will have more modest effects on treatment intensity as the incentives provided by health insurance become higher-powered. For example, both managed care and malpractice reforms may discourage physicians from ordering additional diagnostic procedures with high costs relative to their expected benefits.”).



reduce expenditures—when the “higher-powered payment incentives” of managed care are strongest.<sup>61</sup> While Kessler and McClellan do not completely unpack this suggestion, I interpret their intuition to mean that physicians may have less room to succumb to defensive medicine when HMO prevalence is high insofar as the strictures of practicing in an HMO environment—characterized by sometimes-heavy utilization review—stymie clinical discretion on the part of physicians and thus stymie the opportunity to practice defensively. The direction of this prediction runs counter to that from the above analysis, in which I predicted that liability forces might be *more*, not less, influential on the margin in high-HMO environments—that is, in environments of reduced financial motivations to provide excessive care.

I do not dispute the merits of the notion that HMO pressures may leave physician discretion hamstrung in general.<sup>62</sup> However, I do contend that this observation catches only part of the entire story. It misses the *completely opposing* notion that damage-cap adoptions in an HMO-heavy environment may more substantially bring down spending to the extent that the liability leg takes on a greater significance in holding up health-care costs once the nonliability-related legs are weakened, as theorized above.<sup>63</sup>

I do concede that diminishing financial motivations through stronger HMO penetration may weaken the means by which physicians will be able to practice liability-induced defensive medicine due to the utilization-review techniques that were often employed by HMOs during their heyday (for example, requiring preapproval for hospital stays or procedures).<sup>64</sup> Utilization review and other HMO features could indeed take away the ability of physicians to run wild with treatment recommendations,

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<sup>61</sup> Id at 176–77.

<sup>62</sup> See Glied, *Managed Care* at 716 (cited in note 53) (“[M]anaged care plans also directly monitor service utilization. They do this by placing limits on which providers an enrollee may see and by placing limits on what those providers can do.”).

<sup>63</sup> In other words, Kessler and McClellan view the *reforms*—be they tort reforms or financial reforms—as substitutes for each other. The framework that I suggest, however, conceptualizes the underlying *forces*—that is, the legal and financial motivations to increase treatment—as the substitutes of interest. From this latter perspective, the reforms that one may take to reduce such underlying forces will not necessarily result in the substitution pattern predicted by Kessler and McClellan.

<sup>64</sup> See Glied, *Managed Care* at 717 (cited in note 53) (“Utilization review is particularly common for high cost services, such as hospitalizations and surgical procedures. About 80% of insurers in 1990 required that enrollees (or their physicians) obtain pre-admission insurer authorization for hospitalization.”).

especially in the case of those patients clearly not in need of treatment. However, there is likely some set of patients with notable-but-borderline indications for treatment. With respect to *at least some* of these more marginal cases, it is arguably likely that physicians responding to liability fears could nonetheless justify their treatment decisions in the face of a utilization-review process. It is of course an empirical question whether the frictions of utilization review will be able to overcome defensive motivations in these instances. However, I contend that it is indeed possible for defensive medicine to be more pervasive in environments marked by heavy utilization of other cost-containment techniques, contrary to the Kessler and McClellan model.

### III. THE MECHANICS BEHIND PHYSICIAN RESPONSIVENESS TO STANDARD-OF-CARE REFORMS

In the theoretical framework set forth above, I began by asking what treatment rate physicians would follow after considering all factors other than those related to medical liability. I then considered the influence of adding a liability system on the margin. However, the above discussion did not consider imposing just *any* kind of liability structure. It entailed adding a very specific kind—that is, a structure in which liability is assigned to a physician for causing harm to a patient only when the physician failed to comply with customary standards. Having considered what this structure would do on the margin to physician practices, one can effectively predict what might happen in reverse as we adopt reforms—for example, damage caps—that maintain this structure but reduce the expected consequences of liability itself.

I now build on this analytical framework in order to ask questions of a new variety. I largely move away from considering the influence of the present liability structure and instead ask how physician behavior may be affected by a change in that structure itself. By “structure,” I principally mean the substantive manner in which courts assess physician behavior. When the law alters the clinical standards that physicians are expected to follow, might one expect to observe a corresponding alteration of physician practices?

As the analysis in Part II demonstrates, defensive medicine may turn out to be muted in the present environment. This need not entail, however, that physicians are inherently indifferent to

liability forces. As this Part demonstrates, clinical practices may change more meaningfully upon an alteration of medical-liability standards. Understanding this dichotomy is critical to illuminating the broader role that medical liability may still hope to play in the health-care-spending debate. To demonstrate this possibility, let us return to the framework introduced in Part II.

#### A. The Basic Framework of the Model

Consider a situation similar to Figure 3 in which the physician reaches an equilibrium treatment cutoff at  $s^*$  (representing a treatment rate of  $1 - s^*$ ). As before,  $s^*$  is to the left of  $\hat{s}$ —that is, assume that physicians follow a treatment cutoff point that is to the left of the point at which the clinical benefits of treatment intersect with the clinical costs of treatment. Essentially, financial and other motivations cause physicians to inefficiently treat some subset of patients for which the harms of treatment surpass the benefits.<sup>65</sup>

Simply assume that whatever liability standard is set by the court can be determined with certainty—that is, ignore for now the second-order impacts of liability on physician behavior deriving from perceptions of court error. As will be demonstrated below, unlike the situation in Part II, the liability reforms entertained in this Part are predicted to alter the baseline-equilibrium treatment patterns in an immediate sense and in a manner that does not stem from the possibility of court error.

#### B. Liability Reform “Pushes” Physician Practices Away from Their Desired Practices

As a frame of reference for this analysis, consider a liability system that sets operable standards according to customary physician practices. As in Part II, a liability system of this nature simply reinforces physician desires to practice at  $s^*$ , discouraging any deviations from this preexisting, customary norm.<sup>66</sup> Now consider a reform to the relevant standard-of-care rules. In an attempt to redirect the excessive norms of practice and diminish health-care spending, assume that the law retreats from its expectation that physicians follow the customary

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<sup>65</sup> See Orentlicher, 6 FIU L Rev at 71–72 (cited in note 45) (discussing how financial rewards may lead physicians to perform extra procedures).

<sup>66</sup> See Part II.E.

treatment cutoff—that is,  $s^*$ —and instead imposes an expectation that physicians follow the efficient treatment cutoff. That is, assume that the courts will impose a new standard at  $\hat{s}$  and thus try to redirect physicians to elect treatment only up until the point at which the clinical benefits of treatment equal the clinical costs. Even though physicians otherwise desire to begin treating at  $s^*$ , the law now expects them to wait until  $\hat{s}$ —that is, to hold off on treating patients until it is truly clinically indicated to be efficient given the balance of risks at play. Will physicians comply with these new expectations and *lower* their treatment rates accordingly?

To preview the below analysis, I demonstrate that the answer to the question may indeed be “yes.” In Part II, I showed that physicians wanted to follow a particular practice style, and, effectively, that the law wanted the same (that is, liability standards remain fixed at custom). Now, begin by assuming that physicians otherwise want to practice at  $s^*$ , while the law now wants them to practice at  $\hat{s}$ . I suggest below that these modified legal expectations may cause physicians to adjust their practices in the direction of  $\hat{s}$ .

To understand this, begin by considering a physician who attempts to maintain her otherwise-desired practice style and begins treating patients once their complication levels rise to  $s^*$ . This physician will expose herself immediately to possible liability under this modified standard-of-care regime. More specifically, for those patients with complication levels falling between  $s^*$  and  $\hat{s}$  on the complication distribution, the physician will otherwise desire to treat, but liability fears may cause her to reconsider. Since patients in this range have complication levels weaker than that deemed necessary to trigger treatment under the new efficient standards of care expected by courts, a court may view any unnecessary exposure to the inherent risks of treatment or surgery in this range as negligent. In other words, since these patients now fall into the range in which the law expects there to be no treatment, physicians may be subjected to liability if they nonetheless continue to treat as they customarily desire. It should not be assumed that physicians will immediately succumb to such altered legal expectations.<sup>67</sup> Whether this

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<sup>67</sup> See Michael Frakes, *The Impact of Medical Liability Standards on Regional Variations in Physician Behavior: Evidence from the Adoption of National-Standard Rules*, 103 *Am Econ Rev* 257, 259 (2013) (discussing possible explanations for physicians' responses to legal changes).

liability threat induces physicians to withhold a treatment that they otherwise want to perform depends on the consequences of liability in those instances and how such consequences stack up against the net benefits of treatment that the physicians perceive.<sup>68</sup>

As before, the physician derives value in treating the patient from various sources, including, among others, financial gains from treatment and the avoidance of the health risks imposed on patients by the underlying medical condition.<sup>69</sup> Offsetting these benefits, the physician attributes to her disutility any health risks posed by treatment itself on the patients. Absent liability, with respect to this range of patients, the physician would elect to treat, registering more benefits than costs (by assumption). However, at least with respect to some of the patients in this range, the imposition of liability for negligently exposing the patient to the risks of an unnecessary treatment may tip the scale and incline the physician not to treat. If the court sets a damage award for this negligent treatment decision at a level reflective of the harms deriving from this decision, then the physician would, *ex ante*, expect to pay in damages an amount equal to the treatment costs,  $C$ , net of the clinical benefits of treatment that nonetheless came with resolving the underlying medical condition. Adding expected liability costs on top of the preexisting cost-benefit calculation will likely cause the total treatment-related costs to surpass the benefits of treatment for some portion of the patients in this range.<sup>70</sup> Moreover, considering all of the nonpecuniary and nonimmediate costs of liability—for example, spillover reputational damage and psychological costs—it is possible that the true harm to the physician from being found to have negligently treated patients in the range between  $s^*$  and  $\hat{s}$  is substantial, which only reinforces her modified decision to avoid treating such patients (despite her initial desire to do so).

All told, there is reason to believe that physicians may indeed respond to an alteration of the standard of care when the

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<sup>68</sup> See Part II.C.

<sup>69</sup> See Part II.E.

<sup>70</sup> Moreover, while a risk-neutral physician may simply compare the expected liability costs with the expected benefits, a risk-averse physician may place enough disutility on the possibility of a high damage award materializing, even if the liability is expected to be relatively low *on average*, to warrant holding back on treatment. As such, for those patients in this range in which the average benefits of treatment still exceed these average total costs, risk-averse physicians may still be inclined to avoid treatment.

law expects that physicians practice at a lower treatment rate. Prevailing practices may not collapse all the way to this lower rate (depending on the full perceived costs of liability). However, I predict that practices will at least shift toward these new expectations.

This analysis has focused on a situation in which the standard of care expected under the law was modified so as to expect a lower treatment rate. While I omit this broader discussion in light of the focus in this Article on reforms that can lower health-care spending, it can readily be shown under an analogous thought process that physicians may likewise increase their treatment rates in the face of a liability reform that instead expects them to clinically follow a more intensive practice style.

### C. Liability Reform “Pulls” Physician Practices toward Desired Practices

The preceding analysis assumed that physicians want to maintain their customary practices at  $s^*$ . Now let us make a different assumption. As before, start at the point at which customary practices are characterized by a cutoff of  $s^*$ . (Physicians may be following this elevated treatment rate as a result of a number of nonlegal motivations—for example, fee-for-service reimbursement incentives.) Moreover, begin by considering a liability system in which standards of care are based on customary practices, serving to reinforce the ability of physicians to follow these desired practices. Now, however, assume that something changes. Whether as a result of some reimbursement-related reform or a shift in physician culture, assume that physicians now otherwise desire to follow the efficient treatment rate and not begin treating patients until their complication levels rise to  $\hat{s}$ .

Under a standard of care set according to custom, physicians will face liability resistance in attempting to lower their treatment rates from  $1 - s^*$  to the now-desired  $1 - \hat{s}$ . Again, consider those patients in the range between  $\hat{s}$  and  $s^*$ . The law expects that such patients will be treated, thus exposing physicians to liability if they fail to treat those patients. With high enough consequences associated with liability (as above), physicians may be deterred from lowering their treatment rates as desired. In other words, not only may a custom-based approach to setting liability standards insulate physicians desiring to

maintain custom, it may also impose friction on any attempts to deviate from custom, keeping treatment rates elevated.

Next, consider how physicians will respond to a liability reform that retreats from setting standards according to custom and that simply sets a new standard whereby treatment is to be indicated once patient complication levels rise to  $\hat{s}$ , but not before. Essentially, this reform lifts the friction that the custom-based standard had previously been imposing. Now, liability is no longer an obstacle for physicians desiring to lower their treatment rates to  $1 - \hat{s}$ .

#### D. Malpractice-Standard Reforms: Summary and Concluding Remarks

When the law directly changes the clinical standards that it expects physicians to follow, one may observe physician practices heading in the direction of the new expectations. Depending on the circumstances, this responsiveness may arise either from a fear that physicians would expose themselves to liability for trying to maintain their old practices or from a relaxation of a constraint that the previous legal standard had imposed on physicians otherwise inclined to alter their practices on their own. The larger the gap between the previous clinical expectations and the modified clinical expectations, the larger effect that one might expect to observe from the modified legal standard.

It is critical to note that the mechanism behind these physician reactions to liability does not arise from some higher frequency of malpractice lawsuits.<sup>71</sup> After all, consider the extreme case of a perfectly functioning liability system. Physicians have a clear understanding of what is expected of them. They conform their behavior appropriately. The shadow of liability may discourage them from deviating, in which event they may never deviate and few or no lawsuits follow.<sup>72</sup> If the standards of care clinically expected of physicians under the law are subsequently altered, one may immediately see physicians adjust to the new standard precisely because they avoid the shadow of liability. All

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<sup>71</sup> See Alan G. Williams, *The Cure for What Ails: A Realistic Remedy for the Medical Malpractice "Crisis"*, 23 *Stan L & Pol Rev* 477, 486 (2012).

<sup>72</sup> It is worth noting that the shadow of liability does not just keep physicians in line; it is also powerful enough to stimulate beneficial reforms. See, for example, Michael Rustad and Thomas Koenig, *Reconceptualizing Punitive Damages in Medical Malpractice: Targeting Amoral Corporations, Not "Moral Monsters"*, 47 *Rutgers L Rev* 975, 1019 (1995).

this may transpire without any lawsuit being filed, as long as such a threat remains viable. Naturally, no such perfection exists in our liability system or in our grasp of its clinical expectations. Nonetheless, this simple model provides a useful depiction of the underlying forces in play.<sup>73</sup>

In Part II, any responsiveness in physician practices to fears over medical liability stemmed from the possibility of court error.<sup>74</sup> In the present analysis, behavioral responses emerge from a shift in standards themselves without any need for such court error. While I omit a discussion that incorporates such noise into this framework, it can readily be shown that considerations of court error largely do not alter the conclusions of this malpractice-standard-reform analysis. In short, if the standard of care shifts from expecting that physicians select a treatment cutoff of  $s^*$  to a treatment cutoff of  $\hat{s}$ , then noise around this new expectation—that is,  $\hat{s}$ —may not substantially change the fact that expectations are being altered in the direction of  $\hat{s}$  (as long as the noise is modest relative to the gap between the old and the new expectations of the courts).<sup>75</sup>

In essence, the analysis presented in Parts II and III provided a framework by which to understand how medical-liability forces affect physician behavior across a range of situations, presenting a depiction of context-dependent forces that are often overlooked in superficial analyses of medical malpractice. Importantly, this framework allows us to reconcile much of the existing empirical literature, suggesting: (1) how the equilibrium reached in the current liability system may not be one that places significant expansionary pressures on costs and thus how diminishments in the severity of this system through the adoption of damage caps may not generate substantial cost savings; and

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<sup>73</sup> In the extreme, of course, a noisy liability system could undermine the ability of standard-of-care reforms to achieve this effect. After all, if liability were perceived as a completely random process, then any deterrent signal that it hopes to send would be powerless. Evidence, however, does suggest some degree of targeting efficiency. See Studdert, et al, 354 *New Eng J Med* at 2028 (cited in note 20) (determining that 73 percent of claims in a sample “had outcomes concordant with their merit”).

<sup>74</sup> See Part II.D.

<sup>75</sup> If physicians are concerned that courts will assess the new standard at a point at which it deviates by an even greater amount from  $s^*$ , then physicians may be even more inclined to reduce their treatment rates accordingly. On the other hand, if courts err on the side of assessing the new standard at a point that is not quite far enough away from  $s^*$  as they would like to actually ensure the efficient outcome, physicians may still be inclined to lower their treatment rates in the direction of  $1 - \hat{s}$  as long as the courts' incorrectly determined standard remains between the old and new standards.



(2) at the same time, how more-substantive reforms affecting the core of the negligence determination—that is, the standards expected of physicians—may lead to more-substantial responses. I now turn to a general discussion of the various forms of empirical support in the literature for the predictions of this model.

#### IV. SUPPORTIVE EVIDENCE

The analysis set forth in Parts II and III carries a number of predictions. In this Part, I discuss a range of evidence presented in both published and working papers in the empirical medical-malpractice literature that supports this theoretical framework. I also introduce novel empirical evidence bearing on one critical prediction of the above model.

##### A. Limited Impacts of Noneconomic-Damage Caps and Related Remedy-Centric Reforms

Perhaps the most important takeaway of Part II is that medical-liability fears in the present environment are unlikely, on the margin, to contribute substantially to health-care spending due to the system's adherence to custom-based standards of care and to the presence of additional motivations to provide excessive care. Several high-profile meta-analyses and other evaluations conducted over the last decade lend support to this claim, challenging the conventional perception that defensive medicine is a substantial driver of health-care spending. For instance, in 2009, the CBO predicted that the national implementation of a package of tort reforms (including caps) designed to reduce malpractice pressure and lower the probability of a malpractice suit would lead to only a shockingly low 0.3 percent reduction in the utilization of health-care services.<sup>76</sup> Again, the

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<sup>76</sup> CBO Report at \*1–2 (cited in note 3). Despite the minor effects predicted by the CBO, its analysis does draw on some studies that have found a more sizeable response to malpractice forces. See, for example, Daniel Kessler and Mark McClellan, *Do Doctors Practice Defensive Medicine?*, 111 Q J Econ 353, 378–79 (1996) (estimating that tort reforms that directly reduce liability pressure in turn reduce medical expenditures associated with the care provided in the one-year period following an acute myocardial infarction or new ischemic heart disease by 5 to 9 percent); Darius N. Lakdawalla and Seth A. Seabury, *The Welfare Effects of Malpractice Liability*, 32 Intl Rev L & Econ 356, 365 (2012) (identifying the impacts of malpractice law using variations in the generosity of local juries and finding that the growth in malpractice payments over the last decade and a half has contributed to at most a 5 percent increase in the growth of medical expenditures); Ronen Avraham, Leemore S. Dafny, and Max M. Schanzenbach, *The Impact of Tort Reform on Employer-Sponsored Health Insurance Premiums*, 28 J L, Econ & Org

implication of limited impacts of liability-reducing reforms of this nature is that defensive inclinations to overtreat patients are likely not substantial on the margin prior to such reforms.<sup>77</sup> Professors Frank Sloan and John Shadle used longitudinal data from the National Long-Term Care Survey merged with Medicare-claims data and found no evidence to suggest that tort reforms that directly diminished malpractice pressure (including caps) reduced Medicare spending across a range of medical scenarios.<sup>78</sup>

With slightly larger estimates, Professor Michelle Mello and coauthors, in an influential *Health Affairs* article published in 2010, estimated that defensive medicine likely cost the United States about \$45.6 billion in 2008, or roughly 2 percent of overall health-care spending, likewise largely drawing on studies that have explored the impacts of damage caps and related reforms.<sup>79</sup>

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657, 672 (2010) (estimating that certain tort-reform adoptions between 1998 and 2006 are associated with a 2.1 percent reduction in premiums of employer-sponsored-self-insured health plans). The CBO Report also draws on other studies suggesting more limited responses. See, for example, Katherine Baicker, Elliott S. Fisher, and Amitabh Chandra, *Malpractice Liability Costs and the Practice of Medicine in the Medicare Program*, 26 *Health Affairs* 841, 850 (2007) (estimating that the 60 percent increase in malpractice premiums between 2000 and 2003 was associated with an increase in Medicare spending of more than \$15 billion). Assuming a roughly \$2.6 trillion annual health-care spending level, the Baicker study represents an increase in spending of less than 0.6 percent of aggregate spending. See *Health Care Costs: A Primer; Key Information on Health Care Costs and Their Impact* \*1 (Henry J. Kaiser Family Foundation, 2012), archived at <http://perma.cc/JY84-DYB2>. The CBO Report also draws on Professors Currie and MacLeod's study, which actually estimates that noneconomic-damage caps are associated with an increase in cesarean rates, as opposed to the conventionally expected decrease. See Currie and MacLeod, 123 *Q J Econ* at 819–21 (cited in note 24).

<sup>77</sup> Of course, the validity of adopting damage caps as a mechanism to study the more general link between malpractice pressure and physician behavior rests on an assumption that such reforms do reduce liability pressure. That topic has been the subject of much research. See Paik, Black, and Hyman, 10 *J Empirical Legal Stud* at 641–43 (cited in note 30). This research indeed documents a reduction in malpractice-claim frequency and severity in connection with adopting noneconomic-damage caps. See *id.* at 647–50 (finding a 16.5 percent drop in payouts per large paid claim and a 27 to 36 percent drop in large paid claims in connection with adopting damage caps).

<sup>78</sup> See Frank A. Sloan and John H. Shadle, *Is There Empirical Evidence for "Defensive Medicine"? A Reassessment*, 28 *J Health Econ* 481, 486 (2009) (finding a 3.6 percent reduction in total payments, which was too small, given the large error, to be significant).

<sup>79</sup> Mello and her coauthors relied heavily on Kessler and McClellan, whose findings generally fall on the very high end of those studies that have found a positive association between liability forces and health-care costs. See note 76. See also Mello, et al., 29 *Health Affairs* at 1573–74 (cited in note 26). It is important to note that follow-up work by Kessler and McClellan that incorporated controls for HMO-penetration rates generated lower estimates than their previous efforts. See Kessler and McClellan, 84 *J Pub Econ* at 189 (cited in note 59) (finding that noneconomic-damage caps were associated with a

In another *Health Affairs* article from the same issue, Professor J. William Thomas and coauthors estimated that a 10 percent decline in malpractice insurance premiums (which they perceived as a “signal” for the reduced likelihood of tort consequences) is associated with a meager 0.13 percent decline in total medical-care spending across a range of 35 specialties (and with a decline of less than 1 percent for any given specialty).<sup>80</sup> Finally, in another often-cited report surveying the evidence to date on the impacts of various tort reforms (again, including damage caps) on physician practices, the Office of Technology Assessment in 1994 concluded that such effects are “largely unknown and are likely to be small.”<sup>81</sup>

The estimates from the *Health Affairs* articles and the CBO report represent a significant amount of money.<sup>82</sup> However, with perhaps more than 30 percent of health-care spending being unnecessarily wasteful in nature,<sup>83</sup> even the larger of these estimates suggests that medical liability may not be among the most substantial of health-care-cost drivers.<sup>84</sup> At the very least, those estimates on the higher end still fall far short of the

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roughly 4.2 percent decrease in spending for acute-myocardial-infarction patients and a 4.4 percent decrease in spending for ischemic-heart-disease patients, contrasted with 5.8 and 8.9 percent, respectively, from their initial study). It is also important to note that the Kessler and McClellan study was focused only on heart patients. The Sloan and Shadle analysis casts doubt on the extension of Kessler and McClellan’s results more broadly. See Sloan and Shadle, 28 *J Health Econ* at 486 (cited in note 78) (finding that the reduction in health-care costs for any hospitalization as a result of direct reforms was not statistically significant, but that the reduction for acute myocardial infarction was “nearly statistically significant”).

<sup>80</sup> J. William Thomas, Erika C. Ziller, and Deborah A. Thayer, *Low Costs of Defensive Medicine, Small Savings from Tort Reform*, 29 *Health Affairs* 1578, 1582–83 (2010) (“Even if medical malpractice premiums were to be reduced as much as 30 percent, defensive medicine costs would decline no more than 0.4 percent.”).

<sup>81</sup> Office of Technology Assessment, *Defensive Medicine and Medical Malpractice 2* (US Congress 1994) (“OTA Report”).

<sup>82</sup> These relatively small percentages constitute a substantial amount of money given that the United States spent an estimated \$2.6 trillion on health care in 2010. *Health Care Costs* at \*1 (cited in note 76).

<sup>83</sup> See Jonathan Skinner and Elliott S. Fisher, *Reflections on Geographic Variations in U.S. Health Care* \*iii (Dartmouth Institute for Health Policy & Clinical Practice, Mar 31, 2010), archived at <http://perma.cc/8CZK-MV2B>:

[Our] approach was to ask how much might be saved if all regions could safely reduce care to the level observed in low spending regions with equal quality; we find estimates ranging from 20–30 percent, but view these as an underestimate given the potential savings even in low cost regions.

<sup>84</sup> See Thomas, Ziller, and Thayer, 29 *Health Affairs* at 1583 (cited in note 80) (“[D]efensive medicine practices exist and are widespread, but their impact on medical care costs is small.”).

figures sometimes touted by commentators and politicians, some of whom have claimed recently that defensive medicine may contribute as much as 26 percent to our nation's health-care spending.<sup>85</sup> The bulk of the evidence simply does not support such exaggerated claims. Consequently, some commentators have concluded that defensive medicine is "largely a myth."<sup>86</sup>

The analyses undertaken by these studies are especially ambitious in their attempts to estimate the total costs of defensive medicine across the entire system.<sup>87</sup> The typical defensive-medicine study attempts to tackle this endeavor by focusing on one clinical context at a time—for example, do medical-liability fears lead physicians to perform more cesarean deliveries?<sup>88</sup> While there is naturally some variation across such studies, they

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<sup>85</sup> See, for example, Republican Study Committee, *Press Release of Chairman Tom Price* (cited in note 1) ("[P]hysicians estimated that 21 percent of everything they do can be attributed to the practice of defensive medicine."). Representative Price's comments were made in reaction to a survey of physicians commissioned by Jackson Healthcare and performed by Gallup. See generally *A Costly Defense: Physicians Sound Off on the High Price of Defensive Medicine in the U.S.* (Jackson Healthcare, 2011), archived at <http://perma.cc/CW5P-GK3E>. The results of the survey suggest that physicians attribute an average of 26 to 34 percent of overall costs to defensive medicine. *Id.* at \*4. The results of this survey are perhaps consistent with others that have likewise asked physicians directly whether they practice defensively. For instance, Professor Studdert and colleagues surveyed 824 physicians, nearly 93 percent of whom reported practicing defensive medicine. David M. Studdert, et al, *Defensive Medicine among High-Risk Specialist Physicians in a Volatile Malpractice Environment*, 293 JAMA 2609, 2610, 2612 (2005). Surveys of this nature, however, suffer from a number of methodological limitations. See Sidney Shapiro, et al, *The Truth about Torts: Defensive Medicine and the Unsupported Case for Medical Malpractice Reform* \*3 (Center for Progressive Reform, Feb 2012), archived at <http://perma.cc/5GVM-6SKR> ("[P]hysician surveys on the topic suffer from dismally low response rates, exploit physicians' availability bias, offer prompting questions, [and] employ extremely broad questions."). In my view, perhaps the most problematic aspect of such survey methodologies is the possibility that physicians themselves may fall prey to the average-patient/marginal-patient fallacy discussed above. In thinking about the average patient on which physicians perform a particular surgery, they may tell themselves that the legal consequences for failing to treat that patient would be substantial, in which event medical-liability concerns must have contributed to that decision to treat. However, this may be a poor assessment of the right counterfactual. Had liability not been a factor, the physician may have been likely to treat for other reasons. Turning to observational data on physician practices can alleviate these concerns and facilitate a more appropriate marginal analysis.

<sup>86</sup> Shapiro, et al, *The Truth About Torts* at \*3 (cited in note 85).

<sup>87</sup> See, for example, *A Costly Defense* at \*4 (cited in note 85) ("Physicians estimate the cost of defensive medicine to be in the \$650–\$850 billion range."); Mello, et al, 29 Health Affairs at 1574 (cited in note 26) ("[W]e arrived at an overall estimate of \$45.6 billion in defensive medicine costs for 2008.").

<sup>88</sup> See Avraham, Dafny, and Schanzenbach, 28 J L, Econ & Org at 660 (cited in note 76) ("Most empirical work on provider responses to tort reform focuses on a specific condition, namely heart disease or pregnancy.").

likewise tell a story in which malpractice forces on the margin (in the present environment or system) exert only a modest, if any, amount of expansionary pressure on treatments.<sup>89</sup>

However, another major takeaway from the above model is that these limited average effects of damage-cap adoptions are not evidence of a general disregard by physicians of medical-liability considerations. Physicians may indeed consider liability when conducting their practices. The net effects are often a wash, as the above discussion demonstrates. On other occasions, however, physician sensitivity to liability is predicted to be greater. I now turn to discussing those instances. Evidence of such nuanced sensitivity lends only further rejection to the notion that liability forces are universally irrelevant to the health-care-spending debate.

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<sup>89</sup> The cesarean-delivery question, in particular, has been the subject of much study. Certain early studies found a positive association between malpractice pressure and cesarean utilization, consistent with conventional expectations. See, for example, Lisa Dubay, Robert Kaestner, and Timothy Waidmann, *The Impact of Malpractice Fears on Cesarean Section Rates*, 18 *J Health Econ* 491, 501–02, 509 (1999) (estimating a positive association between cesarean utilization and malpractice insurance premiums using 1990–1992 birth certificate data). Other studies, however, found no substantial evidence of a relationship between cesarean-utilization rates and fluctuations in medical-liability pressure on the margin (in the present system). See, for example, Frakes, 9 *J Empirical Legal Stud* at 477 (cited in note 31) (finding no statistically significant relationship between adopting damage caps and cesarean-utilization rates, with the outer bound of the confidence interval of the estimates suggesting at most a 1.2 percent reduction in prevailing cesarean rates); Laura-Mae Baldwin, et al, *Defensive Medicine and Obstetrics*, 274 *JAMA* 1606, 1609 (1995) (finding no association between cesarean utilization and physicians' claims exposure, as measured by both individual physician-claims experience and the prevailing practice environment—that is, county claims per physician). Similar to the methodology used in the Baldwin study, Professors David Dranove and Yasutora Watanabe looked at cesarean-utilization patterns after individual experiences with cesarean-related malpractice suits, found a small but short-lived effect of past liability exposure in inducing more cesarean utilization—suggesting that the initial effect was likely an overreaction—and thereby concluded that recent increases in cesarean utilization were likely not in direct response to litigation. See David Dranove and Yasutora Watanabe, *Influence and Deterrence: How Obstetricians Respond to Litigation against Themselves and Their Colleagues*, 12 *Am L & Econ Rev* 69, 92 (2010). One study even suggested that malpractice forces may be inducing fewer cesareans on the margin, in which case adopting a noneconomic-damage cap induces an increase in cesarean rates. See Currie and MacLeod, 123 *Q J Econ* at 819–21 (cited in note 24) (finding that adopting noneconomic-damage caps is associated with a roughly 5 percent increase in cesarean rates).

B. Arguably Greater Impacts of Noneconomic-Damage Caps in the Case of Diagnostic Care

One of the predictions set forth in Part II is that defensive medicine, if it exists at all in the present environment, is perhaps more likely to emerge in the case of diagnostic care.<sup>90</sup> Overall, the defensive-medicine literature appears to support this prediction. While the Office of Technology Assessment stated in its influential 1994 report that the effects of traditional tort reforms such as damage caps are “largely unknown and are likely to be small,”<sup>91</sup> the report was more definitive in suggesting that defensive medicine is likely to emerge in the case of diagnostic procedures.<sup>92</sup> Similarly, Professors Katherine Baicker, Elliott Fisher, and Amitabh Chandra estimate that the association between malpractice awards and premiums and Medicare spending is nearly twice as strong in the case of imaging services relative to other Medicare services.<sup>93</sup>

C. Stronger Impacts of Damage Caps in Jurisdictions Carrying High HMO-Penetration Rates

An important implication of the analysis introduced in Part II is that malpractice pressure on the margin may not place very much expansionary pressure on health-care costs and utilization when financial motivations to provide excessive care are substantial.<sup>94</sup> However, when such other motivations are more muted, malpractice may be given the opportunity to do more work on the margin to encourage additional care. In this Section, I introduce evidence in support of this contention.

1. Data.

Before describing the methodology by which I explore whether medical liability’s influence on health-care spending is indeed stronger during periods of weakened financial incentives to treat excessively, let me first briefly describe the data utilized in this analysis. First, a key element of data needed for this

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<sup>90</sup> See Part II.G.1.

<sup>91</sup> *OTA Report* at 2 (cited in note 81).

<sup>92</sup> See *id.* at 1 (“Overall, a small percentage of *diagnostic* procedures—certainly less than 8 percent—is likely to be caused primarily by *conscious* concern about malpractice liability.”).

<sup>93</sup> See Baicker, Fisher, and Chandra, 26 *Health Affairs* at 846–47 (cited in note 76).

<sup>94</sup> See Part II.E.

empirical exercise, as discussed below, is information on the HMO-penetration rate of each state in each year, reflecting the percentage of the population enrolled in an HMO. I obtained data of this nature ranging from 1980 to the present using information provided to me by HealthLeaders-InterStudy publications.<sup>95</sup> The second major dimension of the requisite data bears on health-care spending across regions and over time. While data on total health-care spending by region were generally unavailable over the time period required to implement the empirical methodology set forth below, comprehensive Medicare-spending data were indeed available over such time. For each of roughly three hundred “hospital referral regions”<sup>96</sup> and for each year between 1980 and 2006, I formed measures equal to the total Medicare Parts A and B<sup>97</sup> spending rate per Medicare beneficiary.<sup>98</sup> These measures were derived from a previously unavailable dataset generously provided to me by the Dartmouth Institute for Health Policy and Clinical Practice.

This dataset presents several advantages. For instance, by focusing on an environment in which everyone has the same insurance—that is, Medicare—these data ease concerns over noise or bias resulting from fluctuations in sources of coverage or financing. Perhaps the most important virtue of this dataset, however, comes in its breadth of geographical scope and timing. By providing aggregate spending measures across all states and covering a nearly thirty-year period, this information allows me to execute a rich natural-experiment design that draws on the experiences of roughly twenty-five state adoptions of non-economic-damage-cap reforms.<sup>99</sup> By contrast, one of the preeminent

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<sup>95</sup> See *About Us: Vital Managed Care Insights and Analytics for Experts from Experts* (HealthLeaders-InterStudy), archived at <http://perma.cc/PY55-NZ2J> (“We . . . provide data, directories and analyses of the ever-evolving managed care industry.”).

<sup>96</sup> Such regions are meant to represent natural delineations of local health-care markets centered around a local community or referral hospital. See John E. Wennberg and Philip G. Peters Jr, *Unwarranted Variations in the Quality of Health Care: Can the Law Help Medicine Provide a Remedy/Remedies?*, 37 Wake Forest L Rev 925, 926 (2002) (explaining that “[t]he populations residing within these regions receive almost all of their care from providers located within the region”).

<sup>97</sup> Medicare Part A provides coverage to Medicare beneficiaries for costs associated with hospital care, while Medicare Part B provides supplemental coverage for outpatient physician services and certain other services not covered under Medicare Part A. See Hospital Insurance Benefits for Aged and Disabled, 42 USC § 1395(c)–(i-5), (j)–(w-5) (2011).

<sup>98</sup> Spending rates were adjusted for underlying differences in the age, race, and sex distributions across each region.

<sup>99</sup> For a description of this natural-experiment methodology, see Part IV.C.2.

studies discussed in Part IV.A, for example, draws on information from only four state adoptions of noneconomic-damage caps.<sup>100</sup> As I have discussed in my prior research, the more policy experimentation that one can draw on in empirical designs of this nature, the more confident one may be that the estimated findings can be interpreted in causal terms—that is, that liability reforms cause reductions in spending, rather than simply being correlated with lower spending.<sup>101</sup>

## 2. Empirical methodology.

Underlying this empirical exercise are two preliminary steps: (1) identifying fluctuations in liability pressure in order to evaluate the influence of the liability system on the margin and (2) identifying environments marked by strong financial incentives to treat patients and those marked by weak incentives to practice intensively. Let me discuss each of these in turn.

Ideally, in order to establish that medical liability *causes* a change in health-care treatment patterns (rather than merely being correlated with such treatments), one would compare practices in the present liability structure with how such practices would have evolved in an otherwise-identical environment but for the presence of the liability forces under investigation. Clearly, this ideal comparison is impossible, given the infeasibility of creating otherwise-identical environments of this nature. Put simply, one cannot turn back time and remove the liability system in order to observe how things would have differed. Nonetheless, consistent with the empirical malpractice literature to date, I attempted to create as convincing a counterfactual environment as possible by observing experiences to date with the adoption of caps on noneconomic-damage awards.<sup>102</sup>

The initial premise behind this approach is that the period of time subsequent to a damage-cap adoption can be used to capture an environment that is otherwise similar to a regular environment but for the fact that it faces a weakened liability regime. If health-care spending decreases in response to this reduction in pressure, one may infer that spending is generally

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<sup>100</sup> See Currie and MacLeod, 123 *Q J Econ* at 802 (cited in note 24).

<sup>101</sup> See Frakes, 9 *J Empirical Legal Stud* at 462 (cited in note 31) (“With a greater number of treatment states, it is more likely that spurious state-year shocks that are uncorrelated with damage cap laws will average each other out, leaving consistent estimates of the effect of such reforms.”).

<sup>102</sup> See Part IV.A.



elevated due to liability forces. Critical to note, however, is that I do not confine the analysis to simply observing the change in practices in a given jurisdiction upon the implementation of a damage cap. A simple before-and-after calculation of this nature would be highly problematic. After all, health-care treatment patterns are likely to be changing over time for a multitude of reasons, making it difficult to disentangle the effects of the damage-cap reform from the effects of all those other determinants of health-care practices.

As such, in order to form a more convincing counterfactual environment with which to explore the effects of damage-cap adoptions, I also constructed a comparison group along a separate dimension. That is, I attempted to capture a comparison group that might be subject to all those forces that shape treatment patterns other than the influence of the damage-cap adoption. By observing the experiences of this latter comparison group over time—that is, a group that did not experience any change in its liability environment—we may be able to determine how health-care spending would have trended over time as a result of changes in these nonliability-related factors that likewise drive health-care spending. In other words, if one is concerned that simply looking at health-care spending before and after a damage-cap adoption will be confounded by other developments, one can attempt to estimate such developments by looking at the experiences of a similar environment that did not implement a cap at that time. Having done so, one may then be in a better position to isolate the true effect of the liability regime on health-care spending. Naturally, in order to identify a comparison group of this nature, I looked to those states that did not adopt a damage cap around the period of time under investigation.

Let me restate this strategy in terms of the mathematical steps needed to achieve this isolation. With respect to those states that have adopted caps, I calculated the difference in health-care spending before and after the cap adoption. I then repeated the same calculation for those nonadopting states over the same time period. Finally, I took the difference between these two separate estimates. This “difference-in-difference” calculation should allow us to net out the effect of unobservable drivers of health-care spending and target our inquiry on the

influence of interest: liability.<sup>103</sup> By drawing on the staggered adoption of damage caps over time by twenty-five states, the exact empirical strategy implemented is far richer than this simple description; however, this discussion provides the essence of the design.

The strategy discussed thus far provides a mechanism to study the impacts of adopting a damage cap, which in turn allows one to explore the marginal influence of the law on health-care spending. The story does not end there, however. As hypothesized above, the goal is to determine whether this influence is stronger during times marked by weakened financial incentives to practice intensively. To identify a region's prevailing financial incentives, I looked to the degree of HMO penetration. As suggested in Part II, greater HMO penetration suggests diminished financial motivations to administer additional care.<sup>104</sup>

With this mechanism of identifying a region's financial motivations to treat, the basic strategy is to explore whether the main difference-in-difference calculation described above intensifies as the prevailing HMO-penetration rate increases. The Appendix provides more technical details regarding the regression specification underlying this methodology. In short, this approach entails estimating a regression specification (with each observation being a given region-by-year group), in which a variable capturing the incidence of a damage cap interacts with another variable capturing the degree of HMO penetration associated with the given region and year. If we hypothesize that health-care spending will fall with the imposition of a cap on noneconomic damages, and we in turn hypothesize that this effect will be stronger when HMO penetration is higher (when financial incentives are weaker), then we would expect to estimate a negative coefficient for this interaction term.

### 3. Results.

Table 1 presents the results of this empirical exercise. As predicted, the results show a negative coefficient for the interaction between the incidence of a damage-cap provision and the prevailing HMO-penetration rate for the given region-by-year

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<sup>103</sup> For an overview of difference-in-difference estimation, see Joshua D. Angrist and Jörn-Steffen Pischke, *Mostly Harmless Econometrics: An Empiricist's Companion* 227–31 (Princeton 2009).

<sup>104</sup> For a discussion of HMOs and the impact of HMO penetration within regions on prevailing financial incentives, see Part II.G.2.

group. More specifically, the pattern of results presented in Table 1 suggests that in a region with a 0 percent HMO-penetration rate—that is, in a region with few restraints on its financial motivations—the adoption of a noneconomic-damage cap is associated with a 0.6 percent *increase* in the Medicare spending rate, an estimate that is statistically indistinguishable from 0.<sup>105</sup> In other words, when financial incentives are strong, liability forces do not appear to be very influential in driving spending. However, as demonstrated by the coefficient of the interaction term itself, the effect of damage-cap adoptions falls in an absolute sense as we move from a 0 percent HMO-penetration-rate region to a region with a 100 percent HMO-penetration rate. To be specific, this estimate suggests that damage caps are associated with a roughly 25 percent reduction in Medicare spending in such 100-percent-HMO regions, or a roughly 3.25 percent reduction in Medicare spending in regions with the mean rate of HMO penetration (approximately 13 percent). This latter interpretation of the magnitude of the findings is useful in light of the fact that no regions exhibit 100 percent HMO penetration. This is consistent with the idea that medical-liability forces are more influential determinants of health-care spending in environments in which financial motivations to treat are blunted.<sup>106</sup>

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<sup>105</sup> This estimate derives from the estimated coefficient of the damage-cap variable in the regression containing the damage-cap and HMO interaction. To interpret the coefficient of a constitutive term in an interaction specification of this nature, one essentially views this coefficient as the relationship between that term and the outcome variable of interest (in this case, Medicare spending) under an assumption that the other constitutive term equals 0.

<sup>106</sup> The same coefficients would suggest that the effects of adopting a damage cap on Medicare spending go from (1) no effect of caps in those regions with a 0 percent HMO-penetration rate to (2) a roughly 2.9 percent reduction in spending stemming from caps when moving to a region with an HMO-penetration rate that is one standard deviation higher (that is, a region with an 11 percent HMO-penetration rate).

TABLE 1. DIFFERENCE-IN-DIFFERENCE ESTIMATES OF THE EFFECTS OF CAPS ON MEDICARE SPENDING RATES (LOGGED), INTERACTED WITH STATE-YEAR-HMO-PENETRATION RATES

	(1)	(2)	(3)	(4)
	TOTAL MEDICARE PARTS A & B SPENDING RATE		MEDICARE INPATIENT (SHORT-STAY) SPENDING RATE	
Noneconomic-Damage-Cap Dummy	0.006 (0.027)	0.025 (0.028)	0.005 (0.026)	0.025 (0.026)
HMO-Penetration Rate (Min 0, Max 1)	0.052 (0.145)	0.055 (0.132)	0.446 (0.194)	0.368 (0.149)
Interaction Term (Damage Cap × HMO-Penetration Rate)	-0.250** (0.122)	-0.240* (0.142)	-0.268* (0.156)	-0.231 (0.141)
Number of Observations	7,913	6,684	7,913	6,684
Include Controls for Number of Hospital Beds in Hospital Referral Region?	NO	YES	NO	YES

Notes: Robust standard errors corrected for within-state correlation in the error term are reported in parentheses. All regressions include year fixed effects and are weighted by the number of Medicare beneficiaries associated with the relevant region-year cell. Medicare data were provided by the Dartmouth Atlas Project.

\* Significant at the 10 percent level.

\*\* Significant at the 5 percent level.

All told, these findings are precisely consistent with the above predictions in demonstrating that defensive medicine—the rate of which should fall upon the implementation of a cap—is likely more widespread in situations in which fewer financial motivations, which might otherwise crowd out legal forces, are present.

#### D. More-Substantial Impacts of Malpractice Standard-of-Care Reforms

The framework discussed in Part III explored the consequences of a substantive change in the clinical expectations placed on physicians. To the extent that this shift in legal standards is substantial enough, this framework predicts a potentially sizeable physician response. Testing the general predictions of this framework is challenging to the extent that there is little policy experimentation along this standard-of-care

margin. However, in a recent publication in the *American Economic Review*, I explored whether physicians respond to perhaps the most significant standard-of-care reform with which the majority of states have experimented: a retreat from the historical “locality rule” and the contemporaneous adoption of a national standard-of-care rule.<sup>107</sup>

While malpractice law typically sets operable standards of care by determining what physicians *actually do* under similar circumstances,<sup>108</sup> malpractice law varies across jurisdictions in specifying the set of physicians to which the court should look in setting these standards.<sup>109</sup> In its early years, malpractice law set standards of care by looking to the behavior of physicians practicing in the same locality as the defendant.<sup>110</sup> This traditional “locality rule” contained both a substantive and a procedural component.<sup>111</sup> The substantive component pertained simply to the specification of how physicians are expected to behave—that is, physicians must follow the practices of local physicians.<sup>112</sup> The procedural restrictions of the traditional rule required that plaintiffs use local physicians to testify as to the customary local practices, implicating concerns regarding plaintiffs’ abilities to find physicians willing to testify against their peers.<sup>113</sup> Many states amended their malpractice laws by the 1970s to alleviate the consequences of this “conspiracy of silence,” either by permitting the use of outside experts familiar with local practices<sup>114</sup>

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<sup>107</sup> Frakes, 103 Am Econ Rev at 266–67, 275 (cited in note 67) (finding that divergent local practices converge toward national-mean practices upon a shift from a rule requiring physicians to comply with local customs to a rule requiring physicians to comply with national customs, generally suggesting the empirical relevancy of malpractice standards of care). See also generally Michael Frakes, Matthew Frank, and Seth A. Seabury, *Do Physicians Respond to Liability Standards?* (Northwestern Public Law Research Paper No 14-45, Aug 2014), archived at <http://perma.cc/M97J-5Q3G> (replicating the *American Economic Review* study across a broader surgical context and finding that local surgery rates converge toward national surgery rates after national-standard rules are adopted).

<sup>108</sup> See Blumstein, 59 Vand L Rev at 1023–24 (cited in note 14).

<sup>109</sup> See Frakes, 103 Am Econ Rev at 258 (cited in note 107).

<sup>110</sup> See *id.*

<sup>111</sup> See Michael Frakes, *The Impact of Medical Liability Standards on Regional Variations in Physician Behavior: Evidence from the Adoption of National-Standard Rules; Web Appendix \*1–2* (American Economic Association, Feb 2013), archived at <http://perma.cc/3FA3-3JKC>.

<sup>112</sup> See *id.* at \*1.

<sup>113</sup> See *id.*

<sup>114</sup> See, for example, *Ardoline v Keegan*, 102 A2d 352, 355 (Conn 1954) (“The mere fact that a physician has not practiced in the immediate neighborhood in which the claimed malpractice has occurred does not necessarily disqualify him from testifying as

or by adopting modified locality rules that based standards on the practices of physicians in the same locality *or in a similar locality*.<sup>115</sup> While relaxing certain evidentiary burdens, courts generally did not view these developments as significantly changing the substantive requirement that physicians comply with local practices.<sup>116</sup>

In the latter part of the twentieth century, many jurisdictions further relaxed the geographical limitations in malpractice law by abandoning the locality rule in favor of laws requiring physicians to comply with national standards of care.<sup>117</sup> Courts justified this shift by arguing that the initial rationale for the locality rule had dissipated many years prior with certain early twentieth-century advances in the US health-care system, including the standardization of medical school curricula, post-graduate training, and so forth.<sup>118</sup> The adoption of a national-standard rule does more than simply expand the set of physicians who may be called to testify as to customary physician practices. To the extent that the previous developments (for example, same-or-similar-locality-rule adoptions) were already effective in opening up the market for willing experts, these subsequent developments can be seen as largely substantive in

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to the standards of practice in that locality. The crucial question is whether he knows what those standards are.”).

<sup>115</sup> See Ann MacLean Massie, *In Defense of the Professional Standard of Care: A Response to Carter Williams on “Evidence-Based Medicine”*, 61 Wash & Lee L Rev 535, 540–41 (2004) (explaining that the rationale for this modified locality rule was “the difficulty of persuading doctors in the same community to testify against each other”).

<sup>116</sup> Courts have generally viewed the adoption of a similar-locality rule as leading to a procedural, as opposed to substantive, modification of the traditional locality rule. As stated by the Washington Supreme Court in one of the pioneering locality-rule abdication cases, “Broadening the rule to include ‘similar localities’ . . . alleviated, to a certain extent, the first practical difficulty of the ‘locality rule’—additional witnesses might be available; but it did little to remove the deficiencies springing from the second,” that is, “the possibility of a small group, who, by their laxness or carelessness, could establish a local standard of care that was below that which the law requires.” *Pederson v Dumouchel*, 431 P2d 973, 977 (Wash 1967).

<sup>117</sup> See Massie, 61 Wash & Lee L Rev at 541 (cited in note 115).

<sup>118</sup> For instance, the Mississippi Supreme Court employed these arguments to justify its continuing retreat from the locality rule. See *Hall v Hilbun*, 466 S2d 856, 870 (Miss 1985). For a general discussion of the evolutionary developments in malpractice standard-of-care laws during the twentieth century, see Katharine Van Tassel, *Hospital Peer Review Standards and Due Process: Moving from Tort Doctrine toward Contract Principles Based on Clinical Practice Guidelines*, 36 Seton Hall L Rev 1179, 1222–26 (2006); Massie, 61 Wash & Lee L Rev at 540–43 (cited in note 115).

nature and representative of a shift in the care that is actually expected of local physicians.<sup>119</sup>

This shift in expectations is potentially substantial. A massive literature in medicine and health economics has documented striking regional variations in health-care practices, across almost any kind of clinical setting.<sup>120</sup> Such variations have been shown to persist even after controlling for variations in demographics, insurance status, and health status, and have generally been interpreted to constitute regional variations in clinical practice styles<sup>121</sup> or in clinical beliefs regarding proper practices.<sup>122</sup> To the extent that geographic regions vary significantly in their clinical practices, one might believe that a change in malpractice standard-of-care rules that expects local physicians to begin following the practices applied elsewhere may constitute a meaningful alteration of clinical expectations.<sup>123</sup>

In a previous exploration into the impact of malpractice-standard reforms, I used hospital-discharge data from every state over the 1977–2005 period and documented that the gap between local and national utilization rates for various obstetric and cardiac procedures narrowed by as much as 40 to 60 percent upon the adoption of a national standard-of-care rule.<sup>124</sup> In other words, physicians did indeed substantially respond to the new

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<sup>119</sup> See Frakes, *Web Appendix* at \*2 (cited in note 111).

<sup>120</sup> See generally Charles E. Phelps and Cathleen Mooney, *Variations in Medical Practice Use: Causes and Consequences*, in Richard J. Arnould, Robert F. Rich, and William D. White, eds., *Competitive Approaches to Health Care Reform* 139 (Urban Institute 1993).

<sup>121</sup> See, for example, John E. Wennberg, *Dealing with Medical Practice Variations: A Proposal for Action*, 3 *Health Affairs* 6, 6–7 (1984) (suggesting that the “principal reason for the dramatic variations in use of medical care” are variations in the “practice style factor,” which capture the attitudes of individual physicians).

<sup>122</sup> See, for example, Phelps and Mooney, *Variations in Medical Practice Use* at 153–54 (cited in note 120) (dismissing alternative explanations and attributing regional variations to “differences in beliefs about the efficacy of treatment and decisions about which patients should receive treatment”).

<sup>123</sup> See Frakes, 103 *Am Econ Rev* at 259 (cited in note 67) (“[U]pon the abandonment of such rules, physicians in the affected jurisdictions now face expectations to follow the customary behaviors followed by physicians nationally.”).

<sup>124</sup> See *id.* at 260, 266–70. In follow-up work, jointly conducted with Professors Seth Seabury and Matthew Frank, we replicated these findings more broadly, documenting convergence toward the national mean upon national-standard adoptions in the case of total surgery-utilization rates. See generally Frakes, Frank, and Seabury, *Do Physicians Respond to Liability Standards?* (cited in note 107). Data on surgeries (inpatient and outpatient) come from the American Hospital Association annual survey of hospitals. See *Hospital Database* (American Hospital Association), archived at <http://perma.cc/HVF5-C47D> (providing links to the most-recent annual surveys).

clinical expectations arising from these malpractice-standard reforms, with previously divergent local-practice patterns converging in the direction of the national norm.<sup>125</sup> More broadly, such findings suggest that physicians are responsive to malpractice standards of care—in terms of the above framework, physicians may in fact alter their practices in the direction of  $\hat{s}$  following a reform that changes the clinical standard from  $s^*$  to  $\hat{s}$ .

Interestingly, the results of this evidence converge from both the top and bottom of the regional-utilization distribution.<sup>126</sup> That is, in regions that previously had above-average utilization rates under a locality rule, utilization rates fell upon the adoption of a national-standard rule.<sup>127</sup> Likewise, in regions that previously exhibited below-average utilization rates, utilization rates increased following national-standard reforms.<sup>128</sup> The fact that physicians have lowered treatment rates in response to an alteration of standards that expects lower treatment rates provides hope to the cost-containment promise of certain next-generation medical malpractice reforms—for example, liability safe harbors for compliance with specified clinical practice guidelines, which I discuss below.<sup>129</sup>

## E. Supplementary Evidence

### 1. Triage.

Critical to the above model is the notion that physicians will rationally treat patients in the order of clinical need—that is, it is unlikely that there will be an equilibrium in which those with few complications are treated while others with substantial

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<sup>125</sup> See Frakes, 103 *Am Econ Rev* at 275 (cited in note 67).

<sup>126</sup> See *id.* at 268–70.

<sup>127</sup> This may be due to a relaxation of previously high standards regarding when treatment should be employed, which may have otherwise kept rates high even if some physicians may have been motivated by other desires to reduce rates. In the case of such physicians, this relaxation may have afforded physicians the ability to lower rates without legal consequences. This downward response in utilization rates may also be a reflection of tighter standards for when treatment should not be performed. As the discussions in Parts II and III emphasize, physicians may indeed face consequences for exposing patients to the risks and harms associated with treatment. These forces may have been limited in initially high-treatment areas under locality rules. When forced to follow the arguably less permissive standards practiced elsewhere, however, physicians may have been encouraged to stop treating patients on the margin.

<sup>128</sup> See Frakes, 103 *Am Econ Rev* at 268–70 (cited in note 67).

<sup>129</sup> See Part VI.



complications are not. Empirical evidence supports this rational triaging of patients within regions.<sup>130</sup>

2. Physicians' financial and reimbursement incentives to treat.

Also important to the above analysis is a contention that the present health-care environment is characterized by excessive utilization deriving from financial incentives for physicians to provide more care.<sup>131</sup> Whether fee-for-service reimbursement structures that compensate physicians more for performing more services in fact cause physicians to provide an unnecessarily large number of procedures is the subject of an old and extensive literature.<sup>132</sup> While establishing causation in empirical studies that test this hypothesis is especially challenging,<sup>133</sup> the most convincing evidence to date suggests that physicians may indeed be providing excessive care as a result of such financial motivations.<sup>134</sup>

3. Health-care quality impacts.

This Article largely focuses on issues surrounding health-care costs and utilization of particular health-care services. In a related paper with Dr. Anupam Jena, I analyze the impacts of both substantive and remedy-centric liability reforms on

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<sup>130</sup> See, for example, Frakes, 103 *Am Econ Rev* at 273 (cited in note 67) (estimating that the predicted probability of cesarean delivery—capturing appropriateness for cesarean delivery—becomes smaller and smaller as physicians perform more cesareans in a region).

<sup>131</sup> See Part II.E.

<sup>132</sup> See generally, for example, McGuire, *Physician Agency* (cited in note 7). For an overview of the empirical literature (up to the year 2000) exploring this hypothesis, see *id.* at 509–19.

<sup>133</sup> See *id.* at 510 (suggesting that most of the early studies of the physician-induced-demand hypothesis were plagued with concerns over omitted-variable biases).

<sup>134</sup> See Jonathan Gruber and Maria Owings, *Physician Financial Incentives and Cesarean Section Delivery*, 27 *RAND J Econ* 99, 100 (1996) (establishing causation and not mere correlation). Professor Jonathan Gruber and Maria Owings observed how obstetricians and gynecologists responded to a negative income shock deriving from an arguably exogenous source: the 13.5 percent fall in fertility rates in the United States between 1970 and 1982. See *id.* Exploring the hypothesis that this income shock would incentivize physicians to cover the resulting deficiency through the provision of the more lucrative cesarean-delivery option, Gruber and Owings found that physicians made up some of their income loss through an increase in cesarean deliveries. See *id.* at 113–14.

prevailing measures of health-care quality.<sup>135</sup> The measures investigated are mostly derived from the quality indicators developed by the Agency for Healthcare Research and Quality<sup>136</sup> and capture such things as inpatient mortality rates for selected medical conditions (for example, heart attacks), avoidable-hospitalization rates (a metric indicative of outpatient-care quality), maternal trauma or complications during deliveries, and cancer-screening rates.

Lending further support to the theory and findings discussed in this Article, the results from this separate quality-focused analysis largely mirror the pattern presented above for the case of the cost- and treatment-focused analysis.<sup>137</sup> That is, for each of the quality indicators explored, the estimated impacts of damage-cap adoptions are relatively tightly bound around zero, suggesting that liability forces may, at most, lead to only a minor improvement in quality.<sup>138</sup> However, for each of the indicators explored, when liability standards are altered to demand that physicians deliver *higher*-quality care, the observed quality indicators improve substantially beyond their baseline levels.<sup>139</sup> Interestingly, however, when liability standards change so as to arguably condone lower-quality care, we find that physicians do not respond by reducing the quality of their practices.<sup>140</sup>

## V. NORM ADJUSTMENTS

What would happen if a jurisdiction were to adopt a malpractice-standard reform changing the clinical expectations placed on physicians and thereafter remove the liability system altogether? Liability-standard reforms would possibly push practices in the direction of the new expectations. Would the subsequent removal of liability pressures cause practices to drift

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<sup>135</sup> See generally Michael Frakes and Anupam B. Jena, *Does Medical Malpractice Law Improve Health Care Quality?* (National Bureau of Economic Research Working Paper No 19841, Jan 2014), archived at <http://perma.cc/HL5N-6NGN>.

<sup>136</sup> See Agency for Healthcare Research and Quality, *Introduction* (US Department of Health and Human Services), archived at <http://perma.cc/X46R-HRCS>.

<sup>137</sup> See Frakes and Jena, *Does Medical Malpractice Law Improve Health Care Quality?* at \*35–36 (cited in note 135) (“The confidence bounds presented in our analysis suggest, at most, a modest degree of deterrence stemming from the present liability system.”).

<sup>138</sup> See *id.* at \*25–31.

<sup>139</sup> See *id.* at \*31–34.

<sup>140</sup> See *id.*

back to where they were prior to the change in clinical expectations resulting from the malpractice-standards reform? Or might practices remain entrenched at the equilibrium that they had shifted to subsequent to the reform? I phrase the question in this manner to motivate an analysis of whether alterations of the clinical standards expected of physicians under the law may change medical norms in a more permanent sense or whether such responses are transitory in nature. To the extent that such responses are of the former variety, I contend that the above analysis understates the extent to which medical-liability law may impact the clinical landscape. To understand the persistence that may arise from malpractice-standard reforms, it is necessary to understand the mechanisms underlying their resulting impacts on clinical practices.

The framework set forth in Part III conceptualizes physicians responding to liability forces in the conventionally expected manner—that is, fear over liability for failing to comply with the expected standard of care incentivizes them to take particular actions. To the extent that liability fears are the only forces responsible for the observed changes in behavior, it is perhaps the case that such inclinations to deviate from the previously desired practices may persist only as long as the liability threat in general remains viable. However, there may be reason to believe that the impact of a liability-standard reform is stickier than that.

To begin, such reforms may incite responses through channels beyond liability fears themselves. Consider, for instance, an information channel. Moreover, imagine a malpractice-standard reform of the variety discussed in Part IV.D—that is, a retreat from a locality rule and a contemporaneous adoption of a national-standard rule. Many have theorized that the divergent pathways of medicine commonly observed across different regions of the United States are the result of physician-learning models in which physicians form beliefs about proper clinical practices using largely local sources of information—for example, their own prior experiences or the experiences of those around them—to the relative exclusion of more national sources

of information.<sup>141</sup> A locality rule would operate to reinforce this limited informational perspective.<sup>142</sup>

Now, consider the adoption of a rule requiring physicians to comply with national standards of care. During subsequent trial proceedings, standard-of-care evaluations will entail the consideration of practices followed in other regions. In other words, local proceedings may now be flooded by national sources of information regarding proper practices. Physicians may have previously disregarded this information for a number of reasons, including cognitive and resource limitations or desires to follow more experience-based learning.<sup>143</sup> Nonetheless, to the extent that this new information is perhaps more salient given its attachment to the liability system, it may register with physicians and lead them to update their prior beliefs.<sup>144</sup> That is, the informational exposure resulting from the liability reform may cause physicians to reevaluate their opinions regarding proper medicine. Whatever response falls along such informational lines should persist even were liability pressure subsequently reduced via a noneconomic-damage-cap reform or an even more severe retreat from the medical-liability system.

Relatedly, even if practices do not immediately shift from an updating of clinical beliefs due to this informational exposure, any alteration of practices that arises from the liability-fear channel may persist over time in the face of an experience-based learning environment. After all, if physicians, especially newer physicians, form beliefs about proper practices largely through their own past experiences and through observing the practices of others around them, then a shift in medical practices that arises in any manner—for example, a shift that arises from fear

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<sup>141</sup> See, for example, Phelps and Mooney, *Variations in Medical Practice Use* at 154–57 (cited in note 120) (“[C]umulative experience will move the doctor toward the community norm.”).

<sup>142</sup> See Frakes, 103 *Am Econ Rev* at 259 (cited in note 67). This information channel is perhaps similar to Professor Stephen Smith’s arguments regarding the role of damages in tort law, which may serve more to “vindicate” rights and send messages to the community regarding the wrongdoing of the relevant actions than to enforce rights and incentivize compliance with the underlying duties. Stephen A. Smith, *Duties, Liabilities, and Damages*, 125 *Harv L Rev* 1727, 1753–56 (2012).

<sup>143</sup> Much has been said about the fantastical amount of time that a physician would have to spend reading the medical literature in order to keep up. See, for example, Brian S. Alper, et al, *How Much Effort Is Needed to Keep Up with the Literature Relevant for Primary Care?*, 92 *J Med Library Assoc* 429, 433 (2004) (estimating that physicians trained in epidemiology would need to spend 627.5 hours per month to evaluate new articles in those journals publishing matters relevant to primary care).

<sup>144</sup> See Frakes, 103 *Am Econ Rev* at 259 (cited in note 67).

of failure to comply with changed legal expectations—may more gradually come to be assimilated into the belief structure of physicians over time.<sup>145</sup>

Finally, it is possible that some portion of the observed response to a shift in medical-liability standards may arise not from a change in practice styles by any given physician but rather from a change in the composition of physicians in the local market. Consider a rural region that follows a less intensive practice style and that initially complies with a locality rule. As suggested above, under such a rule, the law may actually expect the maintenance of this low-intensity style. As such, local hospitals contemplating the recruitment of surgical specialists for admitting privileges might hesitate in light of this legal expectation. Physicians with such dispositions may likewise hesitate to relocate (or initially locate) to such regions.<sup>146</sup> This hesitation may relax after the adoption of a reform expecting physicians to follow national standards. Moreover, following such reforms, even if local hospitals had not been contemplating recruitment of such physicians previously, they may now be compelled to do so. To the extent that a shift in the composition of local physicians in the direction of more surgical specialists does result from national-standard adoptions, it could explain some of the observed changes in procedure rates discussed in Part IV. Furthermore, to the extent that there is some persistence in physicians' locational decisions, the resulting influence on local medical practices may likewise persist in such situations even if the jurisdiction subsequently reduces liability forces through a damage cap or similar reform. Through research that I have done jointly with Professors Seabury and Frank, I have found evidence suggesting that the observed shift in medical practices following the adoption of rules expecting physicians to follow national standards may be a reflection of *both* existing physicians altering their practices and a partial shift in the compositional mix of physicians of this hypothesized nature.<sup>147</sup>

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<sup>145</sup> See Phelps and Mooney, *Variations in Medical Practice Use* at 154–57 (cited in note 120).

<sup>146</sup> See Frakes, Frank, and Seabury, *Do Physicians Respond to Liability Standards?* at \*4 (cited in note 107) (“Regardless of the precise cause, medical liability ‘locality rules’ may operate to cement these regionally distinct practice styles, either by discouraging physicians from deviating from those local customs that have developed or by providing comfort to physicians wishing to maintain such customs.”).

<sup>147</sup> See *id.* at \*10–12. In general, I note that the observed shift in medical practices persists even when controlling for fluctuations in relevant physician population rates,

While further research is needed to fully illuminate the mechanisms behind the observed responses to a change in malpractice-liability standards, this discussion nonetheless reinforces the ways in which medical malpractice law may shape medical practices. It also helps elucidate how damage-cap adoptions and similar reforms may not necessarily fully unwind the influences of more-substantive reforms to the liability landscape that were passed in prior years.

## VI. IMPLICATIONS AND FUTURE DIRECTIONS

### A. The Continuing Relevance of Malpractice Law

In the present environment, financial incentives and certain other factors may be elevating treatment rates and health-care spending so much that they leave little for liability forces to do on the margin.<sup>148</sup> As a result, the solution to reducing health-care spending through a liability reform cannot be one that tries to dampen the influence of general liability fears themselves—for example, through the adoption of damage caps. Instead of thinking about how to strip away the influence of medical malpractice, why not try to harness liability forces to push health-care spending in the desired direction? Yes, many factors encourage providing excessive care.<sup>149</sup> Take, for instance, financial incentives stemming from a fee-for-service reimbursement environment. Why not try to temper such financial incentives by exposing physicians to liability for succumbing to them? Taking a new approach to determining liability standards may generate this result. Even if one tried to remove the liability system or heavily blunt its impact through a stringent

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suggesting that physician locational shifts likely do not tell the entire story here. Moreover, the physician composition mix does not change substantially upon the adoption of a national-standard reform in those regions with initially high-intensity practice styles, even though we otherwise observed a decrease in treatment rates toward the national norm in connection with national-standard reforms in such regions, likewise suggesting that part of this story likely stems from existing physicians in those regions altering their practice styles. However, in practice areas that are initially low intensity, we documented robust evidence of a roughly 2 to 2.4 percent swing in the surgeon-versus-nonsurgeon composition mix away from nonsurgeons and toward surgeons *subsequent* to national-standard adoptions, consistent with the above physician-location hypothesis. This may not explain the full 8 to 10 percent increase in surgical treatment rates that we observed in this region at such times, but it may explain a respectable portion of it. See *id.* at \*11.

<sup>148</sup> See Part II.E.

<sup>149</sup> See Orentlicher, 6 *FIU L Rev* at 71 (cited in note 45).

noneconomic-damage cap, a medical system fraught with excess will still remain. Substantive liability reforms that focus on when liability should be triggered *in the first instance*—as opposed to damage-cap-esque reforms that focus on remedies should liability attach—hold the potential to change practice norms and to instigate a retreat from this excess.<sup>150</sup>

In the past, a majority of states have undergone some modifications to the manner in which their tort system evaluates physician behavior—that is, by abdicating the arguably arcane locality rule.<sup>151</sup> While not necessarily retreating from a custom-based approach to liability standards, national-standard adoptions nonetheless represented a substantive change in the clinical expectations placed on physicians, effectively moving from one kind of custom-based system (a local one) to another (a national one).<sup>152</sup> My previous research suggests that these reforms did in fact partially change practice norms, reducing regional disparities in practices and bringing procedure-utilization rates closer to their respective national means.<sup>153</sup> I emphasize that this Article is not advocating for a universal embracement of national-standard rules in their present form. After all, while nationalizing standards may reduce practice disparities and create greater uniformity in practices around national norms, it is unclear whether such customary norms are themselves *optimal*.<sup>154</sup> As we know, customary practices are already characterized by both excessive spending<sup>155</sup> and inadequate quality.<sup>156</sup> Rather, I

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<sup>150</sup> For a general argument regarding the distinction between remedy-centered reforms (for example, damage caps) and liability-determination reforms (for example, malpractice standard-of-care reforms) and the perhaps greater power of the latter to reduce health-care costs, see generally Blumstein, 59 Vand L Rev 1017 (cited in note 14).

<sup>151</sup> See Part IV.D.

<sup>152</sup> See Frakes, *Web Appendix* at \*2 (cited in note 111).

<sup>153</sup> See Frakes, 103 Am Econ Rev at 275 (cited in note 67).

<sup>154</sup> Some scholars have estimated that the deadweight losses arising from regional disparities in physician practices (due to deviations from ideal practices) are on par, in the aggregate, with the total deadweight losses arising from moral hazard in health insurance contexts. See, for example, Phelps and Mooney, *Variations in Medical Practice Use* at 169 (cited in note 120) (noting that a “fully insured person would have \$265 of loss, all due to ‘moral hazard’ increased consumption” while estimating a “\$130 per capita in welfare loss due to hospital admissions variations”).

<sup>155</sup> See *id.*

<sup>156</sup> See Elizabeth McGlynn, et al, *The Quality of Health Care Delivered to Adults in the United States*, 348 New Eng J Med 2635, 2636, 2641 (2003) (demonstrating that participants in a phone survey had received only 54.9 percent of the recommended care). Professor Blumstein effectively raises the same point regarding the combination of customary standards and generally undesirable practices. See Blumstein, 59 Vand L Rev at 1025 (cited in note 14).

emphasize national-standard adoptions in this Article largely because they provide the best experimental setting to date by which to explore the general empirical relevancy of malpractice standard-of-care rules themselves. Having established this relevancy, the above analysis thus demonstrates that physician practices may likewise respond in the intended direction upon the adoption of a standard-of-care reform that is perhaps better designed to push practices in the preferred direction—primarily, toward lower costs and improved quality of care. One such reform that has generated substantial discussion entails a retreat from the custom-centered approaches to setting liability standards and a move toward the more definitive use of CPGs in their place.<sup>157</sup>

#### B. CPGs as the Basis for Malpractice Standards

As an introductory point, note that the liability standards expected under a guidelines-based approach could differ substantially from those under the present custom-dominated system. Put simply, physicians customarily deviate from guideline-recommended care at a staggering rate. In an influential 2003 study, Elizabeth A. McGlynn and colleagues used medical records from a random sample of adults and found that the participants received only 54.9 percent of recommended care according to a set of 439 guideline indicators.<sup>158</sup> CPGs may be, and sometimes are, introduced as evidence in medical malpractice suits; however, given the structure of current liability-standard rules, such evidence is generally introduced to prove customary practices when such guidelines are more heavily embraced.<sup>159</sup> The essence of guidelines-based reform proposals is to give CPGs determinative weight in questions of liability standards, regardless of whether such guidelines are presently being followed by practitioners—that is, not to use CPGs merely as evidence to

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<sup>157</sup> CPGs, as defined by the Institute of Medicine, are “statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options.” Committee on Standards for Developing Trustworthy Clinical Practice Guidelines, Institute of Medicine, *Clinical Practice Guidelines We Can Trust* \*15 (National Academy of Sciences, Mar 2011), archived at <http://perma.cc/SMD3-QLS5>.

<sup>158</sup> McGlynn, 348 *New Eng J Med* at 2636–37, 2641 (cited in note 156).

<sup>159</sup> See *OTA Report* at 142 (cited in note 81) (“Under the current customary standard of care, clinical practice guidelines can only influence the standard to the extent that they are adopted into common medical practice.”).



support the operable customary standards, but to use CPGs as the standards themselves.<sup>160</sup>

Peter Orszag, former director of the Office of Management and Budget under the Obama administration, stated the following in an editorial published in the *New York Times* shortly following the passage of the Patient Protection and Affordable Care Act:<sup>161</sup>

The health care legislation that Congress enacted earlier this year . . . does almost nothing to reform medical malpractice laws. Lawmakers missed an important opportunity to shield from malpractice liability any doctors who followed evidence-based guidelines in treating their patients. . . . How might we encourage doctors to adopt new evidence more quickly? Malpractice reform could help. . . . The traditional way to reform medical malpractice law has been to impose caps on liability. . . . A far better strategy would be to provide safe harbor for doctors who follow evidence-based guidelines.<sup>162</sup>

Orszag's proposal, as stated, essentially provides physicians with a "shield"<sup>163</sup> to avoid liability upon compliance with a relevant guideline. Proposals that embrace a shield-only approach often defer to the traditional custom-based liability system to evaluate the propriety of a physician's care should she fail to comply with the relevant guideline.<sup>164</sup> Why exactly should we expect physicians to respond to the imposition of a safe harbor when the regular system exists as a backdrop and physicians are already only weakly responsive to the present custom-based system? As demonstrated in Part II, the limited responsiveness inherent in the present system may, in part, be attributable to the particular way in which the relative health risks for the marginal patient balance out. Nonetheless, the uncertainty associated with this balancing assessment likely leads to some

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<sup>160</sup> See Blumstein, 59 Vand L Rev at 1036 (cited in note 14).

<sup>161</sup> Pub L No 111-148, 124 Stat 119 (2010).

<sup>162</sup> Orszag, NY Times at A39 (cited in note 15).

<sup>163</sup> Michelle M. Mello, *Of Swords and Shields: The Role of Clinical Practice Guidelines in Medical Malpractice Litigation*, 149 U Pa L Rev 645, 648 (2001) ("Physicians would operate under less uncertainty, and consequently would practice medicine less defensively. Additionally, physicians would have an incentive to comply with CPGs, which represent our best estimate of what constitutes good quality care.").

<sup>164</sup> See, for example, Ronen Avraham, *Private Regulation*, 34 Harv J L & Pub Pol 543, 571-72 (2011) (discussing Maine's brief experimentation with the use of CPGs as a liability shield while disallowing the use of CPGs for inculpatory purposes).

anxiety for the physician. To the extent that the precise ex ante standards inherent in a set of guidelines provide physicians with greater certainty regarding the law's clinical expectations than is afforded under the present ex post process of determining standards, physicians may welcome the diminished risk afforded by this shield.<sup>165</sup> Accordingly, even with the traditional system as a backdrop, physicians may still feel inclined to adjust their practices so as to fall under this shield.

Of course, other proposed standard-of-care reforms go even further in advocating abandonment of the present custom-based system, more completely surrendering (at least for a subset of clinical scenarios) the liability-determination process to whether the physician complied with the operable set of guidelines.<sup>166</sup> Under this broader overhaul, CPGs may act both as a shield—protecting physicians who comply with the standards—and a sword, giving courts a basis to find a physician negligent for failing to comply with the specified standards.<sup>167</sup> This formulation of a CPG-based system more closely fits into the framework specified in Part III and thus with its predictions.

If malpractice law were hypothetically to embrace a reasonable-physician approach to setting liability standards that follows a Learned Hand type of cost-benefit philosophy to reasonableness,<sup>168</sup> then standard-of-care determinations would indeed turn on considerations of costs. While deference to custom within tort law (as distinct from this abstract reasonableness inquiry) may not necessarily abandon cost-benefit considerations as a general matter,<sup>169</sup> a customary approach within the present medical context is bound to thwart cost-containment goals in

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<sup>165</sup> Blumstein asserted that the uncertainty-reducing effect of a CPG-based-standard-setting system is among that system's chief benefits. See Blumstein, 59 Vand L Rev at 1031 (cited in note 14).

<sup>166</sup> See id at 1036–37.

<sup>167</sup> See id.

<sup>168</sup> See *United States v Carroll Towing Co*, 159 F2d 169, 173 (2d Cir 1947) (framing the cost-benefit analysis as a function of whether the burden of the precaution is less than the probability that injury will occur multiplied by the magnitude of that injury).

<sup>169</sup> See, for example, *Rodi Yachts, Inc v National Marine, Inc*, 984 F2d 880, 889 (7th Cir 1993):

Since . . . these customs appear to reflect an undistorted market determination of the best way to minimize runaway-barge accidents, we think the focus of the district court's inquiry should be on the parties' respective compliance with and departures from the customs and that the judge and the parties should not feel compelled to conduct a cost benefit analysis of barge transportation from the ground up.

light of the many other factors—for example, pay-for-service reimbursement—that drive customary practices to the point at which physicians perform treatments with benefits that cannot be justified by the costs.<sup>170</sup> CPG-based approaches to determining liability standards hold the promise of bringing us to the point of cost consciousness. Advocates for the use of CPGs in the tort context generally suggest adopting guidelines that not only derive from evidence-based medicine but that are also designed with cost-containment goals in mind.<sup>171</sup>

### C. CPG Proposals: Future Steps

One of the key aims of this Article has been to demonstrate the continuing significance of medical liability as a possible influence on physician behavior, especially with respect to liability rules bearing on the substance of the evaluative process. As such, this analysis is meant to set the stage for a perhaps even larger discussion regarding how liability standards should be structured. In this light, I have given a brief overview of CPG-based proposals. It is beyond the scope of this Article to fully evaluate the merits of such ideas. Among other things, a more complete analysis must address a number of critical questions.

First, how can such proposals be implemented? CPGs are meant to reflect recommendations of appropriate care under the relevant set of medical circumstances. However, the number of potential combinations of patient circumstances is likely to be overwhelmingly large, complicating the ability of inherently rigid structures such as guidelines to dictate the appropriate care in all circumstances. Many of the guidelines that have been developed and advocated by patient-safety groups and organizations to date “tend to be broad and flexible in nature.”<sup>172</sup> However, to be useful as an *ex ante* device for standard setting in malpractice cases, guidelines should aim to be more precise.<sup>173</sup> Moreover, to facilitate the goal of certainty in malpractice-standard determinations, there should be a single, identifiable set of guidelines to which physicians subscribe.<sup>174</sup> At present, the National Guidelines Clearinghouse contains nearly 2,700

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<sup>170</sup> See, for example, Blumstein, 59 Vand L Rev at 1035 (cited in note 14).

<sup>171</sup> See *id.* at 1034.

<sup>172</sup> Mello, 149 U Penn L Rev at 650 (cited in note 163).

<sup>173</sup> See Blumstein, 59 Vand L Rev at 1033 (cited in note 14).

<sup>174</sup> See *id.*

guidelines.<sup>175</sup> How should guidelines themselves be selected and constructed? Through legislation?<sup>176</sup> Through legislative delegation to administrative agencies?<sup>177</sup> Through contract?<sup>178</sup> This is no simple question. Relatedly, concerns may arise in ensuring that whatever approach is taken is protected from regulatory capture by interested parties.<sup>179</sup>

Second, how can we continue to foster a culture of innovation within medicine while at the same time implementing a new system that is designed to encourage uniformity in practices? This captures one of the classic struggles in medicine.<sup>180</sup> In our effort to take a scientific approach to medical care, we may want physicians to coalesce around the medically optimal point;<sup>181</sup> however, we must continue to nurture the scientific process by constantly challenging our present state of knowledge—that is, through varied experimentation. Related concerns over the CPG approach emphasize the alteration of the fundamental nature of medicine itself—that is, concerns over a push toward “cookbook medicine.”<sup>182</sup>

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<sup>175</sup> See Committee on Standards for Developing Trustworthy Clinical Practice Guidelines, *Clinical Practice Guidelines* at \*2 (cited in note 157).

<sup>176</sup> See Arnold J. Rosoff, *Evidence-Based Medicine and the Law: The Courts Confront Clinical Practice Guidelines*, 26 J Health Polit, Pol & L 327, 329 (2001) (noting that using guidelines as applicable legal standards would likely require legislative action).

<sup>177</sup> See Lisa Schultz Bressman, *Schechter Poultry at the Millennium: A Delegation Doctrine for the Administrative State*, 109 Yale L J 1399, 1402 (2000) (advocating agency standard setting more generally).

<sup>178</sup> See Clark C. Havighurst, *Practice Guidelines as Legal Standards Governing Physician Liability*, 54 L & Contemp Probs 87, 108 (1991) (“[T]he law might contemplate that the physician’s duty in a given malpractice case might be found in the contract between the physician and the patient.”). Professor Ronen Avraham proposed a clever “private regulation” regime in which medical providers contract with guideline-generating bodies that insulate providers from liability should the bodies’ set of guidelines be followed by the providers, and patients sue the guideline-generating entities in order to challenge the guidelines as suboptimal in nature. Avraham, 34 Harv J L & Pub Pol at 552–53 (cited in note 164).

<sup>179</sup> See Havighurst, 54 L & Contemp Probs at 92 (cited in note 178).

<sup>180</sup> See David A. Shaywitz, *Problems with Obama’s Drive to Standardize Care* (Wash Post, Sept 17, 2009), archived at <http://perma.cc/C44U-XHXJ> (“Our health-care system is now facing a problem that has plagued business leaders for years: how do you balance consistency and innovation?”).

<sup>181</sup> See Blumstein, 59 Vand L Rev at 1022 (cited in note 14).

<sup>182</sup> Havighurst, 54 L & Contemp Probs at 105 (cited in note 178).

## CONCLUSION

Despite the relatively weak role that medical liability may play in contributing to health-care costs in the present health-care landscape and under the present liability system, medical liability may nonetheless remain a quite relevant influence on physician practices in a more universal sense. One perhaps cannot claim that physicians will disregard liability in all possible scenarios and under all possible constructions of our liability system. In collapsing the connection between medical liability and health-care spending into a discussion about defensive medicine—a concept that generally assesses how a particular liability system impacts health-care spending on the margin—the participants in this discussion have failed to ask what impacts on spending may derive from shifting to a new system altogether, one that involves an entirely different way of evaluating physician behavior. Documenting the relevance of malpractice law's physician-evaluation process, the above analysis suggests that systematic reforms of this nature may indeed hold the potential for substantial cost savings.

## APPENDIX

## A. Overview

The analysis in Parts II and III of this Article contemplated a simple physician-decisionmaking context—that is, the simple decision whether to treat a patient given his complication level. Potential theories of liability within this framework rested simply on whether the decision to treat or not treat (given the complication level) was appropriate. This framework did not consider a second dimension of this decisionmaking context—one based on the level of care exercised in the treatment itself. In other words, in Parts II and III, the potential liability stemming from the treatment decision would be a result of unnecessarily or negligently exposing the patient to the harms of treatment when the operable standard of care expected that the physician take the nonintensive approach under the circumstances. It would not stem from the possibility of a botched treatment, whereby the physician fails to follow the proper standards of care during treatment.

In this Appendix, I demonstrate that consideration of this second dimension to physician decisionmaking does not at all alter the basic conclusions and predictions from Parts II and III. Effectively, even when considering the possibility of lawsuits for improper treatment execution, one might predict that, in our present environment and with our present liability system, liability forces will likely not compel physicians on the margin to perform a substantially greater number of treatments.<sup>183</sup> Likewise, in the face of this alternative theory of liability, a more substantive alteration of the clinical standards expected of physicians will nonetheless induce physicians to amend their practices in the direction of these modified standards.

Failures to follow treatment-execution standards may arise in two ways. First, certain physicians may, as a general matter of course, disregard specified treatment standards—for example, they may generally fail to perform a hysterectomy that other physicians would customarily perform. Second, as a general matter of course, physicians may indeed follow customary treatment standards. However, due to simple “slips,” they may fail to conform to their customs on certain occasions. After all, we are all human! Situations of this latter nature are known as

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<sup>183</sup> See Part II.

“compliance errors.”<sup>184</sup> While one may argue that mere slips of this nature should not justify liability (insofar as attempting to avoid such slips 100 percent of the time may entail unnecessarily high levels of precaution), these occurrences are still generally subject to liability.<sup>185</sup>

For the sake of simplicity, I will confront the analysis in this Appendix by reference to a compliance error, as opposed to a general disregard of treatment standards.

#### B. Consideration of Treatment Compliance Errors in Part II

Supplementing the analysis from Part II to consider the role of compliance errors is quite straightforward. The key prediction of Part II was that medical-liability pressure on the margin in the present custom-based system of liability would likely not exert much expansionary influence on treatment rates, largely due to the fact that financial and other determinants of clinical practice styles have already brought us to an equilibrium (before even considering liability’s influence) with treatment rates that are so elevated that the marginal patients receiving treatment are quite healthy and likely face greater treatment-related risks than underlying condition-related risks. In short, medical liability on the margin is not substantially incentivizing greater costs and more treatments. How might the possibility of liability for compliance errors in the execution of treatments alter this conclusion?

At least in terms of evaluating the number of treatments performed, this new consideration does not alter the conclusion that expansionary defensive medicine appears to be less pronounced than lay commentators might expect. After all, liability fears based on compliance errors may operate to induce physicians to perform fewer, not more, treatments. That is, fears over botching a treatment may not be expected to induce physicians to perform more treatments. As such, consideration of compliance errors provides another basis to understand why physicians, in the face of one of the healthy, marginal patients at issue, may not be overly concerned with possible liability for failing to treat such patients. With respect to such healthy patients, expected damages based on these failure-to-treat

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<sup>184</sup> Mark F. Grady, *Res Ipsa Loquitur and Compliance Error*, 142 U Pa L Rev 887, 897–98 (1994).

<sup>185</sup> See *id* at 906.

lawsuits may simply be swamped by expected damages based on either (1) improper-decision-to-treat lawsuits or (2) compliance-error (that is, failure-to-properly-execute) lawsuits. As such, liability forces are unlikely to substantially induce more treatments on the margin. Considerations of compliance errors simply bolster the arguments set forth in Part II.<sup>186</sup>

### C. Consideration of Treatment Compliance Errors in Part III

Part III considered a situation in which physicians, as a result of their clinical beliefs and various financial and other influences, customarily follow a treatment cutoff point of  $s^*$ . To facilitate an understanding of how physicians might respond to a reform to liability standards of care that expects physicians to follow a lower treatment rate, I considered the impact of retreating from a custom-based–standard-of-care rule (that would have otherwise expected physicians to follow an  $s^*$  cutoff) and adopting a new approach that expects physicians to follow a treatment cutoff to the right of  $s^*$  at  $\hat{s}$ , thus representing a lower treatment rate.

As in Part III, begin by considering a physician that attempts to maintain her otherwise-desired practice style by treating patients once their complication levels rise to  $s^*$ . This physician would immediately expose herself to possible liability under this modified standard-of-care regime. More specifically, for those patients with complication levels falling between  $s^*$  and  $\hat{s}$  on the complication distribution, the physician would otherwise desire to treat, but liability fears may cause her to reconsider. How this liability-induced hesitation may arise depends on the nature of the negligence alleged by the patient. The execution of a treatment—for example, surgery—carries risks in and of itself. Some of these risks may arise from the inherent nature of surgery and be unavoidable—for example, anesthetic complications. Other risks may be attributable to the commission of error itself in the execution of the treatment. In light of

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<sup>186</sup> Of course, the analysis here views treatment rates as the key determinant of health-care costs. It overlooks the possibility that physicians may, in response to compliance-error liability fears, run up health-care costs as they take more-expensive precautions during the course of any given treatment. This possibility could balance out the generally negative force that compliance-error concerns place on treatment rates themselves, leaving the overall effect on health-care costs stemming from compliance-based concerns ambiguous. Of course, these expansionary pressures would have to be substantial in order for such considerations to alter the conclusions of Part II.



these risks, to the extent that the patient is harmed from the treatment, liability suits arise from two types of arguments, depending on the circumstances: (1) that the patient was exposed unnecessarily—that is, negligently—to treatment and (2) that the patient was harmed as a result of a negligent compliance error.<sup>187</sup>

Part III demonstrated that considering the first type of these lawsuits may induce physicians to alter their practices in the direction of these new expectations—that is, in the direction of  $\hat{s}$ . How about the possibility of a lawsuit based on compliance error?

To the extent that physicians attempt to maintain custom and thus continue to treat patients with complication levels in the range between  $s^*$  and  $\hat{s}$ —such that the now-altered standard of care at court suggests that treatment is not needed—such physicians expose themselves to the possibility of a lawsuit based on a compliance error committed during the treatment itself (again, this lawsuit would be distinct from that based on the performance of an unnecessary surgery). Of course, in our benchmark state in which liability standards were set at custom—that is, at  $s^*$ —physicians were also treating patients in this range and could also be subject to a malpractice suit based on the commission of a compliance error during the treatment. However, at least in this benchmark scenario, if the physician were to not treat in order to avoid compliance-error liability risks altogether, she would likely be subject to liability for failing to treat patients in this range between  $s^*$  and  $\hat{s}$ . After all, under custom, such patients are supposed to be treated. If compliance errors are rare, it is likely that, under the baseline scenario (that is, custom-based standards), liability risks from failing to treat these patients and thus failing to eliminate the harms of the underlying medical condition would trump these compliance-error concerns. In that case, liability forces under the custom-based standard would indeed reinforce the customary inclinations to treat all such patients.

However, under the modified standard of care presently of interest—that is, with an expected cutoff at  $\hat{s}$ —the physician could avoid treatment and face no liability consequences for that decision. In this instance, consider her response to fears over

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<sup>187</sup> Part II, for simplicity purposes, focused on lawsuits of this first variety. See note 35. To facilitate a more comprehensive analysis, I now expand to consider both risks associated with treatment.

compliance-error-based lawsuits. Such lawsuits may induce her to avoid treating patients in this range, thus avoiding the possibility of committing a compliance error. But now the countervailing force discussed in the preceding paragraph has been lifted. There are no forces compelling her to treat these patients considering that the new standard of care makes no such expectations. As such, with the only force at issue being such compliance errors (on top of the unnecessary-surgery fears discussed in Part III), physicians may be compelled to avoid treating patients in this range between  $\hat{s}$  and  $s^*$ . Accordingly, when the law undergoes a substantive reformation of what it expects of physicians clinically—in this instance, a lower treatment rate—physician practices may respond appropriately to the new incentives.

In other words, if a jurisdiction modifies its standard-of-care rules and expects physicians to lower their treatment intensities, fears over lawsuits based on compliance errors may encourage the resulting drop in treatment intensities. This analysis focuses on a situation in which the standard of care expected under the law was modified to induce a lower treatment rate. I discuss reforms of this nature because of this Article's focus on questions of cost containment. A slightly modified version of the discussion in this Appendix and in Part III could assess the incentives in play for a modification of a standard-of-care approach that expects physicians to now practice at greater intensities. While I omit this discussion for brevity's sake, under certain specified conditions, physicians may indeed find themselves compelled to increase their treatment rates in the direction of such new expectations—for example, as a result of liability fears arising from not treating those marginal patients now in the range in which the court expects treatment.

#### D. Regression Analysis: The Sensitivity of Damage-Cap Effects on Spending to the Prevalence of HMO-Penetration Rates

To explore whether the effect of caps on spending intensifies as one moves toward regions with higher HMO-penetration rates, I estimate the following specification:

$$\begin{aligned} \text{Log}(C_{s,r,t}) = & \alpha + \lambda_t + \varphi_r + \beta_1 \text{CAP}_{s,t} + \beta_2 \text{HMO}_{s,t} \\ & + \beta_3 (\text{CAP} \times \text{HMO})_{s,t} + \varepsilon_{s,r,t} \end{aligned}$$

where  $s$  indexes state,  $r$  indexes a hospital referral region, and  $t$  indexes year.  $CAP_{s,t}$  represents an indicator variable for the presence of a cap on noneconomic damages in state  $s$  and year  $t$ .  $HMO_{s,t}$  represents the share of individuals enrolled in an HMO plan in state  $s$  and year  $t$ . Year fixed effects,  $\lambda_t$ , and hospital-referral-region fixed effects,  $\varphi_r$ , control for fixed differences across years and hospital referral regions, respectively.  $C_{s,t}$  represents the relevant Medicare Parts A and B spending rate (per beneficiary) for the given state and year. The coefficient of interest in this specification is captured by  $\beta_3$ , representing the degree to which the spending and damage-cap relationship itself is stronger as the relevant HMO-penetration rate increases.

The mean Medicare spending rate per beneficiary in the sample (adjusted to 2011 dollars) is roughly \$5,900 (covering 1980–2006 spending rates), with a standard deviation of roughly \$2,100.<sup>188</sup> The mean HMO-penetration rate over the sample period is roughly 13.2 percent with a standard deviation of roughly 11.7 percent.

The above specification treats variations in HMO-penetration rates across regions linearly. In an alternative approach,<sup>189</sup> I estimate a more nonparametric specification, in which I group observations into one of twenty different HMO-penetration bins and then interact dummy variables for each of these bins with the damage-cap variable, which allows for observation of how the impact of statutory rape laws on Medicare spending itself varies as HMO-penetration rates increase over time. This alternative approach suggests a big jump in the sensitivity of spending to liability forces when moving from no HMO penetration to some HMO penetration (that is, when moving out of the first bin), and another round of jumps in this sensitivity when moving into the bins with very high HMO-penetration rates.

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<sup>188</sup> See Table 1.

<sup>189</sup> Results are available from the author upon request.