Unreasonable Care [v. 2.3]

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Abstract

This paper examines “doctrinal feedback” in negligence law, and specifically in medical malpractice. Doctrinal feedback is an organic, reiterative process that causes inadvertent and inadvisable changes in both law and practice. It occurs when: (1) the ambiguity of the applicable legal standard prompts those it governs to behave overcautiously, so as to avoid the gray areas of liability; (2) the legal standard incorporates that increased level of caution as the new norm, and (3) the cycle starts again, with a new iteration of overcompliance based on the new, heightened standard.

I argue that this feedback effect is present in medical malpractice. First, physicians living in the shadow of negligence law’s “reasonable care” standard routinely provide more care than the standard demands. Next, as that extra level of care becomes customary, it also becomes part of the reasonable care standard. Finally, overcautious physicians then provide even more care, so as to steer clear of the new standard.

The bulk of the paper explores the evidence for this phenomenon, and then I briefly examine the potential for similar feedback in other fields of law.
INTRODUCTION

Every first-year torts student learns about reasonable care, that venerable legal standard that requires us to act “reasonably” lest we be judged negligent. Indeed, reasonable care has been tort law’s touchstone for over one hundred years.¹ It has evolved over time from arbiter of community morals to dispassionate agent of economic efficiency,² but all along it has invoked the conduct of a person “of ordinary prudence” and exhorted tortfeasors “to do what such an ideal individual would be supposed to do in his place.”³

For the torts student looking for the “right” answer on an exam, reasonable care can be a frustratingly imprecise concept. Yet that imprecision turns out to be part of the appeal. Reasonable care is the prototypical standard, in the standard-versus-rule sense: its ambiguity gives courts the flexibility they need to arrive at the correct judgment in a fact-dependent context.⁴ And reasonable care’s reference to ordinary prudence and real-world practice adds to its appeal, lending legitimacy to its determinations. It grounds policy in the friendly and comfortable territory of shared experience, of conventional wisdom, of consensus. Who can object to a law that merely asks its subjects to act reasonably? What could be more reasonable than a reasonable care standard?

Within this familiar concept, however, lurks a phenomenon—unappreciated in the literature and unrecognized in the courts—that threatens to lead tort law astray. Suppose a potential tortfeasor wants to steer clear of conduct that would fall short of the reasonable care metric. Because it is difficult to know ex ante what conduct will qualify, he or she may overcomply (i.e., exercise more caution than the standard actually demands). If others behave the same way, however, that degree of caution will become the new measure of negligence; if everyone is exhibiting the same overcautious level of care, the “ordinary person” has become overcautious as well. What was once overcompliance therefore becomes mere compliance. Our potential tortfeasor must then be even more overcautious than before in order to avoid the inevitable gray area that accompanies reasonable care. Thus the process repeats itself: a new level of caution is introduced, it eventually becomes the legal standard, this new standard then prompts yet another iteration of overcompliance, and so forth.⁵

I call this phenomenon “doctrinal feedback,” and in a previous article I discussed its subtle and pernicious effect in intellectual property law.⁶ In this article I show that the same phenomenon is at work in tort’s reasonable care standard, and particularly in medical malpractice law, where legal ambiguity, deference to custom, and the specter of liability have produced a perfect storm of dysfunctionality and wasteful practice. Part I expands on the simple example from the preceding paragraph and identifies when we might expect feedback-fueling overcompliance in negligence law

4. See H.L.A. Hart, The Concept of Law 129 (1961) (citing reasonable care as best example of when the inadequacy of ex ante rulemaking warrants giving courts discretion over case’s proper outcome).
5. Systematic undercompliance would produce a similar cycle, but in the opposite direction—a ratcheting down of the level of care. The example discussed infra, however, involved consistent overcompliance. See infra ___.
generally. Part II focuses on doctrinal feedback in medical malpractice, considering alternative influences on both the reasonable care standard and the real-world practice it governs and tracing in detail the forty-year evolution of one insidious example of the phenomenon. Part III discusses feedback’s implications for health care and tort reform and demonstrates the difficulty of addressing the feedback problem in isolation. Finally, Part IV explores the potential for a feedback effect in other fields of law.

In the end, doctrinal feedback requires us to rethink—and in some cases abandon—many of our assumptions about the wisdom of relying on custom and convention, both in medical care and elsewhere. Indeed, negligence’s time-tested standard has created and perpetuated wasteful practices rather than leading us to better place. Sometimes it is simply not reasonable to rely on reasonable care.

I. DOCTRINAL FEEDBACK AND NEGLIGENCE LAW

The potential for doctrinal feedback in negligence law lies in two seemingly attractive features of the reasonable care standard. First, the boundaries of legal liability are ambiguous. Indeed, ambiguity is one of the strengths of reasonable care, and of reasonableness standards in general: their ex ante indeterminacy gives courts the ex post flexibility to reach the right result in different factual scenarios.7

Second, reasonable care requires those whom it regulates to exercise “ordinary prudence” and exhorts them to do what a “reasonable person” would do in their place.8 Such an inquiry necessarily looks to what people usually do in similar circumstances.9 Therefore, even if “reasonable care” implies somewhat more careful and prudent behavior than that of the average person, it is nonetheless grounded in everyday behavior.

The theory of doctrinal feedback combines these two features to produce an unexpected result. It works like this: First, potential tortfeasors do more than they think the reasonable care standard requires, so as to steer clear of the considerable gray areas at the margins of negligence liability. Next, as this overcompliance becomes common practice, feedback emerges; the reasonable care standard readjusts to incorporate the new norm into the liability determination. After all, those who fail to overcomply are now taking less care than the ordinary person in similar circumstances. Finally, because what was once overcompliance has now become mere compliance, those who wish to give the gray areas a wide berth exercise even more care than before, and the reasonable care standard adjusts once again to this new norm. The cycle repeats, driving negligence in an ever-more-demanding direction.

Legal ambiguity is a key ingredient in this feedback loop, but its presence does not by itself not

7. See H.L.A. HART, THE CONCEPT OF LAW 129 (1961) (citing reasonable care as the most famous example of when the inadequacy of ex ante rulemaking warrants giving courts discretion over case’s proper outcome); Prosser and Keeton on the Law of Torts § 32, at 173 (W. Page Keeton gen. ed., 5th ed. 1984) (“The infinite variety of situations which may arise makes it impossible to fix definite rules in advance for all conceivable human conduct.”); Neil MacCormick, Reasonableness and Objectivity, 74 Notre Dame L. Rev. 1575, 1587 (1999) (“The very thing that justifies the law’s recourse to such a complex standard as reasonableness is the existence of topics of concern to which a plurality of value-laden factors is relevant in a context-dependent way.”).
9. Restatement (Second) of Torts § 283 (1965).
guarantee consistent overcompliance. Yes, some potential tortfeasors might overcomply, just to play it safe. But others might do less than reasonable care requires, hoping that the standard’s inherent ambiguity will favor them with a finding of no liability—or hoping not to get caught at all. Until we know whether one behavior is more likely than the other, we cannot predict the existence or extent of any feedback effect, or indeed which direction it would go.

There are, however, two ways in which reasonable care’s ambiguity might consistently lead to overcompliance. The first comes to us from John Calfee and Richard Craswell’s study of how uncertainty affects compliance with legal standards, and is best explained by way of example. Suppose a physician is examining a swollen lymph node for indications of cancer. After a physical examination, x-rays, and an ultrasound she is nearly certain that the node is merely infected and that the patient should simply take some antibiotics and come back in a few weeks to make sure the swelling has receded.

The physician is concerned, however, about negligence liability. She knows that there is a chance, however small, that the swelling is cancerous, and if it is a jury might find her liable for a faulty diagnosis—even though she strongly (and rightfully) believes that she is exercising reasonable care. She therefore overcomplies: she orders a biopsy as well, despite her conviction that the procedure is unnecessary and wasteful. The cost of this extra precaution is small, the danger it might avert is great, and even if it fails to avert the danger—even if the biopsy misses a cancer—the fact that she provided more-than-reasonable care will take her out of negligence’s gray area and thus shield her from having to pay a very high damage award.

This hypothetical illustrates Calfee and Craswell’s point: a rational actor will overcomply when (1) the legal standard is ambiguous, (2) a costly injury may occur even when that standard is met, and (3) the cost of overcompliance is small. In that circumstance, the cost of providing more care than the standard requires is less than the cost of the injury to be avoided, even when the latter is discounted to account for the chance that the injury will not occur or that the actor would escape liability without overcomplying.

Calfee and Craswell assume risk-neutrality on the part of those governed by the ambiguous standard. If we relax this assumption, however, we can see the second way in which reasonable care might consistently produce feedback-fueling overcompliance: when potential tortfeasors are risk-averse or overestimate the threat of liability, the chance of overcompliance will be even greater. Our hypothetical physician is even more likely to order the biopsy if she fears causing

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11. Indeed, the biopsy might not cost the physician anything, or might even put money in her pocket. See infra _. On the other hand, the physician probably also externalizes much of her liability exposure, so this argument works both ways. See infra _.
12. Calfee & Craswell at 981. Note that an ambiguous standard can also produce undercompliance “when: (a) the amount the defendant can save in private costs by taking less care than the optimum is relatively large; and (b) the likelihood of not being found liable, or ‘not getting caught,’ is quite high even at levels of care slightly below the socially optimal level.” Id. Although the latter condition may be present in medical care, see infra __, the former is not; indeed, less care often means less money in the physician’s pocket, see infra __.
13. Calfee & Craswell at 984.
14. Indeed, in some contexts risk aversion may provide the entire explanation for overcompliance. For example, Calfee and Craswell’s approach might not explain the prevalence of overcompliance in intellectual property licensing, because their theory assumes that the regulated actors can choose their level of compliance from a continuum of conduct. See Calfee & Craswell at 967. In contrast, intellectual property licensing tends to be an either/or proposition. We must therefore look beyond Calfee and Craswell to explain excess licensing in intellectual property, and risk aversion provides an answer. See, e.g., Gibson at 891-95.
injury to others (not to mention the ensuing malpractice suit) more than a rational cost/benefit analysis would warrant. If a critical mass of her fellow physicians share her risk aversion, the entire profession will end up behaving more cautiously than it would if the boundaries of liability were more clearly defined.\textsuperscript{15} And reasonable care will follow, drawing its definition from the practices of those it regulates—practices that are overcautious precisely because the standard is so ambiguous.

Or so the theory goes. Describing the potential for doctrinal feedback is one thing, but if that were the sum total of tort law we would all be wearing bubble-wrap and driving two miles per hour. The challenge, then, is to determine whether and where the reasonable care standard produces doctrinal feedback, and how much of a role it plays in the law’s evolution.

Broadly speaking, there are four factors that make this task particularly challenging. The first is that one’s behavior is not determined solely by reference to legal standards. For example, a shopkeeper may want his premises to be as safe as possible, so as to avoid any chance of negligence liability for slip-and-fall accidents, but he can only devote so much money to handrails and cushy carpets before competition from rivals constrains his spending.\textsuperscript{16} So although the reasonable care standard draws on real-world practice, that practice is informed by extralegal influences, in addition to the pressure that liability exerts. This will muddy any attempt to isolate an ambiguity-fueled feedback effect.

Second, the reasonable care standard itself refers to more than what ordinary people ordinarily do. As Learned Hand famously proclaimed in \textit{The T.J. Hooper}:

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There are, no doubt, cases where courts seem to make the general practice of the calling the standard of proper diligence; we have indeed given some currency to the notion ourselves. Indeed in most cases reasonable prudence is in fact common prudence; but strictly it is never its measure; a whole calling may have unduly lagged in the adoption of new and available devices. It never may set its own tests, however persuasive be its usages. Courts must in the end say what is required; there are precautions so imperative that even their universal disregard will not excuse their omission.
\end{quote}

Under this top-down approach, a court may independently determine the optimal legal standard, even if the affected industry’s universal custom is overcompliant or undercompliant.\textsuperscript{18} The conduct of the ordinary person does not enter into it, and overcompliance or undercompliance—even if pervasive—will accordingly not formally feed back into the legal standard.

Third, even if the reasonable care standard does heavily influence people’s behavior, and even if it then looks to ordinary behavior for its definition, this is to some extent what negligence law is supposed to do. Tort principles are designed to shape behavior, to bring into line those who fall below the optimal level of care. Suppose, for example, that the benefits of our hypothetical biopsy

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\item For a mathematical proof of this intuitive observation, see Richard Craswell & John E. Calfee, \textit{Deterrence and Uncertain Legal Standards}, 2 J.L. ECON. & ORG. 279, 300-01 (1986).
\item Robinson at 178.
\item 60 F.2d 737, 740 (2d Cir. 1932) (citations omitted). Hand was echoing Justice Holmes: “What usually is done may be evidence of what ought to be done, but what ought to be done is fixed by a standard of reasonable prudence, whether it usually is complied with or not.” Tex. & Pac. Ry. Co. v. Behymer, 189 U.S. 468, 470 (1903) (Holmes, J.).
\item Although Judge Hand’s principle has gained wide acceptance in the courts, see, e.g., \textit{\textit{\textsuperscript{\textbullet}}} it is not without its critics. The most prominent example is probably Richard Epstein. See, e.g., Richard Epstein, \textit{The Path to the T.J. Hooper: The Theory and History of Custom in the Law of Tort}, 21 J. LEGAL STUD. 1 (1992) (challenging courts’ capacity to second-guess industry custom). We will consider the impact of feedback theory on Epstein’s approach infra, \textit{\textbullet}.
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exceed its costs. If our physician orders the biopsy only because she is worried about liability, then we might conclude that tort’s deterrent signal has been received: it has taken a practitioner whose medical skills are subpar and forced her to do the right thing, against her “better” (worse) judgment. On the other hand, if she orders the biopsy not because of fear of liability but because she considers it medically appropriate, then she is simply an example of the “reasonably prudent practitioner” whom the negligence standard uses as a proxy for efficiency. Either way, there is nothing to worry about; there is no doctrinal feedback. Rather, feedback arises when tort law send the wrong signal—when “reasonable care” departs from the socially optimal level of care and imposes costs that exceeds its benefits. The analysis must accordingly distinguish between appropriate and inappropriate tort signaling.

Finally, our inquiry is complicated by the fact that most negligence cases are settled, and the remainder tend to be decided by jury verdict rather than by written opinion. This is an unsurprising statistic, given the fact-dependent nature of a negligence determination, but the unfortunate implication is that precedential pronouncements regarding the content of the reasonable care standard are few and far between. Even if we suspect that doctrinal feedback has played a significant and detrimental role in the evolution of negligence standards, then, evidence of this evolution may prove difficult to find.

With this in mind, our chances of showing a feedback effect will be greatest if we can identify a particular industry in which these four complicating factors are least likely to be present. That means an industry where the tort signal exerts significant influence, where reasonable care derives meaning more from real-world practice than from a top-down cost/benefit analysis, where there is evidence of a disconnect between existing practice and a cost-efficient level of care, and where we can get some sense of how both practice and determinations of negligence have evolved over time. It will also help if it is an industry whose economies allow risk aversion to roam free.

There is one promising candidate: health care, and the medical malpractice law that governs it. The potential for doctrinal feedback is certainly present here. Like the negligence law of which it is a subset, medical malpractice uses the reasonable care standard. But as we will see below, courts defer more to real-world practice in medical malpractice than in other negligence contexts, which lowers the chances that top-down policymaking will inform the negligence standard and thus retard the feedback effect. Moreover, medical malpractice is an extensively well-researched field; there is a rich theoretical and empirical literature on the strength and effectiveness of the tort signal, on how legal liability standards affect the behavior and motivations of those they govern, and on how physicians perceive and respond to risk. Let us turn, then, to an analysis of how feedback affects the world of medical care.

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19. See, e.g., Va. Code Ann. § 8.01-581.20 (“[In a medical malpractice case], the standard of care by which the acts or omissions are to be judged shall be that degree of skill and diligence practiced by a reasonably prudent practitioner . . . .”).

20. This discussion—and indeed this entire article—assumes that optimal care in a negligence setting tracks Learned Hand’s classic cost/benefit standard. See United States v. Carroll Towing Co., 159 F.2d 169, 173 (2d. Cir. 1947).

II. REASONABLE CARE AND MEDICAL CARE

A. The Basics of the Feedback Mechanism

Consider again the example of the cautious physician confronted with a swollen lymph node. The ingredients for Calfee and Craswell’s overcompliance are present here: she is operating under the famously ambiguous reasonable care standard;22 even reasonable care does not eliminate the danger (and very high cost) of cancer; and overcompliance—i.e., ordering the biopsy—costs her little. In those circumstances, taking the extra precaution is the rational choice.23 And if other physicians follow suit, ordering a biopsy will become customary practice, even though everyone knows it is wasteful. The negligence standard will then recognize the procedure as part of providing reasonable care to patients with swollen lymph nodes, making the benchmark for compliance (and overcompliance) more demanding. This means that the rational physician must do even more to overcomply, and the cycle begins anew.

The practice of ordering more procedures, administering more tests, making more referrals, and so forth—not because the physician considers them clinically justified, but because of a fear of increased malpractice exposure—is known as defensive medicine, and it has been the subject of considerable study since the first medical malpractice “crisis” in the 1970s.24 In the 1980s, the well-known Harvard Medical Practice Study found a significant relationship between perceived risk of suit and the ordering of more tests and performance of more procedures.25 Physicians also listed malpractice concerns as a factor that influenced the care they provided—less influential than continuing education, medical journals, and peer relations, but more important than clinical guidelines, internal morbidity conferences, and external peer review.26

Of course, one would expect physicians to provide more care as their risk of malpractice liability increases. Such conduct might represent mere compliance, not overcompliance. Subsequent studies have therefore focused on truly defensive provision of care, i.e., measures that physicians take despite acknowledging their clinical inadvisability and cost-inefficiency. The evidence here is compelling. In a recent survey of six medical specialities, more than nine out of ten physicians reported practicing this kind of defensive medicine “sometimes” or “often.”27 More than nine out

22. “Suits to recover for personal injuries resulting from medical malpractice can be among the most unpredictable and most complex to litigate.” Jeffrey O’Connell, Neo-No-Fault Remedies for Medical Injuries: Coordinated Statutory and Contractual Alternatives, 49 L. & Contemp. Prosbs. 125 (1986). The Virginia medical malpractice standard is representative: “the standard of care by which the acts or omissions are to be judged shall be that degree of skill and diligence practiced by a reasonably prudent practitioner in the field of practice or specialty in this Commonwealth . . . .” VA. CODE ANN. § 8.01-581.20.
23. Mello, Swords, at 690.
25. MoM at 127. This finding still holds true today. See G.L. Birbeck et al., Do Malpractice Concerns, Payment Mechanisms, and Attitudes Influence Test-Ordering Decisions?, 62 Neurology 119, 121 (2004) (showing that those physicians more concerned about malpractice exposure ordered more tests).
26. MoM at 128.
27. Studdert et al. at 2612.
of every ten respondents admitted to ordering unnecessary tests, and more than six out of ten reported performing or ordering wasteful invasive procedures. Prescribing unneeded medications was also quite common. These results are consistent with those from similar studies. And although direct surveys can suffer from the bias that comes with self-reporting, other methods of studying defensive medicine also show that the phenomenon is quite real.

Physicians’ attitudes toward and perception of risk can also affect the incidence of defensive medicine and the feedback effect that it fuels. As discussed above, overcompliance should be even more common when those governed by an ambiguous standard are risk averse. Studies have borne this out: risk aversion explains the higher costs per patient that certain physicians generate, and risk-averse practitioners tend to order more tests, make more referrals, and hospitalize more patients. One study focused specifically on the role of malpractice fears, finding that those emergency room doctors who most feared lawsuits were significantly more likely to admit low-risk patients (rather than treat them as outpatients, which is generally regarded as safe) and to order more referrals and testing.

Perhaps more significant than risk aversion is physicians’ risk perception. Defensive medicine and doctrinal feedback will be even more likely if those governed by the negligence standard
exaggerate the likelihood of being held liable, because then they will take even greater pains to avoid falling within reasonable care’s gray area. On this issue, physicians are nearly off the charts. They overestimate their overall chances of being sued by a factor of three, and they think that a negligently injured patient is thirty times more likely to file suit than is actually the case. When asked to predict the outcome in real malpractice cases, physicians are overly pessimistic about the defendants’ chances, predicting defendant verdicts correctly only 36% of the time and inaccurately assuming that errors in legal outcomes will overwhelmingly favor plaintiffs. Given the salience of big tort awards in our communal consciousness and the perception that avaricious trial lawyers will take any case, it should come as no surprise that physicians admit to providing an excessive level of care.

B. Alternative Explanations for Overcompliance

So far, medical malpractice law seems to be a good candidate for a feedback loop. Not only are Calfee and Craswell’s theoretical conditions for overcompliance present, but empirical evidence suggests that physicians do in fact provide more care than they think they need to, in the form of defensive medicine, and that risk aversion and risk exaggeration exacerbate this tendency.

To determine whether we truly have a feedback loop in medical malpractice law, however, we must more closely examine both the causes and effects of defensive medicine. This subsection addresses the causation issue: is it just the ambiguity of the reasonable care standard that prompts physicians to overcomply, or are there other contributors as well? And are there countervailing influences—factors that mitigate the tendency to overcomply?

Obviously factors other than fear of malpractice liability influence the choices that physicians make about patient care. First and foremost is the medical profession’s desire to improve the health of those it serves. One would hope that that goal would be paramount in any clinical decision, even if tort’s deterrent signal were entirely absent. This focus on patient welfare, however, is perfectly consistent with a feedback effect, because feedback gives physicians a reason to provide extra care. The problem with feedback is not that it harms patients, but that it encourages waste.

This notion of patient welfare does, however, highlight a surprising and important feature of medical care: most medical practices have little or no support in the scientific literature. Instead, physicians do what they see other physicians do, or what they were taught in medical school. Even

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37. Lawthers et al. at 468, 475.
39. The study’s subjects were asked to assess both whether proper care was provided and what the verdict would be. By combining these assessments, the study showed how often physicians would predict error in the legal system (i.e., a jury verdict inconsistent with the level of care provided) and which party the error would favor. The physicians’ predicted an error rate of approximately one in seven (14.68%), but more significant was their prediction that 85% of the errors would favor the plaintiff—i.e., that the jury would find for the plaintiff even when the defendant had provided proper care. Liang at 150. Here again perception is at odds with reality; error in malpractice cases actually favors defendants. See infra
more disillusioning is that when scientific evidence becomes available—e.g., randomized clinical trials of a common procedure—those in the field often remain ignorant of or misapply the results.\footnote{41} This means that even a single-minded focus on patient welfare will not eliminate defensive medicine or slow down the feedback loop. In most cases, physicians are free to order more tests, make more referrals, etc. without feeling that they are compromising their patients’ health.\footnote{42}

For similar reasons, physicians often accede to patients’ demands for particular tests or procedures. Perhaps the added measure is wasteful, but unless it actually leads to a worse outcome, why not say yes?\footnote{43} Moreover, a patient whose demand for additional treatment was refused is probably more likely to sue (and may also be more likely to prevail, if the refused procedure would have mitigated the injury).\footnote{44} The desire to be accommodating and the desire to avoid liability thus combine to produce even more unneeded care—more fuel for the feedback fire.\footnote{45}

Yet despite the range of treatment options available, there is one factor that we might expect to prevent physicians from consistently providing more care than they think necessary: market forces. Extra tests, procedures, and referrals are expensive, and if their economic costs outweigh their benefits (as is the case with defensive medicine) one would expect the market to prevent physicians from ordering them. Of course, as the Calfee and Craswell model demonstrates, part of the benefit of the extra care is the decrease in risk of liability—but even for the physician who is averse to or exaggerates that risk there may come a point at which it no longer makes sense to overcomply. The peculiar nature of the health care industry, however, dampens these market pressures. Most patients externalize their costs through health insurance, and those insurance plans have not been successful in containing costs generally—let alone containing the costs of defensive medicine specifically—despite decades of attempts.\footnote{46} Indeed, financial incentives may fuel the feedback loop rather than retard it. Most physicians work on a fee-for-service basis, so additional services mean additional fees. (And testing is a particularly profitable aspect of health care.)\footnote{47} We would like to

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\bibitem{41} Lars Noah, \textit{Medicine’s Epistemology: Mapping the Haphazard Diffusion of Knowledge in the Biomedical Community}, 44 \textit{ARIZ. L. REV.} 373, 383 (2002); Sage at 1774.
\bibitem{42} Indeed, overcompliance probably improves patient outcomes much of the time, even though it is not cost-effective. Studdert et al. at 2616. There are, however, instances in which defensive medicine actually makes the patient worse. Studdert et al. at 2616; see also Michael L. DeKay and David A. Asch, \textit{Is the Defensive Use of Diagnostic Tests Good for Patients, or Bad?}, 18 \textit{MED. DECISION MAKING} 19 (1998) (arguing that defensive diagnostic testing is bad for patients). We will study one specific example infra.\footnote{43}
\bibitem{43} It’s often easier to just say yes than to explain why no is the better answer. See Brownlee at 157-58; cf. Paul Clay Sorum et al., \textit{Why Do Primary Care Physicians in the United States and France Order Prostate-Specific Antigen Tests for Asymptomatic Patients?}, 23 \textit{MED. DECISION MAKING} 301, 305 (2003) (finding that American physicians acceded to patient pressure to order unnecessary test more than French physicians); Dustin W. Ballard et al., \textit{Fear of Litigation May Increase Resuscitation of Infants Born Near the Limits of Viability}, 140 \textit{J. PEDIATRICS} 713 (2002) (finding that neonatologists strongly deferred to parents’ wishes regarding resuscitation of premature infants with dismal survival rates).
\bibitem{44} Cf. Ballard et al. at 716 (finding that perception of parents’ litigiousness prompted neonatologists to “resuscitate infants against their better judgment” and that “parents are assumed to be potentially litigious until proven otherwise”).
\bibitem{45} See Campbell et al. at 799 (“In response to a hypothetical scenario about the distribution of finite resources, 36% of physicians said that they would order unneeded magnetic resonance imaging for back pain in response to patient request.”). Note that this survey was not about and did not mention malpractice, meaning that its results are not tainted by the possibility that physicians exaggerate their propensity to practice defensive medicine because they have a political axe to grind. See supra note.\footnote{43}
\bibitem{46} Danzon book at 142; \textit{RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW} 202 n.4 (6th ed. 2003); MoM at 113; Mello, Swords, at 690 n.197; Robinson at 178.
\bibitem{47} MoM at 113.
\bibitem{48} Brownlee at 162; Herman M. Somers, \textit{The Malpractice Controversy and the Quality of Patient Care}, 55 \textit{MILBANK MEM. FUND Q.} 193, 229 n.40 (1977).
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think that the medical profession has only our health in mind, but unfortunately studies consistently show that physicians order more tests, procedures, etc. when they stand to personally profit from them.\textsuperscript{49}

These factors—the absence of scientific proof for most procedures, the externalization of the costs of care, and the fact that medical professionals often make money from additional measures—combine to create more fuel for the feedback loop whenever a new procedure or new technology is introduced.\textsuperscript{50} Studies have shown that the availability of medical resources inevitably leads to the use of such resources, with little or no effect on patient outcomes;\textsuperscript{51} “A built hospital bed is a filled hospital bed,” as the saying goes.\textsuperscript{52} And the producers of promising new technologies relentlessly market them to physicians and hospitals, knowing that no one expects proof of their efficacy before adoption.\textsuperscript{53} This “technological imperative”\textsuperscript{54} is not necessarily a result of fear of malpractice liability, but it certainly creates more opportunities for defensive medicine and causes real-world practice to evolve in the same direction: more unneeded care.

Of course, when it comes to externalization of costs, one cannot look at just one side of the ledger. Patients may not bear the full cost of the medical treatment they receive, but neither do physicians bear the full costs of their malpractice exposure. Instead, malpractice insurance covers most of their costs. In theory, this should muffle tort’s deterrent signal, reduce overcompliance, and slow down the feedback effect.

Why then is defensive medicine so pervasive? One possibility is that malpractice insurers efficiently pass the deterrent signal along by adjusting their premiums to account for the level of care their policyholders provide. But the evidence does not bear this out: physicians are almost always rated by community—i.e., type of practice and geographical location—rather than by claims

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  \item \textsuperscript{49} E.g., B.J. Hillman et al., \textit{Frequency and Costs of Diagnostic Imaging in Office Practice—A Comparison of Self-Referring and Radiologist-Referring Physicians}, 323 \textit{N. Eng. J. Med.} 1604 (1990) (finding that self-referring physicians order diagnostic imaging four times more often than radiologist-referring physicians and usually charge significantly more for imaging of similar complexity); Birbeck et al. at 120 (finding evidence that physicians with financial interest in testing facilities ordered more tests); \textit{see also} OTA at 104 (summarizing similar studies); Brownlee at 127-29 (arguing that high profits to be made from inefficacious bone marrow transplant surgery played significant role in its rapid adoption).
  \item \textsuperscript{50} “As one hospital in a community adds two routine tests upon admission . . . others follow, and then that becomes the accepted ‘community standard of care.’” Herman M. Somers, \textit{The Malpractice Controversy and the Quality of Patient Care}, 55 \textit{Milbank Mem. Fund Q.} 193, 229 n.40 (1977) (quoting Professional Briefs, \textit{Med. Econ.}, July 21, 1975, at 11-12).
  \item \textsuperscript{51} Brownlee at 109-16; \textit{see also} Brownlee at 171 (“[S]tudies of the effectiveness of imaging . . . have shown that the technology is improving care only in tiny increments, even as utilization and costs are rising at meteoric rates.”); Studdert at 2616 (explaining how “[d]efensive use of technology” inevitably becomes customary).
  \item \textsuperscript{52} Brownlee at 111; \textit{see also} OTA at 105 (summarizing studies showing that “availability of technologies influences their use”); Somers at 228 (describing “technological imperative”).
  \item \textsuperscript{53} \textit{See, e.g.}, Gina Kolata, \textit{Where Marketing and Medicine Meet}, \textit{N.Y. Times}, Feb. 10, 1999, at A14 (discussing marketing of unproven technologies to cardiologists). Another example:
    When Cordis, a manufacturer of cardiovascular stents, introduced the first drug-coated stent in June 2003, interventional cardiologists began using them without evidence that they represented an improvement over bare-metal stents. . . . Uptake was so widespread and so rapid that by 2006 over 90 percent of all stents placed in patients were coated. Clinical trials are now showing that the drug-coated stents increase the risk of clot, which can cause a stroke, unless the patient takes drugs to prevent one. Brownlee at 172; \textit{see also} Brownlee at 119-20 (describing tireless promotional efforts of originator of inefficacious bone marrow transplant surgery for breast cancer).
  \item \textsuperscript{54} This term is from Somers at 228.
\end{itemize}
experience, and providing too much care will not change the community to which a physician belongs.

The more compelling explanation for defensive medicine’s persistence in the face of malpractice insurance is that uninsured costs loom large in the psyche of the average physician. We have already seen that physicians exaggerate the risk of suit, but the research literature also emphasizes the great mental distress that the malpractice process imposes on a physician, as well as the significant reputational effects and thousands of dollars worth of lost time and inconvenience that accompany each claim. And most of these costs arise from the mere filing of a claim, which means they foster overcompliance even when the plaintiff is unlikely to prevail at trial or extract a settlement payment. Once we combine deterrent effect of these uninsured costs with the fact that providing extra care costs the patient nothing and may put money in the physician’s pocket, the prevalence of defensive medicine makes sense.

C. Alternative Explanations for the Content of Reasonable Care

The preceding discussion showed that factors other than tort’s deterrent signal influence the physicians’ conduct, but that those other factors will either produce the same result—i.e., wasteful levels of care—or at least will not significantly impede the tendency to overcomply. Now let us explore the other end of the feedback loop: how does defensive medicine affect the definition of negligence? Does overcompliance actually work its way back into the reasonable care standard?

The main issue to be dealt with here is the extent to which reasonable care is the same as ordinary care. As Learned Hand taught us, “the general practice of the calling” can help inform what we mean by reasonable care, but should not be its only measure. So when a physician’s choice of treatment is challenged in a malpractice suit, the court theoretically remains free to consult scientific evidence or otherwise impose its own cost/benefit judgment, rather than define the legal standard by looking to custom among practitioners.

Nevertheless, courts in malpractice cases have not accepted Hand’s invitation to second-guess the medical profession. Instead, they defer almost without exception to the real-world practice of

55. Abraham at 409-10; Robert Quinn, Medical Malpractice Insurance: The Reputation Effect and Defensive Medicine, 65 J. RISK & INS. 467, 467 (1998); Lawthers et al. at 476; Mello & Brennan, Deterrence, at 1616; David M. Studdert et al., Medical Malpractice, 350 NEW ENG. J. MED. 283, 283 (2004). The reason that experience rating is not more common is that claims against any given physician are too few and far between and fluctuate too much to generate meaningful actuarial data. MoM at 18, 114-15; Abraham at 410; Troyen A. Brennan & Michelle M. Mello, Patient Safety and Medical Malpractice: A Case Study, 139 ANNALS INTERNAL MED. 267, 271 (2003).

56. MoM at 126 (finding that each claim filed costs physician $7,000 in lost time and also causes great mental distress); MoM at 115 (noting that inconvenience, time spent, and reputational and morale effects are “immediate and entirely uninsured consequences of being sued and found liable [that] probably dwarf any statistically valid increase in the doctor’s future malpractice premiums from experience rating”); O’Connell, Neo-No-Fault, at 126 n.4 (quoting Board of Trustees of American Medical Association as saying that “biggest cost” of malpractice lawsuits is “emotional injury” to physicians); see also Quinn at 470-71 (linking defensive medicine to malpractice’s uninsurable reputational effects); Abraham at 408 (“Indeed, were it not for such physician, as opposed to liability insurer, losses, it would be difficult to explain the widespread incidence of defensive medicine.”).

57. MoM at 18; see also Quinn at 468 (modeling reputational effects “whether the claim is won or lost”); Localio et al. at 370 (finding no correlation between use of cesarians and claims paid and but lots of correlation between use of cesarians and claims filed).

58. See supra text accompanying note ___.
Reasonable care in malpractice cases “is virtually defined by the customary skills and practices of the profession,” such that compliance almost always means no liability. Deference to custom is so strong that a court can actually exclude evidence that challenges the effectiveness of the custom. In recent years, some jurisdictions may have departed slightly from this deferential standard, but no one denies that custom remains the central determinant of reasonable care in medical malpractice. Indeed, the soon-to-be-released Third Restatement of Torts has not noted any diminution in the importance of custom; although in most cases it sees reasonable care as “more demanding than a standard understood solely in terms of ordinary care,” the distinction is evanescent in professional malpractice cases, where “the malpractice standard is to a significant extent defined in terms of professional standards and customs.”

Deference to custom is critically important to doctrinal feedback because it ensures that the legal system will be in no position to remove a widely adopted yet wasteful defensive measure. Quite the contrary: deference to custom means that once an unneeded practice becomes widespread, that practice also becomes the legal standard by which physicians are judged, which encourages the remaining outliers to adopt the practice as well. Eventually, that which was once considered overcompliant becomes merely compliant, so that physicians who wants to steer clear of reasonable care’s gray areas must be adopt some new even-more-defensive measure.

And as defensive medicine works its way into professional practice, it loses its identity as defensive. A feedback effect of even moderate strength will influence behavior in such a way that physicians themselves will soon forget whether a particular practice originated as a defensive

59. The exception that proves the rule is Helling v. Carey, 519 P.2d 981 (Wash. 1974), which is essentially the only case ever cited for the proposition that a court can substitute its own judgment for that of the medical profession. In Helling, the Washington Supreme Court held an ophthalmologist liable for failure to perform a simple test for glaucoma, despite uncontested expert testimony that the standards of the profession did not require administering the test to younger patients. The profession’s practice reflected a perfectly reasonable cost/benefit analysis: only one in 25,000 patients under forty would have the condition. Id. at 983; see also Clark C. Havighurst, Private Reform of Tort-Law Dogma: Market Opportunities and Legal Obstacles, 49 LAW & CONTEMP. PROBS. 143, 159 n.45 (1986) (“[M]edical research taking all relevant factors into account provides no convincing evidence for the cost-effectiveness of even the customary practice of screening all patients over age 40 for glaucoma.”). An interesting concurrence in Helling pointed out that by ignoring the perfectly reasonable cost/benefit analysis inherent in the industry’s practice, the court was basically imposing a strict liability standard. 519 P.2d at 984-85 (Utter, J., concurring).

60. Glen O. Robinson, Rethinking the Allocation of Medical Malpractice Risks Between Patients and Providers, 49 LAW & CONTEMP. PROBS. 173, 173 (1986); accord Epstein at 37 (noting that Hand’s invitation to second-guess custom has received a “chilly reception” in medical malpractice and “has not worked its way into the dominant fabric of the law”); Clark C. Havighurst, Altering the Applicable Standard of Care, 49 L. & CONTEMP. PROBS. 265, 265 (1986) (“[A]dherence to prevalent professional standards creates an almost irrebuttable presumption of due care.”).

61. E.g., Schneider v. Revici, 817 F.2d 987, 990 (2d Cir. 1987) (affirming exclusion of effectiveness evidence because “the issue in medical malpractice is not whether a particular treatment is effective but whether that treatment is a deviation from accepted medical practice in the community”).

62. See Philip G. Peters, Jr., The Quiet Demise of Deference to Custom: Malpractice Law at the Millennium, 57 WASH. & LEE L. REV. 163 (2000) (claiming that a general reasonable care standard may have formally replaced deference to custom in almost half of all states).


64. Even if courts did not defer to custom, they would have few opportunities to regulate overcompliance, because much defensive medicine increases the cost of care without increasing the chance of injury, and without injury there is little chance of a lawsuit. Deference to custom makes it even less likely that courts will be able to discourage overcompliance, because on those occasions when the overcompliance does harm the patient the injury will not be considered negligent as long as other physicians have adopted the defensive practice.
measure or clinical desideratum. After all, the profession is accustomed to adopting practices that have no scientific basis, and physicians are very sensitive to peer relations and to the malpractice experiences of their colleagues. A few salient claims experiences may therefore affect the way an entire specialty practices, without much conscious recognition that its custom includes wasteful practices. And that rare physician who realizes the inefficiency of a common procedure will be stuck on the horns of a prisoner’s dilemma; if he or she decides not to follow the custom, a patient who later sues for malpractice will point to this departure from the norm as proof of a lack of reasonable care.

In short, medical malpractice is one of the few areas in which negligence law defers to custom, and the results appear less than ideal. Rather than tell courts to stand back and let medical custom develop, the better course may be to call in the lawyers early and often and invite judges to flyspeck the efficacy of industry practice. In any event, the legal doctrine here is particularly fertile ground for a feedback effect.

D. Feedback in Action: Electronic Fetal Monitoring

If the foregoing explanation of doctrinal feedback in medical malpractice law is correct, we may be able to identify particular procedures that are the result of the feedback loop. There is certainly no shortage of candidates. Over the years, a depressingly high number of common practices have turned out to be useless, or at least vastly overused: tonsillectomies, hysterectomies, frontal lobotomies, radical mastectomies, arthroscopic knee surgery, x-ray screening for lung cancer, proton pump inhibitors, hormone replacement therapy, high-dose chemotherapy for breast cancer, use of lidocaine after myocardial infarction, drug-coated cardiovascular stents, preventative angioplasty, bypass surgery, and various aggressive approaches to diabetes, heart attack, and varicose veins.

Many of these examples, however, involve practices that actually did considerable harm to patients. One would therefore not expect them to remain in common usage for long. Negligence law might be slow to usher them out, given its deference to custom, but even without an effective tort signal patients will not demand and physicians will not administer treatments that are clearly harmful. In contrast, doctrinal feedback involves practices that are wasteful, not overtly harmful; no physician is going to think that performing a dangerous procedure will help avoid liability.

Here too there are some candidates, such as serologic testing for Lyme disease, some

65. OTA at 22 (“Over time, many procedures originally performed out of conscious concern about liability may become so ingrained in customary practice that physicians are no longer aware of the original motivation for doing them and come to believe that such practices are medically indicated.”); id. at 32 (“Eventually, physicians may cease to characterize or even think about [ordering diagnostic tests on low-risk patients] as ‘defensive.’”).

66. See supra ___.

67. Weisman at 22; Glassman at 234; see also MoM at 128 (ranking peer relations high on list of factors influencing physicians).

68. See Glassman et al. at 234 (“It may take only relatively few adverse tort experiences to change group behavior.”).

69. See Havighurst at 269; other Havighurst at 159; Hall at 119.

70. Brownlee at 27.


72. Brownlee at 172.

73. Brownlee at 101-05.

74. Robert H. Brook et al., The Relationship Between Medical Malpractice and Quality of Care, 1975 DUKE L.J. 1197, 1204.
mammograms, and prescription of antibiotics for colds, upper respiratory tract infections, and bronchitis. But because most medical procedures have no sound empirical basis, it can be difficult to tell which were adopted in the mistaken hope that they were indeed clinically advisable and which represent purposeful overcompliance.

If we are to identify an example of the latter, then, our the most promising places to look are those areas where the specter of malpractice liability looms large. And on that score, nothing beats obstetrics and gynecology. Obstetricians and gynecologists have historically been targets of lawsuits more often than any other physicians—almost 90% report having faced a lawsuit at some point in their careers—and their payments to plaintiffs trend much higher than the malpractice average. It is not hard to imagine why; the ambiguity of the reasonable care standard gives a jury’s emotional reactions free rein, and nothing tugs at the heartstrings like an injury to a newborn or impairment of a woman’s ability to bear children.

Obstetricians in particular face the most claims and are much more likely than any other kind of physician to lose a malpractice trial—and they pay correspondingly high insurance premiums. It should come as no surprise that this legal exposure results in defensive changes in obstetric practice. A substantial majority of obstetricians report making such changes, most often by increasing the number of cesarean deliveries they perform. And independent studies bolster this self-reporting: the incidence of cesarian delivery correlates positively with malpractice premiums, number of claims per physician, number of patients discharged, and perceived risk of suit.

The increase in cesarian deliveries makes sense as a reaction to tort’s deterrent signal when one considers that of all obstetric and gynecology cases, those involving labor and delivery produce the most plaintiff verdicts and result in the highest jury awards in all of medical malpractice (a median of $2.25 million). These numbers are driven by the most common injury in obstetrics cases: neurological damage to newborns, which accounts for three-quarters of all obstetric insurance losses.

76. Ralph Gonzales et al., Antibiotic Prescribing for Adults with Colds, Upper Respiratory Tract Infections, and Bronchitis by Ambulatory Care Physicians, 278 JAMA 901, 901 (1997).
78. 2006 ACOG Survey at 15.
79. Ostergard at 2.
80. Ostergard at 2; see also O’Connell, Neo, at 125 (“Because provider fault is frequently difficult to measure . . . a lay jury is apt to be influenced more by its subjective and emotional reaction to the injured patient’s plight than by the appropriateness of the defendant’s conduct.”).
81. 2006 ACOG Survey at 15; see also Ostergard at 2 (noting that obstetric claims account for almost three-quarters of ob/gyn insurance losses).
82. JVR at 46.
83. MacLennan at 1688.
84. 2006 ACOG Survey at 14.
86. Daniels & Andrews at 176.
88. ACOG survey at 15; Thacker at 23.
losses\textsuperscript{89} and results in an average payment to plaintiff of more than $1.1 million.\textsuperscript{90} (In one recent study of all malpractice claims, almost one in five plaintiffs was a newborn.\textsuperscript{91})

Insofar as tort law is supposed to affect the behavior of those it regulates, however, none of these myriad statistics proves that anyone is overcomplying. Perhaps optimal obstetric care simply requires more cesarian deliveries than obstetricians would usually be inclined to perform, and the reasonable care standard is accordingly sending the necessary deterrent signal. What we need, again, is a particular test or procedure within obstetrics that we can examine for signs of doctrinal feedback.

Certainly this field has had its share of common practices gone wrong. Examples include administering high concentrations of oxygen to premature babies, prescribing diethylstilbestrol to prevent miscarriages, and using the Dalkon shield as birth control.\textsuperscript{92} As with some of our earlier examples, however, the downside of these treatments turned out to be salient and severe (fibroplasia, vaginal cancer, and spontaneous abortions, respectively).\textsuperscript{93} Therefore, although fear of liability may have played a role in their adoption, these practices were never going to remain customary, let alone form the basis for a subsequent cycle of overcompliance. A better poster child for doctrinal feedback will have a downside that is merely economic, or at least compromises care in a more subtle manner.

As it happens, the most common obstetric procedure is an excellent candidate: electronic fetal monitoring (“EFM”).\textsuperscript{94} EFM is used during labor and delivery to monitor a fetus’s heart rate and variability for signs of distress. The idea is that abnormal heart rates indicate oxygen deprivation, which can lead to brain damage.\textsuperscript{95} Failure to properly monitor the fetus is the basis for a significant percentage of obstetrics suits, and the plaintiff success rate in such cases tends to be quite high.\textsuperscript{96}

In short, over half of the insurance losses in the most high-risk category of clinical practice involve allegations that an obstetrician could have—but did not—prevent a newborn’s neurological impairment.\textsuperscript{97} And the most common basis for these sorts of claims is delay in treatment of fetal distress.\textsuperscript{98} And the most common obstetric procedure just happens to be designed to monitor fetal distress: EFM. If doctrinal feedback is to be found in medical malpractice, it should be found here.

1. Efficacy of Fetal Monitoring

To evaluate EFM as an example of doctrinal feedback, we need to understand its origins. Fetal
monitoring via stethoscope—a process known as auscultation—dates back to the early 1800s and began as a method of ascertaining that the fetus was still viable. By the end of the nineteenth century, however, some physicians had begun using auscultation not only to discover whether a fetus was alive, but also to predict risk of fetal death during labor. A heartbeat that was too fast, too slow, or irregular was an indication of fetal distress—presumably due to lack of oxygen caused by constriction of the umbilical cord. The solution was to deliver the fetus immediately, usually through a cesarian section or operative vaginal delivery (e.g., use of forceps).  

The criteria for fetal distress developed during this period remained in use until the 1950s. At that point, advances in electronic monitoring of fetal heart rates began to overtake auscultation. Two EFM techniques in particular led the charge: (1) attaching an ultrasound device to the mother’s abdomen and (2) inserting an electrode through the cervix, where it would be affixed to the fetal scalp. The electronic signal would then be recorded as a series of waves, traced on graph paper.

It was not until the late 1960s and early 1970s, however, that EFM entered clinical practice. One thousand EFM devices were in use in the United States in 1972, and four years later 99% of teaching hospitals had one. By 1980, EFM had almost passed auscultation as the most popular method of monitoring, and by 1988 it was far ahead, used in 62.2% of live births. In the early 1990s the number increased to almost 75%, and in 2002 it hit 85%, making EFM the most common obstetric procedure. (These figures may actually under-report the method’s popularity; certainly researchers regarded electronic monitoring as “almost universal” as early as 1993.)

Although the introduction of EFM into clinical practice and its rapid adoption coincided with the malpractice explosions of the 1970s and 1980s, the procedure had a plausible clinical basis. The medical community had long thought that cerebral palsy and most other brain damage resulted from trauma to the infant during labor. And because EFM provided continuous and easily recordable information about fetal intrapartum heart rate, it allowed physicians to look for patterns and variations that indicated distress in a way that intermittent auscultation could not. As a result,
the technique’s proponents claimed that use of EFM could save the lives of 20,000 infants a year and could cut the rate of perinatal neurologic injuries in half.\textsuperscript{112}

Physicians embraced EFM so wholeheartedly that several years passed before anyone seriously considered rigorous testing of the new method to see if it delivered on its promise. Indeed, so convinced was the medical community of EFM’s benefits that ethical concerns scuttled early plans for clinical testing, as it was thought wrong to deny the technique’s use to those patients who would constitute the control group.\textsuperscript{113} A similar irony underlay the first randomized trial, which took place in 1976: the researcher conducted the trial only out of a desire to generate some hard data that he could then use to convince recalcitrant mothers of the benefits of EFM.\textsuperscript{114} The results of the study—that EFM did not improve patient outcomes—were thus a surprise even to him, let alone to the rest of the obstetric community.

But this first trial was no fluke. A slew of subsequent studies beginning in the 1970s and continuing through the present day confirms that EFM is no better than intermittent auscultation in preventing death, injury, or impairment in newborns.\textsuperscript{115} Only two studies—both led by the same researcher—have found any advantage for EFM. The first claimed that use of EFM decreased perinatal deaths from hypoxia,\textsuperscript{116} but this result is inconsistent with every other study of the same issue and the study has elicited much criticism for its design and implementation.\textsuperscript{117} The second, a meta-analysis of nine other studies, made the same claim,\textsuperscript{118} but the American College of Obstetricians and Gynecologists has called this finding “statistically unstable,” as just one fewer

\textsuperscript{112} See Graham at 658-59.

\textsuperscript{113} Graham at 659. The same irony would later delay testing of another treatment that turned out to have high costs and little benefit: high-dose chemotherapy and bone marrow transplant for breast cancer. Its efficacy was so widely accepted that the medical community resisted randomized trials for years as unethical, because some women would have to be assigned to the control group. BROWNLEE at 131.

\textsuperscript{114} Graham at 659.

\textsuperscript{115} See, e.g., Alfie V. at 1 (“Continuous cardiotocography during labour is associated with . . . no significant differences in cerebral palsy, infant mortality or other standard measures of neonatal well-being.”); Leah L. Albers, Clinical Issues in Electronic Fetal Monitoring, 21 BIRTH 108, 108 (1994) (“Effective screening tools are valid and reliable; this technology is neither.”); Thacker at 618 (finding no decrease in morbidity or mortality); K.K. Shy et al., Evaluating a New Technology: The Effectiveness of Fetal Heart Rate Monitoring, 8 ANN. REV. PUB. HEALTH 165 (1987) (finding “increasing evidence that EFM has little effect on perinatal outcomes”); Paneth at 162 (noting no positive effect from use of EFM); ACOG NO. 207 at 3 (noting that “a substantial body of evidence disproves the hypothesis that electronic fetal monitoring would reduce long-term neurologic impairment and cerebral palsy in newborns so monitored”); Nelson at 617 (noting lack of evidence that EFM helps reduce cerebral palsy, low Apgar scores, acidosis, neonatal apnea, or the need for intubation); Adrian Grant, Monitoring the Fetus During Labour, in 2 EFFECTIVE CARE IN PREGNANCY AND CHILDBIRTH 846, 877 (Iain Chalmers et al. eds., 1989) (recommending intermittent auscultation is “the policy of choice in [the majority of] labours” and judging it as effective as EFM in preventing intrapartum death); Enkin at 273-75 (“There is no evidence that intensive fetal heart-rate monitoring . . . reduces the risk of Apgar score less than 7, or the rates of admission to special care nurseries.”); ACOG NO. 70 at 1455-56 (noting that either method is fine for low-risk patients and that there is no evidence either way for high-risk patients); MacLennan et al. at 1689 (“EFM as compared with monitoring by intermittent auscultation is associated with no decrease in perinatal deaths, no fewer admissions to neonatal intensive care units, no fewer Apgar scores below 7 or below 4, and no less incidence of [cerebral palsy].”). And note that the randomized clinical trials that form the basis for these studies may have monitored EFM under optimal conditions rather than under conditions reflecting routine practice, which would mean that they overstate the technique’s efficacy. Graham at 662.

\textsuperscript{116} See Anthony M. Vintzileous et al., A Randomized Trial of Intrapartum Electronic Fetal Heart Rate Monitoring Versus Intermittent Auscultation, 81 OBSTETRICS & GYNECOLOGY 899 (1993).

\textsuperscript{117} See, e.g., Marc J.N.C. Keirse, Electronic Monitoring: Who Needs a Trojan Horse?, 21 BIRTH 111 (1994); Neilson at 104.

death in the control group would have changed the significance of the result.\textsuperscript{119} The only benefit that randomized clinical trials have demonstrated with any consistency is a reduction in the rate of neonatal seizures,\textsuperscript{120} and preliminary follow-up studies suggest that such seizures—although undoubtedly distressing when they occur—produce no lasting impairment.\textsuperscript{121}

The problem is not the technical precision of electronic monitoring. The technology’s signal loss is minimal, particularly when a scalp electrode is used.\textsuperscript{122} The resulting tracings thus correctly reflect the fetus’s heart rate and accordingly provide more (and more accurate) information than auscultation.\textsuperscript{123} Nor are false negatives to blame: infants with neurological disorders will almost always exhibit abnormal heart patterns during labor, and EFM is better than auscultation at detecting such patterns.\textsuperscript{124}

Rather, EFM is no better than auscultation at improving patient outcome because it fails to identify which fetuses might benefit from intrapartum intervention. As it turns out, the conventional wisdom in the medical community during the development of fetal monitoring technology was wrong. Oxygen deprivation during delivery rarely compromises the health of the fetus. Neurologic injury is almost always prenatal, not perinatal, in origin.\textsuperscript{125} Up to 30\% of all EFM tracings are considered abnormal, yet only an tiny fraction of the babies who produce such readings will suffer death or disability due to an intrapartum event.\textsuperscript{126} This results in an extremely high number of false positives for every correct diagnosis.

A study of the use of fetal monitoring to prevent cerebral palsy provides a good example.\textsuperscript{127} Using conservative estimates (i.e., estimates that favored a showing of EFM’s efficacy), researchers determined that 9.3\% of fetuses brought to term would have ominous heart-rate abnormalities, but that only 0.19\% of those fetuses would actually have cerebral palsy. And no more than 20\% of that 0.19\% would have acquired the condition during delivery; as with other neurologic disorders, most

\textsuperscript{119} ACOG 70 at 1455. Note also that one of the co-authors of the second study was Barry Schifrin, an EFM pioneer who is one of the procedure’s few remaining defenders—and who has built a lucrative consulting practice called BPM (for “beats per minute”) to assist plaintiffs in EFM-related litigation. See Graham at 662. In 2004, the American College of Obstetricians and Gynecologists famously and controversially censured Shifrin for his pro-plaintiff expert testimony in obstetric malpractice cases. Jessica M. Walker, Lawyers See Peer Reviews Imposing “Conspiracy of Silence” on Doctors Who Might Testify for Medical Malpractice Plaintiffs, DAILY BUS. REV., Aug. 8, 2005, at 1.

\textsuperscript{120} Thacker at 618; Grant at 872; Enkin at 271-72; Graham at 660-61; Shy et al. at 187; Alfirevic at 8.

\textsuperscript{121} Thacker at 618; Grant at 877; Enkin at 271-72; Graham at 664.

\textsuperscript{122} External ultrasound performs considerably worse than a scalp electrode, with the former producing a signal loss of up to 19\% during the second stage of labor. P.C.A.M. Bakker et al., The Quality of Intrapartum Fetal Heart Rate Monitoring, 116 EUR. J. OBSTETRICS & GYNECOLOGY AND REPROD. BIOLOGY 22, 25-26 (2004).

\textsuperscript{123} Shy at 184-85; Grant at 853-54; Enkin at 270-71.

\textsuperscript{124} Grant at 852-54; Shy at 184-85; ACOG No. 70 at 1456-57.

\textsuperscript{125} Fredric D. Frigoletto Jr. & Allan S. Nadel, Electronic Fetal Heart Rate Monitoring: Why the Dilemma?, 31 CLINICAL OBSTETRICS & GYNECOLOGY 179, 179-80 (1988); Shy et al. at 187; Grant at 853; Paneth at 162-63; Albers at 108-09; Paul at 394; see also Nelson at 617 (estimating that only three to twenty percent of infants with cerebral palsy acquired the condition as a result of intrapartum asphyxia); Goddard at 1437 (“The prevalence of perinatal mortality or cerebral palsy from intrapartum causes is about 0.8 per 1000 and 0.1 per 1000 respectively.”); Judith Lumley, Does Continuous Intrapartum Fetal Monitoring Predict Long-Term Neurological Disorders?, 2 PAEDIATRIC & PERINATAL EPIDEMIOLOGY 299 (1988) (finding no predictive value despite widespread confidence in the technique among clinicians).

\textsuperscript{126} Boehm at 636.

\textsuperscript{127} Karin B. Nelson et al., Uncertain Value of Electronic Fetal Monitoring in Predicting Cerebral Palsy, 334 NEW ENG. J. MED. 613 (1995).
cerebral palsy develops before labor. So in a population of 100,000 infants, approximately four would be at risk for the kind of cerebral palsy that might be prevented through electronic monitoring and operative intervention—but another 9,296 infants would exhibit the same ominous EFM abnormalities. This means that there would be 2,324 wasteful interventions for every one potentially beneficial intervention. Indeed, even if the conventional wisdom of the 1970s were correct and every instance of cerebral palsy could be traced to intrapartum distress, obstetricians would have to perform 516 useless interventions for every one infant that they could help. Similar results obtain for other neurological conditions.

It should come as no surprise, then, that the only medical outcome that studies consistently associate with use of electronic monitoring is an increase in cesarians and other operative deliveries. Although auscultation works equally well, and although a variety of less intrusive approaches to fetal distress are available (e.g., shifting the mother’s position, giving her more oxygen, discontinuing oxytocin), the medical community continues both to employ EFM and—some twenty years after randomized trials proved it inefficacious—to use it as a justification for operative delivery of perfectly healthy infants.

2. Feedback and Fetal Monitoring

The evidence overwhelmingly shows that electronic monitoring is wasteful at best and therapeutically useless at worst. Yet the medical community continues to monitor fetuses electronically, and continues to interpret the resulting tracings as warranting the most radical form of intervention possible.

Why? Well, perhaps doctrinal feedback provides the answer. For EFM to form part of a feedback loop, however, three conditions must be satisfied. First, the technique must represent...
overcompliant behavior caused by fear of negligence liability. Second, that overcompliance must become the new legal norm by which clinicians are judged. Finally, that new norm must in turn give rise to a new cycle of overcompliance—new extra care piled on top of the old extra care. Let us consider each in turn.

a. EFM and the Causes of Overcompliance

EFM is certainly an example of overcompliant behavior. Its benefits are evanescent: a small number of infants possibly saved from neurological damage, and some reduction in neonatal seizures that have not been shown to have any lasting effect. Its costs, however, are significant. Most obvious is the expense of all those unnecessary operative interventions, such as cesarian delivery. One estimate from the 1980s pegged the annual cost of administering EFM and performing the extra cesarians at $750 million, a number that may be much higher now that electronic monitoring has become universal. And this estimate did not account for an equally important consequence of cesarians: increased morbidity for the mother. Any invasive surgery carries risks, and cesarians are no different. More than one in seven unscheduled cesarian operations results in complications, and 4.1% of complications are major (usually serious hemorrhaging) when the cesarian is performed during labor, as would be the case for an intervention prompted by intrapartum EFM readings.

A more subtle cost of electronic monitoring is the change it has occasioned in the interaction between medical personnel and the laboring mother. Auscultation requires one-on-one attention, whereas EFM tracings can be monitored from afar. The prevalence of electronic monitoring has therefore resulted in a more depersonalized approach to obstetrics without any clear savings in personnel or equipment costs. This development, although lamentable, would have little to do with malpractice-fueled feedback, except that one-on-one care and good doctor-patient communication are factors that lead to better health outcomes and fewer lawsuits.

So electronic monitoring’s costs clearly outweigh its benefits. It therefore represents the kind of overcompliant behavior that we would expect to arise under negligence law’s vague reasonable care standard—i.e., the sort of economically inefficient care that the Calfee and Craswell model...
predicts. But this is only part of the inquiry into the first of the three feedback conditions; there must also be a causal connection between the overcompliance and physicians’ fear of liability. If something other than malpractice concerns causes clinicians to use EFM, then we do not have a strong case for doctrinal feedback.

On this point, the evidence is mixed. Malpractice concerns are only one reason that physicians adopt new practices. As discussed above, most procedures and treatments have little or no scientific basis, so physicians may adopt a new procedure simply because that’s what their peers are doing, or because that’s what they are taught in medical school, or because patients ask for it. The marketing that accompanies a seemingly innovative development—and the possibility of new profits for the caregiver—can provide additional motivations. Finally, the promise of a new technology is often beguiling in and of itself.

These other explanations are certainly relevant to electronic monitoring. We have already seen that when EFM first emerged as a viable clinical practice, obstetricians generally believed that intrapartum trauma was at the root of many infant deaths and disabilities, and that timely intervention might save lives. Given this belief, the advantages of continuous electronic tracings over intermittent auscultation seemed obvious; more information just had to be better than less. And EFM’s development was accompanied by marketing efforts and kudos in the popular press—including a 1969 Life Magazine article with photos of a healthy newborn resting safely in his mother’s arms after an EFM-assisted delivery delivered him from fetal distress. How many patients read that article and then demanded that their obstetrician adopt the new technique?

Nevertheless, there are reasons to conclude that malpractice concerns had something to do with the initial adoption of EFM and almost certainly played a key role in its spread and persistence. First, fear of liability may subtly inform some of the other explanations for EFM’s rise to popularity, such as peer relations, patient requests, and marketing. The opinions and practices of one’s peers admittedly exert a strong influence in medical circles, but this simply means that a new technique can spread rapidly once a critical mass of physicians embraces it. Therefore, if some of EFM’s early adopters were motivated by malpractice pressures, those pressures may have indirectly led to widespread overcompliance even among those physicians who did not feel them firsthand. Fear of liability may similarly suffuse obstetricians’ responses to patient requests; in a malpractice-sensitive environment, a patient whose demand for EFM is refused is undoubtedly a patient more likely to sue if the newborn has problems. And the specter of malpractice pervaded the promotional efforts on

144. See supra notes ___-___ [peers] and accompanying text.
145. See supra note ___ [fn w/ Kolata and others] (discussing marketing of new procedures); supra note ___ [Hillman etc.] (discussing effect of financial incentives on caregiving).
146. See supra note ___ and accompanying text (discussing how availability of medical resources inevitably leads to use of such resources).
147. See Lewin at 24 (citing the “sales force marketing [EFM] machines”). A possibly related point: during its early years, EFM was more prevalent in low-risk births, even though high-risk births were thought to benefit the most from the practice. See Thacker at 618. Marketing may explain this anomaly; if one wanted to sell EFM machines, one would probably focus on the richest facilities, which are probably those least likely to treat high-risk patients.
148. Watching the Unborn Inside the Womb: High-Risk Mothers and the Graph That Raises Their Babies’ Chances, LIFE MAG., July 25, 1969, at 64. To the attending physician’s credit, his response to the baby’s distress was simply to change the mother’s position rather than perform a cesarian. Id. at 65.
150. See supra note ___ and accompanying text.
the part of EFM’s pioneers as well, even after doubts about the practice’s efficacy began to emerge. 151

Second, physicians may have originally thought that electronic monitoring produced substantial benefits, but this is entirely consistent with a feedback effect. Overcompliance is supposed to help the patient; the idea is not that the extra care provides no benefit, but simply that it costs more than it’s worth. Of course, if physicians believed not just that EFM provided benefits but also that those benefits outweighed the costs, then their adoption of the technique cannot properly be called defensive medicine because the latter refers to the knowing provision of inefficient care. But as we will soon see, the medical community continued to use EFM even after its inefficiencies were revealed. 152

Finally, and perhaps most important, EFM began its journey toward ubiquity in the early 1970s, just as the country was experiencing its first medical malpractice “crisis.” Total malpractice premiums increased from $60 million in 1960 to $1 billion in 1975. 153 Between 1970 and 1975, one leading underwriter saw claims frequency increase from one per twenty-three physicians to one per eight—and these numbers understate the national average, as the insurer did not provide coverage in such highly litigious states as New York, California, and Florida. 154

Obstetrics was in the thick of this trend, as the plaintiff’s bar quickly learned to take advantage of the documentary evidence that electronic monitoring generated. 155 Record-setting and highly salient jury awards followed. In a case seen as “the battleground for the fetal heart monitor,” an Oklahoma jury returned the largest medical malpractice award in the state’s history, punishing the defendant for his failure to use EFM in the 1978 birth of a brain-damaged infant. 156 And one of the four lawsuits highlighted in presidential candidate John Edwards’s memoir was a prominent 1979 trial in which the plaintiff claimed that incompetent monitoring led to cerebral palsy and other ailments—a claim that resulted in a $6.5 million verdict. 157 By the end of the decade, electronic monitoring was used in 43% of deliveries. 158

Of course, correlation is not causation. But even if the rapid adoption of EFM in the malpractice-sensitive environment of the 1970s represents mere coincidence, liability concerns almost certainly informed electronic monitoring’s continued growth in popularity even after its inefficiencies came

151. The best example of this is an article by EFM pioneer Barry Schifrin, whose controversial confidence in the technique was discussed supra, note ___. His article criticized two prominent professional obstetric organizations, which had responded to the increasingly compelling studies of EFM’s inefficacy by approving the use of auscultation instead of EFM in low-risk births. Schifrin and his co-authors argued that the threat of malpractice exposure warranted rejection of those recommendations and continued use of EFM in all cases. Barry S. Schifrin et al., Electronic Fetal Monitoring and Obstetrical Malpractice, 13 LAW MED. HEALTH CARE 100, 101-02 (1985).

152. See infra ___.

153. Brook et al. at 1197.

154. DANZON book at 60; see also Kenneth S. Abraham, Medical Malpractice Reform: A Preliminary Analysis, 36 Mo. L. REV. 489, 490 n.3 (1977) (reporting that same insurer saw claims frequency rise by 139% and claim severity by 117% between 1968 and 1974).


156. Paul Wenske, Doctor Told To Pay $2 Million, DAILY OKLAHOMAN, June 17, 1981, at 1-2.

157. See JOHN EDWARDS & JOHN AUCHARD, FOUR TRIALS 49-113 (2004). To be fair to Edwards, this trial took place when doubts as to EFM’s efficacy had only just begun to emerge and many obstetricians still believed that the practice could prevent neurologic disorders. See Graham at 659-60.

158. Grant at 850.
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to light, and legal considerations likewise explain its persistence today. The evidence on this point, however, converges with the evidence that EFM eventually became the legal standard of care, so let us turn now to that issue.

b. EFM as Negligence Norm

Recall that the second condition for a complete feedback loop is that the overcompliant behavior becomes so common that it forms the new metric for reasonable care. There is little doubt that by the late 1980s this was happening with EFM. In 1988 the technique was used in six out of every ten births (a figure that may be overly conservative).159 What’s more, as studies conclusively showed that the practice cost more than it was worth, the obstetric community began to acknowledge that malpractice fears rather clinical considerations were responsible for the growth and persistence of electronic monitoring.160

It is easy to see why EFM use continued even after research belied its initial promise. By the time the truth was known, a solid majority of obstetricians were employing the technique, and we have seen that for medical malpractice the pervasiveness of a practice matters more than its efficacy. Thus the conscientious clinician confronted a prisoner’s dilemma: follow the safe but inefficient custom of the herd, or become a maverick and risk exposure to a negligence suit and the vagaries of the reasonable care standard.

The choice was clear. Indeed, even those physicians who paid attention to the research and who vocally supported auscultation admitted that they would continue to choose EFM.161 As one researcher sagely, “It is one thing to avoid introducing a new technique because trials show it to be ineffective. It is another to abandon a widely used method that is not only perceived to be useful, but records of which are carefully scrutinized and sometimes pivotal in expensive legal actions.”162 Defecting from common practice only got harder as time went by and more clinicians jumped on the bandwagon; in 1992 almost three in four deliveries were electronically monitored, increasing to 85%

159. Thacker at 618 (1988 figure); Flamm at 105 (arguing that EFM use has been historically under-reported).
160. “The electronic fetal monitor remains the norm, even in the face of clinical trials showing no better results, both because we are beguiled by technology and because in the current obstetrical climate, every patient is approached as a potential litigant.” Lewin at 24 (quoting vice-chair of University of Washington’s Department of Family Medicine); accord Benjamin P. Sachs, *Is the Rising Rate of Cesarian Sections a Result of More Defensive Medicine?*, in 2 IOM at 27, 37-38 (finding “overwhelming evidence” that use of EFM has to do with malpractice concerns); Graham at 660 (noting relation between malpractice trials and “routine use of EFM”); see also Thacker at 618 (citing “unnecessary concerns regarding malpractice and litigation” as unfortunate byproduct of EFM’s rapid adoption); Thacker in 2 IOM at 21 (“There is no doubt that many obstetricians have been encouraged to use EFM because of a fear of liability for not using the ‘customary procedure.’”); Dickens at 186 (reporting that one third of Canadian practitioners named litigation concerns as strong motivation for use of EFM); Paul at 393 (noting that increased use of EFM had to do with “the litigious attitude of society” and the recognition that fetus was a patient to whom the physician owed a “duty”); 1 IOM at 8 (“[A]fter reviewing the data indicating that electronic fetal monitoring has not improved overall outcomes, the committee concluded that professional liability concerns are at least partly responsible for the continued use of this technology.”).
161. See Lewin at 24. Curiously, another newspaper article suggested that defection might occasionally work. See McKelway, Lose-Lose, at A1 (reporting on case of brain-damaged infant in which absence of any EFM tracings convinced the plaintiff’s bar not to sue).
162. Neilson at 103 (discussing EFM); accord Albers at 109 (“Once procedures are incorporated into practice, they are very hard to remove.”); Goddard at 1436 (“Unfortunately the dramatic increase in litigation in obstetrics has tempered [a move back to auscultation], as the cardiotocograph has also become an important legal document.”).
Small wonder, then, that electronic monitoring was being cited as part of customary care as early as 1987 and that a clear causal connection between malpractice exposure and EFM’s utilization rate emerged. Commentators occasionally point out that choosing auscultation over EFM was supported not only by clinical evidence but also by plausible legal arguments (for example, the “respectable minority” exception to the customary care standard), but they also acknowledge that such theories did not reflect the reality of living in the shadow of a vague reasonable care standard, where risky lawsuits are—or at least are perceived to be—commonplace. Nor are the costs of EFM likely to impact any malpractice calculus; as one article put it, “obstetricians are aware that parents whose babies are born with a serious problem are apt to file malpractice suits while it is unlikely that doctors will be sued for ordering unnecessary monitoring or questionable Caesareans.”

In short, we have plausible evidence that malpractice concerns informed the initial adoption of electronic monitoring, and compelling evidence that such concerns were responsible for the continued growth and persistence of the technique even after its shortcomings were known—making EFM the reasonable care standard by which physicians are judged. All that remains to complete the feedback loop is evidence of another iteration of inefficient care, a new cycle of overcompliance that uses the old overcompliance as its baseline.

c. EFM and Feedback’s Next Iteration

Because electronic monitoring has become the custom in obstetrics, its use can no longer be considered overcompliant behavior. It is instead merely compliant, such that its absence would expose the practitioner to malpractice liability. Doctrinal feedback would accordingly predict a new round of overcompliance: the obstetrician who wants to steer clear of the reasonable care standard will now look to do more than his or her peers, to provide care that goes one step beyond the EFM norm.

163. Thacker at 618 (1992 figure); ACOG 70 at 1453 (2002 figure); see also Paneth et al. at 159 (calling EFM “almost universal” in 1993).
164. Shy at 187 (“EFM has become the generally accepted standard of care for the laboring mother in the U.S.”); see also Graham at 660 (noting that in “[t]he first two decades after the introduction of EFM . . . in the late 1960s” EFM became “standard practice in many areas”).
165. Tussing at 186 (finding that “[u]se of the EFM, use of the fetal distress label, and choice of c-section as a method of delivery are all increased by greater exposure to malpractice suits”).
166. E.g., Thacker in 2 IOM at 21 (discussing “reputable minority” doctrine); Lent at 826-33 (discussing “respectable minority” and “best judgment” doctrines); Mark A. Hall, The Defensive Effect of Medical Practice Policies in Malpractice Litigation, 54 LAW & CONTEMP. PROBS. 119, 128 (1991) (discussing “respectable minority” and “error in judgment” doctrines).
167. E.g., Thacker in 2 IOM at 23 (admitting disconnect between reality, perception, and “how the law is intended to work”); Hall at 128-29 (describing how expert testimony undermines such theories). Even the authors of one of the most thorough debunkings of EFM’s effectiveness equivocated when challenged to urge abandonment of EFM, explaining that “medicolegal pressures can influence physicians’ decisions; it is not only obstetricians who will have to be educated in order to bring behavior more in line with medical evidence.” Karin B. Nelson et al., Letter to the Editor, Electronic Fetal Monitoring in Predicting Cerebral Palsy, 335 New Eng. J. Med. 287-88 (1996), cited in Lent at 823 & n.98. For further evidence that clinical evidence has not penetrated negligence doctrine, consider this: more than twenty years after clear proof of electronic monitoring’s inefficiencies, the medical research community still cites “the extensive clinical use of EFM and its involvement in litigation” as a reason for yet one more study of the technique’s failings. Graham at 657.
There is a host of candidates for this next iteration of fetal monitoring, and every one of them extends the inefficiencies of the current practice. For example, recall the two ways in which EFM can be achieved: attaching an external ultrasound device to the mother’s abdomen or affixing an electrode to the fetus’s scalp (which requires rupturing of the amniotic membrane—i.e., the mother’s water must break). One recent study shows that ultrasound produces more signal loss than a scalp electrode; the researchers therefore make the case for purposely rupturing the membrane early in labor so that the more technically accurate method can be used. This sounds relatively harmless—after all, the laboring mother’s water will break sooner or later—but there is no evidence that this extra procedure would improve outcomes or provide any benefit for mother or baby. Thus feedback proceeds, in incremental, inefficient steps toward an increasingly wasteful standard.

To the medical community’s credit, however, most of the search for the next generation of fetal monitoring focuses on improving the interpretation of EFM tracings. Remember that electronic monitoring is better than auscultation at detecting fetal distress; the problem is in determining which forms of fetal distress indicate a need for intervention. (Indeed, the ambiguity of this determination directly contributes to the malpractice pressures that obstetricians feel, as plaintiffs can easily find an expert to testify that their tracings warranted immediate operative delivery.)

Efforts on this front began soon after EFM’s inefficiencies came to light. Almost twenty years ago, the American College of Obstetricians and Gynecologists propounded a set of interpretive guidelines for what heart-rate patterns should be considered indicators of fetal compromise. The criteria have continued to evolve since. Nevertheless, multiple studies soon showed a hopeless amount of intraobserver and interobserver variability in interpretation no matter what standards were used.

Attention thus shifted to developing new technologies that could assist naked-eye interpretation of EFM tracings. As one researcher put it, “Clearly, additional technology is needed to help clinicians better manage this substantial group of patients [whose EFM tracings are ambiguous].” One study tried to solve the variability problem by using a computer to recognize ominous patterns, but the only finding was that computer analysis triggered more “alerts” (i.e., identified a heart rate as requiring attention) more often than its human counterparts—hardly a reassuring result for those

170. See sources cited supra note ___.
171. Graham at 664 (“Because EFM was introduced without agreed upon definitions for interpretation and management algorithms, expert witnesses retained by the opposing sides in a trial can deliver very different interpretations of the same FHR tracing in the courtroom to the confusion and frustration of lay juries.”); Flamm at 105 (“In reality, it has become relatively easy to find expert witnesses who will testify that even a single late deceleration can cause significant and permanent brain damage.”); Albers at 109 (“Medicolegal jeopardy for health care providers may also be increased . . . when ‘experts’ can easily have opposing views as to which patterns were present and what they mean.”).
172. ACOG 132 at 2-5.
174. See ACOG No. 70 at 1456; Paneth at 160; Devoe et al. at 365.
175. Boehm at 635.
176. Lawrence Devoe et al., *A Comparison of Visual Analyses of Intrapartum Fetal Heart Rate Tracings According to the New National Institute of Child Health and Human Development Guidelines with Computer Analyses by an Automated Fetal Heart Rate Monitoring System*, 183 Am. J. Obstetrics & Gynecology 361 (2000); see also Graham at 664 (reviewing literature on computer-assisted EFM interpretation and concluding that as of 2006 “computerized analysis of FHR tracings has failed to gain
hoping to reverse EFM’s disappointing cost/benefit tradeoff. Others developed a technique by which an obstetrician takes a sample of the fetal scalp during labor and assesses its pH level. Combining the resulting measurement with EFM data reduces the number of cesarians, but the odds of a cesarian are still twice as high as with intermittent auscultation, with no benefit other than seizure reduction. Scalp sampling is also costly, invasive, and uncomfortable for the mother.

The most recent wave of EFM “improvement” involves two advanced technologies: fetal electrocardiogram waveform analysis and fetal pulse oximetry. Waveform analysis involves monitoring certain electrical activity and patterns in the fetal heart, through a scalp electrode. Pulse oximetry attempts to measure how much oxygen the fetus is getting, using a sensor attached to the fetus’s cheek in utero. Both methods are invasive, and neither reduces overall cesarian rates, yet the latest research cites some potential benefit to using them when conventional EFM tracings are not sufficiently reassuring. As we have already seen, however, a high percentage of EFM tracings can be viewed as non-reassuring, and there is wide disagreement among those who interpret them—including (and perhaps especially) among those obstetricians who serve as plaintiff-side experts in malpractice trials.

Researchers can hardly be blamed for exploring ways to improve on current EFM practice. If the technique is here to stay (and it clearly is), then it makes sense to write off its current inefficiencies as a sunk cost and ask where we can go from here. Moreover, it is unlikely that malpractice fears play much of a role in such research, any more than they motivated those who first developed EFM technology in the 1960s. This may simply be how medicine sometimes evolves: a practice fails to deliver on its initial promise, but the medical community keeps working on it until true benefits emerge.

For the purposes of doctrinal feedback, however, the issue is not whether the development of new methods of medical care is motivated by malpractice fears. The issue is whether such fears will prompt wasteful adoption and use of those methods among practitioners. To the research community’s credit, it has been cautious in touting the benefits of the new techniques, and they have not yet spread throughout clinical practice. Perhaps physicians are uncharacteristically reticent here, having learned a lesson from EFM. Yet EFM holds another lesson: that even risk-neutral
physicians steer clear of malpractice exposure by being overcautious, using overly complicated and expensive techniques where a simpler and cheaper approach would suffice.

Introduction of these new techniques may therefore produce another ratcheting up of negligence’s reasonable care standard. The obstetrician who invests in electrocardiographic equipment for intrapartum waveform analysis may intend to use it only when conventional EFM tracings exhibit “disquieting features,” as the research recommends. But it’s notoriously hard to say which EFM readings are “disquieting,” and the machine is already there, so why not use it for every birth? Surely it can do no harm, and the added expense may bring peace of mind to everyone in the delivery room.

It can do harm, of course. The new methods produce no benefit unless their use is confined to a small, indeterminate category of cases. At the same time, they perpetuate use of the original, wasteful EFM technology while adding a new layer of costs and generating another set of ambiguous data for plaintiffs’ experts to pore over. And the more common the method, the more likely patients are to request it and the more likely other obstetricians are to adopt it. Before long, we have a new standard of care.

III. SOLUTIONS

Electronic fetal monitoring is just one example of doctrinal feedback in medical malpractice law. A case can be made that the phenomenon is to blame for many other apparently wasteful yet common practices. These include the needless hospitalization of patients with chest pain, the administration of prostate-specific antigen tests to men who exhibit no symptoms of cancer, the overuse of imaging in emergency care, and the wasteful ordering of serologic tests and mammograms.

In our modern tort system, however, doctrinal feedback is only one cloud in a storm of dysfunctionality. Therefore, if we focus too intently on this one problem in isolation, we may cause more problems than we solve. As we examine possible solutions for the feedback phenomenon, then, we would do well to remember the cautionary advice that Hippocrates gave to physicians: first, do no harm.

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185. Neilson/Cohrane at 5 (suggesting use of waveform analysis when EFM shows “disquieting features”).
186. A recent review of the research on fetal pulse oximetry concluded that “it may be prudent when developing recommendations to encourage the individual woman and her clinicians to make the decision to use or not use fetal pulse oximetry,” East at 8. Such communal decision-making is an invitation to inefficient care.
187. David A. Katz et al., Emergency Physicians’ Fear of Malpractice in Evaluating Patients With Possible Acute Cardiac Ischemia, 46 ANNALS EMERGENCY MED. 525, 530 (2005) (finding that physicians’ malpractice fears correlate positively with wasteful referrals and testing and with unneeded admission for low-risk patients experiencing heart pain); Pearson at 563 (finding positive correlation between decreased risk tolerance and increased admission of patients with chest pain but no difference in health outcome).
188. Sorum et al. at 307 (finding that malpractice worries, discomfort with uncertainty, and regret over not ordering test all correlate positively with use of PSA test despite research showing inefficacy for asymptomatic patients); Brownlee at 200-02.
189. Brownlee at 153057; see also Brownlee at 171 (“Studies of the effectiveness of imaging . . . have shown that the technology is improving care only in tiny increments, even as utilization and costs are rising at meteoric rates.”).
191. Cf. Robinson at 181 (“The fact that the present system of provider liability is not optimally efficient in distributing losses and reducing the creation of risk does not, of course, establish that any other allocation of risks would be better.”).
192. Although this saying is usually attributed to Hippocrates, its origin is actually uncertain. The closest analog in the writings of Hippocrates is Book 1 of his Epidemics: “As to diseases, make a habit of two things—to help, or at least to do no harm.” 1 HIPPOCRATES 165 (W.H.S. Jones trans., 1923).
With this in mind, the following discussion will first consider three relatively subtle adjustments that one could make in tort law’s treatment of medical malpractice, with few ripple effects. Only then will it address more sweeping changes, and it will place such changes in the context of the longstanding tort-reform and health-care debate. As we will see, each of these possible solutions shows some promise, but none is a panacea.

A. Subtle Changes

The feedback loop in medical malpractice starts when physicians provide more care than they think necessary. They provide such extra care in order to steer clear of negligence law’s murky reasonable care standard. Finding ways to give physicians more guidance as to what the law expects of them may therefore help stop doctrinal feedback from happening.\footnote{See C&C at 1000-01 (discussing possible benefits of reducing uncertainty).}

Many commentators have accordingly suggested encouraging the use of clinical guidelines.\footnote{Studdert et al. at 2616; Troyen A. Brennan, Practice Guidelines and Malpractice Litigation: Collision or Cohesion?, 16 J. HEALTH POL., POL’Y & L. 67 (1991); Localio et al. at 372; Hall.} Suppose that researchers in a particular field could formally agree on specific criteria for when a given test or procedure is medically advisable and when it is not. For example, the obstetrics community might issue guidelines calling for use of intermittent auscultation during labor instead of electronic monitoring, unless there are certain significant and specific preexisting risk factors. The mere existence of such an agreed-upon protocol might give sufficient comfort, even to the risk-averse, that we would see a decline in defensive medicine. Thus the same factors that cause inefficient practices to spread—i.e., the small, cohesive nature of the community of physicians—might also help provide a solution.

Some attempts have been made along these lines, but reliance on guidelines has been subject to myriad criticisms. Most problematic is the frequent disagreement over what constitutes proper care, given the absence of reliable scientific evidence for the vast majority of procedures and treatments.\footnote{See supra notes 193--195 and accompanying text.} This means that many guidelines will either be too vague to be of much use or will reflect the victory of one particular constituency in a turf battle rather than a true clinical consensus.\footnote{Liang & Cullen at 610; Mello, Swords, at 686-87; Hall at 140-45; Liang, Error, at 39; see also Laurence R. Tancredi & Jeremiah A. Barondess, The Problem of Defensive Medicine, 200 Science 879, 881 (1978) (“[O]ne cannot handle accurately the issues involved in defensive medicine without having first established epidemiologically the soundness of medical procedures as they relate to specific outcomes in patients.”).} Even when these obstacles are overcome, guidelines become obsolete quickly,\footnote{Liang & Cullen at 610; Liang, Error, at 39.} and practitioners rarely follow them even when they view them positively.\footnote{Williams at 492-93; Mello, Swords, at 683; Albers at 109 (noting that clinicians continue to use EFM even though “[k]ey professional organizations explicitly stated for over five years that electronic fetal monitoring is one of two options for assessing fetal response to labor in women of any risk status”); David Siegel & Julio Lopez, Trends in Antihypertensive Drug Use in the United States: Do the JNC V Recommendations Affect Prescribing?, 278 JAMA 1745, 1747 (1997) (showing that recommendation of prominent national panel of experts regarding hypertension medication had little effect on actual practice). One happy exception is a set of guidelines for anesthesiologists that were developed for Harvard’s teaching hospitals in the 1980s and proved successful in reducing medical error. See Abraham at 411-12.}

Despite these drawbacks, guidelines have emerged for a wide range of clinical situations—so many, in fact, that the notion of using them to establish a clear comfort zone for clinicians will
clearly collapse under its own weight unless the government gets involved.\(^{199}\) And in fact a few states have flirted with the idea of formally incorporating guidelines into their negligence standard. After all, the deference that courts pay to customary practice means that the medical community already sets its own legal standards, so why not allow them to do so more deliberately? The results of these experiments, however, are inconclusive at best. The effort that advanced the farthest was Maine’s, which in the early 1990s launched a five-year pilot program under which the legislature approved guidelines for certain clinical scenarios in anesthesiology, radiology, obstetrics, and emergency care.\(^{200}\) Physicians who wanted to participate in the program could cite compliance with the applicable guideline as an affirmative defense in any ensuing malpractice case.\(^{201}\) Unfortunately, the program expired without any claims being filed.\(^{202}\) Whether this demonstrates the success of the measure is impossible to say, given the small number of participating physicians (about four hundred)\(^{203}\) and the application of guidelines to such a limited set of clinical scenarios. Similar experiments have taken place in Florida, Kentucky, Maryland, Minnesota, and Vermont, but no useful data has yet emerged and several of the projects have been abandoned.\(^{204}\)

In the end, clinical guidelines have the potential, in theory, to slow down the feedback loop, but that potential will remain merely theoretical at least until the bulk of clinical practices are scientifically supported (or debunked) or a consensus emerges about which guidelines to apply and what legal protection they afford. Neither contingency appears imminent. Moreover, even if these conditions were satisfied it is not clear that the resulting reduction in uncertainty would be welfare-enhancing; under Calfee and Craswell’s model, substantial uncertainty can sometimes generate more efficient behavior than small uncertainty.\(^{205}\)

The second relatively subtle adjustment one could make in the interaction between tort law and the medical community is to reduce the latter’s fear of liability. As discussed above, physicians wildly overestimate their overall malpractice exposure, and they mistakenly believe that errors in the legal system favor plaintiffs.\(^{206}\) Therefore, if we were to educate physicians about their true risks, perhaps they would cease practicing so defensively, which would mean less feedback into the negligence standard.

For example, the vast majority of individuals injured by negligent medical care never file a
malpractice claim; studies peg the number at no more than one in seven or eight, and the most extensive data suggests that the figure is more like one in fifty.\textsuperscript{207} Meritless lawsuits are sometimes filed, of course, but three out of four result in no payment to the plaintiff at all, and the payments in the remainder are considerably lower than in meritorious cases.\textsuperscript{208} (Even in the high-stakes world of obstetrics and gynecology, money changes hands in only one out of every three claims.\textsuperscript{209}) Indeed, studies consistently show not only that malpractice litigation largely produces the correct result,\textsuperscript{210} but also that those mistakes that are made are more likely to favor the defendant than the plaintiff.\textsuperscript{211}

So if physicians truly understood how much they exaggerate their exposure, they would be less inclined to overcomply. In theory this could eliminate defensive medicine altogether; in fact, under Calfee and Craswell’s model, a low probability of being sued might actually lead to systematic undercompliance.\textsuperscript{212} In any event, alerting the medical community to its own warped perceptions of the risks and biases that await it in the courtroom could go a long way toward reducing the feedback problem in malpractice law, even if risk aversion or the low cost of wasteful care perpetuated some overcompliance.

Before we adopt this approach, however, we should recall Hippocrates’ warning and consider the other consequences of clearing up physicians’ misconceptions. Educating the medical community about its true exposure might help return us to a world in which unsullied clinical judgment prevails in practice and thus informs the negligence standard. But there is reason to question whether that is the world we want to live in. Consider again one of the statistics cited in the previous paragraph: the vast majority of negligently injured patients (98%, according to the most comprehensive study) never so much as file a claim, let alone recover any payment.\textsuperscript{213} If medical malpractice is a litigation lottery, most of its victims don’t even buy tickets.

This has important implications for any attempt to fix doctrinal feedback, or medical malpractice law in general, because it means that the deterrent signal that emerges from actual instances of

\textsuperscript{207} Danzon book at 24 (studying 1974 data for California hospitals and concluding that “at most 1 in 10 negligent injuries resulted in a claim”); MoM at 73 (finding “one in fifty” based on 1984 New York hospital data); Patricia M. Danzon, Medical Malpractice Liability, in LIABILITY: PERSPECTIVES AND POLICY 101, 116-17 (Robert E. Litan & Clifford Winston eds., 1988) (estimating a 1988 injury-to-claim ratio of five to one); David M. Studdert et al., Negligent Care and Malpractice Claiming Behavior in Utah and Colorado, 38 MED. CARE 250, 254-55 (2000) (finding that “the probability of a claim after a negligent adverse event is 2.5%”); see also 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 ENGL. J. MED. 245, 245-46 (1991) (providing more data on Harvard study’s 2% figure); Brennan at 69 (summarizing studies).


\textsuperscript{209} 2006 ACOG survey at 15.

\textsuperscript{210} Farber & White; Mark I. Taragin et al. The Influence of Standard of Care and Severity of Injury on the Resolution of Medical Malpractice Claims, 117 ANNALS INTERNAL MED. 780 (1992) (reaching similar conclusions). The methodology of these studies is subject to some criticism, see Troyen A. Brennan et al., Relation Between Negligent Adverse Events and the Outcomes Of Medical-Malpractice Litigation, 335 NEW ENGL. J. MED. 1663, 1667 (1996), but similar results obtain under a different approach as well, see David M. Studdert et al., Claims, Errors, and Compensation Payments in Medical Malpractice Litigation, 354 NEW ENGL. J. MED. 2024 (2006).

\textsuperscript{211} Studdert 2006 at 2031; Michelle J. White, The Value of Liability in Medical Malpractice, HEALTH AFFAIRS, Fall 1994, at 75, 84. For a summary of the research in this area, and a debunking of some earlier studies that suggested more chaos in the system, see Tom Baker, Reconsidering the Harvard Medical Practice Study Conclusions about the Validity of Medical Malpractice Claims, 33 J.L. MED. & ETHICS 501 (2005).

\textsuperscript{212} See supra note ___. Of course, undercompliance is as capable as overcompliance when it comes to fueling a feedback loop, so the absence of defensive medicine is not the same as the absence of doctrinal feedback.

\textsuperscript{213} See supra note ___.
negligence is disproportionately weak. Here then we have an example of the folly of focusing on only one aspect of the system: a preoccupation with fixing the tort signal on the reception end may simply exacerbate an already serious problem on the transmission end. Freeing doctors from their warped risk perceptions may allow them to make clinical decisions based only (or mostly) on their professional judgment, but in the vast majority of cases in which that clinical judgment proves faulty the tort system currently gives physicians no incentive to improve.

One might wonder whether the deterrent signal from meritless claims compensates for the diminished deterrent signal from the many meritorious claims that go unfiled. The answer is no. Meritless cases clearly have some deterrent effect; roughly one in four results in payment to the plaintiff (albeit a lower payment than with a meritorious claim), and even the remainder impose costs on the defendant. But the distortive signal generated by such cases is not nearly strong enough to make up for the lack of any signal from the unfiled meritorious claims.

Indeed, even within the small universe of filed cases, the signal that is sent (but should not be) from meritless claims that nevertheless manage to extract payment is more than offset by the signal that is not sent (but should be) from valid claims wrongly denied compensation. Add to that the lack of a signal from the many meritorious claims that are never brought at all, and it is no surprise that health care providers externalize the vast majority of the costs of their own negligence. One study estimated the average societal loss for each iatrogenic negligent injury to be $157,000 (not including legal expenses), with the tortfeasor spending only $4,800 per injury, even after including the cost of defending both meritorious and meritless cases. Another used more conservative assumptions yet still found that hospitals externalize 70% of the cost of the negligent injuries they cause.

In the end, then, there is static at both ends of the tort signal: (1) too few meritorious cases are litigated, so on the transmission end the signal is not as strong as it should be, but (2) doctors vastly overestimate the true strength of the tort signal, so on the reception end they act much more cautiously than the signal actually warrants. To some extent these two deficiencies may cancel each other out: physicians’ overcautious approach to providing care compensates for the weakness in the deterrent signal. Defensive medicine may therefore produce a level of care closer to tort’s ideal than would occur in its absence. If so, however, we should not spend time congratulating ourselves on a well-oiled tort machine, because we reach an acceptable result by pure happenstance. The designer of such a system looks more like Rube Goldberg than Vilfredo Pareto. And if more plaintiffs file cases or more physicians wise up—both desirable goals—the entire contraption will collapse.

Moreover, even this portrayal of a coincidentally competent tort regime may be inaccurate.
because it relies on an inherent assumption about the proper measure of reasonable care. Consider the studies that found that only a very small percentage of negligently injured patients file a claim. Such studies make tort’s deterrent signal appear too weak. But those studies used a definition of negligence based on customary care—and it is the very formation of that definition that doctrinal feedback calls into question. If customary care is suboptimal or optimal, then those studies do indeed suggest an overly weak tort signal. If, on the other hand, customary care actually constitutes more care than an objective cost/benefit analysis would warrant (a definite possibility, given the feedback effect), then the studies’ implications are more indeterminate. This dilemma resists resolution. Even if custom is theoretically the correct legal standard for malpractice cases, it is probably impossible in practice to decouple feedback-infected custom from custom rooted in unsullied clinical judgment.219

This brings us to the third and last of the subtle adjustments we might make, and that is to bring medical malpractice back into the negligence fold: stop relying on custom, and instead treat physicians like all other tortfeasors. As mentioned above, the deference to custom that physicians enjoy is out of step with the rule in other tort cases.220 The explanations for this special treatment have never been entirely convincing,221 and they are considerably less so in light of the pernicious effect of doctrinal feedback.

Indeed, the feedback effect exposes the recklessness of using custom as the preferred measure of negligence. For example, Richard Epstein has argued forcefully for deference to custom whenever a dispute arises from consensual arrangements.222 The idea is that custom reflects market efficiencies, particularly when it emerges from voluntary interactions among repeat players, because such transactions naturally create an incentive to work together and consider each other’s interests.223 In contrast, a court’s top-down cost/benefit judgment has no such “built-in tendency to reliability,” suffering instead from “inferior knowledge and a weaker incentive to get things right.”224 In such circumstances, the argument goes, courts should not second-guess industry practice or interfere with its development; as Epstein says, “nothing kills the emergence of custom like the active intervention of an external legal system replete with its own extensive norms and powerful vested interests.”225 Medical malpractice seems to fit within Epstein’s model. Physician and patient tend to interact with one another repeatedly and consensually, with a natural emphasis on long-term cooperation and common goals. We might therefore expect them to develop welfare-enhancing customs that warrant deference.226 Indeed, Richard Posner has argued that the consensual nature of the physician-patient

219. As discussed above, see supra notes ___-___ and accompanying text, before one can remove the taint of defensive medicine from the customary care standard, one must be able to identify which parts of the standard originated in pure professional judgment and which parts originated in defensive medicine’s feedback loop—a difficult task. And because most common medical practices have little or no support in the scientific literature, it is next to impossible to disentangle a feedback-fueled measure from one that originated in sound clinical judgment, once they have been joined together in common practice.

220. See supra notes ___-___ and accompanying text.

221. See, e.g., Robinson at 173-83 (critiquing deference to clinical custom).


223. Epstein at 11-12.


225. Epstein at 14.

226. Note that Epstein views efficient custom as most likely to emerge when the parties occasionally switch roles (e.g., yesterday’s buyer becomes today’s seller). Epstein at 12-13. This factor is not present in medical care; the patient is always the patient, the doctor remains the doctor. Nevertheless, custom in medical care is unlikely to reflect much one-upmanship on either
relationship is what justifies the use of custom as the measure of negligence in medical malpractice cases.227

What doctrinal feedback shows us, however, is that the very conditions that seem to support using custom as the negligence standard actually make it particularly unsuitable. Custom is most likely to emerge as an independent, guiding force when the law is vague—when there is a normative vacuum to be filled. As Epstein points out, “[i]ndividual actors need a high level of certainty in their ordinary affairs, and that certainty cannot come from probabilistic judgments or delicate evaluations about borderline cases.”228 Yet we have seen that a vague legal standard is likely to lead to overcompliance, which then infects custom with inefficiencies. And this danger exists even if everyone is acting rationally; risk aversion and risk exaggeration simply make it worse.

Under malpractice’s reasonable care standard, for example, wasteful tests and procedures become the norm.229 And they do so quickly, precisely because of the close, echo-chamber nature of the community. Everyone sees what everyone else is doing and so adjusts their behavior that much more rapidly.230 The repeat transactions among cooperating parties make it easier for the taint of overcompliance to spread. (In contrast, custom that originates among a more disparate collection of nonconsensual interactions—think slip-and-fall cases involving unsafe premises in a store—is probably less susceptible to doctrinal feedback.)

Factfinders might accordingly be encouraged to reject the deferential approach and accept Judge Hand’s invitation. They would then be free to make independent findings that a procedure or test, although common, is unnecessary—i.e., that the fictional “reasonably prudent doctor” would decline to administer it despite its popularity among actual practitioners. Certainly the outlier who does not engage in defensive medicine will make this very argument if sued. If backed by evidence exogenous to custom, such as a scientific study showing the inefficacy of the practice, such an argument should in all fairness win the day.

Nevertheless, even if deference to custom disappeared, a court might have a hard time substituting its own judgment for that of the majority of physicians when the defendant is arguing that the reasonably prudent doctor (that “model of all proper qualities”231) would do less than what his or her peers actually do in the real world. Courts might hold that the negligence standard requires doctors to do more than what common practice suggests (as Judge Hand tells us, “a whole calling...
may have unduly lagged

For example, *Helling v. Carey*—the most frequently cited example of a court second-guessing clinical custom—involved the failure to administer a test for glaucoma. And the court did not base its holding on the scientific literature; indeed the prevailing custom was already overly conservative, and the ruling simply made it more so.

In any event, proof of a custom’s inefficacy will often be unavailable. As already mentioned, most clinical practices derive from longstanding tradition, without any origin in rigorous scientific study. Even the field of fetal monitoring remains somewhat vague, despite decades of research. We know that EFM is a procedure whose costs exceed its benefits, and that there is a superior alternative (intermittent auscultation). The reasonable care standard should accordingly stop short of requiring the technique’s use in everyday obstetrics. Yet no one has ever studied whether any monitoring is needed; the randomized trials have always compared EFM to auscultation rather than comparing either method to no monitoring at all. It may well be that neither form of fetal monitoring is cost-effective. Knowing that the reasonable care standard should not include EFM thus tells little about what it should include.

In the end, then, if prevailing practice exceeds the level of optimal care removing deference to custom may have little effect. This is not to downplay the potential benefits of evidence-based medicine, as the practice is known. The “almost compulsively individualistic” and idiosyncratic practice of medicine and the occasional disconnect between medical practitioners and medical researchers are real problems, which warrant attention regardless of what we do about the overcompliance problem generally. And if prevailing practices represent suboptimal care, a standard less deferential to custom and more attentive to scientific proof might improve the tort system and resist feedback, at least where such proof exists. But in the end this approach can do little more than chip away at the feedback problem.

**B. Systemic Reforms**

The foregoing discussion highlights the problems with tort law’s traditional approach to medical malpractice. The system is rife with dysfunction even without doctrinal feedback’s pushing the reasonable care standard into ever-more-conservative territory. This final section will therefore examine whether and how existing trends in health care and approaches to reforming the regime’s broader failings might also address the feedback phenomenon.
For example, the traditional components of tort reform show some promise when it comes to slowing down the feedback loop, given their single-minded focus on reducing malpractice exposure. Studies have shown, however, that of the many strands of tort reform only damage caps and amendment of the collateral source rule have had a consistent effect on malpractice costs. Certainly defensive medicine has continued throughout the tort reform era, seemingly unabated. And even those two measures are hard to square with aims of the tort system. Damage caps restrict recovery for victims who need compensation the most, namely those whose injuries are the most costly. Likewise, reducing the jury award by the amount that the plaintiff has recovered from a collateral source (usually his or her own health insurance) simply permits tortfeasors to bear even less of the cost of their negligence than they already do and shifts to the victim some of the loss from the tortfeasor’s transgression—a questionable result from both a deterrence and a compensation standpoint.

Another trend with implications for doctrinal feedback is managed care, by which I mean the various cost-containment initiatives that entities both public and private have undertaken since the 1980s. These include Medicare’s payment of a fixed fee per procedure, as well as HMOs, PPOs, the monitoring of utilization rates, insurance policies that pay a capitated sum per patient, and so forth. To the extent that these measures reduce the ability of physicians and other health care providers to externalize costs, they should help reduce the incidence of overcompliance and thus retard the feedback effect. Again, however, there is no evidence that defensive medicine has slowed down since managed care arrived on the scene. Perhaps the same problem that plagued clinical guidelines and evidence-based medicine rears its ugly head here: most developments in clinical practice occur without solid scientific basis, such that even a tight-fisted insurer can only interfere so much with the discretion a physician exercises. And as we have seen, once a practice takes root it is likely to remain part of customary care.

Indeed, all the possible solutions to the feedback problem that we have considered seem to run up against the inherent ambiguity of reasonable care. Under that standard, there is no escaping a certain degree of overcompliance, and recourse to physicians’ real-world practice seems equally inevitable given the absence of objective evidence for most medical procedures. Doctrinal feedback accordingly looms large under any of the foregoing approaches. Therefore, the most promising way to address doctrinal feedback may be to abandon reasonable care altogether. Two proposals for reforming the medical malpractice system have taken this approach: (1) using contract law to govern the doctor-patient relationship and (2) establishing a no-fault regime for iatrogenic injury. Let us
consider each in turn.

The contract law approach begins with a simple question: why does the law use a one-size-fits-all liability standard for medical malpractice cases? After all, with the possible exception of emergency care, transactions between patient and physician are consensual. Why not allow the private market to apportion the risks of medical care, in the same way that it sets the price and other terms of the transaction? A number of scholars have asked and answered that question over the years. 247 Although patient choice may be too restricted and health care too indispensable a commodity for individual contracting to produce a better system, this is not the place to rehash the entire debate. Rather, the question here is how contractual freedom to depart from a top-down negligence standard would affect doctrinal feedback.

On that issue, several advantages present themselves. With room to bargain, a patient might specifically request (or forbid) certain treatments and procedures, depending on his or her risk tolerance, and could make those preferences part of the contract. The physician would then have much more information about what conduct would incur liability than the reasonable care standard provides, leading to less overcompliance. Or the parties might agree to a less demanding standard, such as gross negligence or recklessness, which would diminish the specter of malpractice liability and thus slow down the feedback effect.

Even if the law were to allow this kind of bargaining, 248 however, it is unclear whether private contract would fulfill its theoretical promise. Patients would still have to defer to some degree (perhaps to a great degree) to the superior knowledge and training of the medical profession; indeed, one of the traditional justifications for using a top-down negligence standard is that patients lack the information and skills necessary to assess the risks of medical care and to specify which treatments and procedures are and are not in their interests. 249 Of course, this does not mean that a tort regime is necessarily better, 250 but it does mean that much private risk allocation would by necessity incorporate the same vague, practice-dependent standards that cause the feedback problem in the first place. The same would be true of a contract that simply specified a less demanding standard of care: as long as the standard were sufficiently ambiguous and referenced real-world practice, the physician would overcomply and doctrinal feedback would creep back in. 251

Regardless of the extent of these drawbacks, however, a contractual approach to malpractice regulation might bring another advantage: it would give health care providers more of an incentive to manage medical risk. A market that competes for how big a discount to give risk-tolerant patients

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247. An excellent collection of articles on this issue can be found in Symposium, Medical Malpractice: Can the Private Sector Find Relief?, 49 LAW & CONTEMP. PROBS., Issue No. 2, Pt. III, Spring 1986; see also Danzon book at 141-42; Mello, Swords, at 668-71.

248. It generally doesn’t. See, e.g., Tunkl v. Regents of Univ. of Cal., 383 P.2d 441 (Cal. 1963) (invalidating agreement releasing hospital from liability).

249. See Mello, Swords, at 668-71. Note also that reducing uncertainty does not always reduce overcompliance. C&C, Deterrence, at 287.

250. See Robinson at 188-93 (critiquing the view that informational asymmetry justifies the negligence regime).

251. For the same reason, we would not want to replace the current reasonable care standard with a different top-down metric such as gross negligence. While Calfee and Craswell endorse this solution, C&C, Deterrence, at 285, they fail to recognize the danger of doctrinal feedback: any such standard would be sufficiently ambiguous to prompt overcompliance, so it too could eventually become more demanding than intended. Moreover, given the static at both ends of the tort signal, we cannot know whether the current standard is too demanding or not demanding enough. See supra notes ___-___ and accompanying text. A move to a less demanding standard might therefore be a move in the wrong direction.
is a market in which measuring and controlling the costs of negligence are more important than in today’s system. If tracking errors and realistically assessing the risk of suit were a higher priority, the static on both ends of the tort signal would diminish, and feedback would follow.\(^{252}\)

For the individual physician, iatrogenic injury is probably too rare for this kind of measurement to be meaningful, but entities positioned to aggregate such data—such as hospitals, health plans, and insurers—could take greater advantage. Hospitals in particular are well placed for this purpose: they employ a sufficiently high number of physicians to generate actuarially significant data about negligent error,\(^ {253}\) yet are close enough to the actual provision of care to do something about such error when it occurs. Indeed, these benefits may be so extensive that they justify removing all liability at the individual level and placing it squarely on the larger organizations, an approach known as enterprise liability.\(^ {254}\) Contracting our way into a system under which hospitals bear the brunt of malpractice exposure could therefore have a real effect on the incidence of defensive medicine and the feedback it fuels.\(^ {255}\)

Contract law is therefore most likely to help address doctrinal feedback by tailoring the distribution of risk among the institutional providers of medical care, rather than at the doctor-patient level. Indeed, the inevitable refusal of some patients to agree to forgo physician liability in favor of hospital-only liability would make it impossible to implement a formal enterprise liability regime through contract alone, although we might reach the same result more informally if hospitals agreed to indemnify their physicians.\(^ {256}\) As Ken Abraham and Paul Weiler have proposed, the more feasible course would be to use legislation to shift liability away from the individual—placing it in the first instance on hospitals but allowing them to contract with the other interested enterprises (namely those who finance health care) to share or shift the risk.\(^ {257}\) Such an arrangement would presumably reduce overcompliance to some extent, and feedback with it, because no physician would ever be formally named as the party responsible for having caused injury to a patient.

As long as we are considering changes to these first principles of medical malpractice, however, we must address one last systemic reform and its effect on doctrinal feedback: no-fault liability.\(^ {258}\) A no-fault regime would abandon the reasonable care standard completely, requiring compensation regardless of fault. In its most radical form it would cover all iatrogenic harm, although the years have seen various proposals and programs of more limited scope.\(^ {259}\)

First-party no-fault, in which the victim bears the full loss, should be entirely immune to

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\(^{252}\) Indeed, error reporting and assessment are vital to any reform in this area. Liang, Error, at 28-30; Studdert et al., Medical Malpractice, at 287.

\(^{253}\) See Brennan & Mello at 271 (noting that “channeling programs” in which one entity insures both hospital and staff can generate better actuarial data); see also Studdert et al., Medical Malpractice, at 283 (noting that hospitals are experience rated).

\(^{254}\) For a comprehensive review of these and other advantages of enterprise liability in health care, see Abraham at 398-414.

\(^{255}\) See Abraham at 417-18 (discussing effect of enterprise liability on defensive medicine).

\(^{256}\) See Abraham at 429.

\(^{257}\) Abraham 419-20.


doctrinal feedback. It makes no judgment as to fault at all, let alone a judgment based on any particular real-world practice, and imposes no cost on the physician. And although this regime sounds radical, it reflects the current reality for most victims of iatrogenic injury. Obviously those victims whose injuries are not the result of negligence receive no compensation under present law, except for those very few who manage to recover on a meritless malpractice claim. But even those injured by negligence end up bearing their own loss in roughly ninety-eight of every one hundred cases, because they rarely sue and they don’t always succeed when they do. 260

Yet we have seen that defensive medicine is pervasive even under this “default no-fault” arrangement. It might therefore take a formal, full-scale move to a first-party regime to convince physicians not to overreact to the specter of liability and thus solve the doctrinal feedback problem. A case can be made that such a move would produce a better system than that which we currently have. 261 But political realities make that an impossibility, except perhaps as part of a government-backed universal health care system, and doctrinal feedback will hardly be driving that train.

The alternative is a third-party no-fault regime, under which the health care provider is strictly liable for all iatrogenic injury it causes. Moving to such a regime is hardly easy to do as a political matter, but at least the obligation to pay remains with the provider, which should make it more palatable. Moreover, various limited forms of strict liability are already in place. (For example, Virginia has a no-fault regime for birth-related neurological injuries, funded by a tax on physicians. 262)

How would strict liability impact doctrinal feedback? The answer lies in the difference between first-party no-fault and third-party strict liability. The latter is preferable to the former only if shifting the loss from the patient to the provider produces more benefit than cost. And the main cost is the administrative effort required to show causation: people who go to the doctor are usually sick to begin with, so proving that medical care made them sicker is a challenging task. 263 The benefit is increased deterrence: we presume that physicians can more easily take measures to avoid iatrogenic injury in the first place and so place the duty to compensate on them. 264

This cheapest cost avoider argument is, of course, the justification for tort law’s current apportionment of liability in medical malpractice. The difference is that current tort law requires proof of negligence and causation, whereas strict liability looks at causation alone. At first blush,
this difference might appear to make little difference for doctrinal feedback. Recall that the most plausible explanation for defensive medicine is that the uninsured costs of liability weigh heavily on the mind of the average physician—the reputational effects, the emotional distress.\textsuperscript{265} Certainly those costs would be lower if liability did not carry with it the stigma of having provided substandard care, but they would not be zero. In other words, the purported benefit of strict liability over first-party no-fault is the very thing that causes defensive medicine: legal responsibility for iatrogenic injury.

Nevertheless, even if defensive medicine continued to exist, a strict liability regime would not produce full-fledged, reiterative feedback. The reason is simple: with reasonable care out of the picture, the law would no longer incorporate medical custom into the liability determination. Moreover, there may be a way to reduce even the small cost of defensive care. Under strict liability, the sheer number of newly compensable parties would generate a host of data about medical error, and the absence of the negligence stigma would make physicians less reluctant to report such error than they are under current law.\textsuperscript{266} This suggests that the best approach would include both strict liability and enterprise liability—the former to rid the system of the many failings of negligence law, and the latter to take fullest advantage of the resulting increase in data on how medicine causes injuries.\textsuperscript{267}

In any event, when one considers the high incidence of defensive medicine, the feedback it produces, the inability of the insurance market to pass along tort’s deterrence signal, physicians’ wildly inaccurate impressions of their malpractice exposure, and the failure of the current fault-based regime to provide compensation in the vast majority of deserving cases, a move away from the current negligence standard seems advisable. Indeed, sticking with reasonable care and its feedback-fueling, ever-diminishing significance is perhaps the most radical option.

IV. BEYOND MALPRACTICE

In a sense, doctrinal feedback in medical malpractice is the low-hanging fruit. The specter of liability looms large, the environment is cost-insensitive, and a rich empirical literature details practitioner practices and motivations. In such circumstances, we should not be surprised to find evidence of the feedback phenomenon at work. Doctrinal feedback in other areas of tort law may be harder to see, but inconspicuous does not mean immaterial. For instance, feedback may be responsible for the increasingly fatuous warning labels on consumer products, as manufacturers play it safe by staying one step more conservative than the norm. (“CAUTION! Do NOT swallow nails! May cause irritation!” reads the label on a box of—you guessed it—nails.)\textsuperscript{268}

\textsuperscript{265} See supra notes at ___ and accompanying text.

\textsuperscript{266} Under the current system, “45% of [physicians] with direct personal knowledge of a physician in their hospital group or practice who was impaired or incompetent did not always report that physician. Of those with direct personal knowledge of a serious medical error, 46% did not report that error to authorities on at least 1 occasion.” Eric G. Campbell et al., Professionalism in Medicine: Results of a National Survey of Physicians, 147 ANNALS INTERNAL MED. 795, 799 (2007). This despite the fact that more than nine out of ten physicians admit that they should report impaired or incompetent colleagues and significant medical errors. Id. at 797.


\textsuperscript{268} Jane Easter Bahls, Better Safe . . . , ENTREPRENEUR, July 2003, at 76.
The many other fields of law that use reasonableness as a touchstone could suffer a similar fate. Perhaps “reasonable accommodations” for disabled employees become progressively more accommodating, as risk-averse employers give federal disability law a wide berth. Or consider “reasonable expectations of privacy,” the touchstone for determining whether a warrantless search violates the Fourth Amendment. Police operating in the shadow of this vague standard may consistently undercomply—i.e., conduct illegal searches—knowing that the upside is great (the discovery of incriminatory evidence) and the downside unlikely (the exclusion of that evidence). If so, then we might eventually grow accustomed to such intrusions, which means that our reasonable expectations would diminish and our constitutional rights would dutifully follow. Law enforcement would then have even more license to intrude on our privacy, and the cycle would begin anew.

Moreover, reasonableness standards represent only one opportunity for real-world practice to inadvertently lead the law astray. As I have discussed elsewhere, doctrinal feedback infects intellectual property law, yet we find no reasonableness standard there. We might accordingly look for the feedback phenomenon whenever the law refers to the conventions of those it governs—e.g., when ambiguous contract terms find meaning in “custom” and “usage of trade.”

I do not mean to imply that doctrinal feedback plays a pivotal role in all these disparate fields. My examples here are necessarily simplistic. The Fourth Amendment analysis, for instance, assumes that courts determine reasonable expectations by examining actual public attitudes toward privacy, when in fact the inquiry is often more abstract. Rather, my point is to suggest that doctrinal feedback is a largely unexplored phenomenon, and that further research into its influence on both doctrine and real-world practice might bear fruit.

Nor do I mean to imply that reference to convention and shared experience is inherently illegitimate, or that we could escape their influence even if it were. Indeed, faith in real-world practice unites otherwise heterogeneous legal thinkers. Its importance is acknowledged not only by those who would devise policy from custom and tradition (e.g., Burke, von Savigny, and Hume), but

269. See 42 U.S.C. § 12112(b)(5) (imposing liability for “not making reasonable accommodations” to disabled employee).
271. As Calfee & Craswell explain, see C&C at 981, an ambiguous legal standard can produce undercompliance “when: (a) the amount the defendant can save in private costs by taking less care than the optimum is relatively large; and (b) the likelihood of not being found liable, or ‘not getting caught,’ is quite high even at levels of care slightly below the socially optimal level.” These two conditions may well prevail with regard to illegal searches.
272. On the other hand, rights-enhancing feedback could theoretically occur when Congress forces law enforcement to operate under more severe restrictions on surveillance than the Constitution requires, as it has done with regard to the protection of telephone records. Cf. Laurence H. Tribe, Bush Stomps on Fourth Amendment, BOSTON GLOBE, May 16, 2006, at A15. (I am indebted to my wife for—among many other things—pointing this article out.)
273. See Gibson, supra.
274. 12 SAMUEL WILISTON & RICHARD A. LORD, WILLISTON ON CONTRACTS § 34:5, at 29 (1999).
275. For example, in deciding whether use of a particular surveillance method (e.g., airplanes, helicopters, thermal imaging) is constitutional, the case law consistently examines how familiar we are with the technology at issue. E.g., Kyllo v. United States, 533 U.S. 27, 34-35 (2001) (ruling unconstitutional the use of a thermal imaging device to peer through the walls of a house because inter alia the technology “is not in general public use”). Yet even here we may see a feedback loop of sorts: if privacy-eroding technologies proliferate more quickly than privacy-preserving technologies, our expectations will inexorably diminish—or at least doctrine will interpret them as having diminished, and our constitutional rights along with them—making it easier for next, more intrusive technology to gain a toehold in the realm of reasonableness. See California v. Ciraolo, 476 U.S. 207, 215 (1986) (finding that defendant’s Stone Age technology—a ten-foot wall—was insufficient to create reasonable expectation of privacy vis-à-vis airplane overflight “[i]n an age where private and commercial flight in the public airways is routine”); Florida v. Riley, 488 U.S. 445, 450-51 (1989) (citing Ciraolo for proposition that surveillance into interior of building via low-flying helicopter is constitutional).
also by those who generally favor a more top-down style of governance (e.g., Bentham and Hegel).276
In American jurisprudence we hear paean to practice from foundational legal realists like Karl
Llewellyn and from libertarian scholars like Richard Epstein.277 My aim here is not to contradict the
entire canon, but to suggest that we must proceed carefully when we employ—as we so often do—a
standard that both derives from and informs custom.

CONCLUSION

Reasonable care is an appealing standard because it anchors the law in real-world practice and
gives courts the flexibility to reach a just result. But doctrinal feedback can skew that practice,
robbing reasonable care of its efficiency and legitimacy and quietly changing the law in unexpected,
unhelpful, and mostly unrecognized ways.

This article has focused on medical care, where the feedback effect produces and perpetuates
wasteful practices—making tort law more of a hindrance than a help in regulating physicians’
conducted. Given the frequency with which legal standards defer to real-world practice, however, this
phenomenon likely occurs elsewhere as well; current scholarship has only begun to scratch the
surface. Deference to real-world practice may seem both sensible and defensible, but the real world
is never as simple as theory would lead us to believe, and the very doctrines that derive from practice
can also distort it.

276. See 2 EDMUND BURKE, Reflections on the Revolution in France, in SELECT WORKS 1, 102 (E.J. Payne ed., Legal
Classics Library 1990) (1790) ("We are afraid to put men to live and trade each of his own private stock of reason; because we suspect
that this stock in each man is small, and that the individuals would do better to avail themselves of the general bank and capital of
nations and of ages."); FREDERICK CARL VON SAVIGNY, OF THE VOCATION OF OUR AGE FOR LEGISLATION AND JURISPRUDENCE 30
(Abraham Hayward trans., Legal Classics Library 1986) (2d ed. 1831) (defending law formed "by internal silently-operating powers,
not by the arbitrary will of a law-giver"); DAVID HUME, A TREATISE OF HUMAN NATURE 351 (Dover Publ’ns 2003) (1739) (observing
that "justice takes its rise from human conventions"); 1 JEREMY BENTHAM, Essay on the Influence of Time and Place in Matters of
and the blindest custom must be humored”); G.W.F. HEGEL, PHILOSOPHY OF RIGHT ¶ 269, at 205 (S.W. Dyde trans., Batoche Books
2001) (1820) ("We cannot by means of predicates, propositions, etc., reach any right, estimate of the state, which should be
apprehended as an organism.").

277. See KARL N. LLEWELLYN, THE COMMON LAW TRADITION (1960) (discussing the “immanent law” that “is indwelling
in the very circumstances of life”; Richard Epstein, The Path to the T.J. Hooper: The Theory and History of Custom in the Law of
Tort, 21 J. LEGAL STUD. 1, 4 (1992) (“Where consistent custom emerges, regardless of its origins, it should be followed.”).