

## DOCTRINAL FEEDBACK AND (UN)REASONABLE CARE

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*THE law frequently derives its content from the practices of the community it regulates. Examples are legion: Tort's reasonable care standard demands that we all exercise the prudence of an "ordinary" person. Ambiguous contracts find meaning in custom and usage of trade. The Fourth Amendment examines our collective expectations of privacy. And so on. This recourse to real-world circumstance has intuitive appeal, in that it helps courts resolve fact-dependent disputes and lends legitimacy to their judgments.*

*Yet real-world practice can depart from that which the law expects. For example, suppose a physician provides more than reasonable care—extra tests, unneeded procedures, etc.—so as to steer clear of tort liability's considerable gray area. If other physicians follow suit, their precautions slowly but surely become the new legal norm, as the reasonable care standard dutifully absorbs the conduct of those it governs. Instead of discouraging wasteful practices, then, the law feeds them back into doctrine, transforming overcompliance into mere compliance and ratcheting up the standard of care. Overcautious physicians consequently have to do even more to steer clear of liability, and the cycle begins anew.*

*This Article provides a general model of this "doctrinal feedback" phenomenon and then applies it to medical malpractice, where tort's reasonable care standard has caused an unhealthy and unappreciated feedback effect and has led the law to require an unreasonable level of care. In doing so, it reveals feedback's surprisingly common formative factors and demonstrates its potential to skew legal norms in a variety of otherwise dissimilar fields.*

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1642	<i>Virginia Law Review</i>	[Vol. 94:1641
INTRODUCTION.....		1642
I. THE DOCTRINAL FEEDBACK MODEL.....		1644
A. <i>Reference to Real-World Practice</i> .....		1646
B. <i>Departure from Expected Practice</i> .....		1648
C. <i>Confluence</i> .....		1651
II. REASONABLE CARE AND MEDICAL CARE.....		1653
A. <i>Tort Law’s Feedback Potential</i> .....		1654
B. <i>Deference to Custom in Medical Malpractice Law</i> .....		1656
C. <i>Departures from Compliance</i> .....		1659
D. <i>Systemic Shifts</i> .....		1669
E. <i>Feedback in Action: Electronic Fetal Monitoring</i> .....		1672
1. <i>Efficacy of Fetal Monitoring</i> .....		1676
2. <i>Feedback and Fetal Monitoring</i> .....		1680
a. <i>EFM and Overcompliance</i> .....		1680
b. <i>EFM as Negligence Norm</i> .....		1685
c. <i>EFM and Feedback’s Next Iteration</i> .....		1687
III. SOLUTIONS.....		1692
A. <i>Subtle Changes</i> .....		1693
B. <i>Systemic Reforms</i> .....		1702
IV. BEYOND MALPRACTICE.....		1710
CONCLUSION.....		1713

#### 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.<sup>1</sup> It has evolved over time from arbiter of community morals to dispassionate agent of economic efficiency,<sup>2</sup> 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.”<sup>3</sup>

<sup>1</sup> See Michael D. Green, *Negligence = Economic Efficiency: Doubts >*, 75 *Tex. L. Rev.* 1605, 1617–18 (1997) (noting that torts treatises from 1895–1910 “almost exclusively define negligence in terms of ordinary or reasonable care under the circumstances”).

<sup>2</sup> See G. Edward White, *Tort Law in America: An Intellectual History* 324–27 (expanded ed. 2003).

<sup>3</sup> Prosser and Keeton on the Law of Torts § 32, at 174 (W. Page Keeton ed., 5th ed. 1984).

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1643

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 an advantage. 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.<sup>4</sup> 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.<sup>5</sup>

I call this phenomenon “doctrinal feedback,” and in a previous Article I discussed its subtle and pernicious effect on intellectual property law.<sup>6</sup> Here I will show that the feedback phenomenon has

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<sup>4</sup> See H.L.A. Hart, *The Concept of Law* 129 (1961) (citing reasonable care as the best example of when the inadequacy of *ex ante* rulemaking warrants giving courts discretion over a case’s proper outcome).

<sup>5</sup> Systematic *under*compliance would produce a similar cycle, but in the opposite direction—a ratcheting down of the level of care. As we will see, however, the example discussed in this Article involves consistent overcompliance.

<sup>6</sup> James Gibson, *Risk Aversion and Rights Accretion in Intellectual Property Law*, 116 *Yale L.J.* 882, 885 (2007).

the potential to skew legal norms not only in intellectual property but also in negligence law, and indeed in a broad array of otherwise dissimilar fields. Part I will set forth a general model of doctrinal feedback, identify its two surprisingly common formative factors, and show that it calls into question the wisdom of using real-world practice to define legal standards. Part II will illustrate how the model works by applying it to tort's reasonable care standard, and specifically to 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 III will discuss feedback's implications for tort reform and demonstrate the difficulty of addressing the feedback problem in isolation. Finally, Part IV will explore 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 legal norms that rely on real-world practice. If a standard as time-tested as “reasonable care” can create and perpetuate wasteful medical practices rather than leading us to a better place, the implications for the many other fields in which a feedback potential lurks are severe, and severely distressing.

#### I. THE DOCTRINAL FEEDBACK MODEL

Suppose a physician is examining a swollen lymph node for indications of cancer. After a physical examination and x-rays, 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.

But the physician is concerned 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 an ultrasound as well, despite her conviction that the procedure is unnecessary and wasteful.

As an isolated incident, this overcompliance would not be particularly troubling. But if a sufficient number of her fellow physicians order an ultrasound in similar circumstances, it will become common practice. And once it does, its use will eventually cease to

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1645

constitute more than reasonable care, because reasonable care draws its definition from the typical conduct of those it regulates. In other words, the ultrasound's ubiquity will make it part of the reasonable care standard; the overcautious practice feeds back into doctrine, making negligence law more demanding and requiring physicians to use a medically unnecessary and wasteful technique.

This "doctrinal feedback" cycle might then repeat itself. Now that the ultrasound represents mere compliance, rather than over-compliance, it no longer constitutes more care than the law demands. So the next time our overcautious physician encounters a swollen lymph node and wants to give liability a wide berth, she may order not only an ultrasound, but a biopsy as well. And if her fellow physicians do the same, reasonable care ratchets upward once again, incorporating the use of a biopsy into the negligence standard.

Or so the theory goes. If doctrinal feedback were the sum total of negligence law, however, we would all be wearing bubble wrap and driving two miles per hour. Describing the potential for a feedback loop is one thing; determining how much explanatory power it actually has in tort liability and elsewhere is another. The challenge, then, is to identify those elements that contribute to doctrinal feedback and integrate them into a generalizable model that will help us determine whether and when doctrinal feedback occurs and how much of a role it plays in the law's evolution.

Meeting this challenge requires a more discerning evaluation of feedback's two formative factors, each of which can be seen at work in our ultrasound example. First, feedback occurs only when legal doctrine refers to real-world practice, as when tort's reasonable care standard incorporates the conduct of the "ordinary person." Second, feedback occurs only when the real-world practice at issue departs from that which doctrine demands, as when our physician provides more care than the law requires. The following discussion addresses each factor and explains when we might see them combine to produce a feedback effect.

*A. Reference to Real-World Practice*

When designing a legal norm, the law frequently looks to the typical practices of those it seeks to regulate. Ambiguous contract terms find meaning in “custom” and “usage of trade.”<sup>7</sup> Whether one trademark infringes on another depends on whether “ordinary” consumers using “ordinary” care are likely to confuse the two.<sup>8</sup> And then there is that familiar legal fiction, “reasonableness,” which invites us to use real-world practice as a guide for legal decisionmaking: Tort law declares us negligent if we fail to provide “reasonable care” and conform to the conduct of a “reasonable person.”<sup>9</sup> The Fourth Amendment protects us from “unreasonable searches and seizures,”<sup>10</sup> a standard that has birthed such offspring as “reasonable expectations of privacy”<sup>11</sup> and “reasonable suspicion.”<sup>12</sup> Jurors must be “reasonable” both in the doubts on which they rely in acquitting a criminal defendant<sup>13</sup> and in the verdicts they render in civil court.<sup>14</sup> Employers must make “reasonable accommodations” for their disabled employees.<sup>15</sup> And so forth; examples are legion.

The feedback potential that lurks within such norms is apparent: if some unforeseen behavior skews the relevant real-world practice, the law itself will evolve in an unforeseen and possibly undesirable direction. Yet the fact that a legal norm refers to real-world practice does not necessarily mean that it blindly follows such practice. For example, in Fourth Amendment cases, courts do not usually canvass the citizenry for a consensus on the perceived reasonableness of the search or seizure at issue; instead, the inquiry tends to be more abstract, as when courts use concepts like “plain view”

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<sup>7</sup> 12 Samuel Williston & Richard A. Lord, *A Treatise on the Law of Contracts* § 34:5, at 29 (4th ed. 1999); U.C.C. § 2-202(a) (1977).

<sup>8</sup> See, e.g., *McLean v. Fleming*, 96 U.S. 245, 251 (1877).

<sup>9</sup> See Restatement (Second) of Torts § 283 (1965).

<sup>10</sup> U.S. Const. amend. IV.

<sup>11</sup> *Katz v. United States*, 389 U.S. 347, 360–61 (1967) (Harlan, J., concurring).

<sup>12</sup> *Terry v. Ohio*, 392 U.S. 1, 30 (1968) (allowing warrantless search where police had “reasonable grounds to believe that [the suspect] was armed and dangerous”); see also *Almeida-Sanchez v. United States*, 413 U.S. 266, 268 (1973) (using term “reasonable suspicion” to describe *Terry*’s holding).

<sup>13</sup> *In re Winship*, 397 U.S. 358, 364 (1970).

<sup>14</sup> Fed. R. Civ. P. 50.

<sup>15</sup> 42 U.S.C. § 12112(b)(5) (2000).

and “open fields” as proxies for the public’s expectations of privacy.<sup>16</sup> The resulting doctrine therefore depends little on the everyday conduct of those whom the standard governs, and that conduct will have a correspondingly smaller impact on the development of the law.

For this first feedback factor, then, the important variable is the extent to which doctrine incorporates real-world practice. At one extreme are legal norms that do not consider such matters at all. Doctrinal feedback will have no explanatory power here. If the speed limit on a particular road is fifty-five miles per hour, it will remain fifty-five—at least as a formal matter—even if everyone drives seventy.<sup>17</sup>

At the other extreme are legal norms that defer extensively to the conduct of those they govern. Picture a speed limit that continually varies based on the average speed of those cars that have passed by over the preceding twenty-four hours. Here the influence of real-world practice on the applicable legal standard is great, as is the feedback potential: if people consistently drive slightly faster than the posted limit, that behavior will feed back into the limit itself and cause it to steadily increase.

In between are legal norms that *refer*, but do not *defer*, to real-world practice. Suppose all we require of drivers is that they drive at “safe” speeds. The law might define “safe” based partly on what people typically do (the outlier who drives twenty miles per hour faster than everyone else will be hard-pressed to show that such conduct is safe) and partly on studies of the relationship between

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<sup>16</sup> See *Horton v. California*, 496 U.S. 128, 141–42 (1990) (plain view); *Oliver v. United States*, 466 U.S. 170, 179 (1984) (open fields).

<sup>17</sup> This is not to say that bright-line rules are immune to the influence of real-world practice or community consensus. For instance, if the public is sick of speed limits that are too low, the legislature may well change them. Indeed, even rulings by judges with life tenure do not stray too far from popular sentiment, see Corinna Barrett Lain, *Counter-majoritarian Hero or Zero? Rethinking the Warren Court’s Role in the Criminal Procedure Revolution*, 152 U. Pa. L. Rev. 1361, 1361–69 (2004) (showing that supposedly counter-majoritarian criminal procedure decisions actually tended to accord with public’s prevailing views), and many constitutional doctrines show surprising signs of majoritarian nose-counting, see Corinna Barrett Lain, *Death Is Different, But Not Really* (Mar. 3, 2008) (unpublished manuscript, on file with author). Even so, the relationship between such consensus and subsequent changes in the law will necessarily be more attenuated than the organic, inadvertent feedback effect that is our focus here.

increased speeds and increased accidents. The speed of the “ordinary driver” will accordingly exert some influence on the legal standard, and thus create some potential for doctrinal feedback, but the feedback effect will be limited by the rival influence of the criterion that does not so directly incorporate real-world practice.<sup>18</sup>

In short, then, a legal norm that gives high deference to the real-world practice of those it governs increases the potential for doctrinal feedback, and low deference decreases it.

### *B. Departure from Expected Practice*

Even when the law defers extensively to real-world practice, however, doctrinal feedback will not always rear its ugly head. There is another necessary ingredient: the practice that informs the law must depart from the level of compliance that the law requires. Consider again the self-adjusting speed limit. The feedback potential here is obvious—but it will be realized only if drivers consistently drive faster or slower than the posted speed.

As it happens, there is a reason to expect such departures from compliance, and it begins with the fact that many legal norms are ambiguous. Suppose that enforcement of the speed limit is uncertain; perhaps the police radar occasionally and unpredictably malfunctions, so that it records a car’s speed as slower or faster than it actually is. Under such conditions, a driver who has much to gain from speeding (e.g., he must get his laboring wife to the hospital) might take his chances; he knows that he may escape punishment even if he exceeds the limit, because the radar gun may err in his favor and fail to detect his transgression. Under a different set of assumptions, the opposite might happen: if driving more slowly costs the driver little (no laboring wife), and the cost of a speeding ticket is great (perhaps he is one violation away from losing his license), he will overcomply. In other words, he will drive more slowly than required, because he knows that errors in enforcement could lead to a costly citation even if he has not transgressed.

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<sup>18</sup> In practice, most speed-limit laws are about more than a numerical limit; one can usually be ticketed for unsafe driving under prevailing conditions, even if one did not exceed the posted limit. See, e.g., Va. Code Ann. § 46.2-861 (2001) (“A person shall be guilty of reckless driving who exceeds a reasonable speed under the circumstances and traffic conditions existing at the time, regardless of any posted speed limit.”).

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1649

These examples illustrate the general phenomenon described by John Calfee and Richard Craswell in their classic study of how uncertainty affects compliance with legal norms.<sup>19</sup> Calfee and Craswell show that a rational actor will undercomply with an ambiguous norm when (1) the benefit incurred from undercompliance is substantial and (2) the chance of avoiding liability is high even when the norm is violated.<sup>20</sup> On the other hand, a rational actor will overcomply when (1) significant costs may arise even when the ambiguous norm is met and (2) the cost of overcompliance is comparatively small.<sup>21</sup> In the latter circumstance, the cost of doing more than the norm requires is less than the cost that comes with a legal violation, even when the latter is discounted to account for the chance that the actor would escape liability without overcomplying.

Note that two key ingredients inform these departures from compliant practice. First, as we have seen, the applicable legal norm must be ambiguous. This ingredient will be present in a great many contexts. Even norms that seem clear in the abstract, like a speed limit, can be uncertain in enforcement. And legal norms are often not clear even in the abstract, as in the many instances in which the law uses a standard rather than a rule. Indeed, the imprecision inherent in a standard is part of its appeal, in that it gives courts the flexibility they need to arrive at the correct judgment in fact-dependent contexts. Tort's reasonable care standard, for example, is often cited as a prime example of this trade-off between *ex ante* uncertainty and *ex post* accuracy.<sup>22</sup> The flexibility of stan-

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<sup>19</sup> John E. Calfee & Richard Craswell, *Some Effects of Uncertainty on Compliance with Legal Standards*, 70 *Va. L. Rev.* 965, 966–67 (1984). A number of scholars have subsequently expanded on Calfee and Craswell's theme. See, e.g., Giuseppe Dari-Mattiacci, *Errors and the Functioning of Tort Liability*, 13 *Sup. Ct. Econ. Rev.* 165, 165 (2005); Eric A. Posner, *Probability Errors: Some Positive and Normative Implications for Tort and Contract Law*, 11 *Sup. Ct. Econ. Rev.* 125, 125 (2004); Stephen Marks, *Discontinuities, Causation, and Grady's Uncertainty Theorem*, 23 *J. Legal Stud.* 287, 299–301 (1994); Jason Scott Johnston, *Uncertainty, Chaos, and the Torts Process: An Economic Analysis of Legal Form*, 76 *Cornell L. Rev.* 341, 341–48 (1991).

<sup>20</sup> Calfee & Craswell, *supra* note 19, at 981.

<sup>21</sup> *Id.*

<sup>22</sup> See Hart, *supra* note 4, at 129 (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, *supra* note 3, § 32, at 173 (“[T]he 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

dards can therefore come in handy, but it also creates room for doctrinal feedback to operate.

The second ingredient in departures from compliant behavior is the varying costs and benefits that such departures generate. These come in two flavors: legal and extralegal. The law imposes costs on those who are found to have undercomplied (including those who did not actually undercomply but who were erroneously captured by the inherent ambiguity in the compliance determination). Those governed by an ambiguous legal norm will obviously weigh the amount of such costs and the likelihood that they will be imposed. When these legal costs and benefits are the main motivator in prompting departures from compliance, we have what one might call a “tight” feedback loop: the legal norm not only incorporates the departures into its definition, but is also largely responsible for creating them in the first place.

But overcompliance and undercompliance also depend on extralegal costs and benefits, such as those generated by the marketplace or social norms.<sup>23</sup> The benefit of getting one’s wife to the hospital before the baby is born is independent of the system of legal sanctions that speed limits represent. If a teenage driver gains status among his peers when he drives eighty miles per hour, that kind of reward for undercompliance will enter into his decision whether to exceed the speed limit.<sup>24</sup> These sorts of extralegal factors will sometimes create the same incentives as their legal counterparts—e.g., both will encourage overcompliance or undercompliance—but other times they may work at cross-purposes. And even if both point in the same direction, we will have a more complicated, less “tight” feedback loop when the legal considerations exert little influence and extralegal factors exert a lot.

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the law’s recourse to such a complex standard as reasonableness . . . is the existence of topics or foci of concern to which a plurality of value-laden factors is relevant in a context-dependent way.”).

<sup>23</sup> Cf. Glen O. Robinson, *Rethinking the Allocation of Medical Malpractice Risks Between Patients and Providers*, 49 *Law & Contemp. Probs.*, Spring 1986, at 173, 178 (discussing market constraints on overcompliance).

<sup>24</sup> One might even hypothesize a feedback loop in which there is no ambiguity in definition or enforcement of the norm. For example, if persistent overcompliance or undercompliance is mainly extralegal in origin—i.e., the specter of liability plays little motivational role—feedback would still occur as long as the norm incorporates real-world practice.

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1651

Finally, we must account for two other considerations, which affect both the ambiguity of the legal norm and the accompanying cost-benefit calculus. First, Calfee and Craswell assume risk neutrality on the part of those to whom the ambiguous norm applies.<sup>25</sup> If we relax this assumption, however, noncompliant behavior can become even more prevalent. A risk-averse driver will drive more slowly, and a risk-seeking driver will drive more quickly.<sup>26</sup> Second, those weighing the wisdom of compliance may have imperfect information. A driver who underestimates the risk or costs of detection and punishment will tend to drive faster, and a driver who exaggerates that risk or those costs will tend to drive slower. Risk tolerance and imperfect information therefore play a role in whether and to what extent otherwise rational actors depart from the law's requirements.<sup>27</sup>

### *C. Confluence*

We have now seen that legal norms often draw their definition from the real-world practices of those they govern. We have also seen why and when rational actors would depart from such a norm. Neither of these two observations is particularly surprising in and of itself. Combined, however, they produce the underappreciated phenomenon of doctrinal feedback.

To understand how that combination occurs, begin with the departures from compliance that Calfee and Craswell predict. Their model paints a picture of a static phenomenon, which the law might address by changing the ambiguous norm itself—e.g., setting it at a less-than-optimal level when systemic overcompliance is likely, so that the actual behavior of those governed will more

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<sup>25</sup> Calfee & Craswell, *supra* note 19, at 984.

<sup>26</sup> For a mathematical proof of this intuitive observation, see Calfee and Craswell's follow-up article: Richard Craswell & John E. Calfee, *Deterrence and Uncertain Legal Standards*, 2 *J.L. Econ. & Org.* 279, 300–01 (1986).

<sup>27</sup> In some contexts, risk tolerance may provide the entire explanation for feedback. For example, Calfee and Craswell's model does not explain the prevalence of overcompliance in intellectual property licensing, because their model assumes that the regulated actors can choose their level of compliance from a continuum of conduct. See Calfee & Craswell, *supra* note 19, at 967. In contrast, intellectual property licensing tends to be an either/or proposition. We must therefore look beyond Calfee and Craswell's model to explain excess licensing in intellectual property, and risk aversion provides an answer. See Gibson, *supra* note 6, at 891–95.

closely approximate the optimal goal.<sup>28</sup> Then introduce into this mix a legal norm that not only is ambiguous but also incorporates the practices of those to whom it applies. Now one can see that systemic overcompliance (or undercompliance) has a dynamic aspect as well: the real-world departures from compliant conduct feed back into the legal standard itself, causing it to become more (or less) demanding. This heightened (or lowered) standard then prompts a new round of overcompliant (or undercompliant) behavior, which again causes the legal standard to ratchet up (or down), and so forth. In such circumstances, setting the standard at any particular level will be a stopgap solution at best, because the standard will inevitably evolve on its own.

So if the costs of a speeding ticket are high, the gains to be had from speeding are small, and the enforcement is unpredictable, then not only will drivers drive more slowly than the law requires—the overcompliance that Calfee and Craswell predict—but any speed limit that adjusts to reflect average speeds will slowly but surely get lower and lower. Inversely, if speeding tickets are rarely issued, or cost drivers little, and the gains to be had from speeding are great, then not only will drivers speed but our hypothetical self-adjusting speed limit will slowly but surely creep higher and higher. Of course, the notion of a self-adjusting speed limit is farcical—but as we have already seen, a wide variety of existing legal norms exhibit the two feedback-fueling characteristics of ambiguity and reference to real-world practice.<sup>29</sup>

This feedback effect has important implications for theorists who put their faith in the collective wisdom of individual decisions. For example, Richard Posner and Richard Epstein both argue for deference to custom when a dispute arises from consensual arrangements.<sup>30</sup> Epstein has been the foremost proponent of this view; his theory is that custom reflects market efficiencies, particularly when it emerges from voluntary interactions among repeat players, because such transactions create a natural incentive to work together

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<sup>28</sup> Calfee & Craswell, *supra* note 19, at 998.

<sup>29</sup> See, e.g., *supra* text accompanying notes 7–15.

<sup>30</sup> Richard A. Posner, *Economic Analysis of Law* 171–72 (6th ed. 2003); Richard A. Epstein, *The Path to The T.J. Hooper: The Theory and History of Custom in the Law of Tort*, 21 *J. Legal Stud.* 1, 4–6 (1992).

and consider each other's interests.<sup>31</sup> 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."<sup>32</sup> 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."<sup>33</sup>

What doctrinal feedback shows us, however, is that the very conditions that seem to support using custom as the legal norm can 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.<sup>34</sup> Yet we have seen that a legal standard that defers to custom can create systemic departures from efficient behavior and then allow those departures to infect custom (and the law that defers to it) with their inefficiencies. And this danger exists even if everyone is acting rationally; imperfect information and variations in risk tolerance simply make it worse. In short, when feedback is present, individual choice produces folly, not wisdom.

## II. REASONABLE CARE AND MEDICAL CARE

The foregoing discussion reveals that doctrinal feedback may have explanatory power in a wide variety of legal contexts. Yet this breadth of application and the many disparate factors that enter into the feedback model make it difficult to move from generalizations to specific predictions without an in-depth examination of the applicable legal norm and the community it governs. Different legal regimes will defer to real-world practice in different ways. The legal and extralegal costs and benefits of departures from compliance will vary from industry to industry. Different actors may have different levels of risk tolerance and differing access to accurate in-

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<sup>31</sup> Epstein, *supra* note 30, at 11–12.

<sup>32</sup> *Id.* at 24.

<sup>33</sup> *Id.* at 14.

<sup>34</sup> 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." *Id.* at 7.

formation. For example, our hypothetical community of drivers may be heterogeneous: some may be risk-averse, others risk-seeking; some may have much to gain from speeding, others little; some may believe that enforcement of the speed limit is infrequent and forgiving, others may believe the opposite. If so, then a critical mass of overcompliance or undercompliance may never occur.

Therefore, the feedback model cannot by itself predict exactly when there will be a sufficient level of overcompliance or undercompliance in a given industry to feed back into and change the governing norm. To see doctrinal feedback in operation, we must identify a particular setting—one in which an ambiguous legal norm both governs and refers to real-world practice, in which the role of legal and extralegal influences on behavior has been measured, and in which we can get some sense of how practice has evolved over time.

One promising candidate presents itself: medical 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 tort's ambiguous 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 chance that other policymaking inputs will inform the legal norm 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 norms 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.

#### *A. Tort Law's Feedback Potential*

Tort law's well-known reasonable care standard shows obvious potential for doctrinal feedback. First, it refers to the real-world practice of those whom it regulates, requiring them to exercise "ordinary prudence" and exhorting them to do what a "reasonable person" would do in their place.<sup>35</sup> Such an inquiry necessarily looks

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<sup>35</sup> Prosser and Keeton, *supra* note 3, § 32, at 174.

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1655

to what people usually do in similar circumstances.<sup>36</sup> 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. Second, the boundaries of legal liability under the reasonable care standard are ambiguous from an ex ante perspective, both because of the uncertainty inherent in the term “ordinary care” and because of the vicissitudes of the jury system that decides tort cases.

So a shopkeeper who wants to avoid the gray area of negligence liability for slip-and-fall accidents might provide more care than his peers (e.g., extra handrails and cushy carpets) so that even if an accident occurs, he will be viewed as having more than satisfied the negligence norm. Or perhaps he would overcomply not out of fear of liability, but because of extralegal motivations; maybe extra handrails and cushy carpets attract more customers. In either case, if other shopkeepers do the same, then reasonable care will follow, drawing its definition from the practices of those it regulates.

To determine whether the reality of negligence law reflects this feedback potential, however, we must examine how well it fits into the particulars of the feedback model. How much does reasonable care actually defer to real-world practice? What are the costs and benefits—both legal and extralegal—of departing from compliant behavior?

As it turns out, neither of these important issues admits of useful generalizations, even within the negligence context. Take the deference issue: the conduct of the regulated parties certainly matters in determining what qualifies as reasonable care, but courts may also substitute their own judgment. As Learned Hand famously proclaimed in *The T.J. Hooper*:

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

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<sup>36</sup> Restatement (Second) of Torts § 283 (1965).

imperative that even their universal disregard will not excuse their omission.<sup>37</sup>

Under this top-down approach, a court may independently determine the optimal cost-benefit balance that reasonable care represents, even if the affected industry's universal practice is overcompliant or undercompliant therewith.<sup>38</sup> The conduct of the ordinary person is therefore relevant, but not dispositive, and overcompliance or undercompliance—even if pervasive—will not always be the main determinant of the legal norm.<sup>39</sup>

Likewise, there are no universal truths regarding the risks and rewards of providing more or less care than the reasonable care standard demands. Tort's deterrent signal will be weak in some industries but strong in others. The cost of providing more care and the savings from providing less will also vary considerably, as will the extralegal incentives to depart from compliance.

This is not to say that doctrinal feedback plays no role in the evolution of tort law. To the contrary, the feedback phenomenon will likely have some explanatory power—perhaps a great deal of explanatory power—over the legal standard in a wide variety of negligence contexts. But to figure out when it does so, we must examine particular settings in which negligence law applies and measure the effect of the various feedback factors therein. Unfortunately, in the space of a single article it is impossible to undertake a comprehensive inquiry into the many industries that operate in the shadow of reasonable care. We shall have to make do with one case study: medical care.

### *B. Deference to Custom in Medical Malpractice Law*

Consider again the example of the physician confronted with a swollen lymph node. The ingredients for overcompliance seem to be present here: she is operating under the famously ambiguous

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<sup>37</sup> 60 F.2d 737, 740 (2d Cir. 1932) (citations omitted).

<sup>38</sup> 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).

<sup>39</sup> Note that Judge Hand's principle is not without its critics. See *supra* text accompanying notes 30–33.

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1657

reasonable care standard;<sup>40</sup> providing reasonable care does not eliminate the danger (and very high cost) of cancer; and overcompliance—i.e., ordering the ultrasound—costs her little. In those circumstances, taking the extra precaution is the rational choice. And if other physicians follow suit, ordering an ultrasound 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—e.g., order a biopsy—and the cycle begins anew.

To determine whether the assumptions underlying our physician example represent prevailing practice in the medical world, however, we must examine feedback's two formative factors. The first is whether the applicable legal doctrine incorporates real-world practice. Here the answer is an emphatic yes. Courts that adjudicate medical malpractice claims have not accepted Judge Hand's invitation to second-guess industry custom. Instead, they defer almost without exception to the real-world practice of physicians.<sup>41</sup> Reasonable care in malpractice cases "is virtually defined by the customary skills and practices of the profession," such that compli-

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<sup>40</sup> See, e.g., Jeffrey O'Connell, Neo-No-Fault Remedies for Medical Injuries: Coordinated Statutory and Contractual Alternatives, 49 *Law & Contemp. Probs.*, Spring 1986, at 125, 125 ("Suits to recover for personal injuries resulting from medical malpractice can be among the most unpredictable and most complex to litigate.").

<sup>41</sup> A rare counterexample is *Helling v. Carey*, 519 P.2d 981 (Wash. 1974), one of the only cases 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 uncontroverted evidence 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. Indeed, the test's cost-effectiveness was seriously in doubt even for older patients, see Clark C. Havighurst, Private Reform of Tort-Law Dogma: Market Opportunities and Legal Obstacles, 49 *Law & Contemp. Probs.*, Spring 1986, at 143, 159 n.45, and yet a post-*Helling* analysis indicated that the expert testimony was wrong—that a high percentage of ophthalmologists had been screening younger patients for glaucoma. Jerry Wiley, The Impact of Judicial Decisions on Professional Conduct: An Empirical Study, 55 *S. Cal. L. Rev.* 345, 383 (1982). Rather than put a stop to inefficient practices, then, the court's decision promoted them.

ance with custom almost always means no liability.<sup>42</sup> Indeed, this deference is so strong that a court can actually exclude evidence that challenges the effectiveness of the custom.<sup>43</sup>

In recent years, some jurisdictions have departed slightly from the deferential standard, but few would deny that custom remains the central determinant of liability in medical malpractice. Indeed, the soon-to-be-released Third Restatement of Torts has not noted any diminution in its importance; although in most cases the Restatement 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.”<sup>44</sup>

Deference to medical custom gets complicated only when physicians disagree about the appropriate treatment. In such instances, the practice among a “respectable minority” of physicians can provide a safe haven from liability. This defense is far from universal across jurisdictions, however,<sup>45</sup> and in practice it usually results in nothing more than an additional jury instruction. The respectable minority rule therefore provides some more firepower in the “battle of experts” that usually occurs in such cases,<sup>46</sup> but does little to reduce the inherent ambiguity of the liability determination or as-

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<sup>42</sup> Robinson, *supra* note 23, at 173 (emphasis omitted); accord Epstein, *supra* note 30, at 37; Clark C. Havighurst, *Altering the Applicable Standard of Care*, 49 *Law & Contemp. Probs.*, Spring 1986, at 265, 265–66.

<sup>43</sup> 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”).

<sup>44</sup> Restatement (Third) of Torts: Liability for Physical Harm § 13 cmts. a–b (Proposed Final Draft No. 1 2005). But see Philip G. Peters, Jr., *The Quiet Demise of Deference to Custom: Malpractice Law at the Millennium*, 57 *Wash. & Lee L. Rev.* 163, 204–05 (2000).

<sup>45</sup> See Leonard J. Nelson III, *The Defense of Malpractice Claims*, in 1 *Medical Malpractice* ¶ 9.05[3] (David W. Louisell & Harold Williams eds., 2007) (listing jurisdictions that have and have not adopted some form of rule); Anna C. Mastroianni, *Liability, Regulation and Policy in Surgical Innovation: The Cutting Edge of Research and Therapy*, 16 *Health Matrix* 351, 382–83 (2006) (same); Joan P. Dailey, *Comment, The Two Schools of Thought and Informed Consent Doctrines in Pennsylvania: A Model for Integration*, 98 *Dick. L. Rev.* 713, 721–22 (1994) (discussing jurisdictions that reject the rule and their rationales for doing so).

<sup>46</sup> Mark A. Hall, *The Defensive Effect of Medical Practice Policies in Malpractice Litigation*, 54 *Law & Contemp. Probs.*, Winter–Spring 1991, at 119, 128–29.

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1659

sure physicians of the wisdom of departing from a dominant practice.<sup>47</sup>

In the end, then, deference to custom is both widespread and critically important to doctrinal feedback in that it ensures that the legal system will be in no position to remove a widely adopted yet wasteful practice. Quite the contrary: deference to custom means that once an unneeded medical 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.<sup>48</sup> Eventually, that which was once considered over-compliant becomes merely compliant, so that physicians who want to steer clear of reasonable care's gray areas must adopt some new, even-more-overcautious measure.<sup>49</sup>

### *C. Departures from Compliance*

The other formative feedback factor focuses on departures from the level of care that the legal norm demands. Do physicians actually overcomply, or undercomply? If so, why? And is there evidence that such departures from compliance actually feed back into the reasonable care standard?

The first part of this inquiry is easy: there is clear evidence of such departures in medical care. They take the form of overcompliance (more procedures, more tests, more referrals, and so forth) and the specter of malpractice liability is a prime motivating factor. The practice of providing extra care—not because the physician considers it 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 mal-

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<sup>47</sup> Peters, *supra* note 44, at 186; see also Kenneth S. Abraham, *The Trouble With Negligence*, 54 *Vand. L. Rev.* 1187, 1208 (2001) (predicting variation in application of respectable minority rule based on its being complicated and possibly “counterintuitive to many finders of fact”).

<sup>48</sup> See Office of Technology Assessment, U.S. Congress, *Defensive Medicine and Medical Malpractice* 32 (1994); Havighurst, *supra* note 41, at 158–59; Hall, *supra* note 46, at 119; David M. Studdert et al., *Defensive Medicine Among High-Risk Specialist Physicians in a Volatile Malpractice Environment*, 293 *JAMA* 2609, 2616 (2005).

<sup>49</sup> Pervasive *under*compliance could theoretically create a feedback cycle in the opposite direction, but in reality this is unlikely, for reasons discussed *infra*, Section II.B.

practice “crisis” in the 1970s.<sup>50</sup> For example, studies from the 1980s to today find a significant relationship between perceived risk of suit and the ordering of more tests and performance of more procedures.<sup>51</sup>

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.<sup>52</sup> In one recent survey of six medical specialties, more than nine out of ten physicians reported practicing this kind of defensive medicine “sometimes” or “often.”<sup>53</sup> Similar numbers admitted to ordering unnecessary tests, and more than six out of ten reported performing or ordering wasteful invasive procedures.<sup>54</sup> Prescribing unneeded medications was also quite common.<sup>55</sup> And although direct surveys can suffer from the bias that comes with self-reporting,<sup>56</sup> other methods of studying defensive medicine also

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<sup>50</sup> The practices I describe are more accurately known as “positive defensive medicine.” The counterpart is “negative defensive medicine,” which involves avoiding high-risk patients or abandoning risky areas of practice. See Bryan A. Liang, Layperson and Physician Perceptions of the Malpractice System: Implications for Patient Safety, 57 *Soc. Sci. & Med.* 147, 150–51 (2003).

<sup>51</sup> Paul C. Weiler et al., A Measure of Malpractice: Medical Injury, Malpractice Litigation, and Patient Compensation 127 (1993); G.L. Birbeck et al., Do Malpractice Concerns, Payment Mechanisms, and Attitudes Influence Test-Ordering Decisions?, 62 *Neurology* 119, 121 (2004).

<sup>52</sup> See, e.g., Nonda Wilson & Albert L. Strunk, Editorial, Overview of the 2006 ACOG Survey on Professional Liability, *ACOG Clinical Rev.*, Mar.–Apr. 2007, at 1, 15 (noting that 64.6% of obstetricians and gynecologists reported making changes to their practice due to malpractice fears); Studdert et al., *supra* note 48, at 2609; Paul Clay Sorum et al., Why Do Primary Care Physicians in the United States and France Order Prostate-Specific Antigen Tests for Asymptomatic Patients?, 23 *Med. Decision Making* 301, 307 (2003) (finding positive correlation between physicians’ malpractice fears and ordering of an unnecessary prostate test).

<sup>53</sup> Studdert et al., *supra* note 48, at 2612.

<sup>54</sup> *Id.* at 2616.

<sup>55</sup> *Id.* at 2612.

<sup>56</sup> See Office of Technology Assessment, *supra* note 48, at 74 (1994) (suggesting that surveys that explicitly ask physicians about malpractice considerations “considerably overestimate the extent of defensive medicine” on the theory that the very mention of such considerations can prompt respondents to exaggerate them). It is unclear, however, why respondents would not be equally likely to downplay defensive medicine as inconsistent with their commitment to medical necessity and their integrity as physi-

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1661

show that the phenomenon is quite real.<sup>57</sup>

Physicians' attitudes toward 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,<sup>58</sup> and risk-averse practitioners tend to order more tests, make more referrals, and hospitalize more patients.<sup>59</sup> 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 even low-risk patients (rather than treat them as outpatients, which is generally regarded as safe) and to order more referrals and testing.<sup>60</sup>

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cians. Moreover, if the surveyed physicians were *not* told that malpractice considerations are a focus of the survey, they might answer as if the survey were a medical board exam—i.e., based on clinical assessments only—even though in real life they would consider malpractice pressures as well. See *id.* at 63.

<sup>57</sup> E.g., David Klingman et al., *Measuring Defensive Medicine Using Clinical Scenario Surveys*, 21 *J. Health Pol. Pol'y & L.* 185, 191–92 (1996); A. Russell Localio et al., *Relationship Between Malpractice Claims and Cesarean Delivery*, 269 *JAMA* 366 (1993); Robert Quinn, *Medical Malpractice Insurance: The Reputation Effect and Defensive Medicine*, 65 *J. Risk & Ins.* 467, 467 (1998); see also Havighurst, *supra* note 41, at 267 (“Much care that physicians perceive as ‘defensive medicine’ appears to be a response to the pressure to do more than individual professionals believe to be necessary and cost-justified.”); Laurence R. Tancredi & Jeremiah A. Barondess, *The Problem of Defensive Medicine*, 200 *Science* 879, 880 (1978) (noting that physicians admitted overuse of common procedure without consciously relating it to fear of liability). Note that the overall costs of defensive medicine are a subject of some debate. See Office of Technology Assessment, *supra* note 48, at 154–59 (critiquing studies that peg costs at billions of dollars annually).

<sup>58</sup> Kevin Fiscella et al., *Risk Aversion and Costs: A Comparison of Family Physicians and General Internists*, 49 *J. Fam. Prac.* 12 (2000).

<sup>59</sup> *Id.* at 16 (citing multiple studies); Susan Dorr Goold et al., *Measuring Physician Attitudes Toward Cost, Uncertainty, Malpractice, and Utilization Review*, 9 *J. Gen. Internal Med.* 544, 544 (1994) (finding that “discomfort from uncertainty” and fear of malpractice positively correlated with each other and with increased resource use); Steven D. Pearson et al., *Triage Decisions for Emergency Department Patients with Chest Pain: Do Physicians’ Risk Attitudes Make the Difference?*, 10 *J. Gen. Internal Med.* 557, 557 (1995) (finding correlation between decreased risk tolerance and increased admission of patients with chest pain); Sorum et al., *supra* note 52, at 307 (finding that physicians’ “discomfort with uncertainty” predicted ordering of unnecessary prostate test).

<sup>60</sup> David A. Katz et al., *Emergency Physicians’ Fear of Malpractice in Evaluating Patients With Possible Acute Cardiac Ischemia*, 46 *Annals Emergency Med.* 525, 525

Perhaps more significant than risk aversion is physicians' risk perception. Doctrinal feedback will be even more likely if those governed by the negligence standard have imperfect information that causes them to 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, the medical profession is nearly off the charts. Physicians overestimate their overall chances of being sued by a factor of three,<sup>61</sup> and they think that a negligently injured patient is thirty times more likely to file suit than is actually the case.<sup>62</sup> When asked to forecast the outcome in real malpractice cases, physicians are overly pessimistic about the defendants' chances, predicting defendant verdicts correctly only thirty-six percent of the time<sup>63</sup> and inaccurately assuming that errors in legal outcomes will overwhelmingly favor plaintiffs.<sup>64</sup> Given these exaggerated perceptions of risk, it should come as no surprise that physicians admit to providing an excessive level of care.

So far, then, we have evidence of a tight feedback loop, where the law does most of the heavy lifting. In other words, the reasonable care standard not only incorporates overcompliance into its definition, but is also largely responsible for creating that overcompliance in the first place. But to close the loop (so to speak), we need to examine the extralegal influences on the cost-benefit calculus that underlies physician behavior. Obviously factors other than fear of malpractice liability inform the choices that physicians make about patient care. If these other considerations mitigate the

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(2005); accord Ann G. Lawthers et al., *Physicians' Perceptions of the Risk of Being Sued*, 17 *J. Health Pol. Pol'y & L.* 463, 471–72 (1992) (finding positive correlation between physicians' perceived risk of being sued and ordering of additional tests).

<sup>61</sup> Lawthers et al., *supra* note 60, at 469. The overestimation was higher in high-risk specialties and lower in low-risk specialties, but all specialties overestimated. *Id.* at 468.

<sup>62</sup> *Id.* at 468, 475.

<sup>63</sup> Liang, *supra* note 50, at 149.

<sup>64</sup> 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. *Id.* at 150. Here again perception is at odds with reality; error in malpractice cases actually favors defendants. See sources cited *infra* note 225.

tendency to overcomply, then the feedback potential is diminished. As it turns out, however, the extralegal factors will either produce the same result—i.e., wasteful levels of care—or at least will not significantly impede overcompliance.

Among the various extralegal considerations, 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. What this means for doctrinal feedback, however, is simply that a physician will overcomply in ways that do no direct harm to patients' health (e.g., by ordering additional tests); the injury, if any, is merely to their pocketbooks. In other words, one of the costs that the physician will consider is the added exposure that might come with added care; no physician is going to think that performing a dangerous procedure will help avoid liability.<sup>65</sup>

A related extralegal factor is the efficacy of added care in improving health outcomes. For example, if empirical evidence clearly indicates the uselessness of an additional test, the conscientious physician will think twice before ordering it—even if the test helps reduce exposure in the legal arena. Physicians will rarely confront this dilemma, however, because of a surprising (and somewhat disappointing) 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.<sup>66</sup> Even more disillusioning is that when

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<sup>65</sup> This explains why juries' normality bias (i.e., their tendency to punish departures from conventional procedure) will have little effect on doctrinal feedback. See Robert A. Prentice & Jonathan J. Koehler, A Normality Bias in Legal Decision Making, 88 Cornell L. Rev. 583, 626–27 (2003) (showing normality bias among medical malpractice juries). If the overcompliance that fuels doctrinal feedback causes no injury to patients' health, juries will have no opportunity to exhibit any bias against the adoption of the extra precautions. (Indeed, if normality bias has any effect here, it will be to contribute to the feedback cycle: once the new precautions have become the norm, juries will be more likely to assign liability to the few stragglers who stick to the old method, even though it is equally safe.) For the same reason, tort law's anti-innovation bias, see Gideon Parchomovsky & Alex Stein, The Anti-Innovation Bias of Tort Law (U. Pa. Inst. for L. & Econ., Research Paper No. 07-31, 2007), available at <http://ssrn.com/abstract=1028346>, will not significantly retard the development and use of these extra precautions, because only those innovations that cause injury will come before juries and allow custom to rope them in.

<sup>66</sup> Shannon Brownlee, *Overtreated: Why Too Much Medicine Is Making Us Sicker and Poorer* 27 (2007); Lucian L. Leape et al., *What Practices Will Most Improve*

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.<sup>67</sup> This means that even a single-minded focus on patient welfare will not eliminate overcompliance or slow down the feedback loop. In most cases, physicians are free to order more tests, make more referrals, and so forth, without feeling that they are ignoring or compromising their patients' health.<sup>68</sup>

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?<sup>69</sup> Moreover, a patient whose demand for additional treatment is refused is probably more likely to sue (and may also be more likely to prevail, if the refused procedure would have mitigated the injury).<sup>70</sup> 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.<sup>71</sup>

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Safety?, 288 JAMA 501, 506 (2002); William M. Sage, *Regulating Through Information: Disclosure Laws and American Health Care*, 99 Colum. L. Rev. 1701, 1774 (1999); Tancredi & Barondess, *supra* note 57, at 881.

<sup>67</sup> Lars Noah, *Medicine's Epistemology: Mapping the Haphazard Diffusion of Knowledge in the Biomedical Community*, 44 Ariz. L. Rev. 373, 383 (2002); Sage, *supra* note 66, at 1774.

<sup>68</sup> Indeed, overcompliance probably improves patient outcomes much of the time, even though it is not cost-effective. Studdert et al., *supra* note 48, at 2616. There are, however, instances in which defensive medicine actually makes the patient worse. *Id.* at 2616; see also Michael L. DeKay & David A. Asch, *Is the Defensive Use of Diagnostic Tests Good for Patients, or Bad?*, 18 Med. Decision Making 19 (1998) (arguing that defensive diagnostic testing is bad for patients).

<sup>69</sup> It is often easier to just say "yes" than to explain why "no" is the better answer. See Brownlee, *supra* note 66, at 157–58; cf. Dustin W. Ballard et al., *Fear of Litigation May Increase Resuscitation of Infants Born Near the Limits of Viability*, 140 J. Pediatrics 713 (2002) (finding that neonatologists strongly deferred to parents' wishes regarding resuscitation of premature infants with dismal survival rates); Sorum et al., *supra* note 52, at 304–305 (finding that American physicians felt more pressure from patients and ordered more unnecessary tests than their French counterparts).

<sup>70</sup> Cf. Ballard et al., *supra* note 69, 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").

<sup>71</sup> See Eric G. Campbell et al., *Professionalism in Medicine: Results of a National Survey of Physicians*, 147 *Annals Internal Med.* 795, 799 (2007) ("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 re-

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1665

Another factor in the cycle of overcompliance is the availability of overcompliance options, compounded by the forces within the industry that promote their use. It is not enough for a physician to *want* to provide extra care; he or she must actually *have available* some form of extra care—some incremental measure that comes at a low cost and that reduces the chance of liability. If the only treatment options available are those that are already part of the customary care standard, or if the “extra care” alternatives are all high-cost, then the feedback loop will never get started; the cost of overcompliance will be too high.

This factor obviously depends on the particular condition being treated and the state of medical care at the time, but there is good reason to believe that the physician will often have overcompliance options. The many forms that extra care can take (referrals, tests, hospitalizations, prescriptions, procedures, etc.) and the rapid development and diffusion of new medical technologies will combine to provide plenty of ways to do a bit more than reasonable care demands. 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;<sup>72</sup> “A built hospital bed is a filled hospital bed,” as the saying goes.<sup>73</sup>

Moreover, the producers of new technologies and treatments relentlessly market them to health care providers, knowing that no one expects proof of their efficacy before adoption.<sup>74</sup> Pharmaceuti-

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sponse 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 56.

<sup>72</sup> Brownlee, *supra* note 66, at 109–16; see also *id.* at 171 (“[S]tudies of the effectiveness of imaging . . . have shown that the technology is improving care in only tiny increments, even as utilization and costs are rising at meteoric rates.”); Studdert et al., *supra* note 48, at 2616 (explaining how “[d]efensive use of technology” inevitably becomes customary).

<sup>73</sup> Brownlee, *supra* note 66, at 111; see also Office of Technology Assessment, *supra* note 48, at 105 (summarizing studies showing that “availability of technologies influences their use”); Herman M. Somers, *The Malpractice Controversy and the Quality of Patient Care*, 55 *Milbank Mem. Fund Q.* 193, 228 (1977) (describing “technological imperative”).

<sup>74</sup> See, e.g., Gina Kolata, *Where Marketing and Medicine Meet*, *N.Y. Times*, Feb. 10, 1999, at A14 (discussing marketing of unproven technologies to cardiologists). Another example:

cal companies, for example, spend much more on promotional efforts than on research and development, and they supplement direct marketing with sponsorship of educational enterprises and prizes for everyone from school-age children to practicing physicians.<sup>75</sup> In 2006, sixty-one percent of revenue from continuing medical education programs in the United States came from commercial sources, such as the pharmaceutical and medical device industries.<sup>76</sup> These frequent interactions with for-profit vendors of new medicines have significant and dismaying consequences for physicians' prescription rates, knowledge of the effects of medication, and related matters.<sup>77</sup> And it is beyond dispute that the widespread adoption of new medical technologies results from more than inherent cost-effectiveness; it is influenced by a complex interaction of cultural and practice norms, payment systems, relations between hospitals and physicians, and other factors.<sup>78</sup>

So far, all the influences on medical care seem to point in the direction of overcompliance. There is, however, one extralegal factor that we might expect to prevent physicians from consistently providing more care than they think necessary: market forces. Each

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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 a clot, which can cause a stroke, unless the patient takes drugs to prevent one.

Brownlee, *supra* note 66, at 172; see also *id.* at 119–20 (describing tireless promotional efforts of originator of inefficacious bone marrow transplant surgery for breast cancer).

<sup>75</sup> Joe Collier & Ike Iheanacho, *The Pharmaceutical Industry as an Informant*, 360 *Lancet* 1405, 1407–08 (2002).

<sup>76</sup> Barbara E. Barnes et al., *A Risk Stratification Tool to Assess Commercial Influences on Continuing Medical Education*, 27 *J. Continuing Educ. Health Profs.* 234, 234 (2007).

<sup>77</sup> Ashley Wazana, *Physicians and the Pharmaceutical Industry*, 283 *JAMA* 373 (2000); see also Barnes et al., *supra* note 76, at 234 (noting that continuing medical education participants “often have difficulty determining the difference between commercial bias and expert personal opinion”); Weiler et al., *supra* note 51, at 128 (ranking continuing medical education programs as the most influential factor in deciding what care to provide).

<sup>78</sup> See, e.g., Hideki Hashimoto et al., *The Diffusion of Medical Technology, Local Conditions, and Technology Re-Invention: A Comparative Case Study on Coronary Stenting*, 79 *Health Pol’y* 221 (2006).

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1667

extra test, procedure, and referral comes with a price tag, and if its economic costs outweigh its benefits (as is always the case with defensive medicine) one would expect the market to prevent physicians from ordering it. Of course, as Calfee and Craswell demonstrate, part of the benefit of the extra care is the decreased 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, significantly 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.<sup>79</sup> Indeed, financial incentives probably fuel the feedback loop rather than retard it. Most physicians work on a fee-for-service basis, so additional care means additional fees.<sup>80</sup> Testing in particular has long been an especially profitable aspect of health care.<sup>81</sup> We would like to 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 profit personally from them.<sup>82</sup>

The importance of this absence of cost constraints cannot be overstated, as it allows the various overcompliance motivations to roam free: risk aversion, imperfect information, patient demands, promotion of new practices, fear of liability, and so forth. Physi-

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<sup>79</sup> Patricia M. Danzon, *Medical Malpractice: Theory, Evidence, and Public Policy* 142 (1985); Posner, *supra* note 30, at 202 n.4; Weiler et al., *supra* note 51, at 113; Michelle M. Mello, *Of Swords and Shields: The Role of Clinical Practice Guidelines in Medical Malpractice Litigation*, 149 U. Pa. L. Rev. 645, 690 n.197 (2001); Robinson, *supra* note 23, at 178.

<sup>80</sup> Weiler et al., *supra* note 51, at 113.

<sup>81</sup> Brownlee, *supra* note 66, at 162; Eugene D. Robin, *Matters of Life & Death: Risks vs. Benefits of Medical Care* 28 (1984); Somers, *supra* note 73, at 229 n.40.

<sup>82</sup> E.g., Birbeck et al., *supra* note 51, at 120 (finding evidence that physicians with financial interest in testing facilities ordered more tests); Bruce J. Hillman et al., *Frequency and Costs of Diagnostic Imaging in Office Practice—A Comparison of Self-Referring and Radiologist-Referring Physicians*, 323 *New 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); see also Office of Technology Assessment, *supra* note 48, at 104 (summarizing similar studies).

cians relieved of economic pressures can therefore almost always find a reason to order one more test or make one more referral.<sup>83</sup> For example, they can (and often do) pursue diagnostic clarity even when learning the nature of the patient's ailment will not change the course of treatment or affect outcome—for example, by performing a cancer biopsy on an aged patient even when her health is too fragile for surgery or chemotherapy.<sup>84</sup>

Of course, when it comes to externalization of costs, one cannot look at just one side of the ledger. Doctors and patients may not bear the full cost of the medical treatment they agree upon, but neither do physicians pay for their own 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 experience,<sup>85</sup> and providing too much care will not change the community to which a physician belongs.

The more compelling explanation for the persistence of defensive medicine 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 signifi-

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<sup>83</sup> See Robin, *supra* note 81, at 40 (“It is easier for doctors to come up with a justification for doing a given test than for not doing it.”).

<sup>84</sup> See *id.* at 19–22, 28–35; Elliott S. Fisher & H. Gilbert Welch, *Avoiding the Unintended Consequences of Growth in Medical Care*, 281 *JAMA* 446, 447 (1999); see also sources cited *supra* note 59 (discussing physicians' discomfort with uncertainty).

<sup>85</sup> Kenneth S. Abraham & Paul C. Weiler, *Enterprise Medical Liability and the Evolution of the American Health Care System*, 108 *Harv. L. Rev.* 381, 409–10 (1994); 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. Abraham & Weiler, *supra*, at 410; Troyen A. Brennan & Michelle M. Mello, *Patient Safety and Medical Malpractice: A Case Study*, 139 *Annals Internal Med.* 267, 271 (2003).

cant reputational effects and thousands of dollars' worth of lost time and inconvenience that accompany each claim.<sup>86</sup> And most of these costs arise from the mere filing of a claim,<sup>87</sup> which means they foster overcompliance even when the plaintiff is unlikely to prevail at trial or extract a settlement payment. Once we combine the 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 and the feedback potential lives on.

#### *D. Systemic Shifts*

So far, we have a legal norm that defers to custom and a variety of reasons for that custom to exceed the minimum standard that negligence law demands. For such excessive care to feed back into the negligence standard, however, it must be systemic; a critical mass of physicians must adopt the practice at issue or it will never become custom and thus will never affect the applicable legal norm.

This does not mean, however, that all the physicians who adopt the overcompliant practice need to share the same motivation. Some might overcomply out of fear of liability, others because they have been bamboozled by marketing efforts, and still others because they stand to profit from providing more care. Whatever the explanation, as long as the total number of physicians providing the extra care is high enough, the negligence standard will follow the herd and evolve in a more demanding direction. Therefore, given the sheer number of legal and extralegal reasons to overcomply and the absence of countervailing cost constraints, feedback is extremely likely.

Moreover, the nature of the medical profession increases the chance that a critical mass will follow from comparatively few in-

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<sup>86</sup> Weiler et al., *supra* note 51, at 115, 126; O'Connell, *supra* note 40, at 126 n.4; Quinn, *supra* note 57, at 470–71; see also Abraham & Weiler, *supra* note 85, 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.”).

<sup>87</sup> Weiler et al., *supra* note 51, at 18; see also Localio et al., *supra* note 57, at 369–70 (finding no correlation between use of cesareans and claims paid and but lots of correlation between use of cesareans and claims filed); Quinn, *supra* note 57, at 468 (modeling reputational effects “whether the claim is won or lost”).

stances of overcompliance. Physicians are very sensitive to peer relations,<sup>88</sup> which makes them especially likely to respond to emerging trends in practice even if many of them have no reason to overcomply on an individual basis. Even absent legal pressures, medicine is subject to informational cascades: the more physicians that adopt a new procedure, the greater the chance that other physicians will discount any individual misgivings and follow the herd.<sup>89</sup> (For example, if the most risk-averse practitioners adopt a new technique, then their neighbors on the risk-aversion curve will more readily follow, and then their neighbors, and so on.) Some theorists have offered such cascades as the explanation for the high incidence of useless procedures, such as tonsillectomies, and for otherwise puzzling regional variations in practice.<sup>90</sup> And although these cascades can easily take place without any court judgment prompting or ratifying them, peer sensitivity also manifests in strong physician reactions to the malpractice experiences of their colleagues.<sup>91</sup> A few salient claims experiences may therefore also affect the way an entire specialty practices.

These informational cascades are even more likely when influential opinion leaders are among the overcompliant practice's early

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<sup>88</sup> Peter A. Glassman et al., *Physicians' Personal Malpractice Experiences Are Not Related to Defensive Clinical Practices*, 21 *J. Health Pol. Pol'y & L.* 219, 234 (1996); Carol S. Weisman et al., *Practice Changes in Response to the Malpractice Litigation Climate: Results of a Maryland Physician Survey*, 27 *Med. Care* 16, 22 (1989); see also Weiler et al., *supra* note 51, at 128 (ranking peer relations high on list of factors influencing physicians).

<sup>89</sup> Sushil Bikhchandani et al., *Learning from the Behavior of Others: Conformity, Fads, and Informational Cascades*, 12 *J. Econ. Persp.* 151, 167 (1998).

<sup>90</sup> E.g., Sushil Bikhchandani et al., *A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades*, 100 *J. Pol. Econ.* 992, 1011–12 (1992); see also John F. Burnum, *Medical Practice à la Mode*, 317 *New Eng. J. Med.* 1220, 1222 (1987) (“[W]e physicians find ourselves, like lemmings, episodically and with a blind infectious enthusiasm pushing certain diseases and treatments primarily because everyone else is doing the same.”).

<sup>91</sup> Indeed, personal experience with the malpractice system has little impact on physicians' conduct, Localio et al., *supra* note 57, at 370; Studdert et al., *supra* note 48, at 2615, but physicians are sensitive to the impact of malpractice on the larger profession, Glassman et al., *supra* note 88, at 234 (suggesting that “the signal to practice defensively may have been broadcast so widely that individual experience is overshadowed by collective anxiety”); Weisman et al., *supra* note 88, at 22 (finding that litigation experience of physician's specialty has more impact on propensity to practice defensive medicine than does litigation experience of physician himself or herself).

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1671

adopters. For example, when it comes to use of a new technology, physicians with prestigious educational pedigrees have been shown to significantly influence their peers.<sup>92</sup> It should come as no surprise, then, that when the providers of new medical treatments and devices design their marketing efforts, they explicitly target such opinion leaders<sup>93</sup>—a strategy that has proved effective.<sup>94</sup>

All these characteristics of the health care industry make it easy to aggregate the individual acts of overcompliance and turn them into a feedback loop that alters the definition of reasonable care.<sup>95</sup> And as the overcompliance works its way into professional practice, it loses its identity; 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 defensive medicine, a response to marketing efforts, or a clinical desideratum.<sup>96</sup> After all, the profession is accustomed to adopting practices that have no scientific basis.<sup>97</sup> And that rare physician who recognizes the waste inherent in a newly popular procedure will be stuck on the horns of a dilemma; if she decides not to follow the custom, a patient who later sues for malpractice will point to this subconformity as proof of a lack of reasonable care.<sup>98</sup>

In short, our hypothetical physician presented with a swollen lymph node is not so hypothetical after all. Ordering an ultrasound

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<sup>92</sup> Mary A. Burke et al., *The Diffusion of a Medical Innovation: Is Success in the Stars?*, 73 S. Econ. J. 588 (2007). There is a rich research literature on the importance of opinion leaders in setting standards in medical care, but it tends to focus on effecting *positive* change in practice. See G. Doumit et al., *Local Opinion Leaders: Effects on Professional Practice and Health Care Outcomes*, *Cochrane Database Systematic Revs.*, Jan. 24, 2007 (reviewing studies).

<sup>93</sup> Collier & Iheanacho, *supra* note 75, at 1408.

<sup>94</sup> Burke et al., *supra* note 92, at 589.

<sup>95</sup> Cf. Fisher & Welch, *supra* note 84, at 447 (“At both levels [individual and systemic], . . . the current cultural and legal environments exert tremendous pressure to do more . . .”).

<sup>96</sup> Office of Technology Assessment, *supra* note 48, at 22.

<sup>97</sup> See sources cited *supra* note 66.

<sup>98</sup> See Hall, *supra* note 46, at 119; Havighurst, *supra* note 41, at 159; Havighurst, *supra* note 42, at 269. In game theory terms, any level of care would seem to provide a Nash equilibrium, as long as it represents customary practice, but the superior efficiency of mere compliance is quickly overwhelmed by the mismatch risk of increased liability as one’s peers migrate to a more demanding level of care. Cf. Paul G. Mahoney & Chris W. Sanchirico, *Competing Norms and Social Evolution: Is the Fittest Norm Efficient?*, 149 U. Pa. L. Rev. 2027, 2047 (2001) (discussing mismatch risk).

will cost her nothing—in fact, it will likely increase her fee—and it will distance her from negligence’s gray area and thus reduce her exposure to malpractice liability (an exposure that she probably exaggerates). If her peers are ordering ultrasounds, or the ultrasound manufacturer has launched a marketing campaign, she will be even more motivated to adopt the practice. In no event will she await proof of the procedure’s cost-effectiveness. Over time, a critical mass is reached, and the new practice becomes customary, feeding back into reasonable care doctrine and rendering compliant that which was once overcompliant. And then, if another low-cost, low-risk means of overcompliance is available (perhaps a biopsy), the feedback cycle will begin once more.

*E. Feedback in Action: Electronic Fetal Monitoring*

If the foregoing explanation of doctrinal feedback in medical malpractice law is correct, we might 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: 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,<sup>99</sup> use of lidocaine after myocardial infarction,<sup>100</sup> drug-coated cardiovascular stents,<sup>101</sup> preventative angioplasty, bypass surgery,<sup>102</sup> and various aggressive approaches to diabetes, heart attack, and varicose veins.<sup>103</sup>

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

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<sup>99</sup> Brownlee, *supra* note 66, at 27.

<sup>100</sup> Leape et al., *supra* note 66, at 506.

<sup>101</sup> Brownlee, *supra* note 66, at 172.

<sup>102</sup> *Id.* at 101–05.

<sup>103</sup> Robert H. Brook et al., *The Relationship Between Medical Malpractice and Quality of Care*, 1975 *Duke L.J.* 1197, 1204; see also Robin, *supra* note 81, at 74–77 (listing twenty-four “iatroepidemics”).

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1673

contrast, doctrinal feedback involves practices that are merely wasteful; as we have already seen, no physician is going to think that performing a dangerous procedure will help avoid liability.

Here too there are many candidates, such as serologic testing for Lyme disease, certain mammograms,<sup>104</sup> tonsillectomies, screening for coronary disease using radionuclide ventriculograms, some arterial ligations,<sup>105</sup> use of perfusion lung scans to diagnose pulmonary embolism,<sup>106</sup> and prescription of antibiotics for colds, upper respiratory tract infections, and bronchitis.<sup>107</sup> But if we hope to find a tight feedback loop, where the legal standard not only *incorporates* but also *creates* departures from compliance, 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<sup>108</sup>—almost ninety percent report having faced a lawsuit at some point in their careers<sup>109</sup>—and their payments to plaintiffs trend much higher than the malpractice average.<sup>110</sup> 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.<sup>111</sup>

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<sup>104</sup> Richard E. Anderson, Billions for Defense, 159 *Archives Internal Med.* 2399, 2401 (1999).

<sup>105</sup> Robin, *supra* note 81, at 74–75.

<sup>106</sup> *Id.* at 69–73; Division of Lung Diseases, National Heart, Lung, and Blood Institute, Value of the Ventilation/Perfusion Scan in Acute Pulmonary Embolism, 263 *JAMA* 2753 (1990).

<sup>107</sup> 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).

<sup>108</sup> Nancy Ostergard, CRICO Obstetric and Gynecology Claims Review, 20 *Forum* 2, 2 (Risk Mgmt. Found. of the Harv. Med. Insts. 1999); David M. Studdert et al., Claims, Errors, and Compensation Payments in Medical Malpractice Litigation, 354 *New Eng. J. Med.* 2024, 2026 (2006).

<sup>109</sup> Wilson & Strunk, *supra* note 52, at 3.

<sup>110</sup> Ostergard, *supra* note 108, at 2.

<sup>111</sup> *Id.* at 2; see also O'Connell, *supra* note 40, 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.”).

Obstetricians in particular face the most claims<sup>112</sup> and are more likely than any other kind of physician to lose a malpractice trial<sup>113</sup>—and they pay correspondingly high insurance premiums.<sup>114</sup>

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.<sup>115</sup> And independent studies bolster this self-reporting: the incidence of cesarean delivery correlates positively with malpractice premiums, number of claims per physician, number of patients discharged, and perceived risk of suit.<sup>116</sup>

The increase in cesarean 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<sup>117</sup> and result in the highest jury awards in all of medical malpractice (a median of \$2.25 million).<sup>118</sup> These numbers are driven by the most common injury in obstetrics cases: neurological damage to newborns,<sup>119</sup> which accounts for three-quarters of all obstetric insurance losses<sup>120</sup> and results in an average payment

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<sup>112</sup> Wilson & Strunk, *supra* note 52, at 15; see also Ostergard, *supra* note 108, at 2 (noting that obstetric claims account for almost three-quarters of ob/gyn insurance losses).

<sup>113</sup> Jury Verdict Research, *Current Award Trends in Personal Injury* 47 (6th ed. 2007).

<sup>114</sup> Alastair MacLennan et al., *Who Will Deliver Our Grandchildren?: Implications of Cerebral Palsy Litigation*, 294 JAMA 1688, 1688 (2005).

<sup>115</sup> Wilson & Strunk, *supra* note 52, at 14.

<sup>116</sup> Localio et al., *supra* note 57; accord H. Shelton Brown III, *Lawsuit Activity, Defensive Medicine, and Small Area Variation: The Case of Cesarean Sections Revisited*, 2 Health Econ. Pol'y & L. 285 (2007) (finding that increased lawsuits correlates to increased use of cesarean sections even when controlling for small-area and hospital variation).

<sup>117</sup> Stephen Daniels & Lori Andrews, *The Shadow of the Law: Jury Decisions in Obstetrics and Gynecology Cases*, in 2 Institute of Medicine, *Medical Professional Liability and the Delivery of Obstetrical Care* 161, 175 (1989).

<sup>118</sup> Jury Verdict Research, *supra* note 113, at 18.

<sup>119</sup> Stephen B. Thacker, *The Impact of Technology Assessment and Medical Malpractice on the Diffusion of Medical Technologies: The Case of Electronic Fetal Monitoring*, in 2 Institute of Medicine, *supra* note 117, at 9, 23; Wilson & Strunk, *supra* note 52, at 15.

<sup>120</sup> Ostergard, *supra* note 108, at 2.

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1675

to plaintiff of more than \$1.1 million.<sup>121</sup> In one recent study of all malpractice claims, almost one in five plaintiffs was a newborn.<sup>122</sup>

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

As it happens, the most common obstetric procedure is an excellent candidate: electronic fetal monitoring (“EFM”).<sup>123</sup> 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.<sup>124</sup> 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.<sup>125</sup> Putting this all together, over half of the insurance losses in this most high-risk category of clinical practice involve allegations that an obstetrician could have—but did not—prevent a newborn’s neurological impairment.<sup>126</sup> And the most common basis for these sorts of claims is delay in treatment of fetal distress.<sup>127</sup> 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.

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<sup>121</sup> Wilson & Strunk, *supra* note 52, at 16. This figure is lower than the \$2.25 million cited above because the latter includes jury verdicts only, whereas the former also includes settlement payments.

<sup>122</sup> Studdert et al., *supra* note 108, at 2026.

<sup>123</sup> American College of Obstetricians and Gynecologists, Intrapartum Fetal Heart Rate Monitoring (ACOG Practice Bulletin No. 70), 106 *Obstetrics & Gynecology* 1453, 1453 (2005) [hereinafter ACOG Bulletin No. 70].

<sup>124</sup> *Id.* at 1453; Thacker, *supra* note 119, at 23.

<sup>125</sup> Daniels & Andrews, *supra* note 117, at 183; Thacker, *supra* note 119, at 23; Wilson & Strunk, *supra* note 52, at 15.

<sup>126</sup> Ostergard, *supra* note 108, at 2 (noting that obstetric claims account for almost 75% of total insurance losses and 75% of that 75% comes from cases involving neurological impairment).

<sup>127</sup> *Id.* at 2.

*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 heart-beat that was too fast, too slow, or too 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 cesarean section or operative vaginal delivery (e.g., use of forceps).<sup>128</sup>

The criteria for fetal distress that developed during this period remained in use until the 1950s.<sup>129</sup> 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.<sup>130</sup> 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.<sup>131</sup> By 1980, EFM had almost passed auscultation as the most popular method of monitoring,<sup>132</sup> and by 1988 it

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<sup>128</sup> Adrian Grant, *Monitoring the Fetus During Labour*, in *2 Effective Care in Pregnancy and Childbirth* 846, 847 (Iain Chalmers et al. eds., 1989).

<sup>129</sup> *Id.*

<sup>130</sup> *Id.* at 848–49. External ultrasound monitoring is not as accurate as internal electrode monitoring. Murray Enkin et al., *A Guide to Effective Care in Pregnancy and Childbirth* 269 (2000); P.C.A.M. Bakker et al., *The Quality of Intrapartum Fetal Heart Rate Monitoring*, 116 *Eur. J. Obstetrics & Gynecology & Reprod. Biology* 22, 22 (2004). For that reason, and because external monitoring restricts the mother's ability to move, internal monitoring is often used in the later stages of labor—after the membrane has ruptured. Enkin et al., *supra*, at 270.

<sup>131</sup> Grant, *supra* note 128, at 849.

<sup>132</sup> *Id.* at 850 (noting that auscultation was used in 48% of births in 1980 versus 43% for EFM).

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1677

was far ahead, used in 62.2% of live births.<sup>133</sup> In the early 1990s the number increased to almost 75%,<sup>134</sup> and in 2002 it hit 85%, making EFM the most common obstetric procedure.<sup>135</sup>

Although the introduction of EFM into clinical practice and its rapid adoption coincided with the malpractice explosions of the 1970s and 1980s,<sup>136</sup> the procedure had a plausible clinical basis. The medical community had long thought that cerebral palsy and most other forms of brain damage resulted from trauma to the infant during labor.<sup>137</sup> Because EFM provided continuous and easily recordable information about fetal intrapartum heart rate, it allowed physicians to look for patterns and variations in a way that intermittent auscultation could not.<sup>138</sup> As a result, the technique's proponents claimed that use of EFM could save the lives of thousands of infants a year and could cut the rate of perinatal neurologic injuries in half.<sup>139</sup>

Physicians embraced EFM so wholeheartedly that several years passed before anyone seriously considered rigorously testing 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.<sup>140</sup> 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

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<sup>133</sup> Stephen B. Thacker et al., *Efficacy and Safety of Intrapartum Electronic Fetal Monitoring: An Update*, 86 *Obstetrics & Gynecology* 613, 618 (1995).

<sup>134</sup> *Id.*

<sup>135</sup> ACOG Bulletin No. 70, *supra* note 123, at 1453. These figures may actually under-report the method's popularity. See Bruce L. Flamm, *Electronic Fetal Monitoring in the United States*, 21 *Birth* 105, 105 (1994).

<sup>136</sup> See *infra* text accompanying notes 169–74.

<sup>137</sup> Ernest M. Graham et al., *Intrapartum Electronic Fetal Heart Rate Monitoring and the Prevention of Perinatal Brain Injury*, 108 *Obstetrics & Gynecology* 656, 659–60 (2006). The relation between brain damage and intrapartum trauma was first proposed by a leading English physician in 1774. Peter W. Huber, *Galileo's Revenge: Junk Science in the Courtroom* 75–76 (1991). Curiously, one of the dissenters from this orthodoxy was Sigmund Freud; back when his interest was neurology, he opined that fetal neuropathy was prenatal in origin, not perinatal. See *id.* at 82.

<sup>138</sup> See Margaret Lent, Note, *The Medical and Legal Risks of the Electronic Fetal Monitor*, 51 *Stan. L. Rev.* 807, 810–11 (1999).

<sup>139</sup> See Graham et al., *supra* note 137, at 658–59.

<sup>140</sup> *Id.* at 659.

that he could then use to convince recalcitrant mothers of the *benefits* of EFM.<sup>141</sup> 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.<sup>142</sup> Only two studies—both led by the same researcher—have shown any benefit. The first claimed that use of EFM decreased perinatal deaths from hypoxia,<sup>143</sup> but this result is inconsistent with every other analysis of the same issue and the study has elicited much criticism

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<sup>141</sup> *Id.*

<sup>142</sup> See, e.g., American College of Obstetricians and Gynecologists, ACOG Technical Bulletin No. 207 at 3 (1995) [hereinafter ACOG Bulletin No. 207] (“[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.”); Enkin, *supra* note 130, at 271 (“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.”); 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.”); Z. Alfircvic et al., Continuous Cardiotocography (CTG) as a Form of Electronic Fetal Monitoring (EFM) for Fetal Assessment During Labour, *Cochrane Database Systematic Revs.*, Apr. 24, 2006, 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.”); ACOG Bulletin No. 70, *supra* note 123, 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); Grant, *supra* note 128, at 877–78 (recommending intermittent auscultation as “the policy of choice in [the majority of] labours” and judging it as effective as EFM in preventing intrapartum death); MacLennan et al., *supra* note 114, at 1688 (“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].”); Karin B. Nelson et al., Uncertain Value of Electronic Fetal Monitoring in Predicting Cerebral Palsy, 334 *New Eng. J. Med.* 613, 617 (noting lack of evidence that EFM helps reduce cerebral palsy, low Apgar scores, acidosis, neonatal apnea, or the need for intubation); Nigel Paneth et al., Electronic Fetal Monitoring and Later Outcome, 16 *Clinical & Investigative Med.* 159, 162 (1993) (noting no positive effect from use of EFM); K.K. Shy et al., Evaluating a New Technology: The Effectiveness of Electronic Fetal Heart Rate Monitoring, 8 *Ann. Rev. Pub. Health* 165, 187 (1987) (finding “increasing evidence that EFM has little effect on perinatal outcomes”); Thacker et al., *supra* note 133, at 618 (finding no decrease in morbidity or mortality).

<sup>143</sup> See Anthony M. Vintzileous et al., A Randomized Trial of Intrapartum Electronic Fetal Heart Rate Monitoring Versus Intermittent Auscultation, 81 *Obstetrics & Gynecology* 899 (1993).

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1679

for its design and implementation.<sup>144</sup> The second, a meta-analysis of nine other studies, made the same claim,<sup>145</sup> but the American College of Obstetricians and Gynecologists has called this finding “statistically unstable,” as just one fewer death in the control group would have changed the significance of the result.<sup>146</sup> The only benefit that randomized clinical trials have demonstrated with any consistency is a reduction in the rate of neonatal seizures,<sup>147</sup> and preliminary follow-up studies suggest that such seizures—although undoubtedly distressing when they occur—produce no lasting impairment.<sup>148</sup>

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 cesareans and other operative deliveries.<sup>149</sup> 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, discontinu-

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<sup>144</sup> See, e.g., Marc J.N.C. Keirse, *Electronic Monitoring: Who Needs a Trojan Horse?*, 21 *Birth* 111 (1994); James P. Neilson, *Electronic Fetal Heart Rate Monitoring During Labor: Information from Randomized Trials*, 21 *Birth* 101, 104 (1994).

<sup>145</sup> See Anthony M. Vintzileous et al., *Intrapartum Electronic Fetal Heart Rate Monitoring Versus Intermittent Auscultation: A Meta-Analysis*, 85 *Obstetrics & Gynecology* 149 (1995).

<sup>146</sup> ACOG Bulletin No. 70, *supra* note 123, 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 et al., *supra* note 137, 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, *Fighting a Muzzle*, *Daily Bus. Rev.*, Aug. 8, 2005, at 1.

<sup>147</sup> Alfirevic et al., *supra* note 142, at 8; Graham et al., *supra* note 137, at 660–61; Grant, *supra* note 128, at 872.

<sup>148</sup> Graham et al., *supra* note 137, at 664; Grant, *supra* note 128, at 877; Thacker et al., *supra* note 133, at 618.

<sup>149</sup> ACOG Bulletin No. 70, *supra* note 123, at 1455; Grant, *supra* note 128, at 862; Thacker et al., *supra* note 133, at 618; see also MacLennan, *supra* note 114, at 1688–89 (“In 10 developed countries including the United States, despite a 5-fold increase in cesarean deliveries over recent decades driven in part by the use of fetal monitoring, the incidence of [cerebral palsy] has remained steady at about 1 in 500 births, currently around 9750 a year in the United States, with similar rates around the world.”); Graham et al., *supra* note 137, at 662 (“Although the cesarean delivery rate has increased from 5% before the introduction of EFM to almost 25% today, the incidence of cerebral palsy in term infants has remained unchanged at 1–2 in 1,000 births.”).

ing oxytocin<sup>150</sup>), the medical community continues both to employ EFM and—some twenty years after randomized trials proved it ineffective<sup>151</sup>—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. To evaluate the role that feedback plays in the use of EFM, we must answer two questions. First, does the technique represent overcompliant behavior? Second, has that overcompliance become the new legal norm by which clinicians are judged? If the answer to both questions is yes, we can then also explore whether another iteration of overcompliance might arise: a new fetal monitoring precaution representing the beginning of a new feedback cycle.

### *a. EFM and 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 cesarean delivery. For example, a thorough study of the use of EFM to prevent cerebral palsy—one of the technique's main targets—estimated conservatively that obstetricians would perform 2324 wasteful interventions for every one that might help.<sup>152</sup> An estimate from the 1980s pegged the annual cost of administering EFM and performing the extra ce-

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<sup>150</sup> Grant, *supra* note 128, at 854; accord ACOG Bulletin No. 207, *supra* note 142, at 5–6; Enkin, *supra* note 130, at 276.

<sup>151</sup> See Alfircic et al., *supra* note 142 (summarizing extant research and reporting continued association between cesarean sections and EFM).

<sup>152</sup> Nelson et al., *supra* note 142, at 617.

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1681

sareans at \$750 million,<sup>153</sup> 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 cesareans: increased morbidity for the mother.<sup>154</sup> Any invasive surgery carries risks, and cesareans are no different. More than one in seven unscheduled cesarean operations results in complications,<sup>155</sup> and 4.1% of complications are major (usually serious hemorrhaging) when the cesarean is performed during labor, as would be the case for an intervention prompted by intrapartum EFM readings.<sup>156</sup>

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.<sup>157</sup> The prevalence of electronic monitoring has therefore resulted in a more depersonalized approach to obstetrics<sup>158</sup> without any clear savings in personnel or equipment costs.<sup>159</sup> (This cost may seem extralegal in nature, but as it happens one-on-one care and good doctor-patient communication are factors that lead to better health outcomes and fewer lawsuits.<sup>160</sup>)

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<sup>153</sup> 1 Institute of Medicine, *supra* note 117, at 82.

<sup>154</sup> Enkin, *supra* note 130, at 259.

<sup>155</sup> Thomas Bergholt et al., Intraoperative Surgical Complication During Cesarean Section: An Observational Study of the Incidence and Risk Factors, 82 *Acta Obstetrica et Gynecologica Scandinavica* 251, 253 (2003).

<sup>156</sup> Nelson, *supra* note 142, at 617. Because general anesthetics are often used in cesareans, EFM also produces an increase in the use of such anesthesia, with all its attendant risks. Grant, *supra* note 128, at 867.

<sup>157</sup> Enkin, *supra* note 130, at 190, 194; John A.D. Spencer, Electronic Fetal Monitoring in the United Kingdom, 21 *Birth* 106, 107 (1994); see also Lent, *supra* note 138, at 819 (“Even when a clinician does enter the patient’s room, the patient may still feel neglected by the care provider, whose attention may be focused on the EFM monitor tracings.”).

<sup>158</sup> Moreover, changes in staffing patterns may make this trend toward impersonal care hard to reverse. See Albers, *supra* note 142, at 109–10; Ros Goddard, Electronic Fetal Monitoring, 322 *Brit. Med. J.* 1436, 1437 (2001); Spencer, *supra* note 157, at 107. Indeed, EFM is so ubiquitous that the latest generation of obstetric caregivers is probably not even trained in intermittent auscultation, so they could not use the more personal approach even if they wanted to. Enkin, *supra* note 130, at 275; Shy et al., *supra* note 142, at 187.

<sup>159</sup> Lent, *supra* note 138, at 821.

<sup>160</sup> See, e.g., Goddard, *supra* note 158, at 1437; Lent, *supra* note 138, at 820.

Electronic monitoring's costs appear to outweigh its benefits.<sup>161</sup> 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. Before moving on to an analysis of whether EFM has become part of the legal norm, however, we should briefly examine the legal and extralegal reasons for the persistence of such an apparently wasteful practice. Is there a tight feedback loop, in which physicians' fear of liability is a prime causal factor? Or are there significant extralegal motivations as well? The answer will not affect whether we have feedback, but it will tell us how much the legal system is to blame and inform the solutions that might be used to solve the problem.

Extralegal considerations certainly provide some of the explanation for 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<sup>162</sup> 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.<sup>163</sup> How many pa-

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<sup>161</sup> Indeed, even the two studies that claim some benefit from EFM recognize the costs of the technique—and particularly the increase in operative deliveries—and allow for the possibility that such costs might outweigh the benefit. Vintzileos et al., *Intrapartum Electric Fetal Heart Rate Monitoring Versus Intermittent Auscultation: A Meta-Analysis*, supra note 145, at 154 (“[O]nce effectiveness is established, cost-effectiveness should be investigated.”); Vintzileos et al., *A Randomized Trial*, supra note 143, at 903 (finding statistically significant increase in surgical intervention when EFM used).

<sup>162</sup> See Tamar Lewin, *Despite Criticism, Fetal Monitors Are Likely to Remain in Wide Use*, N.Y. Times, Mar. 27, 1988, at 24 (crediting the “sales force marketing [EFM] machines”).

<sup>163</sup> *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 cesarean. *Id.* at 65.

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1683

tients 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 pivotal role in its spread and persistence. First, fear of liability may subtly inform some of the seemingly extralegal explanations for EFM's rise to popularity, such as peer relations, patient requests, and marketing. As discussed above, the opinions and practices of peers exert a strong influence in medical circles, which means that 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 her newborn has problems.<sup>164</sup> And the specter of malpractice explicitly pervaded the promotional efforts on the part of EFM's pioneers as well, even after doubts about the practice's efficacy began to emerge.<sup>165</sup>

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 is 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.

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<sup>164</sup> See supra note 69 and accompanying text.

<sup>165</sup> The best example of this is an article by EFM pioneer Barry Schifrin, whose controversial confidence in the technique was discussed supra note 145. 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).

Finally, and perhaps most importantly, 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.<sup>166</sup> In the first half of the 1970s, 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.<sup>167</sup>

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.<sup>168</sup> 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.<sup>169</sup> And one of the four lawsuits highlighted in the memoir of recent presidential candidate John Edwards 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.<sup>170</sup> In such an environment, malpractice fears may have quietly informed obstetricians’ unquestioning belief in the efficacy of an unproven technology. (By the end of the decade, electronic monitoring had gone from an unknown procedure to one used in forty-three percent of deliveries.<sup>171</sup>)

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<sup>166</sup> Brook et al., *supra* note 103, at 1197.

<sup>167</sup> Danzon, *supra* note 79, at 60; see also Kenneth S. Abraham, *Medical Malpractice Reform: A Preliminary Analysis*, 36 Md. 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).

<sup>168</sup> Huber, *supra* note 137, at 78–82 (describing ways in which plaintiffs’ attorneys rapidly took advantage of EFM).

<sup>169</sup> Paul Wenske, *Doctor Told To Pay \$2 Million*, *Daily Oklahoman*, June 17, 1981, at 1–2.

<sup>170</sup> 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 et al., *supra* note 137, at 659–60.

<sup>171</sup> Grant, *supra* note 128, at 850.

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1685

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, and extralegal factors were truly responsible, liability concerns almost certainly informed electronic monitoring's continued growth in popularity even after its inefficiencies came 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 conservative).<sup>172</sup> 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 than clinical considerations were responsible for the growth and persistence of electronic monitoring.<sup>173</sup>

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<sup>172</sup> Flamm, *supra* note 135, at 105 (arguing that EFM use has been historically under-reported); Thacker et al., *supra* note 133, at 618 (giving the 1988 figure).

<sup>173</sup> “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, *supra* note 162, at 24 (quoting vice-chair of University of Washington's Department of Family Medicine); accord Graham et al., *supra* note 137, at 660 (noting relation between malpractice trials and “routine use of EFM”); Benjamin P. Sachs, *Is the Rising Rate of Cesarean Sections a Result of More Defensive Medicine?*, in 2 *Inst. of Med.*, *supra* note 117, at 27, 37–38 (finding “overwhelming evidence” that use of EFM has to do with malpractice concerns); see also 1 *Inst. of Med.*, *supra* note 117, 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.”); Thacker et al., *supra* note 133, at 619 (citing “unnecessary concerns regarding malpractice and litigation” as an unfortunate byproduct of EFM's rapid adoption); Thacker, *supra* note 119, 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.’”). Even one of the pioneers of the technique (one of its few remaining defenders) admits that increased use of EFM had to do with the recognition that the fetus was a patient to whom the physician owed a “duty” (a legal term), the public

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 was employing the technique, and we have seen that for medical malpractice the pervasiveness of a practice matters more than its efficacy.<sup>174</sup> 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 in their own practices.<sup>175</sup> As one researcher sagely observed, "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."<sup>176</sup> 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 eighty-five percent by 2002.<sup>177</sup>

Small wonder, then, that electronic monitoring was being cited as part of customary care as early as 1987<sup>178</sup> and that a clear causal connection between malpractice exposure and EFM's utilization rate emerged.<sup>179</sup> Commentators occasionally point out that choos-

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expectation "that all pregnancy outcomes should be without flaw and perfect," and "the litigious attitude of society." Richard H. Paul, *Electronic Fetal Monitoring and Later Outcome: A Thirty-Year Overview*, 14 *J. Perinatology* 393, 393 (1994).

<sup>174</sup> See *supra* notes 66–68 and accompanying text.

<sup>175</sup> Lewin, *supra* note 162, at 24.

<sup>176</sup> Neilson, *supra* note 144, at 103 (discussing EFM); accord Albers, *supra* note 142, at 109 ("Once procedures are incorporated into practice, they are very hard to remove."); Goddard, *supra* note 158, at 1436 ("Unfortunately the dramatic increase in litigation in obstetrics has tempered [a move back to auscultation], as the cardiocograph has also become an important legal document.").

<sup>177</sup> ACOG Bulletin No. 70, *supra* note 123, at 1453 (2002 figure); Thacker et al., *supra* note 133, at 618 (1992 figure).

<sup>178</sup> Shy et al., *supra* note 142, at 187 ("EFM has become the generally accepted standard of care for the laboring mother in the U.S.").

<sup>179</sup> A. Dale Tussing & Martha A. Wojtowycz, *Malpractice, Defensive Medicine, and Obstetric Behavior*, 35 *Med. Care* 172, 186 (1997).

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1687

ing auscultation over EFM is supported not only by clinical evidence but also by plausible legal arguments (for example, the respectable minority defense), but they also acknowledge that such theories do not reflect the reality of living in the shadow of a vague reasonable care standard, where risky lawsuits are—or are at least perceived to be—commonplace.<sup>180</sup> 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.”<sup>181</sup>

In short, a combination of malpractice concerns and extralegal factors informed the initial adoption of electronic monitoring. And once EFM became sufficiently popular, the reasonable care standard locked it in place, ensuring the persistence of the technique even after its shortcomings became known. Doctrinal feedback has therefore taken a wasteful practice that never should have developed in the first place and made it the standard by which physicians are judged.

*c. EFM and Feedback’s Next Iteration*

Because electronic monitoring has become the custom in obstetrics, doctrinal feedback has changed the technique’s malpractice significance. Its use can no longer be considered overcompliant behavior; it is instead merely compliant, such that its absence would expose the practitioner to liability. A final issue to be considered, therefore, is whether there are any signs of another iteration of feedback. Are there new forms of overcompliance emerging in fetal monitoring, so that the obstetrician who wants to steer clear of

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<sup>180</sup> E.g., Hall, *supra* note 46, at 128–29 (describing how expert testimony undermines theoretical defenses); Thacker, *supra* note 119, at 21–23 (lamenting disconnect between reality, perception, and “how the law is intended to work”). 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, 287–88 (1996).

<sup>181</sup> Lewin, *supra* note 162, at 24.

the reasonable care standard can do more than his or her peers—to provide care that goes one step beyond the new EFM norm?

Whether a new feedback loop will form is a function of the same cost-benefit calculus that caused EFM to become part of reasonable care. The question, then, is whether there exists a low-cost, low-risk measure that could help insulate obstetricians from liability or that might gain popularity due to some extralegal factor. Although there is no clear winner (yet), there are a host of contenders for this next iteration of fetal monitoring, and every one of them extends the inefficiencies of 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.<sup>182</sup> 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 another round of feedback might proceed, in incremental, inefficient steps toward an increasingly wasteful standard.<sup>183</sup>

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. Electronic monitoring is actually better than auscultation at detecting fetal distress; the problem is in determining which forms of distress indicate a need for intervention.<sup>184</sup> Indeed, the ambiguity in interpretation directly contributes to the malpractice pressures that obstetricians feel, as plain-

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<sup>182</sup> Bakker et al., *supra* note 130, at 27.

<sup>183</sup> Parchomovsky & Stein, *supra* note 65, at 6 (noting that tort law's general deference to custom will encourage innovators to focus on "incremental improvements of customary and conventional technologies").

<sup>184</sup> See ACOG Bulletin No. 70, *supra* note 123, at 1456–57; Grant, *supra* note 128, at 852–54.

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1689

tiffs can easily find an expert to testify that their tracings warranted immediate operative delivery.<sup>185</sup>

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 identifying those heart-rate patterns that indicated fetal compromise.<sup>186</sup> The criteria have continued to evolve since.<sup>187</sup> Nevertheless, multiple studies soon showed a hopeless amount of intraobserver and interobserver variability in interpretation no matter what standards were used.<sup>188</sup>

Attention has accordingly shifted to developing technologies that could assist naked-eye interpretation of EFM tracings.<sup>189</sup> One recent study tried to solve the variability problem by using a computer to recognize ominous patterns, but the only finding was that the computer analysis triggered "alerts" (i.e., identified a heart rate as requiring attention) more often than its human counterparts<sup>190</sup>—hardly a reassuring result for those 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

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<sup>185</sup> Albers, *supra* note 142, at 109; Flamm, *supra* note 135, at 105; Graham et al., *supra* note 137, at 664.

<sup>186</sup> Am. Coll. of Obstetricians and Gynecologists, *Intrapartum Fetal Heart Rate Monitoring* (ACOG Technical Bulletin No. 132) 2–5 (1989).

<sup>187</sup> See, e.g., ACOG Bulletin No. 207, *supra* note 142, at 68–69 (1995); Nat'l Inst. of Child Health & Hum. Dev. Res. Plan. Workshop, *Electronic Fetal Heart Rate Monitoring: Research Guidelines for Interpretation*, 177 *Am. J. Obstetrics & Gynecology* 1385 (1997).

<sup>188</sup> See ACOG Bulletin No. 70, *supra* note 123, at 1456; 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, 365 (2000); Paneth et al., *supra* note 142, at 160–61.

<sup>189</sup> The cynic might view this search for a solution as representative of the profession's unproven assumption that more is better and its faith in the development of new resources. As one researcher put it (apparently without any sense of irony), "Clearly, additional technology is needed to help clinicians better manage this substantial group of patients [whose EFM tracings are ambiguous]." Frank H. Boehm, *Intrapartum Fetal Heart Rate Monitoring*, 26 *Obstetrics & Gynecology Clinics N. Am.* 623, 635 (1999).

<sup>190</sup> See Devoe et al., *supra* note 188, at 365; see also Graham et al., *supra* note 137, at 664 (concluding that, as of 2006, "computerized analysis of FHR tracings has failed to gain clinical acceptance because of its inability to identify the hypoxic-ischemic fetus").

and assesses its pH level. Combining the resulting measurement with EFM data reduces the number of cesareans,<sup>191</sup> but the odds of a cesarean are still twice as high as with intermittent auscultation, with no benefit other than seizure reduction.<sup>192</sup> Scalp sampling is also costly, invasive, and uncomfortable for the mother.<sup>193</sup>

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.<sup>194</sup> Pulse oximetry attempts to measure how much oxygen the fetus is getting, using a sensor attached to the fetus’s cheek in utero.<sup>195</sup> Both methods are invasive, and neither reduces overall cesarean rates,<sup>196</sup> yet the latest research cites some potential benefit to using them when conventional EFM tracings are not sufficiently reassuring.<sup>197</sup> 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. Once we recognize that doctrinal feedback has locked the technique in place, 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 de-

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<sup>191</sup> See Enkin, *supra* note 130, at 279; Grant, *supra* note 128, at 853.

<sup>192</sup> Neilson, *supra* note 144, at 102.

<sup>193</sup> Enkin, *supra* note 130, at 270; Boehm, *supra* note 189, at 630.

<sup>194</sup> J.P. Neilson, Fetal Electrocardiogram (ECG) for Fetal Monitoring During Labour, *Cochrane Database of Systematic Revs.*, Apr. 6, 2006, at 2.

<sup>195</sup> C.E. East et al., Fetal Pulse Oximetry for Fetal Assessment in Labour, *Cochrane Database of Systematic Revs.*, Jan. 17, 2007, at 3.

<sup>196</sup> *Id.* at 2 (oximetry); Neilson, *supra* note 194, at 4 (waveform); see also Goddard, *supra* note 158, at 1437 (“These newer tools [fetal pulse oximetry and fetal electrocardiography] may be useful as an adjunct to electronic monitoring, but they are no more predictive of adverse outcomes.”).

<sup>197</sup> East et al., *supra* note 195, at 8 (oximetry); Neilson, *supra* note 194, at 4–5 (waveform).

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1691

liver 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 has legal or extralegal causes. The issue is whether such motivations will prompt wasteful *adoption* of those new 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.<sup>198</sup> Perhaps physicians are uncharacteristically reticent here, having learned a lesson from EFM.<sup>199</sup>

Yet EFM holds another lesson: well-meaning physicians can adopt wasteful practices, 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.<sup>200</sup> But it is 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

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<sup>198</sup> See, e.g., East et al., *supra* note 195, at 8; Graham et al., *supra* note 137, at 664.

<sup>199</sup> See Jennifer Westgate et al., Plymouth Randomized Trial of Cardiotocogram Only Versus ST Waveform Plus Cardiotocogram for Intrapartum Monitoring in 2400 Cases, 169 *Am. J. Obstetrics & Gynecology* 1151, 1158 (1993) ("We believe this is the first time a new concept for fetal assessment that involves new technology has been tested in a randomized trial before widespread introduction into obstetric practice.").

<sup>200</sup> Neilson, *supra* note 194, at 5 (suggesting use of waveform analysis when EFM shows "disquieting features").

are to request it, and the more likely other obstetricians are to adopt it.<sup>201</sup> Before long, we have a new standard of care.

### III. SOLUTIONS

Electronic fetal monitoring is just one illustration 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. Examples include the needless hospitalization of patients with chest pain,<sup>202</sup> the administration of prostate-specific antigen tests to men who exhibit no symptoms of cancer,<sup>203</sup> the overuse of imaging in emergency care,<sup>204</sup> and the wasteful ordering of serologic tests and mammograms.<sup>205</sup>

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.<sup>206</sup>

With this in mind, the following discussion will begin by considering three relatively subtle adjustments that one could make in

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<sup>201</sup> 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 et al., *supra* note 195, at 8. Such communal decisionmaking is an invitation to inefficient care.

<sup>202</sup> See Katz et al., *supra* note 60, at 530; Pearson et al., *supra* note 59, at 563.

<sup>203</sup> Brownlee, *supra* note 66, at 200–02; see also Sorum et al., *supra* note 52, 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).

<sup>204</sup> See Brownlee, *supra* note 66, at 153–57; see also *id.* at 171 (“[S]tudies of the effectiveness of imaging . . . have shown that the technology is improving care in only tiny increments, even as utilization and costs are rising at meteoric rates.”); Studdert et al., *supra* note 48, at 2612 (finding that 70% of emergency physicians admitted to “order[ing] more diagnostic tests than were medically indicated”—a significantly higher proportion than for other high-risk specialties).

<sup>205</sup> Anderson, *supra* note 104, at 2401.

<sup>206</sup> 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., Harvard Univ. Press 1923).

tort law's treatment of medical malpractice: reducing the ambiguity of the governing legal norm, reducing physicians' legal exposure (or, more accurately, their perception thereof), and reducing the law's reliance on real-world practice. These approaches will not only have few ripple effects within medical care, but they will also be more generalizable to feedback scenarios in other fields of law. Then we will address more sweeping changes, placing them in the context of the longstanding tort reform and health care debates. 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 necessary. One reason they provide such extra care is 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 reduce defensive medicine and stop doctrinal feedback, and particularly its "tight" feedback loops, from happening.<sup>207</sup> Indeed, reducing ambiguity is the sort of solution that should apply anywhere feedback rears its ugly head.<sup>208</sup>

One subtle adjustment in clinical practice might help make this happen: the use of clinical guidelines.<sup>209</sup> Suppose that experts 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

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<sup>207</sup> See Calfee & Craswell, *supra* note 19, at 1000–01 (discussing possible benefits of reducing uncertainty).

<sup>208</sup> Note, however, that the degree of reduction in uncertainty is important, as under Calfee and Craswell's model substantial uncertainty can sometimes generate more efficient behavior than small uncertainty. See Craswell & Calfee, *supra* note 26, at 287.

<sup>209</sup> Many commentators have suggested using guidelines to address defensive medicine. E.g., Troyen A. Brennan, Practice Guidelines and Malpractice Litigation: Collision or Cohesion?, 16 *J. Health Pol. Pol'y & L.* 67, 67–68 (1991); Hall, *supra* note 46, at 129–30; Localio et al., *supra* note 57, at 372; Studdert et al., *supra* note 48, at 2616.

we would see a decline in defensive medicine. Thus the same factor that causes inefficient informational cascades—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.<sup>210</sup> 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.<sup>211</sup> Even when these obstacles are overcome, guidelines become obsolete quickly,<sup>212</sup> and practitioners rarely follow them even when they view them positively.<sup>213</sup>

Despite these drawbacks, clinical guidelines have emerged for a wide range of clinical situations. In fact, guidelines are so numerous and varied that the notion of using them to establish a comfort zone for physicians will clearly collapse under its own weight unless the government gets involved.<sup>214</sup> As it happens, a few states have

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<sup>210</sup> Cf. Tancredi & Baroness, *supra* note 57, at 881 (“[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.”).

<sup>211</sup> Hall, *supra* note 46, at 140–45; Bryan A. Liang, *Error in Medicine: Legal Impediments to U.S. Reform*, 24 *J. Health Pol. Pol’y & L.* 27, 38 (1999); Bryan A. Liang & David J. Cullen, *The Legal System and Patient Safety: Charting a Divergent Course*, 91 *Anesthesiology* 609, 610 (1999); Mello, *supra* note 79, at 686–87.

<sup>212</sup> Liang, *supra* note 211 at 38; Liang & Cullen, *supra* note 211, at 610.

<sup>213</sup> Mello, *supra* note 79, at 683; Carter L. Williams, *Note, Evidence-Based Medicine in the Law Beyond Clinical Practice Guidelines: What Effect Will EBM Have on the Standard of Care?*, 61 *Wash. & Lee L. Rev.* 479, 492–93 (2004); see also Albers, *supra* note 142, 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 & Weiler, *supra* note 85, at 411–12.

<sup>214</sup> One online clearinghouse for clinical guidelines had 2186 listed as of September 20, 2007, all of which were developed, reviewed, or revised within the previous five years. See Nat’l Guideline Clearinghouse, *Guideline Index*,

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1695

flirted with the idea of formally incorporating guidelines into their negligence standards. After all, the deference that courts pay to customary practice means that the medical community already determines its own liability metric, so why not allow it 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.<sup>215</sup> Physicians who wanted to participate in the program could cite compliance with the applicable guideline as an affirmative defense in any ensuing malpractice case.<sup>216</sup> Unfortunately, the program expired without any claims being filed.<sup>217</sup> Whether this demonstrates the success of the measure is impossible to say, given the small number of participating physicians (about four hundred)<sup>218</sup> 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 have yet emerged and several of the projects have been abandoned.<sup>219</sup>

In the end, then, clinical guidelines have the potential 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

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[http://www.guideline.gov/browse/guideline\\_index.aspx](http://www.guideline.gov/browse/guideline_index.aspx) (last visited Sept. 20, 2007); see also Mello, *supra* note 79, at 653–54 (noting the “tremendous diversity” in guideline design and content and observing that “[t]ort reformers who propose to use [guidelines] as the standard of care in medical malpractice cases therefore have many questions to answer regarding which guidelines will be applied in a particular case and why”).

<sup>215</sup> Me. Rev. Stat. Ann. tit. 24, §§ 2971–79 (1993) (“Medical Liability Demonstration Project”) (repealed 1999); see also Jennifer Begel, *Maine Physician Practice Guidelines: Implications for Medical Malpractice Litigation*, 47 Me. L. Rev. 69, 78–79 (1995) (describing program).

<sup>216</sup> Begel, *supra* note 215, at 81.

<sup>217</sup> Mark Crane, *Clinical Guidelines: A Malpractice Safety Net?*, *Med. Econ.*, Apr. 12, 1999, at 236, 243.

<sup>218</sup> *Id.*

<sup>219</sup> See Office of Technology Assessment, *supra* note 48, at 145–46; Crane, *supra* note 217, at 243; Williams, *supra* note 213, at 497; see also Mello, *supra* note 79, at 675–77 (questioning Maine model's efficacy).

guidelines to apply and what legal protection they afford. Neither contingency appears imminent.

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. Therefore, if physicians were to be educated 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.<sup>220</sup> 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.<sup>221</sup> Even in the high-stakes world of obstetrics and gynecology, money changes hands in only one out of every three claims.<sup>222</sup> Indeed, studies consistently show not only that malpractice litigation largely produces the correct result,<sup>223</sup> but also that the mistakes that

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<sup>220</sup> Danzon, *supra* note 79, at 24 (studying 1974 data for California hospitals and concluding that "at most 1 in 10 negligent injuries resulted in a claim"); Weiler et al., *supra* note 51, at 73 (finding "one in fifty" based on 1984 New York hospital data); 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 Brennan, *supra* note 209, at 69 (summarizing studies); A. Russell Localio et al., *Relation Between Malpractice Claims and Adverse Events Due to Negligence: Results of the Harvard Medical Practice Study III*, 325 *New Eng. J. Med.* 245, 245-46 (1991) (providing more data on Weiler et al. study's 2% figure).

<sup>221</sup> See Henry S. Farber & Michelle J. White, *Medical Malpractice: An Empirical Examination of the Litigation Process*, 22 *RAND J. Econ.* 199, 205-07 (1991).

<sup>222</sup> Wilson & Strunk, *supra* note 52, at 4.

<sup>223</sup> See Farber & White, *supra* note 221, at 205-207; 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, 781 (1992). 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 Eng. J. Med.* 1963, 1967 (1996), but similar results obtain under a different approach as well, see Studdert et al., *supra* note 108, at 2024.

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1697

are made are more likely to favor the defendant than the plaintiff.<sup>224</sup>

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.<sup>225</sup> Alerting the medical community to its own warped perceptions of the risks and biases that await it in the courtroom could therefore go a long way toward reducing the feedback problem in malpractice law, even if risk aversion or extralegal influences perpetuated some overcompliance.

Before we adopt this approach, however, we should recall Hippocrates's 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 (ninety-eight percent, according to the most comprehensive study) never so much as file a claim, let alone recover any payment. 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 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 physicians from their warped risk perceptions may allow them to make clinical decisions based only (or mostly) on their

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<sup>224</sup> Studdert et al., *Claims*, supra note 108, at 2031; Michelle J. White, *The Value of Liability in Medical Malpractice*, *Health Aff.*, 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, 502 (2005).

<sup>225</sup> Indeed, a low probability of being sued might actually lead to systematic undercompliance and a ratcheting down of the reasonable care standard. See supra note 20 and accompanying text.

professional judgment, but in the vast majority of cases in which that clinical judgment proves faulty, the tort system currently gives them 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),<sup>226</sup> and even the remainder impose costs on the defendant.<sup>227</sup> 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.<sup>228</sup> 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 including the cost of defending both meritorious and meritless cases.<sup>229</sup> Another used more conservative assumptions yet still found that hospitals externalize seventy percent of the cost of the negligent injuries they cause.<sup>230</sup>

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<sup>226</sup> Studdert et al., *supra* note 108, at 2029; see Farber & White, *supra* note 52, at 205–06.

<sup>227</sup> See White, *supra* note 224, at 83 (calculating average legal cost of defending claim to be approximately \$16,000).

<sup>228</sup> See, e.g., *id.* at 83–84.

<sup>229</sup> *Id.* at 82–84. I use White's \$157,000 figure because it represents the true cost to society of the injury; her other figure (\$138,000) discounts for defendant-friendly legal error. Likewise, I use her \$4,800 figure rather than her \$5,300 figure because the former represents the true cost to the tortfeasor under the present system, while the latter hypothesizes what that cost would be if error were eliminated. *Id.* at 84.

<sup>230</sup> Michelle M. Mello et al., Who Pays for Medical Errors? An Analysis of Adverse Event Costs, the Medical Liability System, and Incentives for Patient Safety Improvement, 4 *J. Empirical Stud.* 835, 847–50 (2007) (finding total societal cost per iatrogenic negligent injury to be \$113,280). One of the reasons this 70% figure is conservative is that it excludes injuries to newborns, *id.* at 845, who constitute one in

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1699

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) physicians vastly overestimate their legal exposure, 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. Doctrinal feedback 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 come tumbling down.

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.

So neither reducing reasonable care's ambiguity nor reducing the specter of malpractice liability seems to solve the feedback problem. Might we instead reduce the law's eagerness to convert

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every five malpractice plaintiffs and whose injuries generate some of the highest jury awards in all cases. See *supra* notes 117–123 and accompanying text.

real-world practice into legal norm? 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. The explanations for this special treatment have never been entirely convincing,<sup>231</sup> and they are considerably less so in light of the pernicious effect of doctrinal feedback.

We have already seen that the feedback model generally exposes the recklessness of using custom as the preferred measure of legal liability, as Richard Posner and Richard Epstein would have us do.<sup>232</sup> The medical malpractice example bears this out. Physician and patient tend to interact with one another repeatedly and consensually, with a natural emphasis on long-term cooperation and common goals. Therefore, if Posner and Epstein are right, we would expect medical care to develop welfare-enhancing customs that warrant deference. Indeed, Posner has specifically argued that the consensual nature of the physician-patient relationship is what justifies the use of custom as the measure of negligence in medical malpractice cases.<sup>233</sup>

Instead, malpractice's reasonable care standard allows wasteful tests and procedures to become the norm. And they do so quickly, precisely because of the close, echo chamber nature of the community and the accompanying peer sensitivity and potential for informational cascades. Everyone sees what everyone else is doing and so adjusts their behavior that much more rapidly. 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, such as slip-and-fall cases, is probably less susceptible to doctrinal feedback.

Factfinders might accordingly be encouraged to reject the deferential approach and accept Judge Hand's invitation. Juries would

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<sup>231</sup> See, e.g., Robinson, *supra* note 23, at 173–83 (critiquing deference to clinical custom).

<sup>232</sup> See *supra* notes 30–33 and accompanying text.

<sup>233</sup> Posner, *supra* note 30, at 172; accord Parchomovsky & Stein, *supra* note 65, at 22. But see Danzon, *supra* note 79, at 141 (criticizing Posner and Epstein).

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1701

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 numerous scientific studies 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”<sup>234</sup>—would do *less* than what his or her peers actually do in the real world. To a jury not familiar with the built-in inefficiencies of health care, the mere fact that most physicians use a certain technique will strongly suggest that it is cost-effective and thus required by tort law.<sup>235</sup> Courts might hold that the negligence standard requires physicians to do *more* than what common practice suggests (as Judge Hand tells us, “a whole calling may have unduly lagged”<sup>236</sup>), but the opposite conclusion would be unlikely absent compelling proof. For example, *Helling v. Carey*—the most frequently cited example of a court’s second-guessing clinical custom—involved the *failure* to administer a test for glaucoma.<sup>237</sup> 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.<sup>238</sup>

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

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<sup>234</sup> Prosser and Keeton, *supra* note 3, § 32, at 174.

<sup>235</sup> See Clarence Morris, Custom and Negligence., 42 Colum. L. Rev. 1147, 1148 (1942) (discussing evidentiary role of custom). For a summary of the many other practical considerations and evidentiary rules that make custom influential even when in theory courts refuse to defer to it, see Parchomovsky & Stein, *supra* note 65, at 8–24.

<sup>236</sup> *The T.J. Hooper*, 60 F.2d 737, 740 (2d Cir. 1932).

<sup>237</sup> 519 P.2d 981 (Wash. 1974) (holding ophthalmologist liable despite undisputed evidence that test was not customary for patient’s demographic).

<sup>238</sup> Havighurst, *supra* note 41, at 159 n.45. Ironically, the promoters of electronic fetal monitoring held up *Helling* as a reason to use the procedure even after studies began to reveal its shortcomings. See Schifrin et al., *supra* note 165, at 101.

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.<sup>239</sup> 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 departs from 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.<sup>240</sup> The "almost compulsively individualistic" and idiosyncratic practice of medicine<sup>241</sup> and the occasional disconnect between medical practitioners and medical researchers<sup>242</sup> are real problems, which warrant attention regardless of what we do about the overcompliance problem generally. But at best 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 pushing the reasonable care standard into ever-more-conservative territory. This final Section will therefore examine whether and how existing approaches to reforming health care'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,

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<sup>239</sup> Roger K. Freeman, Problems with Intrapartum Fetal Heart Rate Monitoring Interpretation and Management, 100 *Obstetrics & Gynecology* 813, 813 (2002).

<sup>240</sup> See generally Williams, *supra* note 213, at 492-93.

<sup>241</sup> Sage, *supra* note 66, at 1774.

<sup>242</sup> See Noah, *supra* note 67, at 383.

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1703

given their single-minded focus on reducing malpractice exposure.<sup>243</sup> Yet defensive medicine has continued throughout the tort reform era, seemingly unabated.<sup>244</sup> And studies have shown 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.<sup>245</sup> 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.<sup>246</sup> 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, shifting 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 potential implications for doctrinal feedback is managed care, by which I mean the various cost-containment initiatives that both public and private entities 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.<sup>247</sup> 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.<sup>248</sup> Again, however, there is no evidence

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<sup>243</sup> For a summary of tort reform's usual suspects, see Office of Technology Assessment, *supra* note 48, at 78–79. Note that reducing malpractice exposure will have no effect on extralegal motivations to overcomply.

<sup>244</sup> See *supra* notes 50–57.

<sup>245</sup> See Office of Technology Assessment, *supra* note 48, at 79 (summarizing studies).

<sup>246</sup> One can, however, make a plausible case for limiting damages for pain and suffering, given their “indeterminate and highly volatile” nature. See Jeffrey O'Connell, *Statutory Authorization of Nonpayment of Noneconomic Damages as Leverage for Prompt Payment of Economic Damages in Personal Injury Cases*, 71 *Tenn. L. Rev.* 191, 195 (2003).

<sup>247</sup> For an excellent account of these trends, see Abraham & Weiler, *supra* note 85, at 394–98.

<sup>248</sup> See Robinson, *supra* note 23, at 179. But see Sandeep Jauhar, *Many Doctors, Many Tests, No Rhyme or Reason*, *N.Y. Times*, Mar. 11, 2008, at F5 (explaining that latitude inherent in medical decision-making means that physicians respond to cost controls by ordering more tests).

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 arises 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, doctrinal feedback will ensure that it remains part of customary care.<sup>249</sup>

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 latitude to overcomply, 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.<sup>250</sup> Although patient choice may be too restricted and health care too indispensable a commodity for indi-

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<sup>249</sup> For example, electronic fetal monitoring was not covered by insurance when it was first developed, David Harrington & Mark Pilar, *Fetal Monitors*, 24x7, Feb. 2005, [http://www.24x7mag.com/issues/articles/2005-02\\_07.asp](http://www.24x7mag.com/issues/articles/2005-02_07.asp). Now, however, such monitors "have become a part of standard care that is unlikely to vary based on insurance type." Leo Turcotte et al., *Medicaid Coverage and Medical Interventions During Pregnancy*, 5 Int'l J. Health Care Fin. & Econ. 255, 262 (2005).

<sup>250</sup> 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.* Spring 1986; see also Danzon, *supra* note 79, at 141-42; Mello, *supra* note 79, at 668-71.

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1705

vidual 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 uniform 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,<sup>251</sup> however, it is unclear whether private contract would fulfill its theoretical promise. Most patients do not pay for their own health care, which means they have little reason to take on more risk in exchange for a better price.<sup>252</sup> And even if they were to bargain, they 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 uniform 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.<sup>253</sup> Of course, this does not mean that a tort regime is necessarily better,<sup>254</sup> 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

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<sup>251</sup> It generally does not. See, e.g., *Tunkl v. Regents of Univ. of Cal.*, 383 P.2d 441, 441–42 (Cal. 1963) (invalidating agreement releasing hospital from liability); *Meiman v. Rehab. Ctr.*, 444 S.W.2d 78, 80 (Ky. 1969) (same); *Olson v. Molzen*, 558 S.W.2d 429, 432 (Tenn. 1977) (same).

<sup>252</sup> I am indebted to Ken Abraham for pointing this out.

<sup>253</sup> See Mello, *supra* note 79, at 6698–70; Morris, *supra* note 235, at 1163–64.

<sup>254</sup> See Robinson, *supra* note 23, at 188–93 (critiquing the view that informational asymmetry justifies the negligence regime).

real-world practice, the physician would overcomply and doctrinal feedback would creep back in.<sup>255</sup>

Regardless of the extent of these drawbacks, however, a contractual approach to malpractice regulation has the advantage of giving health care providers more of an incentive to manage medical risk. If tracking errors and realistically assessing the likelihood of suit were a higher priority, the static on both ends of the tort signal would diminish, and feedback would as well.<sup>256</sup>

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,<sup>257</sup> yet are close enough to the action 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.<sup>258</sup> Contracting our way into a system under which hospitals bear the brunt of malpractice expo-

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<sup>255</sup> 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, Craswell & Calfee, *supra* note 26, 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 text following note 230, *supra*. A move to a less demanding standard might therefore be a move in the wrong direction.

<sup>256</sup> Indeed, error reporting and assessment are vital to any reform in this area. Liang, *supra* note 211, at 28–30; Studdert et al., *supra* note 85, at 287.

<sup>257</sup> See Brennan & Mello, *supra* note 85, 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., *supra* note 85, at 283 (noting that hospitals are experience rated).

<sup>258</sup> For a comprehensive review of these and other advantages of enterprise liability in health care, see Abraham & Weiler, *supra* note 85, at 398–414. But see Michelle M. Mello & David M. Studdert, *Deconstructing Negligence: The Role of Individual and System Factors in Causing Medical Injuries*, 96 *Geo. L.J.* 599 (2008) (arguing that results of empirical study support joint individual and enterprise liability).

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1707

sure could therefore have a real effect on the incidence of defensive medicine and the feedback it fuels.<sup>259</sup>

Contract law is thus 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.<sup>260</sup> 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.<sup>261</sup> Such an arrangement would presumably reduce overcompliance, and feedback with it, both because it would produce more informed risk management and 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 first principles of tort law, however, we must address one last systemic reform and its effect on doctrinal feedback: no-fault liability.<sup>262</sup> 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.<sup>263</sup>

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<sup>259</sup> See Abraham & Weiler, *supra* note 85, at 417–18 (discussing effect of enterprise liability on defensive medicine).

<sup>260</sup> See *id.* at 429.

<sup>261</sup> *Id.* at 419–20.

<sup>262</sup> See generally Jeffrey O'Connell, *An Alternative to Abandoning Tort Liability: Elective No-Fault Insurance for Many Kinds of Injuries*, 60 *Minn. L. Rev.* 501 (1976).

<sup>263</sup> E.g., National Childhood Vaccine Injury Act of 1986, Pub. L. No. 99-660, tit. III, 100 Stat. 3743, 3755 (1986) (codified at 42 U.S.C. §§ 300aa-1 to -34) (creating federal no-fault scheme for compensating children who experience adverse side effect from vaccine); Laurence R. Tancredi & Randall R. Bovbjerg, *Rethinking Responsibility for Patient Injury: Accelerated-Compensation Events, A Malpractice and Quality Reform Ripe for a Test*, 54 *Law & Contemp. Probs.*, Spring 1991, at 147 (proposing no-fault for certain easily identifiable injuries).

First-party no-fault, in which the victim bears the full loss, should be entirely immune to 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.<sup>264</sup>

Yet we have seen that overcompliance 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.<sup>265</sup> 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.<sup>266</sup>

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<sup>264</sup> See sources cited *supra* note 220 (summarizing studies on percentage of victims of medical negligence who file suit); Studdert et al., *supra* note 108, at 2028 (finding that only 73% of meritorious medical malpractice claims result in compensation).

<sup>265</sup> O'Connell, *supra* note 262, at 517-19.

<sup>266</sup> Virginia Birth-Related Neurological Injury Compensation Act, 1987 Va. Acts 830 (codified as amended at Va. Code Ann. § 38.2-5000 to -5021). The Virginia legislation is, however, hardly a shining example of how to design a strict liability system. See Richard A. Epstein, Market and Regulatory Approaches to Medical Malpractice: The Virginia Obstetrical No-Fault Statute, *in* 2 Institute of Medicine, *supra* note 117, at 115, 124-32 (criticizing Virginia program); James A. Henderson, The Virginia Birth-Related Injury Compensation Act: Limited No-Fault Statutes as Solutions to the "Medical Malpractice Crisis," *in* 2 Institute of Medicine, *supra* note 117, at 194, 208-

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1709

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.<sup>267</sup> The benefit is increased deterrence: we presume that physicians can more easily take measures to avoid iatrogenic injury in the first place, and so we place the duty to compensate on them.<sup>268</sup>

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, particularly when the feedback loop is "tight." Recall that the overcompliance behind tight feedback loops comes from the uninsured costs of liability, which weigh heavily on the mind of the average physician—the reputational effects, the emotional distress, and so on. 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 overcompliance: legal responsibility for iatrogenic injury.

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09 (same). In fact, it suffers from some of the same misunderstandings about birth-related injury that led to the adoption of electronic monitoring: a lack of EFM tracings creates a "rebuttable presumption of fetal distress" in cases governed by the Act! Va. Code Ann. § 38.2-5008(A)(1)(b).

<sup>267</sup> Weiler et al., *supra* note 51, at 82; O'Connell, *supra* note 262, at 521. The cost would probably fall somewhere between the cost of proving both causation and negligence, which the current system requires and which takes approximately fifty-five cents of every malpractice dollar, and the administrative cost of the no-fault workers' compensation system, which deals with less thorny causation problems and usually spends about twenty cents of each dollar on administration. See Thomas A. Eaton & Susette M. Talarico, A Profile of Tort Litigation in Georgia and Reflections on Tort Reform, 30 Ga. L. Rev. 627, 673 (1996) (citing overhead figure of 55% in medical malpractice compared to 20% in worker's compensation).

<sup>268</sup> See Robinson, *supra* note 23, at 181 (discussing intuitive assumption that physicians' superior training and knowledge makes them cheapest cost avoiders).

Nevertheless, even if overcompliance continued, a strict liability regime would not produce full-fledged 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, strict liability could even reduce the inefficiencies of defensive care, as 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.<sup>269</sup> 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.<sup>270</sup>

In any event, when one considers the high incidence of overcompliance, 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

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<sup>269</sup> 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.

Campbell et al., *supra* note 71, at 799. 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.

<sup>270</sup> David M. Studdert & Troyen A. Brennan, *The Patient Safety Case for No-Fault Compensation*, 23 *Forum 7 (Risk Mgmt. Found. of the Harv. Med. Insts. 2003)*; see also Abraham & Weiler, *supra* note 86, at 432–36 (pointing out many advantages of combining enterprise liability and no-fault).

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1711

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; custom and convention can be influential in practice even where the law does not defer to them in theory.<sup>271</sup> For instance, feedback may be responsible for the increasingly fatuous warning labels on consumer goods, as manufacturers avoid jury judgments on products liability 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.<sup>272</sup>)

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.<sup>273</sup> Or consider “reasonable expectations of privacy,” the touchstone for determining whether a search violates the Fourth Amendment.<sup>274</sup> 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.<sup>275</sup>

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 intellec-

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<sup>271</sup> See Morris, *supra* note 235, at 1148 (explaining evidentiary significance of custom); Parchomovsky & Stein, *supra* note 66, at 8–24 (summarizing practical considerations and evidentiary rules that promote informal deference to custom).

<sup>272</sup> Jane Easter Bahls, Better Safe . . . , *Entrepreneur*, July 2003, at 76.

<sup>273</sup> See 42 U.S.C. § 12112(b)(5) (imposing liability for “not making reasonable accommodations” to disabled employees).

<sup>274</sup> See *Katz v. United States*, 389 U.S. 347, 360–61 (1967) (Harlan, J., concurring).

<sup>275</sup> 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.)

tual property law, yet we find no reasonableness standard there.<sup>276</sup> What we do find, however, is a reference to real-world practice in the form of deference to existing licensing markets.<sup>277</sup> We can 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.<sup>278</sup>

I do not mean to imply that doctrinal feedback plays a pivotal role in all these disparate fields. Brevity requires these examples to be 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.<sup>279</sup>) 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 in a variety of otherwise dissimilar contexts.

Nor do I mean to imply that reference to custom 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 convention and tradition (e.g., Burke, von Savigny, and Hume), but also by those who generally favor a more top-down style of governance

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<sup>276</sup> See Gibson, *supra* note 6.

<sup>277</sup> *Id.* at 895–98.

<sup>278</sup> 12 Williston & Lord, *supra* note 7, § 34:5, at 29.

<sup>279</sup> For example, in deciding whether use of a surveillance method (e.g., airplanes, helicopters, thermal imaging) is constitutional, the case law consistently examines how familiar the particular technology is. 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 the 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).

2008] *Doctrinal Feedback and (Un)Reasonable Care* 1713

(e.g., Bentham and Hegel).<sup>280</sup> In American jurisprudence we hear paeans to practice from foundational legal realists like Karl Llewellyn and from libertarian scholars like Richard Epstein.<sup>281</sup> 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

Many legal norms draw their definition from real-world practice. This approach to policymaking has intuitive appeal, as such norms anchor the law in communal consensus and give courts the flexibility to reach just results. But reference to real-world practice also has a dark side: a feedback effect that can rob legal norms of their efficiency and legitimacy and change behavior in unexpected, unhelpful, and unrecognized ways.

Tort's familiar reasonable care standard showcases this pernicious phenomenon—particularly in medical malpractice, where the law has produced and perpetuated wasteful practices and served as more of a hindrance than a help in regulating physicians' conduct. Given the frequency with which legal norms refer to custom and convention, however, doctrinal feedback undoubtedly occurs elsewhere as well; the malpractice example only scratches the surface.

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<sup>280</sup> 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.”); 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.”); David Hume, *A Treatise of Human Nature* 351 (Dover Publ'ns 2003) (1739) (observing that “justice takes its rise from human conventions”); 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”); 1 Jeremy Bentham, *Essay on the Influence of Time and Place in Matters of Legislation*, in *The Works of Jeremy Bentham* 169, 180 (Russell & Russell 1962) (John Bowring ed., 1843) (noting that “prejudice and the blindest custom must be humored”).

<sup>281</sup> See Karl N. Llewellyn, *The Common Law Tradition* 122 (1960) (discussing the “immanent law” that “is indwelling in the very circumstances of life”); Epstein, *supra* note 30, at 4 (“[W]here consistent custom emerges, regardless of its origins, it should be followed.”).

In the end, reference to real-world practice may seem both sensible and defensible—indeed, it accords with neoclassical economic theory—but the real world is never as simple as theory would lead us to believe. We must recognize instead that the very doctrines that derive from practice can also distort it.