

2021

A Reliability Check on Expert Witness Testimony in Medical Malpractice Litigation: Mandatory Medical Simulation

Julie L. Campbell

Follow this and additional works at: <https://scholarlycommons.law.case.edu/healthmatrix>

 Part of the [Health Law and Policy Commons](#)

Recommended Citation

Julie L. Campbell, *A Reliability Check on Expert Witness Testimony in Medical Malpractice Litigation: Mandatory Medical Simulation*, 31 Health Matrix 1 ()

Available at: <https://scholarlycommons.law.case.edu/healthmatrix/vol31/iss1/3>

This Article is brought to you for free and open access by the Student Journals at Case Western Reserve University School of Law Scholarly Commons. It has been accepted for inclusion in Health Matrix: The Journal of Law-Medicine by an authorized administrator of Case Western Reserve University School of Law Scholarly Commons.

A RELIABILITY CHECK ON EXPERT WITNESS TESTIMONY IN MEDICAL MALPRACTICE LITIGATION: MANDATORY MEDICAL SIMULATION

Julie L. Campbell[†]

ABSTRACT

Leading scholars have claimed that the medical malpractice system is working based on studies that estimate the error rate—the rate at which juries come to the wrong conclusion and erroneously hold a provider liable—to be less than twenty percent. But the injured plaintiff, who tends to lose a potentially meritorious case nearly fifty percent of the time, and the innocent medical provider, who is forced to settle a case in which no negligence occurred, deserve better. Part of the problem is exclusive reliance on flawed medical experts to establish the standard of care. In the past, this was justified because there was no other means to establish the standard of care. However, new technology has changed that. As the practice of medicine has become more evidence-driven, we can now use data to extrapolate the standard of care.

This Article describes how medical simulation can be used to further decrease the error rate in medical malpractice cases. High-hazard industries around the world have utilized simulation technology to identify and reduce errors. Medical simulation is similarly capable of identifying medical negligence and reducing future medical errors. By expanding medical providers' periodic recertification examinations to include medical simulation scenarios, and hiding actual medical malpractice fact patterns within these simulations, three tort reform objectives are achieved: (1) impartial experts provide the basis for standard of care; (2) the standard of care is based on multiple data points instead of two conflicting opinions; and (3) the simulation acts as a training module to help prevent future medical errors.

This solution—which would require minimal statutory changes—holds the promise of reducing the error rate of jury verdicts in medical malpractice cases and ultimately decreasing the cost and improving the quality of health care in the United States.

[†] J.D., L.L.M., Highland Park, Illinois; MacLean Center for Clinical Medical Ethics Fellow; the 2019–2020 Health Law Fellow in the American Medical Association's Litigation Center, an Education Committee member for the Illinois Association for Healthcare Attorneys, and adjunct professor teaching in the area of health law and medical ethics.

CONTENTS

INTRODUCTION	3
I. RELIANCE ON CONFLICTING EXPERT WITNESS TESTIMONY IN MEDICAL MALPRACTICE CASES RESULTS IN UNRELIABLE JURY VERDICTS	5
A. <i>Justice and Fairness Require Predictability and Reliability</i>	8
B. <i>Reliance on the Testimony of Expert Witnesses Alone Leads to Incorrect Jury Verdicts in Medical Malpractice Cases</i>	9
C. <i>Federal Courts Require More Than Conflicting Expert Opinions to Find Liability</i>	11
II. WHEN JURIES GET IT WRONG: THE NEGATIVE CONSEQUENCES ON THE HEALTHCARE PROVIDER, THE HEALTHCARE SYSTEM, AND THE INJURED PATIENT	14
A. <i>The Fact That Juries So Often Get It Wrong Affects Healthcare Provider Employability and Encourages The Practice of Defensive Medicine</i>	14
1. The Practice of Defensive Medicine Can Cause Providers to Order Unnecessary Tests or Refuse to Practice in Certain Specialties or High Liability Areas.....	15
2. The Practice of Defensive Medicine is Directly Related to the Increased Cost of Healthcare.....	17
B. <i>The Potential for an Inaccurate Jury Verdict Makes Access to the Legal System Very Difficult for the Majority of Injured Patients</i>	18
III. CURRENT TORT REFORM EFFORTS DO NOT DO ENOUGH TO ADDRESS JURY INACCURACY	21
A. <i>Reform Efforts to Increase Reliability, Patient Claims, and Speed of Resolution in Medical Malpractice Cases</i>	21
1. Application of the <i>Daubert</i> Standard in Medical Malpractice Cases is Limited to the Causation Element of Negligence.....	22
2. Health Courts Promote the Right Goals but with the Wrong Process	23
3. Mandatory Arbitration Fails to Provide the Physician, Insurer, and Defense Counsel Their Desired Day in Court.....	26
IV. MEDICAL SIMULATION: A MEDIATION TOOL TO REFORM MEDICAL MALPRACTICE LITIGATION.....	29
A. <i>What is Medical Simulation?</i>	29
B. <i>Current Applications of Medical Simulation</i>	32
C. <i>Creating a Medical Malpractice Simulation</i>	35
D. <i>Medical Simulation as a Mediation Tool in Medical Malpractice Cases</i>	37
E. <i>Mandatory Mediation as the Template for Mandatory Medical Simulation</i>	41
F. <i>Potential Hurdles to Implementing Mandatory Medical Simulation</i>	42
1. Specialty-Specific Simulation CME Requirements Under the State Medical Licensing Act.....	43
2. Cooperation of the Various Medical Certification Boards.....	45
G. <i>The Benefits of Mandatory Medical Simulation</i>	46
H. <i>Limitations to the Utilization of Mandatory Simulation</i>	47
CONCLUSION.....	49
APPENDIX A.....	49

INTRODUCTION

To prove a claim of medical malpractice, a plaintiff must demonstrate that a doctor failed to act with the skill and care that a similarly-trained health care professional would have demonstrated under the circumstances.¹ In other words, the doctor must have breached the standard of care. Proving the standard of care is crucial to most medical malpractice cases—and it is almost always done through eliciting testimony from expert witnesses.²

The process, however, is highly flawed. The use of conflicting medical experts, both of whom receive substantial monetary compensation³ and are vulnerable to the effects of hindsight bias, leave the trier of fact judging credibility rather than scientific fact. As a result, the use of expert witness testimony to establish the standard of care in medical malpractice litigation often fails to provide statistically significant, and at times, reliable information from which a trier of fact can deduce the appropriate standard of care.

Relatedly, in the current system, malpractice cases drag on for years, are enormously costly, demoralizing for health care providers, and are frustrating and emotionally traumatic for patients and their families. The average medical malpractice claim takes anywhere from two to five years from the date of injury to settlement or verdict.⁴ The cost to prosecute or defend a medical malpractice claim can be in the hundreds of thousands of dollars depending on the complexity of the case and the number of expert witnesses needed to prove the applicable standard of care, resulting in fifty-four percent of the compensation paid to the plaintiff actually being absorbed by the administrative costs of

-
1. BARRY A. LINDAHL, MODERN TORT LAW: LIABILITY AND LITIGATION § 24:1 & 24:15 (2d ed. 2019).
 2. *Id.* § 24:81.
 3. Douglas R. Richmond, *Expert Witness Conflicts & Compensation*, 67 TENN. L. REV. 909, 934 (2000).
 4. David M. Studdert et al., *Claims, Errors, and Compensation Payments in Med. Malpractice Litig.*, 354 NEW ENG. J. MED. 2024, 2031 (2006) (finding that the average time between injury and resolution was five year with one in three claims taking six years or more to resolve); Anupam B. Jena, Amitabh Chandra, Darius Lakdawalla & Seth Seabury, *Outcomes of Medical Malpractice Litigation Against US Physicians*, 172 ARCHIVES INTERNAL MED. 892, 893 (2012) (“The mean time required to close a malpractice claim was 19.0 months; 11.6 months and 25.1 months were required for nonlitigated and litigated claims, respectively. Each step in the litigation process generated significant delays in the resolution of the claim. Among litigated claims, those dismissed in court required the least time to close (mean, 20.4 months). Claims that were not dismissed but were resolved before a verdict took considerably longer to close (mean, 28.5 months). Claims that were resolved at trial took the longest to resolve (mean, 39.0 and 43.5 months for cases with verdicts in favor of defendants and plaintiffs, respectively).”).

bringing the claim.⁵ The emotional impact a malpractice lawsuit has on providers has caused some to leave the profession altogether.⁶ For the patients and/or their families, the discovery and trial process are emotional battlefields where they are forced to relive the unfortunate events time and time again.⁷

Worse yet, imagine enduring all the above and then being confronted with an outcome that is not justified by the facts of the case, but instead was based on the opinion of a single individual who, to a jury, seemed more credible. This can result in two possible verdicts that are detrimental to greater societal interests: (1) a patient receiving no compensation for negligent care which caused bodily injury and impairment of life; or (2) a medical provider being found liable for negligence when his care comported with the applicable standard. Both results challenge society's belief in the justice system, and just as equally, society's trust in the medical system. According to at least one study, twenty-seven percent of malpractice cases result in incorrect verdicts.⁸ We can do better.

This Article takes on the problem of expert witness reliability. It offers a novel solution whereby expert testimony could be supported by a statistically relevant data set drawn from unbiased, qualified, and tested sources—with the least possible cost to patients, health care providers, and health care systems. It does not argue that expert witnesses should be eliminated and does not challenge the use of a trier of fact to determine liability. Rather, it seeks to improve the current system by introducing the use of mandatory medical simulation. Mandatory medical simulation is a procedural tool that trial courts can utilize to better extrapolate the standard of care to apply to medical malpractice cases. It holds the promise of reducing the error rate of jury

-
5. Studdert et al., *supra* note 4, at 2031 (noting administrative costs include the combination of defense costs and standard contingency fees charged by plaintiffs' attorneys which are typically in the range of 35 percent of the indemnity payment).
 6. David M. Studdert et al., *Defensive Med. Among High-Risk Specialist Physicians in a Volatile Malpractice Env't*, 293 JAMA 2609, 2613 (2005) (finding that of the 425 respondent-physicians surveyed, the most common reports of restrictions on practice involved stopping the practice of medicine altogether or eliminating specific high-risk procedures).
 7. See Jena et al., *supra* note 4, at 892 (noting patient are affected by anxiety as a result of the lengthy resolution process and the delay in receiving compensation for injuries).
 8. Studdert et al., *supra* note 4, at 2028 (finding 73 percent (1054 of 1441) of all claims for which determinations of merit were made had outcomes concordant with their merit. Discordant outcomes in the remaining 27 percent of claims consisted of three types: payment in the absence of documented injury (6 of 1441 [0.4 percent of all claims]), payment in the absence of error (10 percent), and no payment in the presence of error (16 percent)).

verdicts in medical malpractice cases and ultimately decreasing the cost and improving the quality of health care in the United States.

This Article consists of four parts. The first Part highlights how the current procedural process is vulnerable to ethical downfalls and conflicts of interest, the frequency of incorrect jury verdicts in the medical malpractice context, and how federal courts address the issue of reliability of medical expert testimony in other areas of law. The second Part addresses how subjectivity and unreliability in determining the appropriate standard of care to apply in medical malpractice claims negatively impacts healthcare providers, the health care system, and patients' access to the judicial system. The third Part highlights how current attempts at tort reform have been unable to address the issues of subjectivity and unreliability and failed to garner the support of either the plaintiff or defense counsels. The final Part makes the case for reform. It argues for the use of mandatory medical simulation as a tool equivalent to mediation in helping to illustrate to the parties and the trier of fact the appropriate standard of care to apply in a given case. Medical simulation holds the promise of improving the credibility of the legal system and ultimately the quality of care in medicine.

I. RELIANCE ON CONFLICTING EXPERT WITNESS TESTIMONY IN MEDICAL MALPRACTICE CASES RESULTS IN UNRELIABLE JURY VERDICTS

It is generally recognized that for a plaintiff to succeed in a medical malpractice lawsuit she must prove four elements: (1) a doctor-patient relationship existed in which the provider owed the patient a duty of care; (2) the medical provider breached that duty of care by providing substandard medical care to the patient/plaintiff; (3) the substandard care proximately caused the plaintiff's injury; and (4) the extent of the plaintiff's damages as a result of sustaining those injuries.⁹

Of particular importance to this Article is the second element, the breach of the duty of care. Duty of care is defined as “[t]he duty of the physician [] to exercise that degree of care, knowledge, and skill ordinarily possessed and exercised by the average member of the profession practicing in the field.”¹⁰ Establishing the applicable standard of care typically requires testimony from a paid expert witness.¹¹ The purpose of expert testimony is to assist the trier of fact

9. LINDAHL, *supra* note 1, § 24:1.

10. *Id.* § 24:15.

11. *Id.* § 24:81; *cf. id.* § 24:82 (2d ed. 2019) (highlighting various scenarios where expert witness testimony is not necessary — “common knowledge” and “gross negligence” exceptions to the general rule).

in understanding issues that require scientific or specialized knowledge or experience beyond the scope of common occurrences.¹²

The qualifications necessary to establish the witness as an expert vary by jurisdiction, but in most cases an expert witness must satisfy two requirements: (1) have actual knowledge and experience in the relevant area through either active practice or teaching; and (2) either be in the same profession as the defendant whose conduct is at issue or qualify for the exception to the “same profession” requirement of the applicable expert-witness statute.¹³ In addition, some jurisdictions have a statutory requirement that the witness spend a minimum amount of time in a given period in actual clinical practice.¹⁴ If the plaintiff is unable to present expert testimony to the effect that a violation of the applicable standard has occurred, the medical malpractice claim will typically be defeated.¹⁵ Thus, the ability to retain a qualified medical expert is essential to most medical malpractice cases.

Unfortunately, in the current American legal system, these experts require substantial compensation for their services.¹⁶ This results in a possible conflict of interest. By receiving payment in return for his expert opinion, the medical expert has a financial incentive in seeing the case progress through the legal system. The longer a case is in the court system, the more billable work the expert will presumably provide, and the more money he will make. Billable work includes reviewing the medical records, preparing written opinions, and if needed, providing testimony at depositions and trial, all of which could be perceived as creating an inherent bias towards whichever side retained the expert.¹⁷

In addition to a financial conflict of interest, the testimony of expert witnesses can be tainted by hindsight bias. Hindsight bias “is a person’s tendency to judge past decisions in light of one’s current knowledge of the outcome; it is a cognitive heuristic that distorts one’s ability to

-
12. *Arlen v. Ohio State Medical Bd.*, 61 Ohio St. 2d 168, 173 (1980) (discussing why a medical expert is not necessary in cases before a medical licensing board, as opposed to cases presented to a jury of laypersons who lack the specialized knowledge or experience necessary to understand the facts).
 13. LINDAHL, *supra* note 1, § 24:83 (noting that “[t]he question of whether a witness qualifies as an expert is a matter addressed to the sound discretion of the trial judge”).
 14. LINDAHL, *supra* note 1, § 24:83 (noting provisions like this are intended to prevent “professional witnesses”).
 15. LINDAHL, *supra* note 1, § 24:81.
 16. Douglas R. Richmond, *Expert Witness Conflicts and Compensation*, 67 TENN. L. REV. 909, 934 (2000).
 17. *See id.* at 914, 922-23.

judge the true probability of a particular outcome.”¹⁸ Creeping determinism, commonly associated with the cognitive strategy of understanding hindsight bias, “describes a person’s tendency to automatically incorporate outcome information into his understanding of the pre-existing circumstances.”¹⁹ Simply put, knowing the outcome taints the ability to objectively consider all the facts of the story.²⁰ This is because, people tend to prioritize certain facts and deprioritize others based on which facts will lead to the known outcome.²¹ One type of judgment researchers have found to be particularly vulnerable to hindsight bias is negligence.²²

A study conducted by Musch and Wagner in 2007 concluded that “experts might be more prone to perceiving an event as foreseeable in hindsight than laypeople because (a) they particularly like to present themselves as knowledgeable, and (b) they may find it easier to arrive at a judgment due to their experience.”²³ Thus, hindsight impairs one’s ability to objectively judge the foreseeability of the outcome.²⁴ A more

-
18. Debra L. Worthington et al., *Hindsight Bias, Daubert, and the Silicone Breast Implant Litigation: Making the Case for Court Appointed Experts in Complex Medical and Scientific Litigation*, 8 PSYCHOL. PUB. POL’Y & L. 154, 155-56 (2002) (noting that for jurors, “(b)ecause the outcome information is readily available to them, jurors in lawsuits turn to it as a simple matter of cognitive efficiency. Thus, when outcome knowledge is available, jurors use it as a “shortcut” around the complexity of the information presented and thereby simplify their decision-making task. People lacking advance knowledge of the outcome, however, do not have the same bias, and are more capable of objectively assessing the conduct at issue.”).
 19. *Id.* at 155.
 20. *Id.*
 21. *Id.* at 155–56.
 22. Aileen Oeberst & Ingke Goeckenjan, *When Being Wise After the Event Results in Injustice: Evidence for Hindsight Bias in Judges’ Negligence Assessments*, 22 PSYCHOL. PUB. POL’Y & L. 271, 272–73 (2016) (A 2016 study conducted to determine whether hindsight bias played a role in judges’ determination of criminal negligence. Researchers noted that, “negligence would be more frequently affirmed with the benefit of hindsight than from the foresight perspective (i.e., the defendant’s perspective at the time of action).”).
 23. *Id.* at 273.
 24. *Id.* at 271 (citation omitted) (“A long and prolific research tradition in psychology has established that our perceptions of events change once these events have occurred. In hindsight, people overestimate what they could have known in foresight. Specifically, hindsight bias comprises of three different components: increased perceptions of inevitability (e.g., “It must have happened”); increased perceptions of foreseeability (e.g., “I knew it would happen”); and memory distortions (e.g., “I predicted that it would happen.”).

objective assessment of conduct is achieved by ensuring that the reviewer does not know the outcome of the case or story.²⁵

In order to achieve a judicial system in which jury verdicts are fair and reliable, the verdicts must first be based on evidence and testimony that is accurate, objective, and removed from any conflict of interest. The next section discusses what predictability and reliability mean in the context of jury verdicts, why medical malpractice jury verdicts are often not predictable and reliable, and how federal courts have handled the issue of reliability when it comes to scientific expert testimony.

A. *Justice and Fairness Require Predictability and Reliability*

Predictability and reliability are key terms associated with the concept of justice and fairness. This is because these terms imply some sort of objective standard is being applied to the adjudication of the dispute. To the lay person, predictability means, “consistent repetition of a state, course of action, behavior, or the like, making it possible to know in advance what to expect.”²⁶ Reliability means, “the ability to be relied on or depended on, as for accuracy, honesty, or achievement.”²⁷ While these terms are important, the most crucial term to understand is interrater reliability. This form of reliability measures the degree of agreement between different people observing or assessing the same thing.²⁸ Interrater reliability is important because people are subjective, so different observers’ perceptions of situations and phenomena naturally differ.²⁹ Interrater reliability aims to minimize subjectivity as much as possible by ensuring that different professionals are able to replicate the results of an experiment in a consistent manner.³⁰ The key element in improving objectivity through interrater reliability in the context of medical malpractice cases is increasing the number of individuals reviewing the results.

While the practice of medicine is premised on intensive research leading to predictable, reliable, and objective results for patient outcomes, the American legal system is based on the premise that a disinterested and passive fact finder, or trier of fact, is the best means

-
25. Worthington et al., *supra* note 18, at 156.
26. *Predictability*, DICTIONARY.COM, <https://www.dictionary.com/browse/predictability?s=t> [<https://perma.cc/GZ6L-3RZH>].
27. *Reliability*, DICTIONARY.COM, <https://www.dictionary.com/browse/reliability?s=t> [<https://perma.cc/VR3Q-KLYM>].
28. Fiona Middleton, *Types of Reliability and How to Measure Them*, SCRIBBR (Jan. 13, 2020), <https://www.scribbr.com/methodology/types-of-reliability/> [<https://perma.cc/M6CU-7V3Q>].
29. *Id.*
30. *Id.*

of demonstrating neutrality.³¹ During a trial, the parties are responsible for producing all the evidence upon which the decision will be based.³² As a result, the parties are motivated to find and present their most persuasive evidence.³³

Unfortunately, in the context of medical malpractice litigation, the most persuasive evidence tends to come from conflicting expert witness opinions, leaving the trier of fact in a position of judging credibility more than the reliability or predictability of the evidence. As Clark Havighurst has said, “realism compels recognition that juries are often poorly positioned to choose reliably between the well argued, but often highly confusing, theories of the two sides’ experts . . . [and] often fall back on such irrelevancies as the witnesses’ demeanor and style of presentation or sympathy for the plaintiff’s plight or the defendants’ reputation.”³⁴

By very definition, there can be no interrater reliability in a system where the parties’ most persuasive evidence comes from the contradictory testimony of two paid expert witnesses. As a result, the notions of predictability, reliability, and, most importantly, objectivity are completely absent from the adjudication of a medical malpractice case. If our judicial system is truly to be a neutral forum, we must ensure that the facts presented to the trier of fact are free from conflicts of interest and not the products of hindsight bias. In essence, the facts must be predictable and reliable.

B. Reliance on the Testimony of Expert Witnesses Alone Leads to Incorrect Jury Verdicts in Medical Malpractice Cases

Perhaps because expert testimony is neither predictable nor reliable, juries often reach incorrect conclusions in medical malpractice cases.³⁵ In fact, one study found that juries reached the wrong result a whopping twenty-seven percent of the time -- meaning that juries either found no guilt where medical experts later determined negligence occurred, or found guilt where experts later determined no mistake was made.³⁶ And it is not that physicians are predisposed to favor other

31. DALE A. NANCE, LAW AND JUSTICE 295 (Carolina Acad. Press, 2d ed. 1999) (noting that the American adoption of the principles of neutrality and passivity tends to commit the adversary system to the objective of resolving disputes rather than searching for material truth).

32. *Id.* By making the parties responsible for the presentation of facts, it focuses the litigation on the “questions of greatest importance to the parties.”

33. *Id.*

34. CLARK C. HAVIGHURST ET AL., HEALTH CARE LAW AND POLICY 1018 (2d ed. 1998).

35. Studdert, et al., *supra* note 4, at 2028.

36. *Id.*

physicians.³⁷ In fact, they disagreed with jury verdicts that held both for and against the defendant physician.³⁸

In the Harvard Medical Practice Study (HMPS), researchers developed methods to identify adverse events and estimate their frequency.³⁹ The researchers utilized the incidence of adverse events to evaluate whether the tort system was effective in rewarding those who were injured as a result of their treatment in hospitals and to assess the economic impact of such injuries.⁴⁰ The HMPS method for identifying adverse events was based on a two-stage chart review.⁴¹ The first stage was conducted by nurses who screened patient records to determine which records likely included an adverse event.⁴² Selected charts were then reviewed by physicians to confirm the presence of adverse events and to assess the extent to which these events indicated substandard care.⁴³ Researchers found that when only two teams of physicians evaluated the medical case, there was a higher degree of disagreement on whether negligence occurred.⁴⁴ However, when numerous sets of physicians reviewed the case, the ability to obtain consensus in the results was greater.⁴⁵

Important to note about the HMPS is that the process of and criteria for making decisions about causation and negligence in the study differ from what occurs in civil litigation.⁴⁶ In a scientific study,

-
37. Bryan A. Liang, *Promoting Patient Safety Through Reducing Medical Error: A Paradigm of Cooperation Between Patient, Physicians, and Attorney*, 24 S. ILL. U. L.J. 541, 551–52 (2000) (noting that lay people are actually better at predicting jury verdicts than medical professionals).
38. *Id.* at 551.
39. G.R. Baker, *Harvard Medical Practice Study*, 13 BMJ QUALITY AND SAFETY, 151, 151–52 (2004).
40. *Id.*
41. *Id.*
42. *Id.*
43. *Id.*
44. Troyen A. Brennan et al., *Incidence of Adverse Events and Negligence in Hospitalized Patients – Results of the Harvard Medical Practice Study I*. 324 N ENGL. J. MED. 370, 374 (1991) (noting that their pilot test, which showed a higher degree of reliability on judgments of negligence, involved numerous sets of physicians).
45. *Id.*
46. A. Russell Localio et al., *Relation Between Malpractice Claims and Adverse Events Due to Negligence: Results of the Harvard Medical Practice Study III*. 325 N. ENGL. J. MED. 245, 249 (1991) (“Our reviewers sometimes disagreed about causation and negligence; when only one found negligence, the case did not qualify as an adverse event due to negligence . . . In a lawsuit, a single expert opinion might be sufficient to support a finding of negligence; under our protocol it would not . . . Thus, our findings are not directly comparable to the results of civil litigation.”).

when only one medical reviewer found negligence, a case did not qualify as an adverse event due to negligence.⁴⁷ However, a single expert opinion in a medical malpractice lawsuit might be sufficient to support a finding of negligence.⁴⁸

Since the HMPS, two decades of social science research on the outcomes of medical malpractice claims have occurred. According to Philip Peters, legal scholar and expert on medical malpractice law and medical malpractice reform, these studies support the findings that physicians win eighty to ninety percent of the jury trials with weak evidence of medical negligence, approximately seventy percent of the borderline cases, and even fifty percent of the trials in cases with strong evidence of medical negligence.⁴⁹ These same studies show that claimants with low-odds claims receive a settlement of some kind in approximately ten to twenty percent of cases.⁵⁰

Peters concludes that, “given the limits of human capacity to reconstruct past events and the inevitable subjectivity of judgments about the quality of past performance, it is probably not possible to design a fault-based adjudication system that will have a substantially higher degree of accuracy.”⁵¹ The federal judicial system does not seem to agree, and over the years has instituted measures to improve the reliability and relevance of scientific expert opinions. The next Part will address several measures federal courts have created to reinforce the reliability of expert testimony.

C. Federal Courts Require More Than Conflicting Expert Opinions to Find Liability

It doesn't have to be the case that conflicting expert testimony forms the sole basis for finding liability. Federal courts have found a different way. False Claims Act (FCA) cases provide one example. There, federal courts have concluded that a mere difference of opinion

47. *Id.*

48. *Id.*

49. Philip G. Peters, *Twenty Years of Evidence on the Outcomes of Malpractice Claims*, 467 CLINICAL ORTHOPAEDICS & RELATED RES. 352, 355 (2008) (analyzing two decades of social science research on the outcomes of medical malpractice claims and their correlation to the quality of care provided to the patient as judged by other physicians); see also Ralph Peeples et al., *The Process of Managing Med. Malpractice Cases: The Role of Standard of Care*, 37 WAKE FOREST L. REV. 877, 886, 888 (2002) (finding insurer offered to settle in 96% of cases in which it concluded that the standard of care was breached; plaintiffs received money in 93% of those cases. Plaintiffs received money in only 15% of the cases in which the insurer concluded that the standard of care was not breached and in 37% of the cases in which the insurer was uncertain).

50. Peters, *supra* note 49, at 355.

51. *Id.* at 357.

between physicians, without more, is not enough to show falsity.⁵² The federal courts recognize that reasonable minds may differ regarding medical judgments and conclusions and therefore finding liability in such instances would not be fair.⁵³ In so holding, the courts make the very true statement that “liability may not be premised on subjective interpretations of imprecise statutory language such as ‘medically reasonable and necessary.’”⁵⁴ Instead, federal courts adjudicating FCA cases employ a deeper analysis looking to medical association guidelines, the opinions of other physicians, and the claims data suggesting the defendant is an outlier, in addition to the conflicting expert testimony.⁵⁵

In the early 1990s, when adjudicating product liability cases, the United States Supreme Court determined potential expert witness testimony requires separate scrutiny before being admissible during a trial.⁵⁶ In *Daubert v. Merrell Dow Pharmaceuticals*, the Supreme Court concluded that federal trial judges must ensure that expert’s testimony

-
52. *United States v. AseraCare Inc.*, 938 F.3d 1278, 1279 (11th Cir. 2019) (holding “[A] reasonable difference of opinion among physicians reviewing medical documentation ex post facto is not sufficient on its own to suggest that a physician’s clinical judgment regarding the patient’s illness, or any claims for Medicare hospice benefits based on them, are false, as would trigger False Claims Act (FCA) liability under the false-certification theory; a properly formed and sincerely held clinical judgment is not untrue even if a different physician later contends that the judgment is wrong.”).
 53. *U.S. ex rel. Polukoff v. St. Mark’s Hosp.*, No. 2:16-cv-00304-JNP-EJF, 2017 WL 237615, at *8–9 (D. Utah Jan. 19, 2017), *rev’d*, 895 F.3d 730 (10th Cir. 2018) (A physician relator alleged that the defendant cardiologist performed unnecessary medical procedures and then fraudulently billed the federal government for some of these procedures).
 54. *Id.* at 10.
 55. *U.S. ex rel. Polukoff v. St. Mark’s Hosp.*, 895 F.3d 730, 743 (10th Cir. 2018) (holding that a FCA claim was properly stated where, “Dr. Polukoff alleges: (1) Dr. Sorensen performed an unusually large number of PFO closures (“The Cleveland Clinic reported that it had performed 37 PFO closures in 2010; during that same time period [Dr.] Sorensen’s billing records indicate that he had performed 861.”); (2) these procedures violated both industry guidelines and hospital guidelines; (3) other physicians objected to Dr. Sorensen’s practice; (4) Intermountain eventually audited Dr. Sorensen’s practice, and concluded that its ‘guidelines had been violated in many of the 47 cases reviewed;’ and (5) ‘Dr. Sorensen knew that Medicare and Medicaid would not pay for PFO closures to treat migraines, so he chose to represent that the procedures had been performed based upon indications set forth in the AH[A]/ASA stroke guidelines—the existence of confirmed recurrent cryptogenic stroke.’) (citation omitted).
 56. *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993) (a product liability case in which mothers of infants born with birth defects sued the pharmaceutical drug company responsible for production of the medication).

both rests on a reliable foundation and is relevant to the task at hand.⁵⁷ In so recognizing, the Court coined the *Daubert* analysis, a standard to test the reliability and credibility of expert testimony.⁵⁸ The essence of the *Daubert* analysis is to ensure that the evidence admitted is not only relevant, but also reliable.⁵⁹ Under the *Daubert* analysis, expert testimony is deemed reliable if it passes muster under the following five factors: (1) whether the expert's technique or theory can be or has been tested-- that is, whether the expert's theory can be challenged in some objective sense, or whether it is instead simply a subjective, conclusory approach that cannot reasonably be assessed for reliability; (2) whether the technique or theory has been subject to peer review and publication; (3) the known or potential rate of error of the technique or theory when applied; (4) the existence and maintenance of standards and controls; and (5) whether the technique or theory has been generally accepted in the scientific community.⁶⁰

While federal courts seem to be aware of the inherent danger of utilizing conflicting expert testimony alone to prove the scientific truth of a matter, state courts within the context of medical malpractice cases have not yet adopted this same level of concern.⁶¹ As a result, establishing the standard of care in a medical malpractice case is vulnerable to an unreliable, unpredictable process of eliciting conflicting testimony from paid medical experts and leaving the trier of fact to assess which expert is more credible. The resulting high rate of error in medical malpractice jury verdicts has severe consequences not only for providers but also for the patients in the healthcare system.

57. *Id.*

58. *Id.* at 59–295.

59. *Id.* at 589; *see also* Oeberst & Goeckenjan, *supra* note 22, at 277 (explaining that one option to improve the reliability of expert witnesses is to only provide them with information that was available to the Defendant when they acted, eliminating hindsight bias).

60. *Daubert*, 509 U.S. at 592–95 (1993).

61. Nicole Hines, *Why Technology Provides Compelling Reasons to Apply a Daubert Analysis to the Legal Standard of Care in Medical Malpractice Cases*, 5 DUKE L. & TECH. REV. 1, 9 (2006) (noting that the Sixth Circuit in *Dickenson v. Cardiac & Thoracic Surgery of E. Tenn, P.C.*, 388 F.3d 976 (6th Cir. 2004) and the Appeals Court of Massachusetts and later the Supreme Court of Massachusetts in *Palandjian v. Foster*, 842 N.E.2d 916 (Mass. 2006) both overturned lower court decisions applying the *Daubert* standard saying that the standard of care is determined by the care customarily provided by other physicians and that it does not have to be scientifically tested or proven effective).

II. WHEN JURIES GET IT WRONG: THE NEGATIVE
CONSEQUENCES ON THE HEALTHCARE PROVIDER, THE
HEALTHCARE SYSTEM, AND THE INJURED PATIENT

When juries get it wrong in a medical malpractice case, it can have far reaching implications for both medical providers and patients. This Part focuses on the negative impacts that incorrect jury verdicts have on healthcare providers and consequently the healthcare system, as well as the patients.

A. *The Fact That Juries So Often Get It Wrong Affects Healthcare
Provider Employability and Encourages The Practice of Defensive
Medicine*

Healthcare providers, especially physicians, spend years and hundreds of thousands of dollars obtaining the necessary knowledge and skills to care for patients. According to the American Medical Student Association (AMSA), the average medical student loan debt in 2014 was \$176,348 with close to forty-three percent of those accruing more than \$200,000.⁶² An incorrect jury verdict, finding negligence where none actually existed, can severely jeopardize a healthcare provider's ability to find gainful employment and put this investment at risk.

Unlike typical negligence cases, where the damages or penalties are limited to monetary awards, healthcare providers are potentially liable for large sums of money and also face mandatory reporting to the National Practitioner Data Bank (NPDB).⁶³ While having to pay out a large sum of money is unfair when the provider did nothing wrong, the vast majority of providers have malpractice insurance to cover this expense.⁶⁴ Unfortunately, there is no security net to prevent the mandatory reporting to the NPDB.

The NPDB is a web-based database of reports "containing information on medical malpractice payments and certain adverse

62. *What's the real cost of medical school?*, AM. MED. STUDENT ASS'N (Mar. 19, 2020), <https://www.amsa.org/2018/11/10/real-cost-of-medical-school/> [<https://perma.cc/S3RL-9F8R>].

63. The Health Quality Improvement Act of 1986, 42 U.S.C. § 11131(a) (2018) (requiring "[e]ach entity (including an insurance company) which makes payment under a policy of insurance, self-insurance, or otherwise in settlement (or partial settlement) of, or in satisfaction of a judgment in, a medical malpractice action or claim [to] report . . . information respecting the payment and circumstances thereof [to the NPDB].").

64. *Medical Malpractice Insurance*, AM. COLL. OF PHYSICIANS, <https://www.acponline.org/about-acp/about-internal-medicine/career-paths/residency-career-counseling/guidance/medical-malpractice-insurance> [<https://perma.cc/Z4MW-957L>].

actions involving healthcare practitioners, providers, and suppliers.”⁶⁵ The NPDB was established to prevent “practitioners from moving state to state without disclosure or discovery of previous damaging performance.”⁶⁶ Information that must be reported to the NPDB includes: (1) the name of any physician or licensed health care practitioner for whose benefit the payment was made; (2) the amount of the payment; (3) the name (if known) of any hospital with which the physician or practitioner was affiliated or associated; and (4) a description of the acts or omissions and injuries or illnesses upon which the action or claim was based.⁶⁷

In addition to the initial reporting, hospitals are required to query the NPDB whenever a physician applies for staff membership or privileges, and once every two years for physicians on staff or having privileges at that hospital.⁶⁸ As a result, being reported to the NPDB can have a significant impact on the future employability of healthcare providers. With ten to twenty percent of medical malpractice cases resulting in a payout despite weak evidence of substandard care,⁶⁹ and any payout triggering the mandatory reporting to the NPDB, the only safety net left to providers to try and prevent this reporting is to practice defensive medicine.⁷⁰ The next section of the Article will address the various types of defensive medicine employed by providers to avoid medical malpractice claims and the negative impacts defensive medicine has on the healthcare system.

1. The Practice of Defensive Medicine Can Cause Providers to Order Unnecessary Tests or Refuse to Practice in Certain Specialties or High Liability Areas

The term “defensive” typically indicates a situation in which the participants to an activity are no longer working together as a team. The application of this term to the practice of medicine is no different. “Defensive medicine is a deviation from sound medical practice that is induced primarily by a threat of liability.”⁷¹ David Studdert and his colleagues identified two types of provider behavior associated with the practice of defensive medicine: (1) assurance behavior; and (2)

65. *About Us*, U.S. DEPT. OF HEALTH & HUM. SERV., NAT’L PRAC. DATA BANK, <https://www.npdb.hrsa.gov/topNavigation/aboutUs.jsp> [<https://perma.cc/JAR5-PLXA>].

66. *Id.*

67. 42 U.S.C. § 11131(b) (2018).

68. 42 U.S.C. § 11135(a) (2018).

69. Peters, *supra* note 49, at 355.

70. BARRY R. FURROW, HEALTH LAW: CASES, MATERIALS AND PROBLEMS 347–48 (Jesse H. Choper et al. eds., 8th ed. 2018).

71. Studdert et al., *supra* note 6, at 2609.

avoidance behavior.⁷² According to Studdert, “assurance behavior, also termed ‘positive defensive medicine’, involve[s] supplying additional services of marginal or no medical value with the aim of reducing adverse outcomes, deterring patients from filing malpractice claims, or persuading the legal system that the standard of care was met.”⁷³ Avoidance behavior, also known as “negative” defensive medicine involves providers’ efforts to distance themselves from sources of legal risk by either not taking on patients with complex medical conditions or electing to not practice in high-risk specialties.⁷⁴

In a study conducted by researchers at the Harvard School of Public Health and Columbia Law School involving 824 physicians in high risk specialties (emergency medicine, general surgery, neurosurgery, obstetrics/gynecology, orthopedic surgery, and radiology), ninety-three percent admitted that they sometimes or often engage in defensive medicine, and forty-two percent had in fact restricted the scope of their clinical practice due to liability concerns.⁷⁵ Of the defensive medicine tactics used by the physicians surveyed, over half admitted to ordering more diagnostic tests than were medically necessary or referring patients to other specialists when not indicated.⁷⁶ A third of physicians admitted to prescribing more medications than medically necessary, and that same proportion reported suggesting invasive procedures that were not warranted.⁷⁷

According to Studdert, the increased frequency of defensive medicine since the medical malpractice crisis of the 1970s is due in large part to the “social costs of instability in the malpractice system.”⁷⁸ Michael Frakes and Jonathan Gruber were able to study practitioners’ tendency to engage in defensive medicine by focusing on the no-liability system employed in the Military Health System.⁷⁹ Frakes and Gruber’s

72. *Id.*

73. *Id.*; *see also* Liang, *supra* note 37, at 553.

74. Studdert et al., *supra* note 6, at 2609; *see also* Liang, *supra* note 37, at 553–54 (noting that when doctors choose to avoid high-risk patients or procedures it creates an access problem, meaning patients will now have more difficulty in obtaining care and subsequently increase the risk of these patients being injured).

75. Studdert et al., *supra* note 6, at 2612; Jena et al., *supra* note 4, at 893.

76. Studdert et al., *supra* note 6, at 2612.

77. *Id.*

78. *Id.* at 2617.

79. Michael Frakes & Jonathan Gruber, *Defensive Medicine: Evidence from Military Immunity*, 11 AM. ECON. J.: ECON. POL’Y 197, 198-99 (2019) (“Pursuant to a long-standing and highly controversial federal law, active duty patients seeking medical treatment from active duty physicians at military facilities have no recourse under the law—i.e., they can sue neither the physician nor the government—should they suffer harm as a

research noted “suggestive evidence that liability immunity reduced inpatient spending by five percent with no measurable negative effect on patient outcomes,”⁸⁰ illustrating a causal connection between exposure to liability and increased ordering of unnecessary tests. While the most common form of defensive medicine, ordering unnecessary imaging studies, is merely costly and wasteful, other behaviors result in reduced access to care and, in the case of unnecessary invasive interventions, may even pose risks of physical harm to patients.⁸¹

2. The Practice of Defensive Medicine is Directly Related to the Increased Cost of Healthcare

A 2003 U.S. Department of Health and Human Services (HHS) report estimated the cost of defensive medicine at between \$70 and \$126 billion per year.⁸² According to the American Medical Association (AMA), if you applied this figure to health spending in 2015 (\$3,205.6 billion), this would suggest a range of \$160 and \$289 billion per year.⁸³ A more recent and conservative approach put the cost of defensive medicine in 2008 at \$45.6 billion per year⁸⁴ with extrapolation to 2015 health spending resulting in a range of \$120.0 and \$215.9 billion.⁸⁵

Regardless of the method used to quantify the expense defensive medicine places on our health care system, the figures are staggering. According to researchers at the Harvard School of Public Health, Harvard Medical School, and Columbia Law School, measures to reduce the practice of defensive medicine should focus on “educating physicians

result of negligent medical care. Malpractice protections are afforded, however, to dependents and retirees treated at military facilities and to all patients—active duty or not—that receive care from civilian facilities. By comparing those patients over which physicians are not subject to “defensive medicine” pressure to other patients over which physicians are subject to such pressure, we can identify the impact of defensive medicine pressure on practice patterns, medical costs, and patient outcomes”).

80. *Id.* at 197, 229.

81. Studdert et al., *supra* note 4, at 2617; *see also* Liang, *supra* note 37, at 553–54 (noting that defensive medicine has the negative consequences of exposing patients to a greater possibility of medical error from unnecessary testing and interventions, as well as creating an access to health care issue when providers opt to avoid high-risk procedures to minimize their liability exposure).

82. OFFICE OF THE ASSISTANT SECRETARY FOR PLANNING AND EVALUATION, U.S. DEP’T OF HEALTH AND HUMAN SERVS., ADDRESSING THE NEW HEALTH CARE CRISIS: REFORMING THE MEDICAL LITIGATION SYSTEM TO IMPROVE THE QUALITY OF HEALTH CARE, 11 (2003).

83. *Medical Liability Reform NOW! The Facts You Need to Know to Address the Broken Medical Liability System*, AM. MED. ASS’N, 1, 7 (2018).

84. Michelle M. Mello et al., *National Costs of the Medical Liability System*, 29 HEALTH AFF. 1569, 1571 (2010).

85. AM. MED. ASS’N, *supra* note 83, at 7.

on the appropriate care in clinical situations, developing and disseminating clinical guidelines that target common areas of defensive medicine, and reducing the financial and psychological vulnerability of physicians in high-risk specialties” caused by exposure to medical malpractice liability.⁸⁶

B. The Potential for an Inaccurate Jury Verdict Makes Access to the Legal System Very Difficult for the Majority of Injured Patients

It is not just doctors who are harmed by the inaccuracy of medical malpractice jury verdicts. Patients are equally harmed. If one were to ask a plaintiff’s attorney whether the legal system adequately addresses and compensates injured patients, the answer would almost undoubtedly be “no.”⁸⁷ As the Harvard Medical Practice Study and the Institute of Medicine (IOM) report, “To Error is Human” illustrates, the vast majority of negligent injuries never surface as claims.⁸⁸ Many reasons have been postulated for this outcome:⁸⁹ (1) the effects of medical liability reforms, such as pretrial screening panels, acting as a barrier to bringing claims; (2) the unwillingness of plaintiffs’ attorneys to expend the large amount of resources necessary to bring a claim if the outcome is uncertain;⁹⁰ and (3) the difficulty of finding physicians to certify cases or act as expert witnesses because they find it hard to judge whether a standard of care has been met and as a result are

-
86. Studdert et al., *supra* note 4, at 2617.
87. Joanna Shepherd, *Uncovering the Silent Victims of the Am. Med. Liability Sys.*, 67 VAND. L. REV. 151, 185 (2014) (noting that in response to survey questions to plaintiffs’ attorneys, “[t]he responses reveal that the majority of screened cases, even strong cases, are rejected if the expected damage award is not large enough to offset litigation costs. Thus, the survey confirms that access to justice is a significant problem in today’s medical liability system”).
88. COMM. ON QUALITY OF HEALTH CARE IN AM., INST. OF MED., TO ERR IS HUMAN: BUILDING A SAFER HEALTH CARE SYSTEM (Linda T. Kohn et al. eds., 2000).
89. See Localio et al., *supra* note 46 (postulating that few injured patients file claims because: (1) they have adequate health or disability insurance benefits and do not wish to spoil a longstanding relationship with their physician; or (2) may regard their injuries as minor and not worth the cost; or (3) find attorneys repugnant; or (3) have a difficult time finding an attorney to file a case; or lastly (4) because the patients fail to recognize they were the victim of negligent care).
90. Adam C. Schaffer et al., *Rates and Characteristics of Paid Malpractice Claims Among US Physicians by Specialty, 1992–2014*, 177 JAMA 710, 715 (2017) (noting the reasons plaintiffs’ attorneys are unwilling to take a case may be related to smaller potential payouts because of either the risk of loss or the administrative costs of bringing the suit increasing due to liability reforms such as the pretrial screening panels); see also Shepherd, *supra* note 87, at 185–86.

inherently biased toward finding no negligence.⁹¹ As a result, malpractice attorneys for plaintiffs, typically proceeding under a contingent fee arrangement, decline to take at least eighty percent and sometimes up to ninety percent of the cases offered to them.⁹²

Of the claims that are filed, the civil-justice system infrequently compensates injured patients and rarely identifies and holds health care providers accountable for substandard medical care.⁹³ Among cases going to verdict, eight out of ten are judged in favor of the physician.⁹⁴ A study published in the *New England Journal of Medicine* on malpractice claims noted that claims associated with error and injury that did not result in compensation were substantially more common, with one in six claims involving errors receiving no payment.⁹⁵ The possibility of this outcome adds to the larger phenomenon of “the great majority of patients who sustain a medical injury as a result of negligence do not sue.”⁹⁶ Either the plaintiffs regard their injuries as minor, or consider the small chance of success not worth the cost.⁹⁷

When a patient is victorious in a medical malpractice suit, fifty-four cents for every dollar spent on compensation goes to administrative expenses (including the lawyer’s contingency fee, expert witness costs, and court costs).⁹⁸ Meaning, the injured patient ultimately receives less

-
91. Brennan et al., *supra* note 44, at 374-75; *see also* BARRY A LINDAHL, *MODERN TORT LAW: LIABILITY AND LITIGATION* § 24:81 (2d ed. 2019) (noting that the plaintiff often faces a most formidable obstacle in finding an expert witness to testify due to the strong reluctance of doctors to testify against each other for fear that they risk ostracism by fellow practitioners and the cancellation of their public liability insurance policy).
 92. David A. Hyman & Charles Silver, *Medical Malpractice Litigation and Tort Reform: It’s the Incentives, Stupid*, 59 *VAND. L. REV.* 1085, 1102-03 (2006); *see also* Shepherd, *supra* note 87, at 185-86 (finding that “the majority of attorneys reject between 95% and 99% of the cases they screen. In fact, 76.8% of the attorney respondents indicate that they reject more than 90% of the cases they screen. This percentage is remarkably consistent with results from another report of medical malpractice attorneys’ practice patterns, which found that 77.1% of attorneys accept fewer than 10% of the cases they screen”).
 93. Localio et al., *supra* note 46 (finding that the number of patients in New York State who had serious, disabling injuries each year as a result of clearly negligent medical care who did not file a claim was 5400 and exceeded the number of patients who did file malpractice claims (3570), and postulating that only half of those who did file a claim actually received compensation).
 94. Jena et al., *supra* note 4, at 893.
 95. Studdert et al., *supra* note 4, at 2031.
 96. *Id.* at 2025.
 97. Localio et al., *supra* note 46.
 98. Studdert et al., *supra* note 4, at 2024.

than half of the jury verdict or settlement. So many plaintiffs question whether it is worth the time, energy, and emotional expense pursuing a malpractice claim that will likely take anywhere from two to five years before any resolution is reached.⁹⁹

Even more troubling, both crude and standardized rates of adverse events increase with age. Meaning that elderly people are at a higher risk of an adverse event and care for the elderly less frequently meets the standard expected of reasonable medical practitioners.¹⁰⁰ Although the elderly are more likely to encounter substandard care, they are also the least likely to find an attorney willing to bring a malpractice claim on their behalf.¹⁰¹ This is due to: (1) the imposition by states of damages caps for non-economic damages,¹⁰² and (2) the lower damages typically awarded by juries for patients who are near the end of their lives and who no longer have family members dependent on their financial earning abilities.¹⁰³ Thus, the individuals who utilize the healthcare system the most are both: (1) the most likely to be exposed to an adverse event; and (2) the least likely to be compensated for the injuries associated with the medical error.

As a result of the possibility of an incorrect jury verdict, plaintiffs' attorneys prefer to take cases where the liability is overwhelmingly obvious and the patient is either (1) a child now facing a life of disability or (2) an adult male in the prime of his life with a family who financially depends on him.¹⁰⁴ This leaves a majority of patients who are the victim

99. *Id.* at 2026, 2031.

100. Brennan et al., *supra* note 44, at 373 (finding that people over the age of 64 were at a higher risk of an adverse event associated with negligence).

101. *See, e.g.*, Lucinda M. Finley, *The Hidden Victims of Tort Reform: Women, Children, and the Elderly*, 53 EMORY L.J. 1263, 1280 (2004) (“Economic loss damages to compensate for past or future wage loss and health care expenses are the most fundamental type of damages and have been relatively immune from attack by the proponents of tort reform. However, this type of damages provides the most benefit to higher wage earners, and thus women, minorities, and the poor receive lesser amounts of economic loss compensation than more economically well off white men.”).

102. Stephen Daniels & Joanne Martin, *The Texas Two-Step: Evidence on the Link Between Damage Caps and Access to the Civil Justice System*, 55 DEPAUL L. REV. 635, 644 (2006) (citing an article in the Texas Lawyer written after the state passed HB 4, a statute capping noneconomic damages, in which plaintiffs' attorneys are quoted saying, “HB 4 has slammed the courthouse doors shut on those who can least afford it—children, stay-at-home moms and the elderly”); *see also* Finley, *supra* note 102, at 1280 (finding “Women tort victims, the elderly, particularly elderly women, as well as children who suffer the ultimate injury of death, are all disproportionately disadvantaged by a cap on noneconomic loss damages”).

103. Finley, *supra* note 101, at 1281.

104. *Id.* at 1280.

of medical error without access to the legal system where they can seek compensation for their injuries.

To improve the quality of care in the U.S. health care system, medical malpractice reform efforts need to focus on reducing the financial and psychological vulnerability of medical providers and improving the access of patients who are the victims of medical error. Incorrect jury verdicts have the very real potential of reducing the employability of competent providers and creating insurmountable barriers for injured patients to seek redress in the courts. The next Part addresses the current reform efforts aimed at addressing these issues and why they have come up short of their intended goals.

III. CURRENT TORT REFORM EFFORTS DO NOT DO ENOUGH TO ADDRESS JURY INACCURACY

The current medical malpractice legal system is criticized by both plaintiffs and defendants for being extremely costly, inefficient, protracted, and unfair. Decades of reform efforts have had little impact on addressing these criticisms. This Part of the article discusses several reform efforts which have attempted to address the reliability of expert witness testimony and the predictability of jury verdicts.

A. *Reform Efforts to Increase Reliability, Patient Claims, and Speed of Resolution in Medical Malpractice Cases*

Recent efforts to improve the reliability of establishing and applying the correct standard of care in medical malpractice cases have involved the application of the *Daubert* standard to expert witness testimony in state court cases, the creation of health courts, and the use of mandatory arbitration.

In applying the *Daubert* analysis to state medical malpractice cases, the main objective is to ensure that the testimony is scientifically based rather than on a single expert's notion of what is common practice in the medical profession.¹⁰⁵ The main objectives in the health court and mandatory arbitration initiatives are to increase patient access to the legal system, improve the accuracy and consistency of judgments, reduce the time it takes to resolve claims, and help resolve issues with reliance on paid expert witnesses.¹⁰⁶ The following explains

105. Hines, *supra* note 61, at 7 (“Applying a *Daubert* analysis resolves many of the weaknesses with the traditional customs standard. It ensures that expert opinion is grounded in scientifically sound principles and methodologies. Published research suggests the finding is methodologically sound because the work has ‘weathered peer review’”).

106. Philip G. Peters Jr., *Health Cts.?*, 88 B.U. L. REV. 227, 249–50, 258–59 (2008) (citing *Innovative Solutions to Med. Liability: Hearing Before the Subcomm. on Health of the Comm. on Energy & Com.*, 109th Cong. 46 (2006) (statement of Michelle Mello, Associate Professor of

why these reforms may be helpful, but do not ultimately fix the problems they intend to fix.

1. Application of the *Daubert* Standard in Medical Malpractice Cases is Limited to the Causation Element of Negligence

Traditionally, state courts apply the “customary practice” standard when determining the legal standard of care to apply in medical malpractice cases.¹⁰⁷ This standard requires that physicians exercise the skill and judgment ordinarily exercised by those in a similar practice of medicine.¹⁰⁸ The *Daubert* analysis, on the other hand, focuses on medical evidence that is scientifically-based.

According to the *Daubert analysis*, expert testimony is evaluated using five factors: (1) whether the expert’s technique or theory can be or has been tested— that is, whether the expert’s theory can be challenged in some objective sense, or whether it is instead simply a subjective, conclusory approach that cannot reasonably be assessed for reliability; (2) whether the technique or theory has been subject to peer review and publication; (3) the known or potential rate of error of the technique or theory when applied; (4) the existence and maintenance of standards and controls; and (5) whether the technique or theory has been generally accepted in the scientific community.¹⁰⁹

When matters involving complex scientific concepts are presented at trial in federal courts, a court may choose to apply *Daubert*-level scrutiny to the testimony of experts in order to establish the testimony’s reliability and relevance.¹¹⁰ Some state courts have attempted to apply the *Daubert* analysis to the testimony of treating physicians.¹¹¹ This has been successful when the physician is testifying as to causation, a scientific conclusion.¹¹² However, the application of the *Daubert* analysis

Health Policy and Law, Department of Health Policy and Management, Harvard University)); Thomas B. Metzloff, *The Unrealized Potential of Malpractice Arb.*, 31 WAKE FOREST L. REV. 203, 208–09, 214 (1996).

107. LINDAHL, *supra* note 1, § 24:15; James Knoll & Joan Gerbasi, *Psychiatric Malpractice Case Analysis: Striving For Objectivity*, 34 J. AM. ACAD. PSYCHIATRY L. 215, 216 (2006) (stating that the customary practice standard “emphasizes the physician’s responsibility . . . to practice in a manner that is consistent with others in the field”).

108. *Id.* § 24:83.

109. *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579, 592–95 (1993).

110. *Id.*

111. *See Thompson v. Cooper*, 290 P.3d 393, 399–400 (Alaska 2012); *Palandjian v. Foster*, 842 N.E.2d 916, 921–23 (Mass. 2006).

112. *See Michael B. Kent Jr.*, *Daubert, Doctors and Differential Diagnosis: Treating Medical Causation Testimony as Evidence*, 66 DEF. COUNS. J. 525 (1999).

to the standard of care element of a medical malpractice case has generally proved to be an unsuccessful venture.¹¹³

Daubert has been used in two specific ways when determining the standard of care within the medical malpractice context: (1) to exclude expert opinion testimony that is grounded on incorrect factual assumptions; or (2) to ensure that the expert's opinion regarding the standard of care is based on valid science.¹¹⁴ Unfortunately, many of the trial court decisions in which *Daubert* was utilized in these manners were later reversed on appeal as the higher courts continued to apply the traditional standard of customary practice.¹¹⁵

The one exception in which higher courts allow the *Daubert* analysis in medical malpractice cases is when the expert testifies to a scientific fact that is relevant to the standard of care.¹¹⁶ For example, an expert's opinion about increased risk, like diagnosis and causation, may involve the application of science to the patient's case and therefore require a *Daubert* analysis.¹¹⁷ Thus, while the application of *Daubert* to the medical malpractice arena is an admirable attempt at improving the reliability of the expert testimony, its use in state courts is generally limited to the causation element of the negligence claim.¹¹⁸

2. Health Courts Promote the Right Goals but with the Wrong Process

Health courts take malpractice claims out of the traditional court system and allow them to be handled by an administrative process. The administrative process utilized in the health courts has a number of key differences from the traditional court system. First, instead of juries, health courts rely on specially trained health care judges, and plaintiffs

113. *Palandjian*, 842 N.E.2d at 924–26; *see also* *Dickerson v. Cardiac & Thoracic Surgery of E. Tenn. P.C.*, 388 F.3d 976, 982 (6th Cir. 2004).

114. *Hines*, *supra* note 61, at 7.

115. *See Hines*, *supra* note 61, at 7.

116. *See Berk v. St. Vincent's Hosp. and Med. Ctr.*, 380 F.Supp.2d 334 (S.D.N.Y. Aug. 11, 2005). *See also* *Sullivan v. United States Dep't of the Navy*, 365 F.3d 827, 833–34 (9th Cir. 2004) (noting that although the Ninth Circuit held the trial court applied an excessively rigid *Daubert* analysis, the court still embraced applying *Daubert* to the standard of care even if the scientific text does not explicitly corroborate the expert's testimony).

117. *See Berk v. St. Vincent's Hosp. and Med. Ctr.*, 380 F.Supp.2d 334, 343 (S.D.N.Y. Aug. 11, 2005).

118. *See, e.g., Rankin v. Stetson*, 749 N.W.2d 460 (Neb. 2008). *See also* Leila H. Watson, *Surviving a Daubert Challenge in a Medical Negligence Case*, 2 AM. ASS'N FOR JUST. 1635 (2007) (concluding “that while *Daubert* may be a hurdle in medical malpractice cases, it is not one of the same height and girth as in products liability cases.”).

are not required to be represented by an attorney.¹¹⁹ Second, a plaintiff has to prove only that his injury could have been avoided if best practices had been followed, rather than satisfying the more difficult standard that physician negligence contributed to the injury.¹²⁰ Third, compensation for injuries is based on expert evidence rather than a jury decision.¹²¹ Fourth, compensation decisions establish precedents that judges can look to in making decisions about similar future cases.¹²² Finally, guidelines are in place to assist in assigning damages.¹²³

In crafting the health court reform initiative, drafters seized on four problems with the current system: the negligence standard, victims' low rate of claiming, the inaccuracy and inconsistency of judgments, and the system's sometimes-protracted delays.¹²⁴ Advocates suggest that health courts would produce better outcomes through the use of specialist judges, guidance from neutral medical experts, and greater reliance on practice guidelines to clarifying the standard of care and increase the consistency of verdicts.¹²⁵ These lofty goals would be achieved by: (1) requiring judges to issue written opinions that would both guide future clinical practice and set precedent for future legal disputes; (2) defining the standard of care using evidence-based practice guidelines that have been issued by credible medical authorities; and (3) identifying common mishaps for which compensation would be presumptively available ("accelerated compensation events" (ACEs)).¹²⁶

119. Michelle M. Mello et al., "Health Courts" and Accountability for Patient Safety, 84 MILBANK Q. 459, 460 (2006).

120. *Id.* at 460–61.

121. *Id.* at 461.

122. *Id.*

123. *Id.*

124. Nora Freeman Engstrom, *A Dose of Reality for Specialized Courts: Lessons From the VICP*, 163 U. PA. L. REV 1631, 1649 (2015).

125. Peters, *supra* note 106, at 243, 248–49 (first citing Michelle M. Mello et al., "Health Cts." & Accountability for Patient Safety, 84 Milbank Q. 459 (2006); then citing *Innovative Solutions to Med. Liability: Hearing Before the Subcomm. on Health of the Comm. on Energy & Com.*, 109th Cong. 46 (2006) (statement of Michelle Mello, Associate Professor of Health Policy and Law, Department of Health Policy and Management, Harvard University)).

126. *Id.* at 249–51 (suggesting that, "[t]his combination of written opinions, binding practice guidelines, and ex ante identification of common compensable events could make it much easier for physicians to conform their clinical practices to the standard of care and also could enable health courts to render more consistent decisions post hoc." But conceding that, "any improvements they produce are likely to be modest. Given the many sources of uncertainty in medical practice, there is simply a limit to the detail with which legal standards of conduct can be articulated in advance") (footnote omitted).

Unfortunately, the health court plan has considerable downsides. First, the plan carries the imprimatur of physician and industry bias. The health court reform requires an eligible claim to be reviewed first by the hospital, health care system, or insurer at issue for the initial determination of liability.¹²⁷ It is only when the patient contests the determination by the provider or insurer that he or she may seek redress in the health court.¹²⁸ Once within the health court, an administrative law judge replaces the jury and selects, in most cases, a single medical expert to advise the court on the nature of the injury and whether it is compensable.¹²⁹ The expert also weighs in on the appropriate amount of compensation.¹³⁰ Finally, non-economic damages are capped according to a predetermined schedule based on public deliberation about reasonable compensation.¹³¹ The most limiting feature of this system is the appeals process in which an injured patient must appeal to yet another administrative panel and prove the health court's ruling was arbitrary and capricious in order for the ruling to be set aside.¹³² The "arbitrary and capricious" standard is one of the U.S. legal system's most stringent standards of proof and places an almost insurmountable barrier in the path of a patient seeking legal redress for his or her injuries.¹³³ From the injured patient's perspective, this system of adjudication seems heavily swayed in favor of the medical provider and insurer.

The second downside is the high probability that health courts are unconstitutional.¹³⁴ The courts deny an injured patient a right to try his case before a jury, which potentially violates the U.S. Constitution and the constitutions of 48 states.¹³⁵ In addition, by removing medical negligence cases from the civil trial courts, health courts violate state and federal guarantees of open courts and the right-to-remedy

127. Francine A. Hochberg, *The Injustice of Health Courts*, 44 TRIAL 42, 45 (2008).

128. *Id.*

129. *Id.*

130. *Id.*

131. *Id.*

132. *Id.*

133. LEE MODJESKA, ADMINISTRATIVE LAW PRACTICE AND PROCEDURE § 6:14 (1982) (noting "[r]eview of agency action for arbitrariness, capriciousness, or abuse of discretion entails a highly deferential standard of review which presumes the validity of agency action and requires affirmance if the action is supported by a rational basis.").

134. Amy Widman, *Why Health Courts Are Unconstitutional*, 27 PACE L. REV. 55, 87 (2006).

135. Hochberg, *supra* note 127, at 52.

provisions found in the constitutions of 40 states.¹³⁶ Finally, the court's cap on non-economic damages would be unconstitutional in at least 14 states which have already struck down such tort reform efforts.¹³⁷ So, while the goals of the Health Court initiative are admirable (increasing patients' rates of bringing claims, improving the accuracy and consistency of judgments, and reducing the system's sometimes interminable delays)¹³⁸, the process by which the health court reform achieves these goals is inherently flawed and not in keeping with the American judicial system's process for redressing grievances.

3. Mandatory Arbitration Fails to Provide the Physician, Insurer, and Defense Counsel Their Desired Day in Court

Arbitrating medical malpractice disputes has many potential benefits for both claimants and physicians. Among the advantages cited are: (1) the quality of the decision-maker; (2) the speed of resolution; (3) the reduced litigation expenses; and (4) potentially reducing problems with experts.¹³⁹ According to Professor Thomas B. Metzloff, who spent five years researching the feasibility of arbitration within the context of medical malpractice litigation, "[a] flexible arbitration program employing use of other ADR methods in appropriate cases, qualified decision-makers, and perhaps neutral experts would be as likely-and indeed in my view more likely-to generate reliable and consistent results at a significantly lower cost than the current system."¹⁴⁰

Without getting too far into the weeds of arbitration, arbitration does afford the above-mentioned advantages. The parties choose the arbiter by agreement; either a panel of arbiters or a single individual.¹⁴¹ This presumably allows the parties to choose an individual or group of individuals with expertise in the area of medical malpractice who will not need a lengthy, in-depth education on the medical issues presented in the case.¹⁴² In addition, the parties can agree to a shorter time frame

136. *Id.*

137. *Id.*

138. Peters, *supra* note 106, at 248–49, 258–59.

139. See Thomas B. Metzloff, *The Unrealized Potential of Malpractice Arbitration*, 31 WAKE FOREST L. REV. 203, 204 (1996) (discussing the benefits of arbitration in medical malpractice cases and why the use of arbitration has not become predominant due to factors including judicial hostility, failure of state statutes designed to encourage arbitration, and lack of hard evidence that arbitration works).

140. *Id.* at 227.

141. *Id.* at 223.

142. David Allen Larson & David Dahl, *Medical Malpractice Arbitration: Not Business as Usual*, 8 Y.B. ON ARB. & MEDIATION 69, 78–79 (2016) (noting that some writers do not believe lay juries possess the competence to

during which the arbitration will be conducted.¹⁴³ Generally, most medical malpractice arbitrations last less than one year, as opposed to the typical litigation case which can last anywhere from two to five years.¹⁴⁴ Finally, discovery and evidentiary rules may be truncated or revised to allow for more flexibility in presenting the facts to the arbiter or panel.¹⁴⁵ These characteristics do lead to qualified decision-makers, a faster litigation process, and less legal expenses, however, despite these benefits, arbitration is still not widely used in the context of medical malpractice cases.¹⁴⁶

While many presume that plaintiffs' attorneys and patients are the main reason arbitration is not used in medical malpractice cases, the truth is that physicians, defense attorneys, and malpractice insurers are the ones reluctant to leave the safety and predictable bias of the courtroom.¹⁴⁷ As numerous studies have shown, many of the assumed advantages of arbitration may not be as compelling to physicians. First, litigation outcomes are generally quite positive for physicians. Juries find for physicians in nearly eighty percent of cases.¹⁴⁸ Moreover, there is evidence doctors win malpractice actions only about half as often when judges decide cases compared to when juries decide.¹⁴⁹ Second, physicians generally are shielded from litigation expenses by malpractice insurance.¹⁵⁰ Thus, arguments about the reduced costs of

decide medical malpractice cases and that by allowing specialist neutrals to decide medical tort cases, scholars believe the results will be more accurate).

143. Metzloff, *supra* note 139.

144. David H. Sohn & Sonny Bal, *Medical Malpractice Reform: The Role of Alternative Dispute Resolution*, 470 CLINICAL ORTHOPEDICS AND RELATED RES. 1371, 1373 (2012).

145. Metzloff, *supra* note 139, at 208.

146. Larson & Dahl, *supra* note 142, at 70, 89.

147. *Id.* at 71, 82.

148. Kenneth A. DeVille, *The Jury Is Out: Pre-Dispute Binding Arbitration Agreements for Medical Malpractice Claims*, 28 J. LEGAL MED. 333, 368 (2007).

149. Philip G. Peters, Jr., *Doctors & Juries*, 105 MICH. L. REV. 1453, 1474 (2007) (finding that malpractice claimants had significantly less success in front of juries than they had before judges—malpractice plaintiffs won 50% of their bench trials, but only 29% of their jury trials)).

150. Larson & Dahl, *supra* note 142, at 81–82. (noting that “an aggrieved patient usually needs to retain an attorney willing to pay litigation expenses until settlement . . . [leading to] three consequences for the patient: (1) the patient is unlikely to find an attorney willing to take even a clear case of malpractice if the damages are small; (2) even if damages are high, and it seems malpractice occurred, an attorney still will not take the case unless the chance of winning justifies the expense of suing; and (3) even if the patient triumphs in court, her award will be substantially

arbitration are not persuasive to physicians. Finally, physicians are very wary of compromise judgments and awards in malpractice cases. The perception that arbitration often results in a compromise decision makes arbitration uniquely unattractive to physicians seeking complete vindication for both professional and personal reasons.¹⁵¹ As mentioned earlier, physicians are deeply fearful of being reported to the National Practitioner Data Bank, and therefore are compelled to seek the complete vindication offered by the court system rather than a potential compromised settlement which would trigger the NPDB reporting requirement.¹⁵²

So, despite the facts that (1) the validity of medical malpractice arbitration agreements is recognized by statute in thirteen states, (2) all fifty states have enacted statutes ensuring the enforceability of arbitration agreements in general, and (3) the Supreme Court has interpreted the Federal Arbitration Act expansively in order to uphold pre-dispute arbitration agreements, routine use of arbitration in the context of medical malpractice remains elusive.¹⁵³ In order for arbitration to become the go-to mechanism for resolving medical malpractice claims, the bias in favor of physicians inherent in today's court system needs to be resolved.

As A. Russell Localio and his team noted in 1991:

Although malpractice litigation may fulfill its social objectives crudely, support for its preservation persists in part because of the perception that other methods of ensuring a high quality of care and redressing patients' grievances have proved to be inadequate. The abandonment of malpractice litigation is unlikely unless credible systems and procedures, supported by the public, are instituted to guarantee professional accountability to patients.¹⁵⁴

Unfortunately, the latest efforts to improve the reliability of expert testimony (utilizing *Daubert* to establish standard of care, the creation of health courts, and mandating binding arbitration) have failed to persuade the courts or garner industry and public support. Going

reduced after litigation expenses are paid . . . [leading to] the perception that litigation is a more favorable dispute resolution process for medical practitioners than less costly arbitration”).

151. *Id.* at 84–85 (noting that “[a]ny money paid on behalf of the physician as a result of settlement, judgment, or arbitration award . . . must be reported to the state medical board in many states as well as the National Practitioner Data Bank”).

152. *Id.* at 85 (noting the regulatory environment makes arbitration uniquely unattractive to physicians seeking complete vindication for both professional and personal reasons).

153. *Id.* at 74–75, 89.

154. Localio et al., *supra* note 46, at 250.

forward, reform efforts should focus on improving the functionality of the court system.

IV. MEDICAL SIMULATION: A MEDIATION TOOL TO REFORM MEDICAL MALPRACTICE LITIGATION

The problems of inaccurate jury verdicts, damage to the reputation of competent providers, and lack of access to the legal system for potential plaintiffs are not intractable. This Part suggests a new reform: mandatory medical simulation (MMS).

In the past, exclusive reliance on medical experts was justified because there was no other means of establishing the standard of care. However, new technology has significantly improved the ability to extrapolate the standard of care, allowing the practice of medicine to become increasingly more evidence-driven.¹⁵⁵ Adopting an MMS model holds the promise of making outcomes of medical malpractice suits more just, predicated on metrics that are reliable and predictable. This Part describes medical simulation and suggests a model for implementing it as a mediation tool in medical malpractice cases.

A. *What is Medical Simulation?*

A simulation is the imitation of a situation or process.¹⁵⁶ Simulation technology has long been utilized in high hazard industries. Pilots and astronauts use flight simulators that emulate the cockpit of planes and space shuttles to train on what to do in case of system or equipment malfunctions, nuclear power plants run simulation drills that train personnel on what to do if an earthquake happens and damages key components of the reactor, and the military employs war games to desensitize and train soldiers for combat conditions.¹⁵⁷ High hazard industries utilize simulation because it is the best way to train in a safe surrounding.¹⁵⁸ Simulation allows the participant to practice the same skill or technique repeatedly and learn from past mistakes, thus

155. Hines, *supra* note 61, at 1.

156. *Simulation*, DICTIONARY.COM, <https://www.dictionary.com/browse/simulation?s=t> [<https://perma.cc/4DHP-NHFD>].

157. S. Barry Issenberg et al., *Simulation Technology for Health Care Professional Skills Training and Assessment*, 282 J. Am. Med. Ass'n. 861, 861 (1999); Abdulmohsen H. Al-Elq, *Simulation-Based Medical Teaching and Learning*, 17 J. FAM. CMTY. MED. 35, 36 (2010) (noting that the aviation and aerospace industries have utilized simulation as a teaching tool for many years, and that simulators are widely used in the education and training in a variety of high-risk professions including the military, commercial airlines, nuclear power plants, and business).

158. Amitai Ziv et al., *Simulation-Based Medical Evaluation: An Ethical Imperative*, 78 ACAD. MED. 783, 783 (2003).

programming the brain to make the correct decisions in a real scenario.¹⁵⁹

While it has taken awhile, simulation is becoming more commonplace within the health care context.¹⁶⁰ Simulation in health care means utilizing technology for the replication of specific aspects of the clinical world.¹⁶¹ The category of “medical simulation” includes a myriad of low-fidelity and high-fidelity technology, including standardized patients, partial-task trainers, mannequins, screen-based computer simulators, and virtual reality simulators.¹⁶² Simulators are classified as low- to high-fidelity based on how closely they imitate the circumstances under which the skill is typically performed.¹⁶³ Standardized patients are actors trained to simulate various symptoms, provide medical histories, and display emotions during the medical exam.¹⁶⁴ Partial-task trainers are used to teach specialized skills.¹⁶⁵ These devices “replicate the elements of the particular psychomotor task.”¹⁶⁶ Examples include “simulators for laparoscopic surgery or endoscopy, or endovascular (catheter-based) procedures.”¹⁶⁷ Simpler versions include the “IV arm” used to practice drawing blood or inserting IV catheters.¹⁶⁸

The full-body mannequin is a high-fidelity (life-like) simulator that mimics certain medical conditions by producing various signs and vitals generated by a computer.¹⁶⁹ In this simulator, the computer can cause the mannequin to emulate the data streams available from electronic monitors (i.e., electrocardiograms, pulse oximeters and invasive blood pressures).¹⁷⁰ The simulator’s computer “can be controlled either

159. *Id.* at 784–85.

160. *Id.* at 784.

161. JEFFREY F. DRIVER ET AL., THE BENEFITS OF USING SIMULATION IN RISK MANAGEMENT & PATIENT SAFETY, PRINCIPLES OF RICKS MANAGEMENT & PATIENT SAFETY, 351 (Jones and Barlett Learning 2011).

162. Bharath Chakravarthy et al., *Simulation in Medical School Education: Review for Emergency Medicine*, 12 WEST J. EMERG. MED. 461 (2010) (noting in 2010, that medical schools and the curriculum taught were reflective of an emerging trend to use simulation as a teaching tool for evaluating and training students).

163. Al-Elq, *supra* note 157, at 37.

164. Chakravarthy et al., *supra* note 162, at 461.

165. *Id.*

166. BARBARA J. YOUNGBERG, PRINCIPLES OF RISK MANAGEMENT AND PATIENT SAFETY 359, 359 (2011).

167. *Id.*

168. *Id.*

169. Chakravarthy et al., *supra* note 162, at 461.

170. YOUNGBERG, *supra* note 166.

manually, semi-automatically . . . or using mathematical models of physiology and pharmacology.¹⁷¹ They can talk, breathe, blink, and respond either automatically or manually to physical and pharmacological interventions.¹⁷² This mannequin is useful for training on procedures such as intubation, pleural decompression, and cardiopulmonary resuscitation.¹⁷³

Screen-based simulation presents different clinical scenarios to students on computer screens in which the student interacts with the virtual patient and takes the patient's history, directs the physical exam, and then evaluates and manages the patient's case.¹⁷⁴ The display is "on the screen" and allows the participant to choose various actions by clicking on menus, buttons, or sliders.¹⁷⁵ The program's responses are not restricted to a specific set of choices, but rather are capable of incorporating a large set of possible interventions.¹⁷⁶ The screen represents the patient while the participant plays the role of the medical provider.

Virtual reality is used for training surgical procedures in fields such as general surgery, ear, nose and throat, obstetrics, and orthopedics.¹⁷⁷ According to Barbara Youngberg, an expert in hospital risk management, virtual reality is considered the "holy grail" of simulation and "allows fully natural interaction of the participants with virtual environments so realistic that they could not be distinguished from the real world."¹⁷⁸ A common form of virtual reality simulation used in medicine involves the use of haptic (touch) feedback to produce feelings of resistance when using instruments in a simulated environment.¹⁷⁹

As is evident from the various types of simulators, simulation can involve replicating the structural anatomy and physiological processes that occur within the human body, replicating the healthcare environment and equipment, and even creating a complete computer-

171. *Id.*

172. Al-Elq, *supra* note 157, at 37.

173. YOUNGBERG, *supra* note 166.

174. Chakravarthy et al., *supra* note 162, at 461-62.

175. YOUNGBERG, *supra* note 166, at 358.

176. *Id.*

177. Chakravarthy et al., *supra* note 162, at 462.

178. YOUNGBERG, *supra* note 166.

179. Al-Elq, *supra* note 157, at 37 ("Virtual reality is best described as a concept of advanced human-computer interaction. Virtual reality varies greatly according to its level of sophistication in its level of realism and of the user's interaction with the virtual environment.").

generated world in which the participant actively interacts.¹⁸⁰ Where surgeons once practiced on chicken feet or pig carcasses,¹⁸¹ surgeons of today use high-fidelity simulators that mimic the organs and skin of human bodies, complete with bleeding, breathing, and blinking.¹⁸²

B. Current Applications of Medical Simulation

Medical simulation is so appealing because it allows us to identify weaknesses in healthcare delivery without potentially harming patients, which translates to improved provider competence and quality health care in general.¹⁸³ Medical simulation is currently used in medical school training, risk management root cause analysis, and by the Agency for Healthcare Research and Quality (AHRQ) to improve quality of care.¹⁸⁴

According to the Society for Simulation in Healthcare (SSH), over 500 universities and medical institutions in the United States have active simulation programs.¹⁸⁵ Medical educators have heralded simulators as a success in medical education because their dynamic nature helps facilitate heuristic decision-making in students.¹⁸⁶ Emergency medicine residents, who used to have to wait for a patient with a specific medical condition to present to the emergency department, now use screen-based simulation or a standardized patient to practice taking a patient history, directing the physical exam, and diagnosing and managing the patient's care.¹⁸⁷

-
180. Ruth M. Fanning, *Medical Simulation: A Holistic Approach to Highly Reliable Healthcare*, PATIENT SAFETY & QUALITY HEALTHCARE (Apr. 6, 2013), <http://www.psqh.com/analysis/medical-simulation-a-holistic-approach-to-highly-reliable-healthcare/> [<https://perma.cc/2T9U-773M>].
181. Thomas Satterwhite et al., *The Chicken Foot Dorsal Vessel as a High-Fidelity Microsurgery Prac. Model*, 131 PLASTIC & RECONSTRUCTIVE SURGERY 311e, 311e–12e (2013).
182. Al-Elq, *supra* note 157, at 37.
183. Ziv et al., *supra* note 158, at 785.
184. See Fanning, *supra* note 180; Al-Elq, *supra* note 157, at 37–38. See generally SOCIETY FOR SIMULATION IN HEALTHCARE, *SIM Center Directory: Sim Center US*, <https://www.ssih.org/Home/SIM-Center-Directory/Area/US> [<https://perma.cc/J4R3-S5QG>].
185. SOCIETY FOR SIMULATION IN HEALTHCARE, *SIM Center Directory: Sim Center US*, <https://www.ssih.org/Home/SIM-Center-Directory/Area/US> [<https://perma.cc/J4R3-S5QG>].
186. Ghazwan Altabbaa et al., *A Simulation-Based Approach to Training in Heuristic Clinical Decision-Making*, 6 DIAGNOSIS 91, 98 (2019) (noting that “cognitive biases can be integrated effectively into a simulation curriculum and that by using an experiential simulation, learners may be exposed to the sources and factors contributing to failures in heuristic decisions”).
187. Laura Lin & Brian A. Liang, *Reforming Residency: Modernizing Resident Education and Training to Promote Quality and Safety in Healthcare* 38 J. Health L. 203, 222 (2005); Ziv et al., *supra* note 158, at 784.

Medical simulation allows the acquisition of clinical skills through deliberate practice rather than apprentice style of learning.¹⁸⁸ In the past, medical training involved the teacher telling the students what should be done with a patient who presents with specific complaints. With today's medical simulation, the student is the one dictating what should be ordered, what the test results mean, and what course of care should be considered.¹⁸⁹ If the student makes a mistake and fails to comprehend the nature of the patient's medical condition and provide the necessary care, review of the training simulation can highlight the moment or moments when the mistake was made and what should have been done.¹⁹⁰

The i-Human Patient, a high-performance "healthcare case authoring and playback system, can simulate a complete medical patient encounter from taking a history, performing physical exams, and building and ranking a differential, to ordering and evaluating diagnostic tests."¹⁹¹ It is used by master clinicians, first-year medical students, advanced practice nurses, and physician assistants.¹⁹² It includes over 500 "cases that can be configured to match the level of the learner."¹⁹³ The cases are designed to allow the participant to analyze symptoms and arrive at the correct disease diagnosis, similar to what occurs in real patient encounters.¹⁹⁴

Since its start in the early 1990s, medical simulation has grown from use in medical education to application within the risk management context.¹⁹⁵ Central to risk management effectiveness is the analysis of root cause and sentinel events.¹⁹⁶ As a result, risk

188. Al-Elq, *supra* note 157, at 37–38.

189. *Id.* at 35–37.

190. Al-Elq, *supra* note 157, at 36–37; Ziv et al., *supra* note 158, at 785 (noting that, "in a simulated environment, errors can be allowed to progress to teach the trainee the implications of the error and allow reactions to rectify deviations.").

191. *Kaplan Acquires i-Human Patients, A Leader in Virtual Interactive Medical Simulations*, KAPLAN (February 28, 2018), <https://www.kaptest.com/blog/press/2018/02/28/kaplan-acquires-human-patients-leader-virtual-interactive-medical-simulations/> [https://perma.cc/2K66-YLYY].

192. *Id.*

193. *Id.*

194. *Id.* ("About a third of i-Human's cases are based on the methodology in *Symptom to Diagnosis*, a book written and edited by faculty from the University of Chicago." *Symptom to Diagnosis* teaches medical students how to use a case-based approach of looking at symptoms and arriving at disease diagnosis in an attempt to emulate real patient encounters).

195. *See* Fanning, *supra* note 180;

196. *Id.* at 4.

management professionals use medical simulation to investigate errors, faulty systems, and patient safety concerns.¹⁹⁷ Medical simulation has been utilized within the context of common risk management concerns such as root cause analysis, morbidity and mortality reviews, and failure mode and effect analyses.¹⁹⁸ Medical simulation is proving to be a powerful tool in improving the quality of care in our health care system and has already established itself as an effective tool in reducing medical errors and their associated costs.¹⁹⁹

AHRQ views the benefits of simulation to include improving the safety of patients and providers, focused and near real-time feedback, integrated multiple skill components, and the ability to identify gaps in technology, procedures, and protocols.²⁰⁰ AHRQ considers the use of simulation via virtual reality, standardized patients, in situ simulation, and modeling as domains worthy of the use in the health care setting.²⁰¹ As a result, AHRQ has approved the use of medical simulators in the: (1) training of highly specific procedural skills with part-task trainers; (2) training of practitioners on the physiology of the human body using full-body mannequins with the ability to program vital signs, blood gas exchange, heart sounds, with vocal capability, and intravenous access; and (3) training of health care teams when responding to acute care environments.²⁰² AHRQ promotes the use of simulators to identify

197. *Id.* (describing how simulation can be used to avoid hindsight bias by allowing events to unfold in real time; noting that the piecemeal fashion in which information is provided creates a more realistic construction of what transpired. “The investigation can extend from simply ‘who to blame’ to what systematic factors contributed to this outcome and are likely to recur if the system remains unchanged”).

198. *Id.* (citing Sadeq A. Quraishi et al., *High-fidelity Simulation as an Experiential Model for Teaching Root Cause Analysis*, 3 J. GRADUATE MED. EDUC. 529–534 (2011)).

199. *About Medical Simulation – Resources, Jobs, Vendors & More . . .*, HEALTHY SIMULATION.COM, <http://www.healthysimulation.com/medical-simulation/> [https://perma.cc/M65Z-J7QM].

200. AHRQ ISSUE BRIEF: HEALTH CARE SIMULATION TO ADVANCE SAFETY: RESPONDING TO EBOLA AND OTHER THREATS, THE AGENCY FOR HEALTHCARE RSCH. AND QUALITY (2015) (discussing the helpful role simulation can serve in response to the Ebola virus disease, other emergent epidemic challenges, provider and patient safety, and quality of care in general).

201. *Id.* (noting that over the past 15 years the simulation community has witnessed tremendous growth and energy which have translated to improvements in patient safety outcomes; attributing this success to a greater variety of simulation equipment, approaches, and uses, including the use of simulation on site at various healthcare facilities).

202. *Id.*

breaches in protocol and system vulnerabilities, which can then be used to further staff preparedness and training.²⁰³

As the developers of the i-Human Project have noted, “[s]imulation in healthcare is emerging as a key tool for education, assessment and medical error reduction, and we see it playing a critical and exponentially growing role in the future of high-quality, cost-effective care.”²⁰⁴ AHRQ agrees and has promoted the use of simulation in health care well beyond the training of physicians and other healthcare professionals.²⁰⁵

Given the advances made in medical simulation over the past twenty years and its noteworthy success in reducing medical errors and improving patient safety, this article suggests medical simulation also has the ability to improve the reliability of establishing the standard of care in medical malpractice cases. Just as teaching institutions have created specialized medical simulations to train medical professionals, the legal system can create specialized medical simulation emulating the facts of a medical malpractice case to extrapolate the customary practice of medical providers. The next Section of this article describes how the facts from a medical malpractice case can be used to create a medical simulation.

C. Creating a Medical Malpractice Simulation

MMS envisions that the facts involved a medical malpractice case would be incorporated into a case-specific medical simulation. Individuals experienced with creating simulations—simulation programmers—with the aid of the parties’ medical experts, would review the relevant medical records, deposition testimony, and witness statements and create an interactive simulation similar to those used in medical education training and ARHQ’s safety and error detection efforts.²⁰⁶ Since the majority of malpractice cases involve the

203. *Id.* (“Starting in 2006, AHRQ initiated a grant program to advance knowledge of how simulation can improve patient safety across diverse health care disciplines, settings, and populations. Grant awards have been made on a steady basis . . . since the program launch. Representative of the diversity were awards that focused on central venous catheter insertion, diagnosis of melanoma, obstetric emergency response drills, pediatric airway management, rapid response teams, acute coronary syndrome management in rural settings, patient care hand-offs, virtual reality team training, and disclosure of medical error”).

204. KAPLAN, *supra* note 191.

205. THE AGENCY FOR HEALTHCARE RSCH. AND QUALITY, *supra* note 200 (noting that a key to effective use of simulation begins with problem analysis – identifying when there is a strong and direct relationship between the training content and the performance demands placed on providers. Thus, the essential first step is identifying what needs to be trained).

206. *Id.*

misdiagnosis of the medical condition,²⁰⁷ the following malpractice fact pattern is provided for illustrative purposes:

A 71-year-old woman presents to an emergency department (ED) complaining of severe lower left flank pain. The patient is complaining of nausea. Patient has no dysuria, hematuria, or fever. She has a past medical history of rheumatoid arthritis, myotonic dystrophy stage 2, multiple previous infections including MRSA bacteremia, a stage IV decubitus ulcer on her coccyx, and a DVT in the common femoral vein. The site of the pain is red but no cellulitis is present.

Based on these presenting symptoms, a provider might instruct the simulation to order a CBC panel and urinalysis. If those tests were ordered in the medical malpractice case, the simulation would provide the test results (i.e., the initial CBC shows an elevated WBC count of 18.5 and the straight catheter urinalysis shows trace leukocytes and some WBC). In the medical record, it was noted that the patient's husband, a retired physician, requested that a C-reactive protein (CRP) level be done. The simulation would mimic this communication with the provider and the participant would have to determine whether this test should be ordered. If the provider agrees and orders the test, if the results are within the medical record they will be provided to the participant. In this case, the CRP level was done and the results were a CRP of 303.1.

Based on the information provided thus far, the patient was showing signs of infection, but the source of the infection was still unclear. A physician going through this simulation might instruct the program to order a urine culture to confirm a possible UTI and/or a blood culture to check for the recurrence of a MRSA bacteremia infection. Once the test results come back, the physician can determine what next steps to take.

In the malpractice case, the physician incorrectly assumed the source of the infection was a UTI and only ordered the urine culture.²⁰⁸ The patient was placed on antibiotics to treat the UTI and further

207. Niki Carver et al., *Medical Error*, NAT CTR FOR BIOTECHNOLOGY INFORMATION (February 16, 2020), <https://www.ncbi.nlm.nih.gov/books/NBK430763/> (referencing the Emergency Medicine Closed Claims Study that found issues related to diagnosis constituted the majority of cases, including failure to diagnosis, delayed diagnosis or an incorrect diagnosis. Other contributing factors include failure to order appropriate tests and/or to address abnormal results, and failure to use clinical information and establish the differential diagnosis).

208. While this information is taken from a medical malpractice case that settled, a specific citation to the case was omitted to insure privacy for all involved. The omission of patient, physician, and facility identifiers illustrates how the deidentification of the medical malpractice facts allows the simulation to be used later for training purposes.

blood work showed a decline in her WBC. However, when the urine culture came back negative, the physician changed the diagnosis from a UTI to pain management issues due to the patient's underlying rheumatoid arthritis. This decision failed to address the patient's presenting symptoms of an elevated WBC and extremely elevated CRP value. As a result, the patient was discharged from observation with no antibiotics and died two days later from sepsis.²⁰⁹

The goal of using medical simulation in medical malpractice cases is to determine whether other practitioners faced with this patient would have made the same decision(s) as the provider in question. Would other providers have ordered a blood culture at the same time as the urine culture, or if not at that point, would they have ordered it when the urine culture came back negative? Most importantly, would other providers have discharged this patient without antibiotics?

By analyzing the way other providers react to this patient encounter and statistically analyzing the results, the medical simulation is able to extrapolate the most probable standard of care that should have been applied in this case.

D. Medical Simulation as a Mediation Tool in Medical Malpractice Cases

A medical simulation has the potential to be a valuable tool in addressing reliability of expert witness testimony. Here is how it would work: once a simulation is created based on the facts of the case, and both parties agree to its contents, the simulation would be submitted to either the state medical licensing board for inclusion in either a periodic license review exam or the yearly mandatory continuing medical education (CME) credits, or to the medical specialty boards for inclusion in their recertification exams. The malpractice simulation will be hidden within a group of actual recertification case simulations presented to medical providers who are attempting to get recertified in their specific specialties. This is similar to the way bar exam drafters test the validity of new questions by hiding them within the actual bar exam administered to law school graduates.²¹⁰ The new questions do not count toward the student's score, but the student's answer is analyzed to confirm whether the question is valid and can be used on the next bar exam as a legitimate question counting for credit.²¹¹

By hiding the simulation in the recertification exam, two important goals are achieved: (1) it is verified that the providers who experience the simulation are competent medical practitioners with the skills and knowledge to actively practice medicine within their specific specialties;

209. *Id.*

210. *Bar Exam Q&A: 13 Questions From Inquiring Minds*, BAR EXAMINER (2018), <https://thebarexaminer.org/article/fall-2018/bar-exam-qa-13-questions-from-inquiring-minds/> [<https://perma.cc/X37V-9QEV>].

211. *Id.*

and (2) it is ensured that the providers' responses are their best effort to conform to the standard of care. How are these goals achieved? First, only the results of practitioners who pass the actual recertification simulations will be utilized when extrapolating the standard of care for the medical malpractice case. Second, every provider will be incentivized to perform at their best because they need a passing grade to maintain their licensure or board certification.

A key advantage to using unknowing providers is they are not tainted by financial incentives or hindsight bias. Unlike the typical medical expert, the providers going through the recertification medical simulations are not paid for their performance. In addition, by allowing the event to unfold in real time, and presenting the event in a piecemeal fashion, it creates a more realistic reconstruction of what transpired.²¹² The simulation is able to present the providers with only the information that was available to the defendant at the time of his behavior or decision, and thus eliminates the potential for hindsight bias.²¹³ This is similar to the way hindsight bias has been removed from root cause analyses with the use of simulation.

What gives MMS more credibility than relying on two paid medical experts, aside from its impartiality, is the ability to access the customs of practice of more than just one or two providers. Within the recertification context, there is the potential to solicit the expertise of any number of practitioners, which adds to the statistical reliability of the final conclusion in the context of medical malpractice litigation.²¹⁴ In order to prevent statistical manipulation, the number of practitioners to be included in the MMS should be established by the parties prior to administering the simulation, keeping in mind the greater the number of participants the more reliable the results.²¹⁵

212. Fanning, *supra* note 180, at 4.

213. See Oeberst & Goeckenjan, *supra* note 22, at 277 (discussing the possibility of limiting information to avoid hindsight bias).

214. Inter-rater reliability is the level of agreement between raters or judges. If only two raters are used and they do not agree the inter-rater reliability will be zero. However, if more than two raters are used, there is a greater chance that the inter-rater reliability for a binary question will be greater than zero, especially if an odd number of raters are being used. See Margaret K. Burns, *How to establish interrater reliability*, 44 NURSING 56 (2014). For purposes of MMS, Fleiss' Kappa should be utilized as it is a way to measure agreement between three or more raters who are chosen at random from a larger population and has the best potential to account for chance agreement. Stephanie Glen, *Fleiss Kappa*, STATISTICSHOWTO.COM: ELEMENTARY STATISTICS FOR THE REST OF US (July 17, 2016), <https://www.statisticshowto.com/fleiss-kappa/> [<https://perma.cc/7YF8-3VVX>].

215. Statistical significance helps quantify whether a result is likely due to chance or to some factor of interest. When a finding is significant it means you can feel confident that its real and not just a matter of chance in

Results of the MMS would be videotaped for review by the parties. The simulation would likely produce one of four possible results: (1) the majority of the practitioners conducted the patient encounter in substantially the same manner as the defendant provider indicating no deviation from the standard of care; (2) the majority of the practitioners conducted the patient encounter in a substantially different manner, but all in relatively the same manner, indicating a deviation from the standard of care on the part of the defendant practitioner; (3) the majority of the practitioners conducted the patient encounter in one way while the remainder of the practitioners conducted the patient encounter in another manner, indicating there may be a majority and minority standard of care at issue and if the defendant practitioner conformed to either standard there would be no finding of liability; or (4) there was no consensus in how the practitioners conducted the patient encounter indicating that in this particular medical circumstance there is no clearly defined standard of care and thus no liability on the part of the defendant practitioner.

In the proposed MMS, the simulation results would illustrate to the parties the customary practice of unbiased, impartial practitioners. In terms of timing, if the parties agree, MMS could be employed even before a complaint is filed. However, careful consideration should be made to the timing of MMS use prior to initial discovery as the defense is in a superior position as the holder of the relevant medical records and evidence. Ultimately, in order to ensure the most complete set of facts from which to create the simulation, the court would typically order the use of MMS after initial discovery is complete, but before the taking of expert depositions so the parties may avoid some of the exorbitant costs associated with litigation. As is the case in mandatory mediation, the court would order that the cost of creating the simulation be shared equally by the parties.

Unlike typical mediation where the substance of the mediation proceedings is inadmissible at trial, the results from the MMS would be admissible. This is because MMS does not involve actual settlement discussions. Instead, MMS is employed to motivate the parties to engage in reasonable settlement discussions. If, however, settlement discussions are unsuccessful, the results of the MMS could be used during the trial either by the party's medical expert to further substantiate his position of what is customary practice, or simply as demonstrative evidence showing what practitioners generally do when confronted with a substantially similar physician-patient encounter.

choosing the sample. With bigger sample sizes, you are less likely get results that reflect randomness. Amy Gallo, *A Refresher on Statistical Significance*, HARV. BUS. REV. (Feb. 16, 2016), <https://hbr.org/2016/02/a-refresher-on-statistical-significance> [<https://perma.cc/QLW9-J7J3>].

Support for the admissibility of experimental evidence and video recreations is found in both the rules of evidence and caselaw. Experiments to determine how a particular event occurred or did not occur are considered substantive evidence, admissible to show cause and effect, characteristics, and the like.²¹⁶ Video animations, now finding their way into medical malpractice actions, are considered demonstrative evidence.²¹⁷ For example, a video animation depicting a bacterial infection in the heart that spread to the brain was properly admitted as demonstrative evidence where a qualified and board-certified expert testified that the video would be helpful in explaining to the jury the general development of a disease in issue.²¹⁸

Whether the party uses the videotape as demonstrative or substantive evidence would depend on the complexity of the medical facts and the party's ability to meet the admissibility requirements dictated by the rules of evidence. It is important to note that, since the video is being admitted during a trial, the party introducing the video into evidence would be required to prove the video's authenticity and relevance.²¹⁹ The next Part will discuss how mandatory mediation, an

216. 2 MICHAEL H. GRAHAM, HANDBOOK OF FED. EVID. § 401:10 (8th ed. 2019) (citing *Bosse v. State*, 400 P.3d 834, 846 (Okla.Crim.App. 2017)) (finding that where the record shows that the party sufficiently replicated the conditions of the original event to simulate the actual conditions, the differences between the experiment conditions and the original event go to the weight of the evidence, not its admissibility, where the differences were thoroughly discussed in cross-examination, and were disputed by the opposing party's expert).

217. *See Dillion v. Evanston Hosp.*, 771 N.E.2d 357 (Ill. 2002) (In *Dillion*, a patient brought a medical malpractice action alleging the physician failed to completely remove a catheter that he had inserted in the patient's vein. The plaintiff sought admission of a video animation depicting a bacterial infection in the heart that spread to the brain. The trial court allowed the video as demonstrative evidence helpful in explaining to the jury the general development of endocarditis. On appeal, the defendants challenged the admission of the video tape. The Illinois Supreme Court upheld the trial court's admission of the video concluding that it was: (1) admitted as demonstrative evidence; (2) a qualified and board-certified physician testified that the video would be helpful to the jury in explaining a complex medical condition; and (3) the defendants had the right and opportunity to cross-examine the physician "so as to assure that the videotape could not have misled or confused the jury"); *see also Wipf v. Kowalski*, 519 F.3d 380, 387 (7th Cir. 2008) (holding the district court did not abuse its discretion in admitting videotape of doctor performing a normal laparoscopic cholecystectomy and other visual aids showing "normal" biliary anatomy, in patient's medical malpractice action against doctor who cut patient's common bile duct instead of the cystic duct; video was relevant to doctor's effort to refute patient's expert witness's opinion that her technique did not comport with the standard of care).

218. *See Dillion*, 771 N.E.2d at 492–94.

219. *See, e.g.*, FED. R. EVID. 401; FED. R. EVID. 1002.

alternative dispute resolution tool already employed by courts, can be used as the template to institute MMS.

E. Mandatory Mediation as the Template for Mandatory Medical Simulation

The use of MMS as a mediation tool is premised on the success of mandatory mediation in both implementation and results. Traditional mandatory mediation is successful because it improves the efficiency of the legal proceedings, and as a result, courts are willing to exercise the power to order mediation and to compel the attendance of the necessary parties.²²⁰ The court's authority to compel participation in mediation is derived from either a contractual obligation to mediate, a state statute or court rule, or the court's inherent power.²²¹ Important to note, mandatory mediation is non-binding and offers the parties the opportunity to identify the issues and attempt early resolution of the malpractice claims.²²² Furthermore, mandatory mediation is currently used in a number of states to help resolve medical malpractice cases before going to trial.²²³ Because mandatory mediation is already a commonly used and generally accepted dispute resolution tool within the context of medical malpractice cases, it would not be difficult to expand the current mandatory mediation statutes/rules to include the authority to compel MMS.²²⁴

MMS is very similar to mandatory mediation—the main difference being that in MMS the human mediator is replaced by a simulation. MMS aligns with the mediator's role in classic mandatory mediation by helping to facilitate the parties' understanding of the nature of the dispute.²²⁵ In cases where MMS can be utilized, cases where the medical error is a failure to diagnose, the administration of the wrong

220. SARAH R. COLE ET AL., *MEDIATION: LAW, POLICY AND PRACTICE* § 9:2 (discussing how Courts uphold the power to compel mediation and consider it as an acceptable part of the litigation process and noting that challenges to judicially compelled mediation are rare. In fact, the United States Supreme Court has rejected challenges to ADR procedures reasoning that, new devices are necessary to adapt the ancient institution to present needs and to make it an efficient instrument in the administration of justice).

221. *Id.*

222. RICHARD M. CALKINS & FRED LANE, *Mediation Practice Guide* § 2.01 (Aspen 2008).

223. *See, e.g.*, FLA. STAT. § 766.108 (2020); S.C. CODE ANN. § 15-79-125 (2020); WASH. REV. CODE ANN. § 7.70.100 (West 2020). *See, e.g.*, WASH. REV. CODE ANN. § 7.70.100(1) (West 2013) (requiring all causes of action arising from damages caused as a result of health care shall be subject to mandatory mediation).

224. *See* Appendix A for an example of the statutory language needed to implement MMS.

225. *See* Metzloff, *supra* note 139, at 218.

medication or treatment, and most surgery-related errors, MMS provides the same potential for efficiency and fact clarification that typical mediation accomplishes today.

An important feature of MMS that distinguishes it from other alternative dispute resolution (ADR) mechanisms such as the Health Courts and Arbitration Panels is that it keeps the case within the trial court setting. For example, if one party is concerned the facts utilized to create the simulation are incomplete or inaccurate, this issue can be presented to the court for a ruling. Similarly, if a party feels the facts of the malpractice case are not amenable to simulation, the party can motion the court and present arguments supporting that position.²²⁶ Hence, parties are still afforded the impartiality of the trial court as a mechanism for settling procedural disputes, and the rulings of the trial court are appealable under the same standards as typical lower court decisions, unlike the appeal procedure afforded by health courts.²²⁷

F. Potential Hurdles to Implementing Mandatory Medical Simulation

There are possible hurdles to implementing MMS—namely, the need for legislative action, the need for cooperation from the various specialty boards, and the good faith participation by practitioners. A key component to MMS is the utilization of impartial practitioners within the same specialty as the defendant practitioner. Thus, MMS would require: (1) revisions to the State Licensing Act governing the licensing requirements for healthcare professionals; and/or (2) cooperation with the American Board of Medical Specialties (ABMS).²²⁸

226. Limits to MMS utilization will be addressed in section G below.

227. Hochberg, *supra* note 127, at 45.

228. See *Enhancing the Quality of Care Through Certification*, ABMS, <https://www.abms.org/member-boards/>[<https://perma.cc/DZ69-5MUDw>] (last visited Dec. 23, 2020). The 24 ABMS Member Boards include:

American Board of Allergy and Immunology, American Board of Anesthesiology, American Board of Colon and Rectal Surgery, American Board of Dermatology, American Board of Emergency Medicine, American Board of Family Medicine, American Board of Internal Medicine, American Board of Medical Genetics and Genomics, American Board of Neurological Surgery, American Board of Nuclear Medicine, American Board of Obstetrics and Gynecology, American Board of Ophthalmology, American Board of Orthopaedic Surgery, American Board of Otolaryngology - Head and Neck Surgery, American Board of Pathology, American Board of Pediatrics, American Board of Physical Medicine and Rehabilitation, American Board of Plastic Surgery, American Board of Preventive Medicine, American Board of Psychiatry and Neurology, American Board of Radiology, American Board of Surgery, American Board of Thoracic Surgery and American Board of Urology.

Id.

While statutory changes require legislative commitment to MMS, they are not beyond the means of the legislature, and the cooperation of the medical specialty boards will only help to ensure those practitioners are judged in a fair, reliable, and predictable setting by impartial peers. Therefore, these hurdles are not insurmountable and the reward at the finish line is the significant improvement in the adjudication of medical malpractice cases and the practice of medicine within the United States.

1. Specialty-Specific Simulation CME Requirements Under the State Medical Licensing Act

Every state has laws and regulations that govern the practice of medicine and outline the responsibilities of the medical board in regulating that practice.²²⁹ These regulations are laid out in a statute, usually called the Medical Practice Act.²³⁰ State medical boards establish the standards for the profession through their interpretation and enforcement of the state Medical Practice Act.²³¹ The primary mission of medical boards is to protect the public from incompetent, unprofessional, and improperly trained physicians.²³² Medical boards accomplish this by ensuring that only qualified physicians are licensed to practice medicine and that those physicians provide their patients with a high standard of care.²³³

In order to obtain these impartial practitioners, the state's Medical Licensing Act would need to be amended to require that a specified portion of the required CME credits be obtained through medical simulation programs specific to the provider's area of practice (i.e., internal medicine, cardiology, emergency medicine, etc.). This is different from the current CME requirements which only require practitioners to attend a specified number of approved CME hours per

229. Drew Carlson & James N. Thompson, *The Role of State Medical Boards*, 7 VIRTUAL MENTOR 311 (2005) ("State medical boards are the agencies that license medical doctors, investigate complaints, discipline physicians who violate the medical practice act, and refer physicians for evaluation and rehabilitation when appropriate").

230. *Id.*

231. *Id.*

232. *Id.*

233. *Id.* at 312. "After physicians are licensed in a given state, they must reregister periodically to maintain their active status. During this reregistration process, physicians are required to demonstrate that they have maintained acceptable standards of ethics and medical practice and have not engaged in improper conduct. In most states, physicians must also show that they have participated in a continuing medical education program."

reporting period.²³⁴ This new, heightened requirement would mandate that the providers participate in medical simulation activities within their field of expertise and that they obtain a passing rating for the simulation(s) in order to maintain their licensure.

Pushback from the medical community is likely, especially from practitioners who have been in practice for a considerable amount of time and who have limited exposure or experience with medical simulation or a generalized distaste and distrust of emerging technology. However, despite the potential for resistance to this requirement, the predicted public health benefits and increased reliability and predictability of jury verdicts justify a change of this magnitude. Furthermore, any reluctance on the provider's part should be eased by the fact that MMS can provide practitioners with a sense of security that they will only be held responsible for utilizing the applicable standard of care as demonstrated by their impartial peers and that a single medical expert opinion will no longer be the sole determinant of liability.

Furthermore, this type of recertification standard is commonplace in other high-risk industries, and adoption in the healthcare setting seems only logical given that the technology exists to implement it effectively.²³⁵ According to Amitai Ziv, the founder and director of MSR—the Israel Center for Medical Simulation, “more medical professional boards may eventually include sophisticated simulation-based performance assessments in their routine certification and recertification procedures.”²³⁶

As Barry Furrow states in one of the leading textbooks on health law and policy, “[l]icensure boards currently reflect the traditional way that we know what appropriate care is; i.e., the customary practice of the majority of practitioners . . . ”²³⁷ By combining the licensure

234. *Continuing Medical Education: CME State Requirements*, BOARD VITALS BLOG (December 17, 2018), <https://www.boardvitals.com/blog/cme-requirements-by-state/> [<https://perma.cc/E4MM-6X5R>].

235. Ziv et al., *supra* note 158, at 785 (noting that “[t]he model for simulation use in a systematic, career-long approach already exists in aviation.”).

236. *Id.* See also Liang, *supra* note 37, at 563 (“We need to mandate systems-based, patient safety and error reduction, continuing medical education for individual providers. Again, this is not optional. This is a critical part of patient care. It is as important as keeping up on the literature. It is as important as keeping up on your clinical skills. You need to keep your patients safe. You need to render care to them in the best manner you know how, both in terms of safety and efficacy; therefore, you as an individual provider have an obligation to learn about and participate in this patient safety stuff, too”).

237. FURROW, *supra* note 70, at 35 (discussing how the Affordable Care Act requires reliance on scientific evidence of effectiveness and outcomes as the measure for quality and how this shift will have implications for standard setting by health professional boards).

requirement of CME with the MMS need for unbiased, qualified practitioners within the same specialty as the defendant provider, we achieve a symbiotic relationship in which “[t]he boards’ heavy reliance on the participation of their licensees advances the public interest by bringing expertise to the evaluation of professionals’ competency and behavior.”²³⁸

2. Cooperation of the Various Medical Certification Boards

The cooperation of the medical boards would be a valuable component in the success of the MMS concept. While every physician must be licensed to practice medicine, board certification is a voluntary process.²³⁹ Medical licensing sets the minimum competency requirements to diagnose and treat patients and is not specialty-specific.²⁴⁰ Board certification, on the other hand, is considered the gold standard in terms of illustrating that providers have the skills, knowledge, and expertise to practice within their particular specialty.²⁴¹ As a result, the vast majority of medical experts utilized during medical malpractice litigation are board-certified practitioners.²⁴²

The legitimacy of medical boards is derived from their member status in ABMS.²⁴³ Instead of an ad hoc attempt to obtain the cooperation of each independent medical specialty board, the best avenue for inducing participation by the medical boards is to make participation a condition of ABMS membership. Specifically, each specialty board would be expected to require its members to periodically participate in medical simulation recertification exams.

Currently, ABMS has twenty-four specialty boards as members, ranging from American Board for Allergy and Immunology to the American Board for Urology.²⁴⁴ ABMS is likely to experience the same pushback from providers as the state medical licensing boards, but

238. *Id.* at 34 (discussing how the current era of intense competition among healthcare professionals creates opportunities for anticompetitive conduct facilitated by the authority of the board and that this traditional rationale for health care quality regulation should shift to reliance on health care data and consumer access to quality information).

239. *Board Certification and Maintenance of Certification*, AM. BD. OF MED. SPECIALTIES (Jan. 31, 2020), <https://www.abms.org/board-certification/> [https://perma.cc/2EUX-L3GU].

240. *Id.*

241. Brendan Murphy, *Licensing and Board Certification: What Residents Need to Know*, AM. MED. ASS’N (May 22, 2019), <https://www.ama-assn.org/residents-students/transition-practice/licensing-and-board-certification-what-residents-need-know> [https://perma.cc/2EUX-L3GU].

242. D. Bowen-Barry, *The Physician’s Guide to Medical Malpractice*, 14 PROC BAYLOR U. MED. CTR. 109–12 (2001).

243. AM. BD. OF MED. SPECIALTIES, *supra* note 239.

244. *Id.*

unlike the licensing boards, board certification is not a requirement to practice medicine.²⁴⁵ However, board certification is important to physicians because patients, insurers, and quality organizations look to board certification as an indicator of a physician's knowledge, experience, and skills to provide quality health care within a given specialty.²⁴⁶ In addition, many hospitals require board certification as a condition for receiving privileges.²⁴⁷ Therefore, physician pushback should not be viewed as a reason to abandon this reform effort and, in fact, similar to the medical licensing board's responsibility to the public to police its profession, medical specialty boards have an equal responsibility to ensure that providers who claim board status have the competencies attributed to board certification.²⁴⁸

G. The Benefits of Mandatory Medical Simulation

MMS has the potential to reduce the exorbitant costs associated with medical malpractice litigation, increase patient access to the legal system by improving the predictability of jury verdicts and the reliability of expert witness testimony, reduce the practice of defensive medicine by utilizing the expertise of impartial, unbiased medical providers to verify the applicable standard of care, and reduce medical errors by creating training modules based on actual malpractice fact patterns which all providers can use to improve their clinical skills. Ultimately, MMS has the potential to improve the integrity of the legal system and the quality of health care in the United States.

First, providing both parties an opportunity to witness the customary practice of unbiased practitioners within the same specialty as the defendant may motivate them to settle the dispute earlier in the litigation process. Knowing that the trial court can order MMS, and that the results could be used during the trial, should persuade the party with the weaker case to settle before spending excessive amounts on expert witnesses. This is especially true when they know the testimony of their expert witness(es) will now be subject to greater scrutiny based on the MMS results.

Second, MMS creates a fairer legal environment for plaintiffs by eliminating, or at least diminishing, the jury's inherent physician-bias at trial when the standard of care is established using two conflicting

245. *Id.*

246. *Id.*

247. *Accreditation Manual for Hospitals*, JOINT COMM'N ON THE ACCREDITATION OF HEALTHCARE ORGS., 4 (1990), https://www.jointcommission.org/-/media/deprecated-unorganized/imported-assets/tjc/system-folders/topics-library/171110_accreditation_guide_hospitals_final.pdf?db=web&hash=A4AA2E4B34B5E47F6DD59FFE7CDBA20F [https://perma.cc/FPX9-E8NV].

248. AM. BD. OF MED. SPECIALTIES, *supra* note 239.

paid expert witnesses. Theoretically, the typical physician-bias found in the trial court setting will be diminished by the jury's ability to witness the actions of a group of physicians, resulting in more objective determinations of the appropriate standard of care.

Third, by using the MMS to verify the testimony of the medical experts retained by the parties, practitioners are assured that they will only be held accountable for the actual customary practice of providers within their same specialty and not on the opinion of one practitioner. Furthermore, if there is confusion over the appropriate standard of care to apply in a particular patient encounter, that will be highlighted by the results of the MMS, adding to the practitioner's argument that several care options may be available in a given situation. Ultimately, knowing that the MMS safety net is present in the adjudication process will allow medical practitioners to feel comfortable discontinuing the practice of defensive medicine.

Lastly, the creation of the medical malpractice simulation and its use within the recertification context has the potential to reduce medical errors by allowing practitioners the opportunity to learn from the mistakes of other providers. This is accomplished because each malpractice case submitted to MMS would result in a new training simulation that could be used to educate future and current practitioners on the appropriate standard of care to apply in some of the most confusing or complicated cases. Thus, MMS has the potential to achieve a tort reform goal that no other tort reform effort has been able to master to date: the ability to learn from the medical errors of the past and disseminate that knowledge to the broader medical community. The next section will identify and address the potential limitations of MMS.

H. Limitations to the Utilization of Mandatory Simulation

There are foreseeable limitations to the utilization of MMS. These include: (1) the assertion of the innovation defense; (2) the lack of providers in highly specialized areas of medicine; (3) the difficulty in unwinding the medical facts for complicated medical malpractice cases in which multiple providers may be responsible for an error; and (4) the lag-time created if the need for MMS outpaces the ability to create and implement the simulations.

First, the innovation defense to medical malpractice cases may pose a challenge to MMS. This is because an innovative procedure, by definition, has not been commonly adopted by the medical community.²⁴⁹ Therefore, no customary practice can be deduced from a

249. FURROW, *supra* note 70, at 252 (discussing how innovation in the clinical setting is common and is neither standard nor methodologically experimental, but rather aimed "to help the particular patient of the doctor but lacks sufficient evaluation to be able to say that there is 'a reasonable expectation of success'").

medical simulation of an innovative procedure. This limitation can be overcome, however, by requiring defendants who assert this defense to provide proof of innovation through a detailed informed consent form signed by the patient, showing the patient's acceptance of the innovative procedure and its risks.²⁵⁰

Second, highly specialized areas of medicine with limited numbers of practitioners also pose a potential problem for MMS utilization. The value MMS adds to the medical malpractice case is access to the customary practice of multiple practitioners. In highly specialized areas of medicine, there are fewer practitioners available to participate in the simulation, potentially making it impossible to effectively run the simulation for MMS purposes.

Third, MMS may be difficult to implement in malpractice cases in which multiple providers from different specialties are potentially to blame. At the very least, this may require the creation of multiple simulations to test each provider's standard of practice as it relates to the malpractice fact pattern. The need to create multiple versions of the simulation may make the cost of using MMS too great for the parties, especially for a plaintiff who already faces issues with access to the legal system due to costs.

Finally, if it takes too long to create the simulation, or to get the results of the simulation because the parties have to wait for the recertification exams to take place, or the demand outpaces the ability to create and run the simulations, the standard of care that was applicable at the time of the alleged negligence may be different from the standard of care that is extrapolated during the MMS. To determine the true extent of this limitation, further research should be conducted to: (1) examine how long it will take to effectively create a simulation from the medical facts of a medical malpractice case; (2) determine how often CMEs and recertification exams would need to be offered in order to fill the demand; and (3) determine how often standards of care change to the extent that it would directly impact the effectiveness of MMS.

Despite these limitations, MMS offers considerable benefits to the adjudication of medical malpractice cases, and with further research, these limitations may be surmounted.

250. BERNARD LO, RESOLVING ETHICAL DILEMMAS, A GUIDE FOR CLINICIANS 272 (Wolters Kluwer 5th ed. 2013) (discussing how innovations that are a major difference from the accepted practice, which pose more than minor risks to patients, and which have not been previously described in textbooks and articles, should be reviewed by peers, and patients should consent to the innovative nature of the procedure).

CONCLUSION

Given today's technological advances, MMS may be a relatively simple answer to correct the unreliable process of establishing the standard of care in medical malpractice cases. MMS can provide physicians with a sense of security that they will only be held responsible for utilizing the applicable standard of care as demonstrated by their impartial peers, and thereby reduce the practice of defensive medicine and the resulting high health care costs. Furthermore, MMS can improve access for injured patients to the legal system by providing further impartial evidence of the standard of care and thus leveling the scales of justice. Finally, MMS can reduce the exorbitant costs associated with defending and prosecuting malpractice claims by illustrating to the parties what impartial practitioners view the standard of care to be prior to the expenditure of large sums of money on paid medical expert witnesses. Considering the majority of medical errors occur as a result of misdiagnosis, which is a relatively easy case pattern to recreate in the medical simulation context, MMS would be a highly effective tool in reforming the medical malpractice system and health care in general.

APPENDIX A

Sample statutory Mandatory Medical Simulation language:

- (1) Before trial, all causes of action, whether based in tort, contract, or otherwise, for damages arising from injury occurring as a result of health care provided after [the enacting date], shall be subject to mandatory medical simulation prior to trial except as provided in subsection (4) of this section.
- (2) The supreme court shall by rule adopt procedures to implement mandatory medical simulation of actions under this chapter. The implementation contemplates the adoption of rules by the supreme court which will require mandatory medical simulation without exception unless subsection (4) of this section applies.

The rules on mandatory medical simulation shall address, at a minimum:

- a) Procedures for the appointment of, and qualifications of, simulation programmers. A simulation programmer shall have experience or expertise related to the creation of medical simulations, and be a licensed or certified simulation programmer with a minimum of [years of experience]. The parties may stipulate to a specific simulation programmer. The

- court may prescribe additional qualifications of simulation programmers;
- b) Appropriate limits on the amount or manner of compensation of simulation programmers;
 - c) The number of days following the filing of a claim under this chapter within which a simulation programmer must be selected;
 - d) The method by which a simulation programmer is selected. The rule shall provide for designation of a simulation programmer by the trial court if the parties are unable to agree upon a simulation programmer;
 - e) A means by which mandatory medical simulation of an action under this chapter may be waived by a simulation programmer who has determined that the claim is not appropriate for mandatory medical simulation; and
 - f) Any other matters deemed necessary by the court.
- (3) The simulation programmer shall not impose discovery schedules upon the parties.
- (4) The mandatory medical simulation requirement of subsection (2) of this section does not apply to an action in which the court determines the medical facts of the case cannot be replicated using medical simulation or to an action in which the parties have agreed, subsequent to the filing of the claim, that mandatory medical simulation would not be appropriate given the medical circumstances of the cases.
- (5) The implementation also contemplates the adoption of a rule by the supreme court for procedures for the parties to certify to the court the manner of mandatory medical simulation used by the parties to comply with this section.