2013

Medical Adverse Events and Malpractice Litigation in Arizona: By-the-numbers

Ashley M. Votruba
Sandra Day O'Connor College of Law, Arizona State University, ashley.votruba@unl.edu

Michael J. Saks
Sandra Day O'Connor College of Law, Arizona State University, michael.saks@asu.edu

Follow this and additional works at: https://digitalcommons.unl.edu/psychfacpub

Part of the Medical Jurisprudence Commons, and the Psychology Commons

Votruba, Ashley M. and Saks, Michael J., "Medical Adverse Events and Malpractice Litigation in Arizona: By-the-numbers" (2013). Faculty Publications, Department of Psychology. 908.
https://digitalcommons.unl.edu/psychfacpub/908

This Article is brought to you for free and open access by the Psychology, Department of at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Faculty Publications, Department of Psychology by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.
MEDICAL ADVERSE EVENTS AND MALPRACTICE LITIGATION IN ARIZONA: By-the-Numbers

Ashley M. Votruba & Michael J. Saks

INTRODUCTION

A new medical malpractice “crisis” periodically erupts across the United States, invariably producing calls for legislative solutions. Typically, the public is told that rising malpractice insurance premiums are driving doctors out of their practices or out of our state, while increasing the cost of health care, and that those rising insurance rates are the product of too many unwarranted lawsuits resulting in exorbitant damage awards. The legislative fixes typically involve restricting the ability of plaintiffs to bring claims, to prosecute their claims successfully, or to recover full damages if they happen to prevail on their claims.

1. The U.S. Congress sometimes threatens to intervene, replacing what traditionally has been an area of state law with national rules regulating this one area of tort litigation. Even without a new crisis, new legislation might emerge in the near future pursuant to

---

* J.D./Ph.D. student at the Sandra Day O'Connor College of Law, Arizona State University; M.A. 2013, Arizona State University. Thanks go to a number of people for their helpful comments on an earlier draft including: James Carland, Adam Chodorow, Stephan Landsman, and Cynthia Stonnington.

** Regents’ Professor of Law and Psychology; Faculty Fellow, Center for Law, Science & Innovation, Sandra Day O’Connor College of Law, Arizona State University. Ph.D. 1975, Ohio State University; M.S.L. 1983, Yale Law School.


2. One report observes:
In early 2011, [Congress] focused renewed attention on the topic of medical malpractice reform at the national level. Bills to cap noneconomic damages, tighten the deadline for filing a medical malpractice claim, limit attorneys’ fees, and impose other restrictions on medical malpractice lawsuits in state and federal courts were introduced in both the House and the Senate.

provisions of the Affordable Care Act ("ACA") that encourage states to experiment with medical malpractice reforms by offering to subsidize that experimentation. Additionally, with more people receiving health care in consequence of the ACA, more cases of iatrogenic injury will occur, leading to more claims for compensation and more pressure on legislatures.

Malpractice reform legislation typically is informed by little more than anecdotes, assumptions, and intuition. But the bedrock of good public policy is sound information. The aim of this Article is to provide more


4. Past medical malpractice reform legislation in Arizona has been justified by the argument that such laws are reasonably related to "the effects on public health of increased medical malpractice insurance rates and the reluctance of qualified physicians to practice" in Arizona. Seisinger v. Siebel, 203 P.3d 484, 494 (Ariz. 2009). In the light of extensive empirical evidence showing iatrogenic injury to be a major public health problem, however, and with little evidence that Arizona’s rules affect physician migration, legislation that reduces incentives for greater safety even further should have difficulty surviving even a rational relationship challenge.

Indeed (and ironically), while some lawmakers have been dialing down the incentives for safety, other lawmakers have been ratcheting up the incentives in an effort to reduce the incidence of costly and harmful iatrogenic injuries. Medicare has started denying payment to hospitals nationwide for treatment of injuries that should never have occurred. See Social Security Act (SSA) § 1886(d)(4)(D), 42 U.S.C. § 1395ww(d)(4)(D) (2012) (originally enacted as Deficit Reduction Act of 2005, Pub. L. No. 109-171, § 5001(c)(1), 120 Stat. 4, 30); Medicare Program; Changes to the Hospital Inpatient Prospective Payment Systems and Fiscal Year 2008 Rates, 72 Fed. Reg. 47130, 47202 (Aug. 22, 2007); Medicare Program; Changes to the Hospital Inpatient Prospective Payment Systems and Fiscal Year 2009 Rates, 73 Fed. Reg. 48434, 48471-91 (Aug. 19, 2008) (mandating that the HHS Office of Inspector General investigate and identify the class of such events and that the Centers for Medicare & Medicaid Services develop processes to deny payment for such injuries); see also DEP’T OF HEALTH & HUMAN SERVS., OFFICE OF INSPECTOR GEN., OEI-06-09-00090, ADVERSE EVENTS IN HOSPITALS: NATIONAL INCIDENCE AMONG MEDICARE BENEFICIARIES 4-5 (2010), available at https://oig.hhs.gov/oei/reports/oei-06-09-00090.pdf.

Economic incentives related to patient safety are perverse: hospitals and physicians profit from patient injuries (because they are paid first to treat the underlying illness or injury and a second time to repair the iatrogenic injury that occurred during treatment), and so by improving patient safety they lose revenue. Sunil Eappen et al., Relationship Between Occurrence of Surgical Complications and Hospital Finances, 309 JAMA 1599, 1605 (2013); Uwe E. Reinhardt, Making Surgical Complications Pay, 309 JAMA 1634 (2013); see also Michelle M. Mello et al., Who Pays for Medical Errors? An Analysis of Adverse Event Costs, the Medical Liability System, and Incentives for Patient Safety Improvement, 4 J. EMPIRICAL LEGAL STUD. 835, 835 (2007) ("On average, the sampled hospitals generated injury-related costs of $2,013, and negligent-injury-related costs of $1,246, per discharge. However, hospitals bore only 22 percent of these costs."). Thus, as tort law is becoming enfeebled as a means of internalizing costs back to the party in the best position to reduce injury risks, alternative means are being devised to make continuing failure to improve patient safety unprofitable.

5. As the Harvard Medical Practice Study ("HMPS") researchers noted, "[G]overnments should know something about the real world of medical injury and malpractice litigation before they enact reforms that profoundly affect the fates of patients, doctors, and lawyers for decades
complete and more accurate data about the problem of medical error and malpractice litigation in Arizona. Such data have not previously been available to Arizona lawmakers because empirical studies of the problem have not been conducted in Arizona, though they have been in a number of other states.6

By extrapolating from data collected in other states on this problem, we are able to estimate the number of injurious adverse events that occur in Arizona hospitals each year (at least 20,000, of which at least 1,300 are deaths); the number of those that are the result of what the law would consider to be negligent care (at least 5,600); the annual cost of those negligently caused injuries to their victims, the victims' insurers, and taxpayers (at least $1.6 billion); how many lawsuits arise (about 2 for every 100 adverse events and 9 for every 100 negligent adverse events); the portion of the economic loss suffered by negligently injured patients returned by Arizona's civil justice system (at most 3.8%); and other data.7

Our goal is to assist the Legislature in understanding the problem of iatrogenic injury more fully and more accurately. That improved understanding might lead to recognition of the most serious dimensions of the problem and a reorientation towards creating solutions that will reduce the incidence of avoidable injury in the first place,8 in turn reducing the heavy cost burden that Arizonans bear as a consequence of iatrogenic injuries, and thereby reducing the need for litigation and its attendant costs.

6. For example, the Arizona State Senate research brief on the issue of medical malpractice provides no information on the problem of iatrogenic injury. ARIZ. ST. SENATE RESEARCH STAFF, MEDICAL MALPRACTICE 1 (2010) (focusing on ways to "limit medical malpractice costs," meaning the costs of professional liability insurance, not the costs of iatrogenic injuries).

7. The figures in this paragraph represent the most optimistic scenario one can reasonably entertain. As will become clear, infra, the number of adverse events, negligent adverse events, and economic losses by victims, insurers, and taxpayers are almost certainly higher.

8. Suggesting what those beneficial legal reforms might be is beyond the scope of this Article. Suffice it to say that literature on improving patient safety has been developing, and some legal steps are being taken. One place to enter that literature would be: INST. OF MED., TO ERR IS HUMAN: BUILDING A SAFER HEALTH SYSTEM (Linda T. Kohn et al. eds., 2000) [hereinafter IOM REPORT].
I. EVOLVING LAW AFFECTING MALPRACTICE LITIGATION

Three waves of legislation followed the malpractice insurance crises of the mid-1970s, the mid-1980s, and early-to-mid-2000s. Each successive wave built on the preceding one and together aimed at a range of targets.9

Much of the legislation imposed new rules designed to reduce the ability of plaintiffs to bring claims (e.g., screening panels, certificates of merit, and shortened statutes of limitations) or to prevail on those claims (e.g., special expert witness rules and locality rules). For plaintiffs whose cases are successful, additional rules placed limits on the size of recoveries (e.g., caps on general and sometimes also on economic damages, abolition of the collateral source rule, and abolition of joint and several liability).

Some reforms modified the legal process in order to dispose of cases more expeditiously and perhaps more inexpensively (e.g., encouragement of early settlement, mediation, and arbitration). Still others focused on insurance (e.g., taxpayer subsidization of malpractice premiums, limits on premium increases, risk pooling, and rate compression). Finally, some legislation addressed quality of care and patient safety (e.g., imposing hospital accreditation requirements and mandatory error reporting) or patients’ ability to choose safer hospitals over riskier ones (e.g., mandating public access to data on errors, disciplinary actions, and malpractice suits).

Arizona has passed—and sometimes later repealed—or attempted and failed to pass, a number of such reforms. Here, we describe a sampling of past and ongoing efforts to change the legal landscape of medical malpractice disputes.

Pretrial Screening. In 1976, in response to an abrupt rise in malpractice insurance premiums nationally and in Arizona, the Legislature created a mandatory pretrial screening process for malpractice claims known as the Medical Liability Review Panel.10 The purpose of the panel was “to screen all malpractice cases with the aim of keeping less meritorious claims from

---


10. Jona Goldschmidt, Where Have All the Panels Gone? A History of the Arizona Medical Liability Review Panel, 23 Ariz. St. L.J. 1013, 1014 (1991). Prior to the advent of the mandatory pretrial screening process, the Joint Screening Panel was in effect. Id. at 1019. This panel consisted of twelve to sixteen members including “up to ten members of the Medico-Legal Committees of the county’s medical society and bar association.” Id. at 1020. Prior to filing a suit, the plaintiffs could voluntarily submit their claim to the Joint Screening Panel, which would review the claim and vote on whether there was sufficient evidence of malpractice and, if there was, another vote determined whether there was a “reasonable medical probability that the claimant was injured.” Id. at 1021. Some concern existed that these panels were weighted in favor of the defense. Id. at 1022.
Additionally, the panel was intended to expedite the settlement of meritorious cases. The legislation that was adopted required that upon the filing of a claim for medical malpractice, a panel consisting of an attorney, a superior court judge, and a physician (when possible, a physician practicing the same specialty as the defendant) review the case. The panel was directed to decide by majority vote "whether the evidence presented to the panel by all parties supports a judgment for the plaintiff or for the defendant." Plaintiffs were allowed to prosecute their claim no matter the outcome of the panel’s vote. If the panel found in favor of the plaintiff, then the panel and county medical society were directed to cooperate fully in helping the plaintiff retain an expert and to consult with and testify on behalf of the plaintiff. In 1989, during another wave of legislation seeking to tame rising malpractice premiums, concerns surfaced that the pretrial screening panels were not operating as intended or achieving their goals, and the Legislature repealed the Medical Liability Review Panels.

**Affidavit of Merit.** Legislation passed in 2004 requires plaintiffs to file an Affidavit of Merit—a certified written statement—along with the complaint stating whether expert opinion testimony will be necessary and, if so, to also provide a “preliminary expert opinion affidavit.”

---

11. *Id.* at 1025–26 (citing H. COMM. ON HEALTH, 32D LEG., 1ST SPEC. SESS., MINUTES OF MEETING 2 (1976)).
12. *Id.* at 1029.
13. *Id.* at 1031.
15. *Id.* at 1037.
16. *Id.*
17. *Id.* at 1053. These conclusions were based in significant part on a National Center for State Courts study in 1980. *Id.* at 1052. Although the study found that the number of medical malpractice case filings had declined and the percentages of settlements had increased since the creation of the review panels, it nonetheless raised major concerns. *Id.* at 1053. First, although the panels were intended to reduce the duration of litigation, medical malpractice cases were actually taking longer to reach disposition, whether by trial or settlement. *Id.* The study also found that the panels were suffering from administrative problems, including not having panels appointed or convened within the specified time limits and having scheduling problems as the panels developed into “mini-trials,” creating a burden on the panel judges and court staff. *Id.* Another study, based on insurance claims, concluded that the panels were actually creating greater litigation costs because more malpractice suits were being initiated with the expectation of lower expenses and because disputes were taking longer to resolve. *Id.* at 1054. In sum, it appeared that the panels were failing to achieve their two main objectives: screening out unmeritorious cases and expediting settlement.
18. *Id.* at 1049–50.
20. *Id.* § 12-2603(B).
intended to keep non-meritorious suits at bay by essentially requiring the suits to be pre-approved as meritorious by an expert.  

Expert Witness Limitations. Additional legislation creates specific requirements for expert witnesses in medical malpractice cases. In malpractice litigation, medical experts are generally a necessity for providing evidence of the applicable standard of care, among other matters. The legislation, adopted in 2005, requires experts offered against or on behalf of a defendant to satisfy the following conditions: (1) to be a licensed health professional; (2) to be of the same board certified specialty as the defendant (if the defendant is a board certified specialist); (3) to have spent the majority of his or her professional time in the year prior to the alleged injury in active clinical practice of the same health profession as the defendant, teaching students in an accredited health professional school, or some combination of the two; and (4) to have devoted a majority of his or her professional time, if the defendant is a general practitioner, in active clinical practice as a general practitioner or teaching in an accredited health professional school. 

Abolition of Joint and Several Liability. When litigation is successful, Arizona has made recovery of full damages more difficult. In 1988, Arizona abolished joint and several liability in favor of several liability, under which each defendant is liable only for the amount of damages that corresponds to his or her proportion of fault. This is a classic instance of creating a more equitable distribution of responsibility among tortfeasors at the expense of the innocent victim, a choice that the common law had long shunned. It means that to recover full damages, a plaintiff must name all potential defendants in a case, even those whose responsibility was small,

21. "The legislature declares that the purpose of § 12-2603, Arizona Revised Statutes, is to curtail the filing of frivolous lawsuits against health care professionals and the filing of frivolous nonparty at fault designations by health care professionals." ARIZ. REV. STAT. ANN. § 12-2603 (2012).

22. ARIZ. REV. STAT. § 12-2604(A) (2012). Where the statute prevents a specialist's procedures from being criticized by a less knowledgeable expert, it can serve to prevent juries from being misled (and can be said to elevate the requisite qualification). But where a less well-trained, less up-to-date practitioner is protected from being evaluated by a better-qualified specialist, the statute prevents factfinders from becoming informed about more appropriate, beneficial, or safer procedures (the opposite of elevating requisite expert qualifications). In any event, the statute shrinks the pool of experts available to address any given disputed issues to those who belong to the smallest cognizable sub-guild, thereby increasing the probability that a case will be dismissed before any of its merits can be examined. A more nuanced statute, better serving legitimate competing interests, could have been drafted.


24. Id.
adding inefficiency and cost to litigation, while depriving victims of the full compensation found by a court to be due them.

_Caps on Awards._ The capping of awards is made more difficult in Arizona than in other states because the Arizona Constitution prohibits legislation limiting recoverable damages for tortious personal injury and death. Consequently, some have sought to repeal that provision of the Arizona Constitution, thus far unsuccessfully.

Several other changes in Arizona law pertaining to medical professional liability are listed in the margin.

II. DEVELOPING A STATISTICAL PICTURE OF IATROGENIC INJURY AND LITIGATION IN ARIZONA

In weighing the costs and benefits of various kinds of malpractice reform legislation, and in contemplating how best to deal with the general problem of iatrogenic injury and health care costs, it would have been be useful for the Legislature to know how many people in Arizona are injured or killed by negligent health care, at what cost, and how the civil justice system responds to such occurrences. Such data have been developed in some other states, but not yet in Arizona. The present Article has drawn from the findings of those other studies, and extrapolated them to the annual population of Arizona hospital admissions.

The principal metric used to count instances of harm to patients is known as the “adverse event.” An adverse event is defined as “an injury that was caused by medical management (rather than the underlying disease) and that prolonged the hospitalization, produced a disability at the time of discharge, or both.”

---

25. Interestingly, this is regardless of whether the defendant could even be named as a party in the suit. _Id._ § 12-2506(B).


28. _ARIZ. REV. STAT._ § 12-542 (2012) (reducing the statute of limitation for filing malpractice actions to two years); _ARIZ. REV. STAT._ § 12-563 (2012) (defining the relevant reference community for establishing standard of care as the state of Arizona); _ARIZ. REV. STAT._ § 12-565 (2012) (allowing defendants to offer evidence of payments to plaintiffs for the injuries by the plaintiff’s insurers); _ARIZ. REV. STAT._ § 12-566 (2012) (prohibiting complaints from containing a specified amount of damages); _ARIZ. REV. STAT._ § 12-568 (2012) (giving court discretion to consider and reduce fees paid to plaintiffs’ attorneys); _ARIZ. REV. STAT._ § 12-569 (2012) (prohibiting introduction of evidence regarding defendant’s professional liability insurance).

a car accident causing personal injury: an unintended, preventable, harmful result of an otherwise socially desirable activity.\textsuperscript{30}

Just as not all car accidents are the result of negligence, neither are all medical accidents.\textsuperscript{31} Thus, while all injurious medical accidents are said to be adverse events, only a subset of them are \textit{negligent} adverse events. Only the negligent subset are compensable under our law.

Because it is easier to count accidents and injuries than to determine which of them were caused by negligence, hospitals and researchers are more likely to count the former and not the latter. Similarly, state and national statistics on other kinds of accidents, such as car crashes, count accidents and injuries without going to the additional effort and cost of identifying which accidents resulted from negligence. Researchers interested in the functioning of the legal system, however, take that extra step. Consequently, some of the research we draw on in this Article counts only adverse events while other studies count adverse events and then

\begin{quote}
\textit{Adverse Events and Negligence in Hospitalized Patients}, 324 \textsc{New Eng. J. Med.} 370, 370 (1991). An adverse event is synonymous with iatrogenic injury. Adverse events do not include \textit{unnecessary} procedures that were completed safely. Where unnecessary procedures are performed knowingly, they move beyond negligence and into the realm of intentional torts and criminal fraud, battery, and reckless endangerment. \textit{See, e.g.}, Reed Abelson & Julie Creswell, \textit{A Hospital Chain’s Inquiry Cited Unneeded Treatment}, \textsc{N.Y. Times}, Aug. 7, 2012, at A1 (reporting that, HCA, the largest for-profit hospital chain in the country, is confronting evidence that “unnecessary—even dangerous—procedures were taking place at some HCA hospitals, driving up costs and increasing profits”). But these kinds of harms usually will not be detected by monitoring for adverse events.

30. Of course, many differences exist between a car accident and a medical accident, both legal and practical. Among them: auto crashes involve parties with no prior relationship; medical accidents involve people who have a contractual relationship and usually have at least met each other and sometimes have a longer-term relationship. An auto driver owes a general duty of care to any and all whom the driver might injure; a physician owes a duty of care only to a patient (a person in a contractual relationship with the physician). The breach of the duty owed in auto crashes is left to the jury; in medical malpractice, it almost always is a standard to be proven with help from expert witnesses. Thus, a doctor who while driving to work causes an accident that injures a person is in a much more vulnerable legal position than the very same doctor who causes the very same injury to a patient after he arrives at work (not to mention limitations on damages that often apply to the malpractice action but not to the auto case). Despite all those differences, we believe auto accidents can serve as a useful point of comparison, and we will occasionally provide the reader with data on injurious auto accidents in Arizona as well as medical accidents.

31. Negligence is “conduct which falls below the standard [of care] established by law for protection of others against unreasonable risk of harm.” \textit{Restatement (Second) of Torts} § 282 (1965). In the Harvard Medical Practice Study, it was summed up as “care that fell below the standard expected of physicians in their community.” Brennan et al., supra note 29, at 370. For those accidental injuries not caused by negligent acts or omissions, liability in tort should not be found.
assess whether or not the adverse events were caused by below-standard care.

Although they are not the first or only such studies of adverse events and negligently caused medical injuries, the most prominent and oft cited of the research has been conducted by teams from Harvard University. They analyzed hospital records in the state of New York, followed by similar studies in Utah and Colorado.

For a number of reasons, the results of those studies unavoidably undercount the number of adverse events suffered by patients in any given state. First, the studies look only at hospital medical records, so harmful errors that occur outside of hospitals are not captured. Furthermore, hospital medical records do not reflect all of the adverse events that occur. Studies that have examined incidents through more direct means found much higher levels of iatrogenic injury than those relying exclusively on medical records. Apparently, most iatrogenic injuries are not recorded, or recorded in a disguised fashion in an effort to evade responsibility. One study found that 36% of patients admitted to a general medical service of a university hospital suffered an adverse event injury (compared to between 2.9% and 3.7% in the studies of medical records in New York, Colorado,

32. The Harvard findings are in approximate agreement with earlier studies of other locations by other researchers. Whereas the Harvard studies found approximately 1.1% of New York hospital patients became victims of negligent adverse events (i.e., malpractice), and 0.9% of Colorado and Utah patients did, a 1977 study of California hospitals found 0.8%, and a federal study in 1973 of several states found 2%. CAL. MED. ASSN & CAL. HOSP. ASSN, REPORT ON THE MEDICAL INSURANCE FEASIBILITY STUDY (Don H. Mills ed., 1977); Leon S. Pocincki et al., The Incidence of Iatrogenic Injuries, in U.S. DEPT HEALTH, EDUC. & WELFARE, DHEW PUB. NO. [OS] 73-89, MEDICAL MALPRACTICE: REPORT OF THE SECRETARY'S COMMISSION ON MEDICAL MALPRACTICE 50–70 (1973).

33. Weiler et al., supra note 5, at 135–52 (concluding with several reform proposals based on authors' findings, one of the most interesting being to replace the tort system with a system of "enterprise liability"); Brennan et al., supra note 29, at 370 (abstract; methodology); see generally IOM REPORT, supra note 8.


35. Almost as many compensation payments are made for outpatient procedures as for inpatient, with two-thirds of those being for patients suffering major injury or death. Tara F. Bishop et al., Paid Malpractice Claims for Adverse Events in Inpatient and Outpatient Settings, 305 JAMA 2427, 2428 (2011). The leading causes of adverse events in hospitals are medication-related (38%), procedure-related (28%), and nosocomial infections (18%). David C. Classen et al., 'Global Trigger Tool' Shows that Adverse Events in Hospitals May be Ten Times Greater than Previously Measured, 30 HEALTH AFFAIRS 581, 585 (2011). Adverse events outside of hospitals doubtless have a different profile.
Thus, the actual incidence and cost of adverse events to a state is likely considerably higher than one would believe based only on the Harvard (and earlier) studies.

To provide a more realistic range of the possible incidents and costs in Arizona hospitals, we also employ the findings from a recent study that tested several different methods hospitals use to detect and count adverse events. One of those, the "Global Trigger Tool," works somewhat more like a detective seeking out wrongdoing when it might be hidden from view:

The Global Trigger Tool uses specific methods for reviewing medical charts. Closed patient charts are reviewed by two or three employees—usually nurses and pharmacists, who are trained to review the charts in a systematic manner by looking at discharge codes, discharge summaries, medications, lab results, operation records, nursing notes, physician progress notes, and other notes or comments to determine whether there is a "trigger" in the chart. A trigger could be a notation indicating, for example, a medication stop order, an abnormal lab result, or use of an antidote medication. Any notation of a trigger leads to further investigation into whether an adverse event occurred and how severe the event was. A physician ultimately has to examine and sign off on this chart review.

36. K. Steel et al., *Iatrogenic Illness on a General Medical Service at a University Hospital*, 304 NEW ENG. J. MED. 638 (1981). Furthermore, 9% of admitted patients became victims of "major" iatrogenic illness. See also Lori Andrews et al., *An Alternative Strategy for Studying Adverse Events in Medical Care*, 349 LANCET 309 (1997).

37. Classen et al., *supra* note 35, at 582–83. The three detection methods employed were voluntary reporting of sentinel events, the U.S. Agency for Healthcare Research and Quality’s ("AHRQ") Patient Safety Indicators, and the Global Trigger Tool. Id. Voluntary reporting alone would have led to a conclusion that 0.5% of patients were victims of adverse events. Id. at 584. AHRQ indicators alone would have led to a conclusion that 4.4% of patients suffered adverse events. Id.

For the record, we can add the results of a recent study mandated by Congress. Of the nearly one million Medicare beneficiaries discharged from hospitals in October 2008, approximately 134,000 experienced at least one adverse event during the one-month study period—an adverse event rate of 13.5%. Physicians reviewing the hospital medical records determined that 44% of those events were preventable. DEP’T OF HEALTH & HUMAN SERVS., OFFICE OF INSPECTOR GEN., *supra* note 4 at i–ii.

Yet another study by Harvard researchers (of hospitals in North Carolina), using the Global Trigger Tool, found an overall adverse event rate of 25.1%. Christopher Landrigan et al., *Temporal Trends in Rates of Patient Harm Resulting from Medical Care*, 363 NEW ENG. J. MED. 2124, 2124 (2010).

38. Classen et al., *supra* note 35, at 582.
The Global Trigger Tool achieves detection levels that approximate those of on-scene observers.\textsuperscript{39}

In short, the data reported below rely on several different benchmarks for estimating Arizona's rates of adverse events and other measures. Our method is straightforward. If studies in other states found that 1\% of hospital admissions suffered negligent adverse events, we apply that 1\% figure to the number of Arizona hospital admissions to estimate the number of Arizona hospital admissions that likely become instances of malpractice. By using data from other-state studies with lower and higher incidences of negligent adverse events, we can specify a range within which the actual Arizona figures are most likely to fall. We use a similar method to impute other variables being examined. Those projections are integrated with as much Arizona-specific data as are available to complete the statistical picture for Arizona.\textsuperscript{40}

Table 1 provides these source values, consisting of proportions of hospital admissions that become adverse events; the subset of adverse events that are deaths; negligent adverse events; and deaths caused by those negligent adverse events.\textsuperscript{41} The Colorado/Utah values constitute the lowest level of detected harm and, in turn, yield the lowest evidence-based estimates of Arizona's iatrogenic injury values. The New York study was the flagship of the Harvard research, and its data are somewhat higher than the Colorado/Utah proportions. At the high end of the range are the proportions developed from the Global Trigger Tool research. We do not attempt to count out-of-hospital adverse events, and so even our high-end estimates are likely to be conservative. Because the Global Trigger study

\textsuperscript{39.} See, e.g., Steel et al., \textit{supra} note 36; Andrews et al., \textit{supra} note 36.

\textsuperscript{40.} To supplement publicly available data, on February 1, 2013, we wrote to MICA (the major malpractice insurer in Arizona) and the Arizona Insurance Department asking for the following information: (1) for 2010, 2011, and 2012, total numbers and payment amounts made to claimants at several stages of the malpractice claim process: settlements before a court claim is filed, settlements after a claim is filed but before a trial verdict, payments made pursuant to a trial verdict (that is, not necessarily the judge or jury's trial award, but the post-trial total eventually agreed to by the parties); (2) the amounts by major categories of expenditures made from the earned premiums collected from physicians and hospitals. MICA replied with limited information; the Arizona Insurance Department replied that it had none of the data we requested.

\textsuperscript{41.} All of these values are conservative in that they count patients who were injured rather than instances of injury. More instances of injury occur than there are patients who suffer iatrogenic injuries because some patients suffer more than one iatrogenic injury. Thus, the Global Trigger study found that, "[o]verall, adverse events occurred in 33.2 percent of hospital admissions" while there were "49 [adverse] events per 100 admissions." Classen et al., \textit{supra} note 35, at 584. Since the studies take place over a period of one month, they will have involved few readmissions, and we need not confront the complication of whether two admissions might reflect one person admitted twice rather than two people admitted once each.
does not assess negligence, we imputed those values by applying negligence rates from the Colorado, Utah, and New York studies.\textsuperscript{42}

III. IATROGENIC INJURY AND LITIGATION IN ARIZONA

This section provides the results of the analysis described in the preceding section. It presents a statistical description of Arizona's rates of medical adverse events, negligent adverse events (i.e., medical malpractice), their costs (i.e., the economic loss suffered by victims, families, first-party health and disability insurers, and/or taxpayers), and the law’s response, as well as other data. For all of the Arizona statistics, unless indicated otherwise, we report information for 2010. Table 2 summarizes much of the data that we describe in the subsections that follow.

A. Population and Patients

According to the 2010 census, the population of Arizona was 6,392,017.\textsuperscript{43} For every 1,000 population, about 111 are admitted to hospitals each year,\textsuperscript{44} meaning that approximately 709,514 people are admitted to Arizona hospitals annually. Total health spending in Arizona in 2009 was $35.8 billion.\textsuperscript{45}

B. Adverse Events and Negligent Injury

Using the studies of Utah and Colorado as our benchmarks, we would expect at least 20,576 patients to suffer adverse events in one year in Arizona hospitals.\textsuperscript{46} Using the New York study as our benchmark, the

\textsuperscript{42} We averaged the findings from those studies to obtain a negligence rate for the Global Trigger adverse events and a death rate for negligent adverse events to apply to the Global Trigger findings.


\textsuperscript{45} \textit{Arizona: Health Care Expenditure by State or Residence (in millions), 2009}, HENRY J. KAISER FAMILY FOUND., http://kff.org/other/state-indicator/total-health-spending-2/?state=AZ (last visited Oct. 7, 2013). These are the most recent data we could find on Arizona’s health care expenditures.

\textsuperscript{46} Thomas et al., \textit{supra} note 34, at 265.
number of adverse events in Arizona would be 26,252. And using the Global Trigger study, the number of adverse events would be 235,559.

In both the Harvard studies and the Global Trigger studies, roughly half of the adverse events are considered minor: defined by the Harvard researchers as “minimal impairment, recovery [within] one month,” and by the Global Trigger researchers as “[t]emporary harm to the patient that required intervention.” The rates of death vary greatly between the studies, with 27% of the classifiable adverse events in the New York research causing death, but only 2% of the Global Trigger adverse events resulting in death. In line with these benchmarks, adverse events in Arizona cause no fewer than 1,358 deaths and as many as 5,534 deaths.

As noted earlier, just as every car crash is not the result of negligent driving, not every medical adverse event is the result of negligent health care. Of the medical adverse events that occur, studies have found that between 27.5% and 32.6% are the result of negligence and between 8.8% and 25.4% of those who experience a negligent adverse event die.

47. Brennan et al., supra note 29, at 371.
48. Classen et al., supra note 35, at 584.
49. Brennan et al., supra note 29, at 373; Classen et al., supra note 35, at 585.
50. Brennan et al., supra note 29, at 373.
51. Classen et al., supra note 35, at 586.
52. One explanation for this difference might be that in the decades intervening between the studies, medical practitioners became better at saving the lives of patients who became victims of iatrogenic injuries. If so, many of the deaths will have moved into less harmful categories. From a purely economic perspective, however, it is far more costly to treat and rehabilitate a seriously injured patient than it is to bury a deceased one. If this explanation is correct, then the decline in deaths also marks an increase in costs. A more likely explanation is that the Global Trigger Tool detected more non-fatal and less serious injuries, thereby creating a larger base of adverse events. Presumably, it is harder to conceal a deceased or seriously injured patient than a less serious one.
53. To put these numbers in some perspective, there were 50,110 car-accident-related injuries in Arizona in 2010 and 762 car-accident-related deaths. ARIZ. DEP’T OF TRANSP., ARIZONA MOTOR VEHICLE CRASH FACTS 2010 vii (2011). These numbers suggest that medical accidents are more lethal than auto accidents. However, auto passengers are generally younger and healthier, while as a group, hospital patients are older and more frail. The Arizona Department of Health Services enumerates other major causes of death: heart diseases: 12,754; cancer: 10,423; Alzheimer’s disease: 2,314; diabetes: 1,372; suicide: 1,070; motor vehicle: 711; homicide: 404. ARIZ. DEP’T OF HEALTH SERVS., ARIZONA HEALTH STATUS AND VITAL STATISTICS 2010 REPORT tbl.2B-6 (2011).
54. Driving with reasonable care sometimes results in a car accident, and health care provided with reasonable care can nevertheless result in an adverse event injury.
55. Thomas et al., supra note 34, at 265 (this value was estimated based on data from Colorado only).
56. Id. (this value was estimated based on data from Utah only).
57. Id.
58. Brennan et al., supra note 29, at 373.
By the benchmarks being employed to estimate Arizona cases, the annual incidence of negligent adverse events falls between 5,658 and 70,903. Deaths from those negligent adverse events number somewhere between 498 and 4,025.59

C. Victim Losses

Since only negligent adverse events are compensable under the law, we estimate only those losses. When a patient suffers from a negligent adverse event, additional costs are created—additional medical care, rehabilitation, lost earnings, and other costs—and those costs fall upon someone: if not on the tortfeasors and their third-party insurers, then on victims and their families, their first-party insurers, or on taxpayers. What are those costs?

Extrapolating from calculations by the Harvard Medical Practice Study,60 the average loss per average negligent adverse event (in 2010 dollars) is $291,423.61 By multiplying this average by the total number of negligent adverse events in Arizona (instances of malpractice), we can estimate the total annual cost of such injuries in Arizona. Depending on the benchmark number of negligent adverse events, this amount falls somewhere between $1.649 billion and $20.663 billion.62

59. Because the Global Trigger study did not attempt to evaluate negligence for its cases, estimates of negligence for those cases were imputed by averaging the negligence rates for the New York, Colorado, and Utah studies. Negligent adverse event death rates were similarly imputed by averaging the findings of the New York, Colorado, and Utah studies.

60. Calculated on a statewide basis, these costs for New York came to $3.77 billion ($1.80 billion for additional medical care and $1.96 billion for lost earnings and household production) for 27,177 negligent adverse events (in 1984 dollars). WEILER ET AL., supra note 5, at 95.

61. This calculation was reached by taking the $3.77 billion finding from the HMPS, adjusted for inflation using the Bureau of Labor Statistics CPI inflation calculator found at http://www.bls.gov/data/inflation_calculator.htm, divided by the number of negligent adverse events in the HMPS, leading to a cost estimate of $291,423 per negligent adverse event. Note that health care costs inflate more rapidly than other costs. Consequently, to whatever degree the expenses resulting from negligent adverse events include medical expenses, our estimate understates the actual costs in 2010 compared to two decades earlier.

62. If this amount seems implausibly large, the reader might wish to make the following adjustment. Assume that all of the Global Trigger’s additional adverse event cases (compared to the Harvard studies) fall into the temporary harm category, and that the losses suffered by those patients are so small as to be negligible, so that those 58% of all the Global Trigger adverse event cases can be ignored. That would reduce the cases with measurable losses to 29,779 x 291,423 = $8,678,285,517. Even this quick-and-dirty, extreme way of making cases disappear leaves us with a very large sum of losses to worry about.
D. Medical Malpractice Litigation

Although each year in Arizona tens of thousands of hospital patients become victims of adverse events, and thousands suffer a negligent adverse event, in 2010 only 484 malpractice claims were filed in state courts. At most, about 5% of those cases will be resolved by a trial judgment. For each case resolved by a trial judgment, approximately eight are settled prior to the filing of a claim. Thus, it can be estimated that in 2010, Arizona’s malpractice defendants were presented with about 868 claims for compensation both inside and outside of the formal legal process.

A small fraction of medical adverse events (whether negligent or non-negligent) lead to court claims for compensation. Based on the adverse event values shown in Table 2, at most 2.4% of adverse events become malpractice claims, and possibly as little as 0.2%. In any event, the great majority of injured patients take no legal action to recover compensation for their injuries.

The comparable figure for car crash injuries is at least 19%. Expressed differently, there are 109 auto accident lawsuits filed per 100,000 population in Arizona compared to eight filings per 100,000 for medical accidents. In both types of cases, some or many claims are negotiated and


In past research, the claiming rate has been found to increase in approximate proportion to the level of severity of injury, from a low of 5.7% for minor temporary disability to a high of 17% for major permanent partial disability. From there, the claiming rate drops to 13% for major permanent total disability, 11% for grave permanent total disability, and 5.8% for death. Patricia Danzon, Medical Malpractice: Theory, Evidence, and Public Policy 23 (1985) (referencing Table 2.4). A study of patients who considered their care to be harmful or seriously unsatisfactory found that 26% took no action at all, 46% merely changed health care providers, 25% complained to their doctor directly, and 9% contacted lawyers (although none of those resulted in a filed suit). Marlynn L. May & Daniel B. Stengel, Who Sues Their Doctors? How Patients Handle Medical Grievances, 24 Law & Soc’y Rev. 105, 108 tbl.1 (1990).


65. See id. at Table 6. Our estimate of eight cases settled before filing for every trial verdict is based on results from three states that provided such data: Florida: 12.91 pre-filing settlements for each trial verdict; Missouri: 7.74; Texas: 3.35.

66. The calculation: 484 + (8*48) = 868.

67. Ariz. Dep’t of Transp., supra note 53; Admin. Office of the Ariz. Courts, supra note 63. The ratio for auto crash filings is 6328/33,195 and for medical injuries is 484/24,151.

68. Lee & LaFountain, supra note 2, at 2.
settled without a court case being filed. If we included those cases, the gap between malpractice claims and auto crash claims would be even larger, since auto injury cases are routinely handled and settled without the involvement of courts or even lawyers.

Many readers will be interested in the portion of the filed claims that lack merit. Above, we provided the claiming rate as a proportion of adverse events (somewhere between 2.4% and 0.2%), whether the injury was caused by negligence or not. How those divide out into meritorious or not is most clearly seen through an analysis by the Harvard Medical Practice Study ("HMPS"). HMPS researchers correlated the negligent adverse events they found in the hospitals' medical records with the opened files ("claims") they found in the records of insurers of New York State's doctors and hospitals. Of the 30,121 hospital records reviewed, in 29,802 cases there were no negligent adverse events and no claims. Of the 280 negligent adverse events in the medical records (that is, claims that in principle could have successfully been brought), only eight became claims for compensation. Thus, 2.9% of negligent injuries resulted in claims. Put the other way around, insurers never heard 97.1% of what would have been valid claims. From an economic perspective—compensating injuries, internalizing costs, and establishing the proper level of deterrence—one might wonder what remains of the civil justice system so far as medical negligence is concerned. In addition to those eight claims, however, there were thirty-nine additional claims in the insurers' files, which were cases

---

69. These are sometimes referred to as "frivolous" claims, and a note on such cases might be helpful. Most often, a non-meritorious, or "frivolous," claim really means an adverse event injury that was not the result of negligence. But determining negligence in the medical context might often be one of the most difficult of torts to evaluate. This is evident from the fact that medical records reviewers classifying cases for research purposes encountered genuine ambiguity and disagreement among themselves as to whether the care leading to an adverse event injury was negligent or not. We can put some numbers to that. In the HMPS study of New York, for example, of 30,000 patient records reviewed, 39 involved insurance company-opened files that the medico-legal researchers judged not to be caused by negligent care. (We say "opened files" rather than "claims" because these are files opened for any reason, of which the filing of a legal complaint is only one. Some were opened at the behest of a nervous doctor rather than a patient who hired a lawyer.) Of those 39 opened files, 12 appeared to have no basis (though perhaps the basis had been hidden by the persons whose notes were being reviewed). (Thus, the odds of a claim file being opened without any apparent basis was about 4 in 10,000.) Of the rest, 15 to 18 were judged to have suffered adverse events and 7 were thought by at least one of two reviewing doctors to be the victims of negligent injury. In short, if most of the cases within the study that eventually were judged to lack merit required higher and higher levels of review to resolve ambiguity as to whether or not negligence existed, it should not be surprising that within the legal system, initial filings also require increasing levels of review, negotiation, and occasionally a trial to resolve their ambiguity. WEILER ET AL., supra note 5.

70. WEILER ET AL., supra note 5, at 70–75.
HMPS researchers had judged not to involve negligence. From the perspective of insurers, then, for each valid claim leading to an opened file, there were about five non-meritorious cases. At the same time it is true that for every claim filed (whether meritorious or not), six additional valid claims existed that could have been filed but never were.

Based on data from sixty U.S. medical malpractice insurers, it can be seen that of all cases that lead to the opening of an insurance company file, 64% are eventually dropped, withdrawn, or dismissed; 27% result in a settlement with a payment to the plaintiff; and only about 8% proceed to trial. If 8% of filed suits in Arizona reach trial, that would be about thirty-nine of the 2010 filings.

Extrapolating from other studies, about a quarter of medical malpractice cases resolved by a trial verdict end in a verdict favoring the plaintiff. In Arizona in 2010, that would mean approximately ten verdicts for plaintiffs statewide. That rate is about half of the rate at which tort plaintiffs in general prevail at trial.

E. Compensation

Of the cases that were resolved in 2011, 181 resulted in payments to Arizona medical malpractice claimants. The total amount of those payments was $63,167,750.
As a portion of losses suffered by victims of negligent adverse events, indemnity payments made constitute no more than about 3.8%, and possibly as little as a fraction of one percent.\textsuperscript{78}

According to studies of national scope, the trend in malpractice claiming, instances of compensation being paid, and the total amounts paid, all have been heading downward for years.\textsuperscript{79} That means that the role of the civil justice system in providing compensation for victims of avoidable, negligent medical injuries is on its way from tiny to miniscule.

CONCLUSION

This Article has provided a picture of the statistical landscape of medical adverse events in Arizona and the response of the state's civil justice system to claims. As cases are resolved over a considerable period of time, malpractice insurance coverage is said to have a long "tail." Thus, payments made in 2010 will mostly be for adverse events occurring before 2010. And injuries occurring in 2010 will mostly be resolved after 2010. Therefore, injuries in 2010 do not line up with payments made in 2010. Thus, the 2011 expenditures come closer to reflecting payments for the 2010 adverse events than payments made in 2010 would.


Total amounts paid per year will fluctuate because the number of payments is quite small from an actuarial perspective, making prediction difficult. By contrast, insurance products such as life insurance, fire insurance, or auto liability insurance involve far more claims paying far higher total amounts, but the large number of claims makes actuarial prediction much more accurate. Ironically, the difficulty of setting malpractice rates derives from the small number of cases. Add to this the fact that only a small fraction of medical malpractice victims seek compensation (a number that in theory could legitimately jump up "next year") and it is understandable that medical malpractice insurers necessarily take a cautious approach, preparing for more, and more severe, claims in the future, even though they have never materialized.

\textsuperscript{78} Calculated from data in Table 2, infra.

\textsuperscript{79} Hyman & Silver, supra note 1, at 222–23 ("[T]he frequency of paid medical malpractice claims per physician has been dropping steadily since 1992 and is now less than one-half the level it was in 1992 . . . . Payout per physician . . . is now 46% below the 1992 level.").
system—a picture not otherwise available. We developed estimates of various measures based on findings from studies of hospitals in other states that were explicitly aimed at learning about the number and nature of adverse events in those places, and we used those findings to impute the range of injuries, negligence, losses, and legal system responses in Arizona.

The central lesson of these findings is that negligent adverse events in Arizona are quite large in number and constitute a serious public health problem for the state. Even by the most optimistic estimates, Arizonans suffer from a large number of medical adverse events, which impose a heavy burden of injuries, deaths, and economic cost on victims, their families, their insurers, and taxpayers. More complete data can be seen in Tables 2 and 3 and accompanying text, but a summary is provided here.

Of the more than 700,000 people admitted to Arizona hospitals each year, over 20,000 (and perhaps as many as 235,000) become victims of medical adverse events. Approximately half of those injuries cause more than minimal impairment, and over 1,300 (perhaps as many as 5,500) cause death. In all, approximately 30% of those adverse events are the result of negligent care; for deaths, the proportion caused by negligence is considerably larger.

The economic cost of these injuries to victims, families, first-party insurers, and taxpayers comes to at least $1.65 billion, almost certainly more than $2.50 billion, and very possibly several times more than the last amount.

Of tens of thousands of adverse events and thousands of negligent adverse events, fewer than 500 cases are filed in Arizona annually, and in total fewer than 200 (at most 3% of negligently injured patients) receive any compensation from a doctor’s or hospital’s insurer. Some of the relationships among the data we have described and discussed are summarized in Table 3.

The principal implication of these data for lawmakers is that legal policy might be misdirected at trying to keep the victims of iatrogenic injury from recovering compensation for their injuries in order to keep malpractice premiums low in an effort to attract more doctors to Arizona. A more productive focus of legislative attention would be to think creatively and

80. If, at some future time, hospitals in Arizona undertake to collect and disclose valid and reliable data about such incidents in their institutions, policymakers will be in an even better position to assess the problem in Arizona.

81. Research suggests that malpractice insurance laws have little impact in general on the geographic migration of physicians, though for a few subcategories they might. See reviews of the research in SLOAN & CHEPKE, supra note 1, at 68–69; and Hyman & Silver, supra note 1, at 224–25.
constructively about how the law could facilitate a reduction in negligent adverse events and preferably all adverse events.

On its own, the health care industry has had little success in improving patient safety. One likely reason for that failure is that the economic incentives are backwards: more adverse events earn more revenue for the industry. The existing reimbursement structure means that hospitals have little incentive to invest in patient safety when those investments will inevitably reduce income. The motivation to improve safety will have to spring from other sources.

For centuries, tort law had been the feedback loop that provided incentives both economic and psychological for individuals and organizations to seek to conduct their activities at the optimal level of safety. In recent decades, disproportionate legislative attention has been

---

82. See, e.g., Landrigan et al., supra note 37, at 2133.
83. This is not to say anyone harms patients intentionally—other than those physicians who knowingly perform unnecessary procedures. See, e.g., Abelson & Creswell, supra note 29.
84. See supra note 4.
85. Note that the operative word is “optimal,” not maximal. The negligence standard in tort law does not aim to stop accidents entirely. It aims to have members of society conduct their harm-risking activities more safely only to the extent that the cost of harm avoidance does not exceed the cost of the harm (when it occurs), discounted by the probability of its occurrence. That, in the view of classical economic analysis, is what the law achieves by setting the threshold for liability at “negligence.” See WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF TORT LAW 85 (1987); GUIDO CALABRESI, THE COSTS OF ACCIDENTS 1 (1970).

Moreover, negligence law might be expected to work especially well in relation to industries that, by their nature, cause repeated injury. Provided that the costs of harm fall back onto the industry (which is what, in principle, tort litigation accomplishes), those organizations are in an excellent position to assess how much it is worth to invest in measures to prevent or reduce the seriousness of injuries. A rational organization aims to keep the cost of its product or service lower than the competition, and it is in the best position to decide whether that price can be made most competitive by compensating its victims or by investing in safety to reduce the number of victims.

But, to the extent that an industry can displace the cost of the harm it causes onto others, it has no less incentive to invest in safety, and its price will not reflect the full cost of its activities. The costs of doing business that can be shifted to others are referred to as externalities. The role of tort law is to internalize those costs back onto the industry that creates them. To the extent that the law does not accomplish that, the industry is, in effect, receiving a subsidy.

Consider the position of a hospital where the cost of negligent adverse events is paid not by the hospital but by the first-party health insurer of the victim of injury, by the victim’s employer’s disability insurance, by the victim’s family, and/or by taxpayers through some form of social insurance (including Medicare, Tricare, and Medicaid). At the same time that the health care industry is externalizing the costs created by its injurious missteps, the industry is in the unique position of profiting from the costs it has created. That occurs when a patient who is the victim of a negligent adverse event receives additional health care to remedy the iatrogenic injury, paid for, for example, by the patient’s health insurer. From this patient’s insurer, the
paid to malpractice litigation and not nearly enough to medical adverse
events. Avoidable medical errors are one of the leading causes of accidental
injury and death in Arizona, yet the law invests little, if any, effort in
improving patient safety and reducing iatrogenic injury. Compare the
paucity of those efforts to the legal attention given to preventing auto
accidents. Furthermore, despite their number, medical errors evoke very
little litigation compared to auto crashes, yet far more legislative attention
has been given to reducing litigated claims for compensation from medical
accidents than from auto accidents. 86

Regardless of what future legislation does to tort law—and perhaps
especially if tort law continues to be dismantled with regard to medical
malpractice—something needs to be done to restore or even improve
sensible economic incentives, or to provide other and more innovative
assistance, to bring about improvements in patient safety with the aim of
producing major reductions in the incidence of iatrogenic injuries. By
attacking the underlying problems and reducing the high number of adverse
events, the total costs created by those injuries would be reduced, and to
approximately the same extent the costs externalized to injured patients,
families, their insurers, and taxpayers would be reduced, the cost of
malpractice liability insurance would be reduced, and the cost of health care
would decline. 87

Discussion of the reforms that might bend the injury curve downward is
beyond the scope of this Article, though several have been mentioned in
passing. 88 Imagine if Arizona could accomplish what the Institute of
Medicine called upon the nation’s health care industry to accomplish, but

industry has received more revenue than it would have had it delivered care to that patient
safely.

To the extent that tort law has been disabled by reforms of recent decades from its
traditional role of internalizing cost to the tortfeasors, whatever incentives had existed to invest
in safety are reduced. Some government and private health insurers have started to restore or
instate more rational incentives and motivate greater safety. See, for example, the description, at
supra note 4, of Medicare’s new policy of non-reimbursement for certain iatrogenic injuries,
forcing the costs to be absorbed by the hospital where the injury occurred, and creating
incentives to prevent such injuries.

86. Recall that in Arizona, for every 100,000 population, there are 109 auto accident
lawsuits filed compared to eight medical malpractice suits.

87. Or, more precisely, its rise would slow.

88. One is the elimination of reimbursements to hospitals for iatrogenic injuries that ought
never to have occurred. If nothing else, future legislation could mandate the use of certain well-
tested methods of counting adverse events and requiring their periodic disclosure. To mention
one more at the innovative extreme, the conventional medical malpractice tort system could be
replaced with an enterprise liability system that might lead to dramatic improvements in quality
of care and patient safety, though its primary target is malpractice reform. Or it might not.
Experimentation is needed. See generally supra note 4.
which it has made little or no progress in achieving: cutting the number of adverse events in half within a decade.\(^89\) That Arizona health care institutions could be national leaders in patient safety is not beyond reach.\(^90\) Were Arizona to become a leader in promoting real, practical, constructive improvements, copied by other states around the nation, it would not be the first time Arizona led in such a fashion.\(^91\)

\(^89\) The health care industry in general has made very little detectable progress in that direction. See Landrigan et al., supra note 37, and studies cited therein.

\(^90\) One already is: the Mayo Clinic in Arizona was ranked #1 in the most recent Consumer Reports safety ratings of 2,031 hospitals throughout the United States. U.S. Hospitals Still Not Safe Enough, CONSUMER REP., May 2013, at 11.

\(^91\) Arizona has been a national leader in reforming jury trial processes. See ARIZ. SUPREME CT. COMM’N ON THE MORE EFFECTIVE USE OF JURIES, THE POWER OF TWELVE 33–132 (1994). Thirteen of the Commission’s recommendations were adopted as Arizona Rules of Procedure, and have since been copied by other states.
Table 1. External Source Data Used to Impute Arizona Adverse Event Values

<table>
<thead>
<tr>
<th></th>
<th>Harvard Med Practice Studies</th>
<th>Colorado/Utah</th>
<th>New York</th>
<th>Global Trigger</th>
</tr>
</thead>
<tbody>
<tr>
<td>As Proportion of Admissions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adverse events</td>
<td>.0290</td>
<td>.0370</td>
<td></td>
<td>.3320</td>
</tr>
<tr>
<td>Adverse event deaths</td>
<td>.0019</td>
<td>.0050</td>
<td></td>
<td>.0078</td>
</tr>
<tr>
<td>Negligent adverse events</td>
<td>.0080</td>
<td>.0121</td>
<td></td>
<td>.0913</td>
</tr>
<tr>
<td>Negligent adverse event deaths</td>
<td>.0007</td>
<td>.0031</td>
<td></td>
<td>.0027</td>
</tr>
</tbody>
</table>

Note: See text and footnotes for sources of data and methods of calculation.
Table 2. Statistical Landscape of Adverse Events and Malpractice Litigation in Arizona

<table>
<thead>
<tr>
<th></th>
<th>Estimated from Studies in Other States</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Harvard Med Practice</td>
</tr>
<tr>
<td></td>
<td>Colo / Utah</td>
</tr>
<tr>
<td>Admissions</td>
<td>709,514</td>
</tr>
<tr>
<td>Total Adverse Events</td>
<td>20,576</td>
</tr>
<tr>
<td>Deaths</td>
<td>1358</td>
</tr>
<tr>
<td>Negligent Adverse Events (NAE)</td>
<td>5658</td>
</tr>
<tr>
<td>Deaths</td>
<td>498</td>
</tr>
<tr>
<td>Economic losses by victims of NAEs ($ billions)</td>
<td>1.649</td>
</tr>
<tr>
<td>Total Filings</td>
<td>484</td>
</tr>
<tr>
<td>Settled, dropped, dismissed</td>
<td>445</td>
</tr>
<tr>
<td>Trials</td>
<td>39</td>
</tr>
<tr>
<td>Verdicts for plaintiffs</td>
<td>10</td>
</tr>
<tr>
<td>Settlements and Awards</td>
<td></td>
</tr>
<tr>
<td>Total number of payments</td>
<td>181</td>
</tr>
<tr>
<td>Total amount ($ millions)</td>
<td>63.168</td>
</tr>
<tr>
<td>Mean per payment ($)</td>
<td>348,993</td>
</tr>
<tr>
<td>Professional Liability Insurance</td>
<td></td>
</tr>
<tr>
<td>Earned premiums ($ millions)</td>
<td>160.962</td>
</tr>
</tbody>
</table>

Note: See text and footnotes for sources of data and methods of calculation.
Table 3. Several Ratios Among Arizona Medical Malpractice Data

<table>
<thead>
<tr>
<th>Event Description</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chance that an Arizona hospital patient will become the victim of one or more adverse events</td>
<td>3 in 100</td>
<td>33 in 100</td>
</tr>
<tr>
<td>Chance that the victim of an adverse event in Arizona will die</td>
<td>2.3 in 100</td>
<td>14 in 100</td>
</tr>
<tr>
<td>Chance that an adverse event in Arizona is the result of negligence</td>
<td>27 in 100</td>
<td>33 in 100</td>
</tr>
<tr>
<td>Chance that the victim of a negligent adverse event in Arizona will die</td>
<td>6 in 100</td>
<td>25 in 100</td>
</tr>
<tr>
<td>Ratio of victims of negligent adverse events to victims of negligent adverse events who file legal claims for compensation in Arizona</td>
<td>146:1</td>
<td>12:1</td>
</tr>
<tr>
<td>Chance that a hospital patient in Arizona will file a medical malpractice lawsuit</td>
<td>1 in 1700</td>
<td></td>
</tr>
<tr>
<td>Chance that a victim of a negligent adverse events in Arizona will receive compensation</td>
<td>0.5 in 100</td>
<td>6 in 100</td>
</tr>
<tr>
<td>Ratio of victims' total economic losses to total compensation paid in Arizona</td>
<td>327:1</td>
<td>26:1</td>
</tr>
</tbody>
</table>

Note: The tabled values are calculated from data in Table 2.

---

92. These values assume that 181 paid claims include payments on all claims whether filed in court or presented to insurers prior to and without ever filing a complaint in court, and they are calculated on only half of the negligent adverse events in Table 2 on the assumption that "minor" injuries (temporary injuries lasting no longer than one month) would not become claims at all.