

RATIONALIZING NONECONOMIC DAMAGES: A HEALTH-UTILITIES APPROACH

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I

INTRODUCTION

Quantifying noneconomic loss is a profound, longstanding, and seemingly intractable problem in the civil justice system.¹ For the most part, courts and legal scholars have thrown their hands up and surrendered to the view that the magnitude of human suffering is essentially unknowable in any objective sense. The problem has been left to juries, “in the apparent hope that jurors can fill

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1. Parts of this article (excluding the empirical analysis) are adapted from a report produced by the authors for a legislative task force in the State of Washington in 2005. That report is available as part of the task force’s report to the legislature, STATE OF WASHINGTON TASK FORCE ON NONECONOMIC DAMAGES, REPORT TO THE LEGISLATURE 15–70 (2005), *available at* <http://www.ofm.wa.gov/rmd/publications/nedfinalrpt.pdf> [hereinafter TASK FORCE REPORT]. *See also generally* Steven P. Croley & Jon D. Hanson, *The Nonpecuniary Costs of Accidents: Pain-and-Suffering Damages in Tort Law*, 108 HARV. L. REV. 1785 (1995); Mark Geistfeld, *Placing a Price on Pain and Suffering: A Method for Helping Juries Determine Tort Damages for Nonmonetary Injuries*, 83 CALIF. L. REV. 773 (1995).

the intellectual void.”² Courts provide little guidance and give juries wide deference on how to arrive at noneconomic-damages figures.³

Jurors struggle with the assignment. Survey data suggests that juries often view the determination of damages—particularly the noneconomic component—as more difficult than the decision about liability.⁴ In one simulation exercise conducted with a large sample of veniremen outside a North Carolina courtroom, the participants

uniformly commented on the difficulty of putting a price on pain and suffering and used different methods of calculating the awards. Some roughly split the difference between the defendant’s and the plaintiff’s suggested figures. One juror doubled what the defendant said was fair, and another said it should be three times medical expenses. One juror said, “[Eight] months of pain and suffering missing out of her teen years. She should receive no more than what most people make in a year” (awarded \$50,000). A number of jurors assessed pain and suffering on a per month basis, such as \$4000 or \$5000 and multiplied by the eight months that the plaintiff was incapacitated. Other jurors indicated that they just came up with a figure that they thought was fair.⁵

Unsurprisingly, jury valuations of noneconomic loss vary widely.⁶ The same appears to be true of these valuations outside court, although decisions by “repeat players,” such as arbiters and insurance adjusters, appear to have slightly less inconsistency.⁷ Previous empirical research has found that noneconomic-damages determinations adhere reasonably well to the principle of “vertical equity” (that is, damages tend to climb with injury severity), but do poorly in achieving “horizontal equity” (injuries of similar severity receiving similar compensation).⁸ For example, a 2004 study of California malpractice

2. W. KIP VISCUSI, *REFORMING PRODUCTS LIABILITY* 101 (1991).

3. Edith Greene & Brian H. Bornstein, *Precious Little Guidance: Jury Instructions on Damages Awards*, 6 PSYCH. PUB. POL. & L. 743, 744–46 (2000); Mark A. Geistfeld, *Due Process and the Determination of Pain and Suffering Tort Damages*, 55 DEPAUL L. REV. 331, 341–42 (2006); Roselle L. Wissler et al., *Instructing Jurors on General Damages in Personal Injury Cases: Problems and Possibilities*, 6 PSYCH. PUB. POL’Y & L. 712, 714–18 (2000).

4. Shari S. Diamond, *What Jurors Think: Expectations and Reactions of Citizens Who Serve as Jurors*, in VERDICT: ASSESSING THE CIVIL JURY SYSTEM 282, 297 (Robert E. Litan ed., 1993).

5. Neil J. Vidmar, *Empirical Evidence on the “Deep Pockets” Hypothesis: Jury Awards for Pain and Suffering in Medical Malpractice Cases*, 43 DUKE L.J. 217, 253–54 (1993) (footnote omitted).

6. See Richard Abel, *General Damages Are Incoherent, Incalculable, Incommensurable, and Inegalitarian (But Otherwise a Great Idea)*, 55 DEPAUL L. REV. 253, 291–304 (2006) (describing variation of general-damages amounts in specific contexts and reviewing a wide range of calculability problems); James F. Blumstein, *Making the System Work Better: Improving the Process for Determination of Noneconomic Loss*, 35 N.M. L. REV. 401, 405, 410 (2005) (citing evidence that noneconomic components of damages awards are the most variable).

7. Neil Vidmar & Jeffrey R. Rice, *Instructing Jurors on General Damages in Personal Injury Cases: Problems and Possibilities*, 6 PSYCH. PUB. POL’Y & L. 712, 892–96 (1993) (examining variability in award determinations made by twenty-one experienced arbitrators and forty-seven veniremen in response to standardized cases in an experimental study); Joseph Sanders, *Reforming General Damages: A Good Tort Reform*, 13 ROGER WILLIAMS U. L. REV. 115, 123–28 (2008) (reviewing empirical research on variability in noneconomic-damages determinations).

8. David M. Studdert et al., *Are Damages Caps Regressive? A Study of Malpractice Jury Verdicts in California*, 23 HEALTH AFF. 54, 58–59 (2004) (analyzing noneconomic-damages awards in a sample of California medical-malpractice cases from 1985 to 2002); Randall R. Bovbjerg et al., *Valuing Life*

verdicts found that injuries ranked by physicians on a nine-point scale according to their level of severity received noneconomic damages awards that varied up to twelvefold within rankings.⁹

What explains this variability? Consistent determinations in this area may simply lie beyond the capacity of groups of laypersons without guidance or some means of calibration.¹⁰ It is also likely that ostensibly extraneous factors enter the calculation, such as the plaintiff's gender, race, socioeconomic status, or physical appearance, as well as perceptions of the defendant's culpability.¹¹ These and other attributes of plaintiffs almost certainly stir varying levels of empathy among jurors, and some juries will have greater collective empathy than others.¹² Heuristics, such as anchoring effects created by attorneys' arguments as to what constitutes an appropriate award, are another likely driver of inconsistency.¹³ Whatever the explanations, the heterogeneity in noneconomic-damages awards among injuries of similar severity is inefficient, inequitable, and has damaging consequences for the legitimacy of personal-injury compensation systems.

This article proceeds in six parts. Part II explains why making compensation of noneconomic damages in personal-injury litigation more rational and predictable is socially valuable. Part III critiques damages caps, the standard policy intervention used to control noneconomic damages in American tort law. Part IV discusses noneconomic-damages schedules as an alternative to caps, reviews several potential approaches to construction of schedules, and argues

and Limb in Tort: Scheduling "Pain and Suffering", 83 NW. U. L. REV. 908, 920–25 (1989) (studying total damages awards in 1973 through 1987 in a sample consisting of medical malpractice cases, product liability cases, auto injury cases, and cases against government defendants); Roselle Wissler et al., *Decisionmaking About General Damages: A Comparison of Jurors, Judges, and Lawyers*, 98 MICH. L. REV. 751, 808–10 (1999) (finding reasonable vertical equity in a sample of awards by mock jurors, but a substantial degree of horizontal inequity).

9. Studdert et al., *supra* note 8, at 59.

10. Some research suggests that less than half of the variation in noneconomic damages can be explained by "true" variation in the nature or extent of the injuries in question. Bovbjerg et al., *supra* note 8, at 923. See also generally MICHAEL G. SHANLEY & MARK A. PETERSON, *COMPARATIVE JUSTICE: CIVIL JURY VERDICTS IN SAN FRANCISCO AND COOK COUNTIES, 1959–1980* (1983). The chief problem with such estimates, however, is the benchmark against which such variation is measured is illusory. The level of physical injury tends to be used as a proxy for severity of noneconomic harm, but it is a flawed proxy. See *infra* note 67 and accompanying text.

11. For illustrative empirical studies of the role of these factors in jury decisions, see the sources cited in Frederick S. Levin, *Pain and Suffering Guidelines: A Cure for Damages Measurement "Anomie"*, 22 U. MICH. J.L. REFORM 303, 321 (1989). The role of extraneous factors in assessments of noneconomic damages warrants special attention given evidence that the influence of such factors on jury decisionmaking tends to increase with the vagueness of legal standards. See Martin Kaplan & L.E. Miller, *A Model of Cognitive Processes in Jurors*, 10 REPRESENTATIVE RES. SOC. PSYCHOL. 48, 49 (1979), cited in Levin, *supra*, at 321 n.68.

12. See generally Jody Lynee Madeira, *Lashing Reason to the Mast: Understanding Judicial Constraints on Emotion in Personal Injury Litigation*, 40 U.C. DAVIS L. REV. 137 (analyzing "empathic identification" and the role it may play in jurors' determinations of damages for pain and suffering).

13. Wissler et al., *supra* note 3, at 723–24 (reviewing studies on the anchoring effect). See generally Edward J. McCaffery et al., *Framing the Jury: Cognitive Perspectives on Pain and Suffering Awards*, 81 VA. L. REV. 1341 (1995) (analyzing "framing effects" in jury decisions about noneconomic damages).

for use of a health-utilities approach as the most promising model. Part V presents an empirical analysis. The analysis combines health-utilities data created in a previous study with original empirical work to demonstrate how key steps in construction of a health-utilities-based schedule for noneconomic damages might proceed. Part VI briefly discusses implementation challenges for such a schedule.

Much of the article focuses on jury decisionmaking in medical-malpractice litigation. Some of the data used in the empirical analyses comes from this setting, and juries are a natural starting point because determinations about noneconomic damages are most visible and explicit in this node of the tort system. However, the approach this article outlines for guiding the calculation of noneconomic damages need not be so confined. It has potential applicability to all forms of personal-injury compensation in which noneconomic losses are valued, and to alternative dispute resolution forums, administrative compensation schemes, and settlement negotiations. Indeed, if a health-utilities-based schedule were adopted, its impact is likely to be largest outside courts, where the vast majority of determinations about damages occur and quantification of noneconomic loss is also deeply fraught, even for seasoned decisionmakers.¹⁴

II

WHY NONECONOMIC DAMAGES MATTER¹⁵

A. Implications for Insurance

The adverse effects of erratic compensation payments are felt throughout the civil justice system. They infect compensation systems with unpredictability and instability; increase the costs of liability insurance; undermine deterrence; allow case-to-case inequities to flourish; and weaken the legitimacy of the tort liability system in the eyes of the media, the public, and policymakers.¹⁶

When damages awards are highly variable and insurers cannot predict them with reasonable precision, the cost of insurance rises.¹⁷ Every malpractice-insurance premium dollar includes an amount that represents the insurer's uncertainty about its exposure. The greater the uncertainty, the larger that amount will be. Where uncertainty is extreme and the potential exposure

14. At 5%–10%, medical-malpractice cases have one of the highest trial rates among tort cases; for other leading claim categories, trials occur in 1%–3% of cases. CAROL J. DEFRANCES ET AL., U.S. DEPT OF JUSTICE, CIVIL JUSTICE SURVEY OF STATE COURTS, 1992: CIVIL JURY CASES AND VERDICTS IN LARGE COUNTIES 2 (1995). *See also generally* Vidmar & Rice, *supra* note 7, and Sanders, *supra* note 7 (both discussing imprecision of decisionmakers other than jurors).

15. This part has been adapted from the TASK FORCE REPORT, *supra* note 1, at 26–29.

16. Bovbjerg et al., *supra* note 8, at 908.

17. Patricia M. Danzon, *Medical Malpractice Liability*, in *LIABILITY: PERSPECTIVES AND POLICY* 101, 122 (Robert E. Litan & Clifford Winston eds., 1988); James F. Blumstein, *supra* note 6, at 401.

massive, some insurers may choose to withdraw from the market entirely.¹⁸ Others will engage in underwriting practices that make liability insurance unaffordable or unavailable to some healthcare providers.

In medical malpractice, as in many other areas of personal-injury law, insurers have trouble predicting the noneconomic component of damages awards. Although the economic component of awards is often large, particularly for severe injuries to infants and young children, the methodologies for its calculation are relatively clear and well established. This allows both sides in a dispute to converge on proximate estimates of economic loss.¹⁹ But there is no agreed-upon methodology for estimating noneconomic losses, leaving this component of damages awards highly unpredictable. Because jury awards for pain-and-suffering damages can run to millions of dollars, this unpredictability can have damaging consequences for liability insurers and uninsured or underinsured healthcare providers.

B. Implications for Deterrence

Variability and unpredictability in damages awards also blur any deterrent signal that the tort system might emit. Deterrence hinges on potential tortfeasors' ability to gauge what the economic sanctions associated with careless behavior would be. Rational cost-benefit calculations around different levels of precaution-taking cannot be performed with accuracy where the costs are not known with reasonable certainty.

The result may be too much precaution-taking (over-deterrence) or too little (under-deterrence).²⁰ In the medical-malpractice context, over-deterrence manifests as "defensive medicine"—the ordering of medical tests, procedures, or visits or the avoidance of high-risk patients or procedures, primarily (but not necessarily solely) to reduce providers' exposure to malpractice liability.²¹ Defensive medicine leads to higher healthcare costs and may even involve physical harm to patients, since no medical procedure is risk free.²² On the other hand, under-deterrence may also occur, meaning that healthcare providers take less than the socially appropriate degree of care and invest less than the optimal level of resources in improving patient safety and preventing medical injuries. This has obvious consequences in terms of patient harm, and flow-on financial effects because the social costs of medical injury extend beyond the patient's

18. Geistfeld, *supra* note 1, at 788; Bovbjerg et al., *supra* note 8, at 925.

19. There is an exception whenever uncertainty around the plaintiff's life expectancy opens up room for dispute over the period of time over which economic losses will be sustained.

20. Geistfeld, *supra* note 1, at 786.

21. U.S. CONGRESS, OFFICE OF TECH. ASSESSMENT, DEFENSIVE MEDICINE AND MEDICAL MALPRACTICE 21 (1994).

22. David M. Studdert et al., *Defensive Medicine Among High-Risk Specialist Physicians in a Volatile Malpractice Environment*, 293 J. AM. MED. ASS'N 2609, 2616 (2005).

suffering to include negative externalities such as medical costs to society and lost productive capacity.²³

C. Implications for Fairness

In addition to being costly and inefficient, the present laissez-faire approach to determining noneconomic damages results in inequitable treatment of plaintiffs. The well-documented problems with horizontal equity subvert the basic notion that a just system treats similarly situated persons in a similar way.²⁴

D. Implications for Public Trust and Confidence

Concerns among the public and legislators about “jackpot” awards in a civil justice system that is “out of control” are often articulated as ambit critiques; but when they narrow, noneconomic damages are typically singled out as a major culprit.²⁵ Several factors feed this perception: media publicity about cases in which plaintiffs have recovered huge pain-and-suffering awards for seemingly trivial injuries, the variability in jury awards observed for ostensibly similar cases, the controversial nature of noneconomic loss, and the political unpopularity of suggesting that injured patients should not be fully compensated for their economic losses. The absence of a coherent framework for assessing noneconomic losses leaves them vulnerable to charges of unreasonableness that have far-reaching consequences for public perceptions of the tort system.²⁶ Bovbjerg and colleagues posit that, “At root, one’s attitude about the liability system generally, and damage awards specifically, seems to depend a great deal on one’s attitude concerning non-economic damages”²⁷

How well does the perception that noneconomic damages are a major culprit in large awards match the empirical reality? It is surprisingly difficult to

23. 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, 847–52 (2007); Eric J. Thomas et al., *Costs of Medical Injuries in Colorado and Utah in 1992*, 36 INQUIRY 255, 259–61 (1999).

24. For a discussion of these equity problems, see Bovbjerg et al., *supra* note 8, at 924; Abel, *supra* note 6, at 303–15; and Sanders, *supra* note 7, at 123–28.

25. See generally Carly N. Kelly & Michelle M. Mello, *Are Medical Malpractice Damages Caps Constitutional? An Overview of State Litigation*, 33 J.L. MED. & ETHICS 515 (2005) (documenting a widespread perception that large awards for noneconomic damages are a key driver of malpractice-insurance premiums for physicians). An excellent illustration of the direct line drawn between noneconomic damages, “excessive payouts,” and other evils of the tort system was the Bush Administration’s long-running campaign for noneconomic-damages caps:

Anybody who goes into court and wins their case ought to get full economic damages. At the same time, we must prevent excessive awards that drive up costs, encourage frivolous lawsuits, and promote drawn-out legal proceedings. And that is why we need a reasonable federal limit on non-economic damages awarded in medical liability lawsuits, and the reasonable limit in my judgment ought to be \$250,000.

George W. Bush, Speech at High Point University in Greensboro, NC (July 25, 2002), available at <http://georgewbush-whitehouse.archives.gov/news/releases/2002/07/20020725-1.html>.

26. Geistfeld, *supra* note 1, at 781.

27. Bovbjerg et al., *supra* note 8, at 919.

answer that question. Available evidence suggests that noneconomic damages account for a significant proportion of awards—approximately 30%–40% across all awards, and 40%–70% of large verdicts in medical-malpractice and other types of personal-injury litigation.²⁸ However, these statistics come mainly from payments resulting from jury verdicts. The vast majority of claims that attract payment never reach court verdicts and the split for them is unknown; they are not publicly reported. Moreover, the parties to a settlement themselves are usually unaware, in any explicit sense, of precisely what proportion of the agreed-upon amount covers noneconomic loss.²⁹ Nevertheless, the belief that noneconomic damages play an important role in driving up total payouts has focused the interest of tort reformers on the noneconomic component of awards.

III

DAMAGES CAPS AND THEIR SHORTCOMINGS³⁰

A. The Darling of Tort Reform

Malpractice “crises” in the mid-1970s, mid-1980s, and early 2000s provided fertile ground for negative perceptions of noneconomic damages to flourish and created enduring interest among legislators in limiting them. Indeed, for the last four decades, caps on noneconomic damages have been the centerpiece of tort-reform packages aimed at reducing the cost of malpractice litigation. About half the states currently impose them.³¹ A review of these laws is helpful for understanding the theoretical and practical reasons to pursue damages schedules as an alternative to caps.

B. Anatomy of Caps

The prototypical form of the noneconomic-damages cap is California’s, adopted in 1975 as part of the Medical Injury Compensation Reform Act (MICRA).³² The MICRA cap is a flat limit of \$250,000 that is not adjusted for

28. W. Kip Viscusi, *Pain and Suffering in Product Liability Cases: Systematic Compensation or Capricious Awards?*, 8 INT’L REV. L. & ECON. 203, 207 (1988) (analysis of product liability cases); Bovbjerg et al., *supra* note 8, at 922, 937 (authors’ recalculations of data from Table 2 and Table 3); Neil Vidmar, *The Performance of the American Civil Jury: An Empirical Perspective*, 40 ARIZ. L. REV. 849, 883 (1998); Michelle M. Mello et al., *National Costs of the Medical Liability System*, 29 HEALTH AFF. 1569, 1571 (2010).

29. Mello et al., *supra* note 28, at 1571.

30. This part has been adapted from the TASK FORCE REPORT, *supra* note 1, at 30–34.

31. MICHELLE M. MELLO & ALLEN KACHALIA, EVALUATION OF OPTIONS FOR MEDICAL MALPRACTICE SYSTEM REFORM 3 (2010), available at http://www.medpac.gov/documents/Apr10_MedicalMalpractice_CONTRACTOR.pdf (reporting that twenty-six states cap noneconomic damages). Since the publication of this report, the caps in Illinois and Georgia have been struck down by the supreme courts in each state. See *Lebron v. Gottlieb Mem’l Hosp.*, 930 N.E. 2d 895 (Ill. 2010); *Atlanta Oculoplastic Surgery v. Nestlehutt*, 691 S.E.2d 218 (Ga. 2010).

32. Ch. 1, § 24.6, 1975 Cal. Stat. 3969 (codified at CAL. CIV. CODE § 3333.2 (West 2010)).

inflation. Other states adopting caps have generally looked to MICRA as a model; however, states have varied their approaches to caps legislation in at least six respects.

First, the absolute baseline amount of the cap varies. A few states have adopted California's \$250,000 cutoff; more common are amounts between \$250,000 and \$500,000, and some states have ceilings above the \$500,000 level. Second, some states allow an inflation adjustment and others do not. This can make a significant difference over the medium- to long-term: California's \$250,000 cap, for example, would have approached \$986,000 in 2009 if it had been adjusted annually by the Consumer Price Index.³³

Third, three states (Massachusetts, Florida, and Ohio) allow the judge or jury in a particular case to waive the cap if they feel the circumstances of the case warrant it. Fourth, some states restrict the cap to certain kinds of injuries—for example, the caps in Oregon and Maine apply only to wrongful death cases. Fifth, one state, Alaska, has calibrated the amount of the cap to the plaintiff's life expectancy. Alaska specifies a dollar amount that is to be multiplied by the plaintiff's estimated remaining years of life.³⁴

Finally, several states employ a tiered rather than flat cap. That is, the legislation specifies two or three different dollar ceilings that apply to injuries of different levels of severity. For example, Maryland's cap is \$812,500 for death cases and \$650,000 for all other cases,³⁵ and Ohio's \$350,000 ceiling is raised to \$500,000 in cases of permanent physical or functional impairment.³⁶

C. Lessons Learned

States' approaches to and experiences with noneconomic caps provide three key lessons. First, the selection of a dollar value for the cap should, in theory, represent a societal judgment about what constitutes reasonable but not excessive compensation for noneconomic loss. That judgment is made at a particular point in time; however, the value of dollars decreases over time. If the social-valuation judgment is to have any enduring meaning, the cap should at least be adjusted annually for inflation in order to maintain its real value.³⁷

Second, caps have not provided any substantive guidance to juries about appropriate awards. Indeed, juries are theoretically blinded to the existence of a cap; they certainly are not instructed as to its existence.³⁸ Caps can help

33. To perform this calculation, see, for example, THE INFLATION CALCULATOR, <http://www.westegg.com/inflation/> (last visited Feb. 5, 2011).

34. ALASKA STAT. § 09.17.010 (LexisNexis 2011).

35. Maryland Patients' Access to Quality Health Care Act of 2004, Ch. 5, 2004 Md. Laws Spec. Sess. 28 (codified at MD. CTS. & JUD. PROC. CODE ANN. § 3-2A-09 (LexisNexis 2011)).

36. OHIO REV. CODE ANN. § 2323.43 (LexisNexis 2011).

37. Cf. Danzon, *supra* note 17, at 123 ("The schedule should be indexed to the relevant measures (medical costs, wages) to prevent either erosion or inflation of standards of compensation relative to real incomes.").

38. Studdert et al., *supra* note 8, at 56.

counteract very large noneconomic-damages awards, but they do nothing to address the problem of damages awards beneath the cap level that might nonetheless be considered excessive given the nature of the injury. Nor do they deal with the problem of inappropriately low awards, since they set no floors. The result is that “any awards below the cap are subject to the same claims of arbitrariness and unfairness that plague the current system.”³⁹

Third, consumer and attorney groups, as well as some scholarly commentators, charge that damages caps are fundamentally unfair. Caps inadequately compensate the most severely injured patients⁴⁰ while failing to address the undercompensation and overcompensation of pain and suffering in the range of losses that fall below the cap.⁴¹ Further, critics claim that the burden of caps falls disproportionately heavily on the shoulders of low-wage earners, particularly women and the elderly, who rely on the noneconomic portion of damages awards to obtain compensation.⁴²

Two empirical studies have investigated these claims using data on California jury verdicts that were subject to the MICRA cap.⁴³ Both found strong evidence that the impact of caps was distributed inequitably across different types of injuries. In terms of the absolute size of the reductions in awards, the burden climbs monotonically with severity of injury, except for deaths. This is troubling because other research suggests that plaintiffs with severe injuries are already at highest risk for inadequate compensation.⁴⁴ This constitutes a kind of “double jeopardy” for the severely injured.⁴⁵ On the other hand, the studies generally found no statistically significant differences in the

39. Geistfeld, *supra* note 1, at 790.

40. See, e.g., W. Washington, *Lawyers Back Candidates, Lobbyists to Prevent Malpractice Award Cap*, BOS. GLOBE, July 19, 2003, at A3; AM. LAW INST., REPORTERS' STUDY: ENTERPRISE LIABILITY FOR PERSONAL INJURY 217–30 (1991); Geistfeld, *supra* note 1, at 776; VISCUSI, *supra* note 2, at 107.

41. Ronen Avraham, *Putting a Price on Pain-and-Suffering Damages: A Critique of the Current Approaches and a Preliminary Proposal for Change*, 100 NW. U. L. REV. 87, 99 (2006); Maxwell J. Mehlman, *Promoting Fairness in the Medical Malpractice System*, in MEDICAL MALPRACTICE AND THE U.S. HEALTH CARE SYSTEM 137, 142–43 (William M. Sage & Rogan Kersh eds., 2006).

42. See, e.g., *Hearing Before the H. Energy and Commerce Comm.*, 2003 Gen. Assembly (Pa. 2003) (testimony of Harvey Rosenfield, Found. for Taxpayer and Consumer Rights); Thomas Koenig & Michael Rustad, *His and Her Tort Reform: Gender Injustice in Disguise*, 70 WASH. L. REV. 1, 77–86 (1995).

43. See NICHOLAS M. PACE ET AL., CAPPING NON-ECONOMIC AWARDS IN MEDICAL MALPRACTICE TRIALS: CALIFORNIA JURY VERDICTS UNDER MICRA (2004); Studdert et al., *supra* note 8.

44. Frank A. Sloan & Chee R. Hsieh, *Variability in Medical Malpractice Payments: Is the Compensation Fair?*, 24 LAW & SOC'Y REV. 997, 1019–20 (1990); Frank A. Sloan & Stephen S. van Wert, *Cost and Compensation of Injuries in Medical Malpractice*, 54 LAW & CONTEMP. PROBS. 131, 133 (Winter 1991); Kenneth S. Abraham et al., *Enterprise Responsibility for Personal Injury: Further Reflections*, 30 SAN DIEGO L. REV. 333, 340 (1993).

45. Studdert et al., *supra* note 8, at 63; Michael M. Saks, *Do We Really Know Anything About the Behavior of the Tort Litigation System—And Why Not?*, 140 U. PA. L. REV. 1147, 1218 (1992).

reductions experienced by male and female plaintiffs, or elderly and nonelderly plaintiffs.⁴⁶

These studies buttress claims that the classic flat cap advances the goal of horizontal equity of compensation at the expense of vertical equity and absolute fairness. Many states have manifested discomfort with this implication of a “one size fits all” cap by adopting a tiered cap that is tied to severity of injury.

The shortcomings of laws imposing flat caps, together with the extreme political difficulty of passing caps legislation in some states, have stimulated interest in a variety of alternative approaches to improving the consistency and rationality of noneconomic damages.⁴⁷ Damages schedules are the leading alternative.⁴⁸ Schedules are superior to flat dollar caps as a response to political demands for greater proportionality in damages awards. They essentially build on the existing model of the tiered cap, but differ from it in several respects: the number of tiers, the basis of the tiering, and the establishment of a floor as well as a ceiling for noneconomic damages in each tier. Schedules might be thought of as the next generation of tiered caps—more sophisticated, principled, and sensitive than their forebears.

IV

OPTIONS FOR SCHEDULING NONECONOMIC DAMAGES⁴⁹

Scheduling refers to use of a matrix or table of damages. Conceptually, the design of damages schedules involves two steps. First, injuries must be combined into groups, or “tiered,” according to some incremental notion of severity. Second, to specify or guide the monetary determination, dollar values must be assigned to each tier.

A. Tiering and Valuation

The purpose of tiering is to group together into brackets injuries that are considered similar on the basis of some severity metric. To promote horizontal equity, the injuries grouped into each tier should be internally homogeneous

46. Studdert et al., *supra* note 8, at 62–63. *See also* PACE ET AL., *supra* note 44, at 30-3 (finding no significant difference in the absolute or percentage reductions for elderly plaintiffs under California's non-economic damages cap, but finding an effect for gender in uncontrolled analyses).

47. For a review of some of the leading proposals, see Joseph Sanders, *Why Do Proposals Designed to Control Variability in General Damages (Generally) Fall on Deaf Ears? (And Why This Is Too Bad)*, 55 DEPAUL L. REV. 489, 496–507 (2006).

48. Bovbjerg, *supra* note 8, at 936–38; James F. Blumstein et al., *Beyond Tort Reform: Developing Better Tools for Assessing Damages for Personal Injury*, 8 YALE J. REG. 171, 172–74 (1991); Ronald J. Allen et al., *An External Perspective on the Nature of Noneconomic Compensatory Damages and Their Regulation*, 56 DEPAUL L. REV. 1249, 1257–58, 1275 (2007); AM. LAW INST., *supra* note 40, at 320 (recommending guidelines “based on a scale of inflation-adjusted damage amounts attached to a number of disability profiles that range in severity from the relatively moderate to the gravest injuries”). The idea of scheduling awards for personal-injury litigation is not new. *See, e.g.*, William Zelermyer, *Damages for Pain and Suffering*, 6 SYRACUSE L. REV. 27, 41–42 (1955).

49. This part has been adapted from the TASK FORCE REPORT, *supra* note 1, at 34–56. The report provides greater detail about each of the scheduling options discussed in this part.

with respect to the chosen severity metric. To promote vertical equity, the groupings should be organized so that each tier represents an incremental increase in severity relative to the one below it.⁵⁰

Another way of describing the vertical-equity requirement is to say that each tier has a numerical weight attached to it, and the weights should increase as one travels up the tiers. Ideally, these weights should be quantified and explicitly stated. Assigning these weights, or “relative values,”⁵¹ to each cell in the schedule permits comparison of injuries in different cells, which is useful for probing the validity of the scale. One can ask, for example, whether the loss of a foot (an upper-tier injury) may be reasonably regarded as four times as bad, in terms of noneconomic loss, as the loss of a finger (a lower-tier injury). The pivotal challenge in creating tiers is determining what should form the basis of the severity metric.

The next step, assignment of dollar values or ranges of dollar values to each tier, defines the compensation levels across the severity gradient. Vertical equity dictates that the slope of the gradient is positive. The principle of absolute fairness guides the selection of the actual dollar values for each tier: the values should represent a social judgment about reasonable (meaning not inadequate and not excessive) compensation for the noneconomic losses arising from injuries within each tier.

Splitting the construction of damages schedules into these two steps, and presenting each as discrete and necessary in the construction of a damages schedule, is helpful for purposes of elucidating the concept. However, it is an oversimplification; not all of the candidate methodologies move through these steps. For example, two possible approaches deliver tiers but do not address dollar valuations;⁵² two other approaches effectively conflate the steps by leaping straight to dollar-based valuations of loss as a basis for defining tiers.⁵³ In addition, rather than generating tiers consisting of clusters of similar cases, some approaches score health states along a continuous scale—in other words, each injury has its own tier.⁵⁴ Despite these departures, tiering and valuation as discrete concepts remain a useful touchstone for articulating the core technical challenges at hand.

50. An alternative approach would be to consider each injury individually but apply some kind of formula to calculate damages. For example, a disability weight could be generated for each kind of injury and then multiplied by some standard dollar value and the plaintiff’s remaining life expectancy. This is a way of standardizing noneconomic damages, and achieves many of the same goals as scheduling, but is not scheduling in a strict sense.

51. Bovbjerg et al., *supra* note 8, at 944. These authors provide an illustrative, forty-five-cell schedule incorporating numerical weights. *Id.*

52. See *infra* Part IV.B.2 for a discussion of quantitative scales, and *infra* Part IV.B.4 for a discussion of the health-utilities approach.

53. See *infra* Part IV.B.1 for a discussion of the precedential approach, and *infra* Part IV.B.5 for a discussion of hedonic damages.

54. See discussion *infra* Part IV.B.3.a for the AMA *Guides*, *infra* Part IV.B.4 for the health-utilities approach, and *infra* Part IV.B.5 for hedonic damages. This same point is made earlier, *supra* note 51.

B. Options for Tiering Injuries

Five general approaches warrant consideration as the basis of a noneconomic-damages schedule: (1) use of precedents, (2) quantitative measures of injury severity, (3) qualitative measures of injury severity, (4) a health-utilities approach, and (5) a hedonic-damages approach.⁵⁵ This section describes each of these approaches and summarizes their strengths and weaknesses.

1. A Precedential Approach

One option for constructing schedules is to use previous noneconomic-damages awards.⁵⁶ Precedential data could be provided to adjudicators in raw form—little more than brief descriptions of the injuries considered in previous, similar cases together with the noneconomic award the injury attracted and a description of how the decisionmaker should use this information in determining levels of damages. Alternatively, the information could be provided in more-processed form: Similar cases could be clustered together, perhaps with a characterization of their “type” alongside statistics such as medians, averages, or ranges of noneconomic damages awarded in the past to injuries in the same cluster.⁵⁷

The precedential approach is already employed in some European countries. For example, the United Kingdom’s Judicial Studies Board (JSB) publishes *Guidelines for the Assessment of Damages*,⁵⁸ a slim booklet now in its

55. This is not an exhaustive list of the proposals advanced by legal scholars. Ronen Avraham, for example, has proposed a system of age-adjusted multipliers that would be applied to a plaintiff’s medical expenses to produce the noneconomic-damages award. *See generally* Avraham, *supra* note 41. We focus on the proposals that have attracted the most attention, in the literature or in practice in compensation systems around the world, or appear to us to hold the most promise, or both.

56. Bovbjerg and colleagues have proposed a version of this approach. *See* Bovbjerg et al., *supra* note 8, at 953–56. Others have made similar proposals. *See, e.g.*, David Baldus et al., *Improving Judicial Oversight of Jury Damages Assessments: A Proposal for the Comparative Additur/Remittitur Review of Awards for Nonpecuniary Harms and Punitive Damages*, 80 IOWA L. REV. 1109, 1143–53 (1994–1995); Oscar G. Chase, *Helping Jurors Determine Pain and Suffering Awards*, 23 HOFSTRA L. REV. 763, 777–82 (1995); Shari Seidman Diamond et al., *Juror Judgments About Liability and Damages: Sources of Variability and Ways To Increase Consistency*, 48 DEPAUL L. REV. 301, 320–22 (1998); Wissler et al., *supra* note 8.

57. Bovbjerg et al., *supra* note 8, at 953. Bovbjerg and colleagues have outlined a version of the processed approach in which jurors are presented with “valuation scenarios” to use as benchmarks. Standardized injury scenarios would be created to provide hypothetical “descriptions of the prototypical circumstances of injury” and appropriate damages for each. The jury would be given a range of scenarios, from relatively trivial to very severe injuries, and would choose the one that most closely resembled the plaintiff’s injury. Bovbjerg and colleagues provide two examples of how a hypothetical arm injury could be described in a scenario: (1) “Permanent minor injury (level 5). Life expectancy 25 years. Mild persistent pain, usually controllable with aspirin. Unable to engage in more than light housework.” (2) “Plaintiff Peters has completely and permanently lost the use of her left arm. Her life expectancy is 25 years, according to standard life insurance tables. Her arm throbs painfully most of the time, but the pain can usually be controlled with aspirin. She cannot do more than light housework.” *Id.* at 954–55.

58. JUDICIAL STUDIES BOARD, *GUIDELINES FOR THE ASSESSMENT OF GENERAL DAMAGES IN PERSONAL INJURY CASES* (2010); *see also* Giovanni Comandè, *Towards a Global Model for*

tenth edition, which sets forth a series of injury descriptions and provides a range of monetary awards for general damages based on previous awards. The JSB booklet, intended for judges and advocates, divides injuries into ten general groups ranging from “injuries involving paralysis” to “facial injuries” and “damage to hair”; these groups are further divided into forty subgroups. The authors stress the following caveats: “[T]he Guidelines are intended to reflect the general level of current awards; they do not reflect the views of [the authors] on what the levels should be. They are designed to provide the starting point for assessment of damages in any particular case.”⁵⁹

Policymakers face a number of choices regarding the sources of precedent used to establish a damages schedule of this kind. What types of noneconomic-damages valuations are appropriately included? Should precedents be limited to jury determinations, or should settlement amounts also be included (setting aside, for the moment, the substantial difficulties associated with obtaining this data, since most settlements are private and confidential; and delineating noneconomic damages, since settlements themselves rarely make this explicit)?⁶⁰ What is the acceptable time period from which to sample previous cases? And should precedents be drawn only from decisions made in the same state or jurisdiction, or from other jurisdictions as well?

A distinctive strength of the precedential approach is its faithfulness to the original decisionmakers’ valuations of damages. But this coin has two sides. The approach inherits whatever heuristics and inaccuracies attended those original valuations, though in muted form, with extreme values attenuated through the use of means or medians within tiers. The greater weakness, however—and a fatal one for considering precedent, on its own, as a solid footing on which to develop a schedule for noneconomic damages—is that it elides the question of how injuries are ordered, lumped, and split into groups. In other words, it sidesteps the tiering challenge. The only obvious grounds for delineation of different injury groups are the dollar values themselves. But this is circular logic: Reasoned judgments about what counts as an injury group do not flow from data on previous awards. Thus, vertical and horizontal equity demand a more defensible account of how levels of noneconomic harm differ than the precedential approach can provide.

Adjudicating Personal Injury Damages: Bridging Europe and the United States, 19 TEMP. INT’L & COMP. L.J. 241, 279–90 (2005) (discussing the use of these guidelines in the United Kingdom, and use of a similar approach in Germany); Anthony J. Sebok, *Translating the Immeasurable: Thinking About Pain and Suffering Comparatively*, 55 DEPAUL L. REV. 379, 389 (2006) (same).

59. JUDICIAL STUDIES BOARD, *supra* note 58, at 2.

60. Viscusi and Bovbjerg and colleagues have argued that settlements should not be included because these amounts are determined by a variety of considerations (aversion to the risks of trial, attractiveness of witnesses, and so on) other than the magnitude of the noneconomic loss. Viscusi, *supra* note 28, at 214–15; Bovbjerg et al., *supra* note 8, at 960–61 n.227.

2. A Quantitative Approach

Standardized scales exist for grading the severity of injuries represented in various kinds of insurance claims. These scales are characterized by general descriptions of disability or injury at different levels, specified *ex ante*. They have proven popular among researchers and claims-management systems in the casualty-insurance industry because health states can be stratified using only rudimentary clinical information.⁶¹

The National Association of Insurance Commissioners' (NAIC) Severity of Injury Scale⁶² is probably the best-known and most widely used quantitative scale for classifying the severity of post-injury disability in compensation practice and research.⁶³ It divides disability into nine levels.⁶⁴ The NAIC scale has demonstrated good inter-rater reliability—that is, different people working independently to rate injuries on the scale tend to assign them to the same levels.⁶⁵ However, several shortcomings are evident.

First, the scale orders severity crudely.⁶⁶ It is not difficult to identify injuries that the scale channels into low levels (for example, severe nervous shock—level 1) that, on any imaginable severity metric, easily surpass certain injuries channeled into higher levels (for example, a fall in the hospital resulting in a mild sprain—level 3). In addition, with the exception of the death category, the levels of the scale each tend to net injuries that have widely divergent degrees of severity. For example, temporary emotional upset and severe nervous shock would both fall in level 1. This is particularly problematic in the lower tiers. These two forms of imprecision—the nonordinality and the breadth of the levels in quantitative scales—strike directly at vertical and horizontal equity, respectively.

The second weakness is evident in the preceding discussion. In applying the NAIC and other quantitative scales, it is easy to slip into the vernacular of physical injuries. Indeed, the scales steer one in that direction because they are designed primarily to deal with functioning and disability. There is undoubtedly

61. See, e.g., Comande, *supra* note 58, at 309–14 (describing an Italian research project that created a “Normalized Values Schedule” for noneconomic damages using information about the plaintiff’s age and degree of disability).

62. NAT’L ASS’N OF INS. COMM’RS, MALPRACTICE CLAIMS: FINAL COMPILATION 10 (1980).

63. For examples of other studies that have used it, see Bovbjerg et al., *supra* note 8, at 921–22, 937, 944; Studdert et al., *supra* note 8, at 57–60.

64. The levels are (1) emotional disability only (e.g., fright; no physical damage); (2) temporary insignificant (lacerations, contusions, minor scars, rash; no delay in recovery); (3) temporary minor (infections, missed fracture, fall in the hospital; delayed recovery); (4) temporary major (burns, retained surgical material, drug side effect, brain damage; delayed recovery); (5) permanent minor (loss of fingers, loss or damage to organs; includes nondisabling injuries); (6) permanent significant (deafness, loss of limb, loss of eye, loss of one kidney or lung); (7) permanent major (paraplegia, blindness, loss of two limbs, brain damage); (8) permanent grave (quadriplegia, severe brain damage, lifelong care, fatal prognosis); and (9) death. NAT’L ASS’N OF INS. COMM’RS, *supra* note 62, at 10.

65. See, e.g., David M. Studdert et al., *Geographic Variation in Informed Consent Law: Two Standards for Disclosure of Treatment Risks*, 4 J. EMPIRICAL LEGAL STUD. 103, 111–12 (2007).

66. See Avraham, *supra* note 41, at 94 (noting that the scale “involves reducing dissimilar things to similar categories and therefore eliminates, by definition, the nuances of the injury”).

a strong correlation between an injury's physical severity and the noneconomic losses that accompany it. However, the correlation is imperfect, a reality often overlooked in borrowing of quantitative scales designed for other purposes, and for some injuries—scarring or disfigurement and loss of taste or smell, to take several classic examples—there may be very little correlation.⁶⁷ In these circumstances, a scale based solely on physical attributes of the harm will provide a poor measure of the underlying noneconomic loss, ignoring or undervaluing nonphysical dimensions of harm that manifest through impacts on mental health, appearance, mood, self-esteem, and general enjoyment of life.

Third, the NAIC scale does not, of itself, provide any basis or method for valuing its nine levels in monetary terms. Whether this omission constitutes a true weakness is debatable—shortly, this article will argue that it does not. Nonetheless, it means that before such a scale could be fully implemented as a damages schedule, some other principled basis for assigning dollar values to its tiers is needed.

3. A Qualitative Approach

An alternative approach to scheduling accepts at the outset that noneconomic losses are intrinsically unscalable through any detached assessment of injury groups. This approach posits that any rational tiering of noneconomic loss depends upon subjective, case-by-case judgments. The challenge thus becomes how to ensure these judgments are coherent, reproducible, and perceived as fair. Structured qualitative assessments and group consensus sit at the heart of this approach.⁶⁸

Of course, determinations of noneconomic loss by juries, litigants, and others in the current system involve qualitative assessments and group consensus too, so why is this not merely a restatement of the status quo? Two factors differentiate the qualitative approach to noneconomic losses described here from the present style of decisionmaking. First, the judgments are structured. A decisionmaking “tool” guides subjective determinations about injury severity in particular cases and then provides a mechanism for transposing those determinations into tiers on a pre-specified scale. Second, most examples of this approach involve decisions by panels of experts, not laypersons. The expert panels feed clinical experience and scientific data into the process, even though their final determination is not tethered in any rigid way to these underlying sources of “objectivity.”

67. Studdert et al., *supra* note 8, at 61–63.

68. Another way of characterizing the qualitative approach is that it conceives the task of assigning injuries into tiers as the paramount challenge; the scale itself cannot encapsulate this wisdom. Quantitative approaches, by contrast, emphasize the scale and tend to ignore or relegate the importance of decisionmaking during the assignment process.

We consider the two examples of the qualitative approach: the American Medical Association's *Guides to the Evaluation of Permanent Impairment*⁶⁹ (AMA *Guides*) and the damages panels used in some Scandinavian countries.

a. The AMA *Guides*

The leading example of the qualitative approach is the AMA *Guides*, a structured tool for grading permanent "impairment," defined as "a loss, loss of use, or derangement of any body part, organ system, or organ function."⁷⁰ Use of this tool leads to ratings, first expressed as a percentage loss of function for the particular organ system under examination, and then translated into "whole-person impairment ratings."⁷¹

The ratings are a product of clinical decisionmaking at two levels.⁷² First, the rating "weights" for specific conditions are set and revised periodically by multiple panels of physicians with clinical expertise relevant to each organ system. The panels reportedly pay close attention to available clinical and scientific data about various injuries in reaching their conclusions about these weights. Second, a treating or examining physician must perform each specific evaluation, determining the impairment rating based on direct clinical examination of the individual being rated.

The *Guides* has become an industry. In many of the busiest injury-compensation schemes found in developed countries—in particular, those covering workplace and transport accidents—the *Guides*, or local adaptations of them, dominate the assessments of severity for permanent injuries. In the United States, 46 states and several federal employee compensation systems either mandate or recommend use of the *Guides* to determine the amount and duration of workers' compensation permanent partial disability (PPD) benefits.⁷³ The assumption is that the impairment ratings provide a reasonable proxy for the extent of disability, even though the *Guides*' preamble states explicitly that its system of impairment ratings "is not intended to be used for direct estimates of work participation restrictions."⁷⁴

69. AM. MED. ASS'N, GUIDES TO THE EVALUATION OF PERMANENT IMPAIRMENT (Christopher R. Brigham and Robert D. Rondinelli eds., 6th ed. 2008).

70. *Id.* at 5.

71. Emily Spieler and colleagues have described the purpose in greater detail:

For example, amputation of the index finger of either hand is considered a 20% impairment of the whole hand, an 18% impairment of the upper extremity, and an 11% WPI [Whole Person Impairment]. Finally, the *Guides* combines multiple WPIS into a single rating by using the formula $[A + B(1 - A)]$, where A is the rating for the first impairment and B is the rating for the subsequent impairment, thus creating an asymptotic curve toward 100%.

Emily A. Spieler et al., *Recommendations To Guide Revision of the Guides to the Evaluation of Permanent Impairment*, 283 J. AM. MED. ASS'N 519, 519 (2000) (internal citations omitted).

72. The process by which ratings are determined is described in AM. MED. ASS'N, *supra* note 69, at 19–28.

73. AM. MED. ASS'N, *supra* note 69, at 20.

74. AM. MED. ASS'N, *supra* note 69, at 6.

Do the *Guides*' ratings constitute a reasonable measure of noneconomic losses associated with injuries? Several of their features suggest that they may. The ratings are supposed to reflect the degree to which the impairment decreases the individual's ability to move and perform common "activities of daily living" (for example, personal hygiene, eating, sexual function, and sleep).⁷⁵ Moreover, the ratings purport to recognize both objective manifestations of impairments (for example, bone fracture) and subjective ones (for example, fatigue and pain). In fact, the *Guides* have been criticized for wandering beyond the stated focus on impairment into much-broader conceptions of disability, which are influenced by the social, personal, and psychological consequences of the impairment.⁷⁶ To the extent that the *Guides* have so wandered, their case for being reasonable proxies for noneconomic loss is bolstered.

On the other hand, several features of the *Guides* suggest otherwise. First, many concerns have been raised about the internal validity and reliability of *Guides*' ratings.⁷⁷ Assessment of pain, for example, is considered inconsistent across parts of the *Guides*.⁷⁸ Second, the *Guides* have been criticized for the validity of their impairment ratings on the grounds that their approach emphasizes certain activities, functions, and tasks over others without justifying those choices.⁷⁹ Third, the *Guides* suffer from incompleteness: Some states of impairment are not represented, including all temporary impairments and some permanent impairments.⁸⁰ Finally, despite the seriousness with which the *Guides* take the qualitative measurement of injury severity, there is some empirical evidence to suggest that they do not correlate well with how laypersons perceive the effects of different injuries on quality of life, particularly at the lower end of the scale.⁸¹

b. Scandinavian Damages Panels

In Sweden and Denmark, expert panels are entrusted with the task of scaling noneconomic losses associated with various injuries. Their valuations are used as the basis for determining noneconomic damages in both the civil justice system and administrative compensation systems in these countries.⁸²

75. *Id.* at 6–7.

76. Spieler et al., *supra* note 71, at 520.

77. *Id.* at 520–22 (reviewing such criticisms and citing relevant sources).

78. *Id.* at 522.

79. Ellen S. Pryor, *Flawed Promises: A Critical Evaluation of the American Medical Association's Guides to the Evaluation of Permanent Impairment*, 103 HARV. L. REV. 964, 964–73 (1990). Pryor argues that gender bias is one nuance of some of the judgments made in the *Guides*. *Id.* at 969–72.

80. Spieler et al., *supra* note 71, at 522.

81. See generally Sandra Sinclair & John F. Burton, *Measuring Non-economic Loss: Quality-of-Life Values Versus Impairment Ratings*, WORKERS' COMPENSATION MONITOR, July–Aug. 1994, at 1; Sandra Sinclair & John F. Burton, *A Response to the Comments by Doege and Hixson*, WORKERS' COMPENSATION MONITOR, July–Aug. 1997, at 13.

82. The Swedish patient-insurance scheme—an administrative, no-fault compensation system for medical injuries—provides two kinds of noneconomic damages: a "pain-and-suffering payment" to

The panels consider detailed information on previously adjudicated injuries, create generic descriptions of injury types of comparable severity, and proceed to determine a percentage-disability rating for each type. The percentage-disability rating is then applied to a maximum compensation amount, set annually by the governments, to calculate noneconomic damages for permanent injuries.⁸³

The unavailability of primary-source materials in English limits this article's evaluation of the Scandinavian injury scales, but a few observations are possible. One strength of the Scandinavian approach, like other qualitative scales, is that it avoids losing sight of the sort of nuances in grading noneconomic losses that may arise in assessments that are overly detached or objective. A second potential strength is political legitimacy. If the decisionmaking group is trusted and broadly representative, some lack of explicitness in how the scale is established may be accepted based on the perception that a fair process led to its creation.

On the other hand, the Scandinavian approach is grounded heavily in expert judgments about loss. Even if the expert group is trusted, a question arises as to whether clinical experts are the appropriate parties to value noneconomic loss. Many commentators have argued that in valuations of noneconomic losses, clinical expertise may be useful, but carries no obvious primacy over lay perspectives.⁸⁴ (Of course, this criticism also applies to the *AMA Guides*.)

Finally, the basis for the different ratings or tiers in the Scandinavian scales remains somewhat obscure, as does the nature of the actual loss being ranked. In theory, the scales represent degrees of disability, or perhaps only functional impairment. Certainly they do not attempt to capture pain and suffering as Anglo-American legal systems would understand that concept, nor do they attempt to measure some broader notion of quality of life.

compensate patients for the pain they feel during the acute period of the injury, and a "disability payment" that is available for permanent or chronic injuries after the acute period ends. The disability payment might be considered a payment for lost quality of life because it compensates for permanent functional impairment and supplements what the patient receives from other social-insurance sources to cover his economic losses. The payments are determined by a schedule, although there are some supplementary payments available for special treatments such as hospitalization in an intensive-care unit. The schedule is set by the Traffic Injuries Board and approved by the courts. See Patricia Danzon, *The Swedish Patient Compensation System: Lessons for the United States*, 15 J. LEGAL MED. 199, 203 (1994). The Danish system is patterned after the Swedish approach.

83. Courts in France and Italy have employed a somewhat similar approach, with scales developed by experts linked to dollar amounts drawn from previous awards across groups of cases. See Giovanni Comande, *supra* note 58, at 286–94; Sebok, *supra* note 58, at 389.

84. See, e.g., Sanjeebit J. Jachuck et al., *The Effect of Hypotensive Drugs on the Quality of Life*, 32 J. ROYAL C. GEN. PRAC. 103, 104–05 (1982); Mirjam A.G. Sprangers et al., *The Role of Health Care Providers and Significant Others in Evaluating the Quality of Life of Patients with Chronic Disease: A Review*, 45(7) J. CLINICAL EPIDEMIOLOGY 743, 744 (1992); Alain Leplège and Sonia Hunt, *The Problem of Quality of Life in Medicine*, 278 J. AM. MED. ASS'N 47, 48–49 (1997); Marthe R. Gold et al., *Identifying and Valuing Outcomes*, in COST-EFFECTIVENESS IN HEALTH AND MEDICINE 82, 98–106 (Marthe R. Gold et al. eds., 1996).

4. A Health-Utilities Approach

Health economics provides a fourth alternative for scaling noneconomic losses, based on more than forty years of work valuing health outcomes in assessments of programs and interventions in public health and medicine.⁸⁵ A parallel stream of work has developed similar methods to quantify the severity of health states for a different purpose: measuring the population health burden of diseases and injuries.⁸⁶ Collectively, these efforts have produced a diversity of related concepts and techniques for assigning numerical weights to health outcomes (for example, “health-related quality of life weights,” “health-utilities,” and “disability weights”).⁸⁷ However, these concepts and techniques share a number of basic features that are relevant to the design of damages schedules.⁸⁸

First, the measures are intended to capture health outcomes and to exclude strictly economic factors, although the extent to which this exclusion is made explicit in the measurement instruments has varied.⁸⁹ Second, the measurement techniques all produce weights on a cardinal scale anchored by perfect health and death at 1 and 0, respectively.⁹⁰ Third, the outcome weights are combined with estimates of the duration of time lived with a particular outcome in order to construct time-based summary measures of health, in units of quality-adjusted life years (QALYs) or disability-adjusted life years (DALYs).⁹¹ A common motivation for the development and application of QALY and DALY measures has been to inform priority setting and resource allocation in public health.

85. See generally JOHN BRAZIER ET AL., MEASURING AND VALUING HEALTH BENEFITS FOR ECONOMIC EVALUATION (2007); MICHAEL F. DRUMMOND ET AL., METHODS FOR THE ECONOMIC EVALUATION OF HEALTH CARE PROGRAMMES (3d ed. 2005).

86. See generally THE GLOBAL BURDEN OF DISEASE (Christopher J.L. Murray & Alan D. Lopez eds., 1996).

87. In this article, we use “health-utilities” as shorthand for the range of related efforts in this area, although many health economists would reject this choice based on a narrower understanding of the term as referring only to measures collected using particular measurement techniques consistent with expected-utility theory.

88. During the life of our study, other scholars have published articles making this connection. See Peter A. Ubel & George Loewenstein, *Pain and Suffering Awards: They Shouldn't Be (Just) About Pain and Suffering*, 37 J. LEGAL STUD. S195, S208–S211 (2008); Lars Noah, *Comfortably Numb: Medicalizing (and Mitigating) Pain-and-Suffering Damages*, 42 U. MICH. J.L. REFORM 431, 446–48 (2009). Ubel and Loewenstein propose a tiering and valuation process that is very similar to the one outlined in this article. Ubel & Loewenstein, *supra*, at S208–S211.

89. Ensuring the quality-of-life consequences of a health state net of its financial consequences may be important for application of the health-utilities framework to noneconomic damages, because this component of the award would be *in addition* to an economic-damages figure, which is separately calculated.

90. The locations of perfect health and death at the two anchor points are reversed in the two main applications, economic evaluations of health interventions and burden-of-disease measures. The former typically use “positive” scales in which 1 represents the best outcome and 0 represents death, whereas the latter reflect “negative” scaling in which 1 is the maximum loss, equivalent to death.

91. See generally Gold et al., *supra* note 84, at 89–94; Christopher Murray, *Rethinking DALYs*, in THE GLOBAL BURDEN OF DISEASE, *supra* note 86, at 1–98.

There are two main approaches to describing outcomes in order to elicit health-utility measures. The first approach relies on short, narrative vignettes that describe the most salient symptoms and consequences of actual health outcomes. The second approach disaggregates health states to a greater degree; it uses a generic, standardized descriptive system comprising a set of health and functioning dimensions (for example, mobility, cognition, and pain), with an associated ordinal scale that describes different levels of performance or capacity on each dimension. In the latter approach, any given outcome may be described by a “profile,” consisting of a score on each dimension in the system experienced by a typical person with the given outcome.

The advantage of the vignette approach is that descriptions can be highly comprehensive and address specific injury outcomes. The principal advantages of the generic approach are parsimony and flexibility; use of a standardized descriptive system may be paired with a scoring rule so that predicted utilities may then be generated for any possible combination of levels in the system without having to measure these utilities directly. A variety of standardized descriptive systems with scoring rules have been developed and calibrated through physician and general-population surveys.⁹²

Although the health-utilities approach has produced various catalogs of weights for a wide range of health outcomes,⁹³ the availability of specific weights for outcomes associated with injuries remains relatively limited.⁹⁴ There have been some initial attempts to use quality-of-life measures to value injuries in the civil justice system, including injuries due to assaults,⁹⁵ consumer-product defects,⁹⁶ and drunk driving.⁹⁷ But QALYs and DALYs have never been applied as a basis for scaling noneconomic losses in the context of personal-injury litigation. Is such an application feasible? As a technical matter, it should be. The merit of this approach, however, is another matter.

The health-utilities approach has two major strengths. First, it has the potential to yield a scale that orders a broad range of injuries according to direct consideration of levels of noneconomic losses, as opposed to scales that

92. BRAZIER ET AL., *supra* note 85, at 175–256.

93. See generally Tammy O. Tengs & Amy Wallace, *One Thousand Health-Related Quality-of-Life Estimates*, 38 MED. CARE 583 (2000); Patrick W. Sullivan & Vahram Ghushchyan, *Preference-Based EQ-5D Index Scores for Chronic Conditions in the United States*, 26 MED. DECISION MAKING 410 (2006). See also the searchable database at the Ctr. for the Evaluation of Value and Risk in Health, CEA REGISTRY WEBSITE, <https://research.tufts-nemc.org/cear4/Default.aspx> (last visited Feb. 6, 2011).

94. Juanita A. Haagsma et al., *Novel Empirical Disability Weights To Assess the Burden of Non-fatal Injury*, 14 INJ. PREVENTION 5, 5 (2008); See generally Ted R. Miller & David T. Levy, *Cost-Outcome Analysis in Injury Prevention and Control: Eighty-Four Recent Estimates for the United States*, 38 MED. CARE 562 (2000).

95. See generally TED R. MILLER ET AL., VICTIM COSTS AND CONSEQUENCES—A NEW LOOK (1996).

96. See generally TED R. MILLER ET AL., THE CONSUMER PRODUCT SAFETY COMMISSION'S REVISED INJURY COST MODEL: FINAL REPORT (2000).

97. See generally Stan V. Smith, *Jury Verdicts and the Dollar Value of Human Life*, 13 J. FORENSIC ECON. 169 (2000).

use some proxy for those losses (such as percentage impairment or severity of physical injury) or that mix noneconomic and economic consequences of the injury. Second, the approach is innovative in that it embeds what are essentially subjective judgments within standardized empirical methods. The utility weights themselves come from individuals' preferences about health states; but these preferences are then averaged across persons to derive weights that are applied to ensure similar injuries are handled in a similar way. No other approach hybridizes subjective and objective elements as effectively.

A weakness of the health-utilities approach, on the other hand, is that it is grounded in the theory of welfare economics and makes several basic assumptions. Namely, it assumes that utilities depend only on health consequences and not on other personal characteristics or the risk involved, that they can be derived through preference-elicitation techniques (as administered, for example, via focus groups and surveys), and that they are amenable to aggregation and averaging.⁹⁸ These are not uncontroversial assumptions.

Another weakness of this approach, from a political perspective, is its complexity. Concepts such as utility preferences and QALYs are not easily grasped, and obscure formulas may be seen as a threat to the independence of existing decisionmakers in the tort system, particularly juries. These factors could make for a difficult sell to legislators. A further complication is that the generic, standardized descriptive systems described above may not be well suited to capturing the most salient aspects of injuries, especially the types of injuries that arise commonly in personal-injury litigation. Architects of a health-utilities-based malpractice-damages schedule likely would have to develop new descriptive systems. Finally, like all other approaches considered so far except the precedential approach, health utilities provide the basis for tiers, but do not furnish dollar valuations. If a one-to-one mapping from the utilities scale to dollar valuations is considered acceptable, then the measurement task simplifies to identifying an appropriate "exchange rate" of dollars for utility increments. However, setting that exchange rate calls for another set of difficult choices.

5. A Hedonic-Damages Approach

Courts have long awarded damages for "loss of enjoyment of life." Traditionally, this form of loss was considered an element of noneconomic harm, alongside pain, mental anguish, disfigurement, loss of consortium, and so on. Hence, it formed part of a general award for noneconomic damages. Beginning in the mid-1980s, however, courts began considering loss of enjoyment of life as a separate component of damages, with some explicitly using the term "hedonic damages."⁹⁹

98. James K. Hammitt, *QALYs Versus WTP*, 22 RISK ANALYSIS 983, 987–89, 994–97 (2002).

99. See, e.g., *Sherrod v. Berry*, 629 F. Supp. 159 (N.D. Ill. 1985), *aff'd*, 827 F.2d 1985 (7th Cir. 1987), *vacated on other grounds and remanded*, 835 F.2d 1222 (7th Cir. 1988) (allowing expert testimony on hedonic damages in a civil-rights action for wrongful death).

Only a handful of states recognize hedonic damages today,¹⁰⁰ although the number appears to be growing.¹⁰¹ The legitimacy of hedonic damages as a separate type of loss is hotly disputed, with critics arguing that the losses hedonic damages purport to compensate overlap to an unacceptable degree with losses already covered by general damages.¹⁰² There are other criticisms as well.¹⁰³ Many state supreme courts have yet to rule on the issue.¹⁰⁴

Although hedonic damages are controversial, and the “expert” methods used to calculate them even more so, they bear special relevance to the consideration of alternative bases for scheduling for two reasons. First, depending on how fully one subscribes to the critics’ view, the losses hedonic damages purport to capture either overlap with, or are closely related to, the concept of noneconomic loss. Second, proponents of hedonic damages have outlined a specific methodology for their calculation. This methodology is highly ambitious in that it simultaneously provides both features of the noneconomic damages schedule: tiers and dollar values for those tiers.

An instrument called the lost-pleasure-of-life (LPL) scale¹⁰⁵ has gained a degree of currency in the ranking and weighting of hedonic losses. It is based on a scale used by mental health professionals to assess patients’ degree of functioning and severity of stress.¹⁰⁶ The LPL scale ranges from 0 to 100, with 0 signifying no loss of functioning and 100 signifying that the individual has no meaningful functioning and cannot derive pleasure from life. To arrive at the score, a mental-health professional compares the individual’s pre- and post-injury states in four domains of functioning: (1) practical functioning, (2) emotional or psychological functioning, (3) social functioning, and

100. Eric A. Posner & Cass R. Sunstein, *Dollars and Death*, 72 U. CHI. L. REV. 537, 545 (2005) (listing five states that permit damages for hedonic loss).

101. Victor E. Schwartz & Cary Silverman, *Hedonic Damages: The Rapidly Bubbling Cauldron*, 69 BROOK. L. REV. 1037, 1039, 1046 (2004).

102. *Id.* at 1046; *see also* Kyle R. Crowe, *The Semantical Bifurcation of Noneconomic Loss*, 75 IOWA L. REV. 1275, 1302 (1990); Susan Poser et al., *Measuring Damages for Lost Enjoyment of Life: The View from the Bench and the Jury Box*, 27 LAW & HUM. BEHAV. 53, 54–56 (2003) (reviewing some judicial rejections of lost enjoyment of life as a separate head of damages).

103. Schwartz & Silverman, *supra* note 101, at 1044–69, review several other criticisms of hedonic damages, including the following: (1) they provide a means of avoiding established liability rules, such as limits on punitive damages and the “cognitive awareness” requirement that has long been a requirement of noneconomic damages; (2) the basis of their calculation is scientifically unsound; and (3) the totals reached are too vague as to permit meaningful appellate review.

104. Even among courts that have permitted separate recovery of hedonic damages, most agree that expert testimony as to their magnitude is not permitted, especially in the wake of the *Daubert* decision, and hedonic damages are generally not available in wrongful death or survival actions. *See, e.g.*, *Saia v. Sears Roebuck*, 47 F. Supp. 2d 141 (D. Mass. 1999); *see also* Schwartz & Silverman, *supra* note 101, at 1064–65; Reuben E. Slesinger, *The Demise of Hedonic Damages Claims in Tort Litigation*, 6 J. LEGAL ECON. 17, 23–26 (1996).

105. *See generally* Edward P. Berlá et al., *Hedonic Damages and Personal Injury: A Conceptual Approach*, 3 J. FORENSIC ECON. 1 (1990). The LPL scale and illustrative examples of each level are available in the TASK FORCE REPORT, *supra* note 1, at 52.

106. AM. PSYCHOLOGICAL ASS’N, DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS 11, 18–19 (2000).

(4) occupational functioning (which refers not to lost wages, but to a person's ability to engage in the career of his or her choice and derive nonmonetary pleasure from it).¹⁰⁷ The individual receives a percentage score in each domain, representing the clinician's judgment of the specific injury's effect on the injured individual's pre-injury health status, and its probable effect on the individual's future life.¹⁰⁸ In some respects, the LPL scale is similar to the *AMA Guides*, except that the focus of the assessment is narrower and more explicit: loss of enjoyment of life.

After scoring on the LPL scale is complete, the scorecard is submitted to a forensic economist for conversion to dollar estimates of damages.¹⁰⁹ The monetary measures applied to the scores come from contingent-valuation studies¹¹⁰—investigations of people's preferences for health risks of varying degrees—or from “revealed preference” studies, in which money-risk tradeoffs are inferred from market data, such as wage-risk tradeoffs in labor markets.¹¹¹ This general approach to valuations is often referred to as “willingness to pay” because it seeks to determine how much people are prepared to pay (or receive) to avoid (or accept) exposure to certain risks.¹¹² When willingness-to-pay analyses are trained on fatal outcomes, it is possible to derive estimates of the value of a statistical life. For example, estimates from studies based on labor market data have ranged from \$700,000 to more than \$9 million.¹¹³ Most estimates of the value of a statistical life land in the \$3–\$9 million dollar range.¹¹⁴ Once the value of a statistical life is determined, the value of a nonfatal injury or health condition is calculated by multiplying the value of a statistical life by the percentage-point loss in pleasure of life resulting from the injury or condition.¹¹⁵

One advantage of the hedonic-damages approach as a basis for a noneconomic schedule is that it provides a one-stop shop: a methodology for both tiering and valuing losses within a single framework. An additional

107. Paul Andrews et al., *Development of the Lost Pleasure of Life Scale*, 20 LAW & HUM. BEHAV. 99, 101 (1996).

108. The percentage need not be static. Taking into account the time elapsed after the injury and the age of the individual, the rater may downgrade the percentage over time. For example, the impact of a debilitating leg injury sustained by a fifty-year-old man will change as he moves into higher age brackets where he would be expected to have limited mobility for other reasons.

109. The LPL measure takes the form of a continuous value. The mechanics of monetizing this value have been described in various ways, but the simplest method involves multiplying an overall LPL percentage by a single dollar value of a statistical life.

110. Stan V. Smith, *Evaluating the Loss of Enjoyment of Life—Hedonic Damages*, in ANALYSIS, UNDERSTANDING AND PRESENTATION OF CASES INVOLVING TRAUMATIC BRAIN INJURY 429, 432 (Charles N. Simkins ed., 1994).

111. Kip Viscusi, *The Value of Life in Legal Contexts: Survey and Critique*. 2 AM. L. & ECON. REV. 195, 196–201 (2000).

112. For a concise review of proposals for application of willingness-to-pay studies to the calculation of noneconomic damages, see Lars Noah, *supra* note 88, at 445–48.

113. See Viscusi, *supra* note 111, at 206.

114. See *id.* at 205.

115. *Id.*

strength is that the concept of lost enjoyment of life almost certainly comes closer than general measures of physical-injury severity to the notion of pain and suffering that noneconomic damages are supposed to capture.

A weakness it shares with the health-utilities approach, on the other hand, is the difficulty of explaining it in a way that laypersons can comprehend and accept. Loss of enjoyment of life is an understandable concept, but the intricacies of contingent-valuation studies are less so. A further problem is that courts in several jurisdictions have rejected hedonic damages, and the approach (especially the willingness-to-pay valuation method) remains controversial even among jurisdictions that have recognized it.

Further, academic critiques of willingness-to-pay studies abound. These critiques include charges that contingent-valuation studies are of limited use because they (1) tend to measure only small risks, (2) are regressive and discriminatory because respondents' willingness to pay is naturally constrained by the resources they have at their disposal, (3) place too heavy a reliance on data collected for other purposes, and (4) are imprecise, as evidenced by widely varying estimates of the value of a statistical life.¹¹⁶

C. Which Approach Works Best?

Table 1 summarizes the strengths and weaknesses of the five approaches reviewed in the previous section as rival bases for a noneconomic-damages schedule. Considering the mix of pros and cons across the options, the health-utilities approach stands out as superior. Its key strengths—the conceptual fit between quality-of-life measures and noneconomic loss, the robustness and sophistication of the methodology, and the blending of subjective value judgments with standardization—are an impressive array.¹¹⁷

116. See Dennis C. Taylor, Note, *Your Money or Your Life?: Thinking About the Use of Willingness-to-Pay Studies To Calculate Hedonic Damages*, 51 WASH. & LEE L. REV. 1519, 1546–51 (1994) (briefly summarizing some of the academic literature); Abel, *supra* note 6, at 300 (noting several problems with willingness-to-pay measures as a device for calculating noneconomic damages). For a more technical review of the criticisms, see generally Richard Raymond, *The Use, or Abuse, of Hedonic Value-of-Life Estimates in Personal Injury and Death Cases*, 9 J. LEGAL ECON. 69 (1999–2000).

117. Ubel and Loewenstein identify an additional argument in favor of the health-utilities approach vis-à-vis alternatives that focus more narrowly on functioning and objective outcomes. The latter will tend to overlook the well-documented capacity of injured persons' to adapt to their disabilities ("hedonic adaptation"), resulting in inappropriately low valuations of their losses. Ubel & Loewenstein, *supra* note 88, at 205–07.

Table 1: Options for Scheduling Noneconomic Damages¹¹⁸

Approach	Strengths	Weaknesses
Precedential	<ul style="list-style-type: none"> • Faithful to original source of decisions • Promotes consistency by reducing “outlier” values and dispersion around the mean • Likely to be the most politically acceptable basis for scheduling 	<ul style="list-style-type: none"> • To the extent inappropriate considerations drove the original valuations, they are preserved albeit in muted form • Problems in collecting precedential information • Elides the tiering challenge
Quantitative Scales	<ul style="list-style-type: none"> • Provides an explicit basis for grading injury severity • Widely used in other settings • Process of assigning injuries into tiers shown to be reproducible 	<ul style="list-style-type: none"> • Existing scales tier crudely • Tendency to focus exclusively on physical aspects of injuries; may not adequately capture pain and suffering
Qualitative Scales	<ul style="list-style-type: none"> • Takes seriously the complexity and value judgments associated with assigning particular injuries to tiers • Avoids the perceived danger of trying to “quantify the unquantifiable” • If the decisionmaking group is trusted and broadly representative and the process perceived as fair, some lack of explicitness about the scaling basis may be acceptable 	<ul style="list-style-type: none"> • Basis for tiers remains obscure, as may the nature of the loss being scaled • Existing scales are grounded heavily in expert judgments about loss, but clinical expertise carries no obvious primacy over lay perspectives for key parts of the scaling decision
Health-Utilities Index	<ul style="list-style-type: none"> • Captures well the concept of pain and suffering • Innovative blending of subjective valuations with empirical standardization • Methods are robust, well developed and sophisticated 	<ul style="list-style-type: none"> • Health-utilities scales remain relatively undeveloped for injuries • Untested in context of damages • Complexity
Hedonic Damages	<ul style="list-style-type: none"> • Provides a methodology for addressing both tiering and valuations within a single framework • Concept of lost enjoyment of life probably comes close to notion of pain and suffering 	<ul style="list-style-type: none"> • Methodology is controversial and has been rejected by courts in many jurisdictions • Complexity

The complexity of the health-utilities approach is probably its greatest weakness, and will inevitably pose challenges for acceptance and uptake by

118. Adapted from the TASK FORCE REPORT, *supra* note 1, at 19–20.

lawmakers and the public. The failure of the approach to provide a basis for applying dollar values to injuries may be considered a disadvantage at one level. There is a fairly compelling counterargument, though: Resolving valuations outside the technical rubric of a schedule is appropriate if one accepts that they raise intensely political and normative questions—questions that are better dealt with in other forums and by other means.¹¹⁹

The other notable weaknesses—underdevelopment of health utilities that relate to specific types of injuries found in injury-compensation systems, and the untested nature of this approach—are not fatal flaws. They are solvable, at least in theory, and the next part of this article takes some initial steps toward tackling them.

V

BUILDING A HEALTH-UTILITIES-BASED INDEX FOR TIERING NONECONOMIC LOSSES: PROOF OF CONCEPT

A. Overview

The main purpose of the following empirical analysis is “proof of concept.” We developed a prototype schedule for noneconomic damages based on health-utility measures in order to illustrate some of the main ideas behind this approach, as well as to demonstrate the technical feasibility. The chief challenge in constructing this prototype schedule was that detailed health-utility measures are unavailable for the types of injuries encountered in personal-injury compensation systems generally, and medical-malpractice litigation in particular. Therefore, the schedule that follows is based on data from a study of noneconomic loss associated with work-related injuries, the Ontario Noneconomic Loss Study (ONELS).

In the ONELS, a large sample of injured Canadian workers rated lost quality of life associated with seventy-eight health conditions that were selected to represent consequences of common workplace injuries.¹²⁰ The ONELS injuries are quite different from the typical kinds of injuries seen in medical-injury compensation systems. Taking advantage of these ratings, therefore, required developing a method for “crosswalking,” or calibrating, them against other types of injuries. This was done in several steps, which are detailed in this part.

To summarize, the calibration process began by subjecting the conditions studied in the ONELS to a fresh review. Two reviewers rated several specific quality-of-life dimensions of each condition.¹²¹ The objective here was to

119. Ubel & Loewenstein, *supra* note 88, at 210–11.

120. Sinclair & Burton, *Measuring Non-Economic Loss*, *supra* note 81, at 5; Sinclair & Burton, *A Response to the Comments by Doege and Hixson*, *supra* note 81, at 15.

121. As opposed to rating the condition as a whole, as participants in the ONELS had done in their valuations.

decompose the ONELS conditions into constituent quality-of-life dimensions. Next, using multivariable linear regression analysis, we regressed the original ONELS ratings on our ratings of the same conditions by quality-of-life dimensions to estimate each of the dimensions' predictive importance in the overall rating the workers had given it. The resulting coefficients of the dimensions thus became modular and transferrable to other types of injuries, at least in theory. To test their generalizability, we applied them to another set of injuries—a small sample of health conditions caused by medical malpractice—to obtain a health-utility-based noneconomic loss score for each of the malpractice injuries.

B. Ontario Noneconomic Loss Study: Background and Design

In the mid-1980s, the Workers' Compensation Board of Ontario (WCB)¹²² initiated a massive study to improve understanding of how workplace injuries affected quality of life, independent of their financial impact on workers in terms of lost wages, out-of-pocket medical expenses, and other forms of economic loss.¹²³ The impetus for the study was a change in WCB's approach to compensating "permanent impairments"—injuries and diseases that gave rise to enduring, lifelong disability. Traditionally, the WCB had awarded a general pension to claimants with permanent impairments; this covered all losses in a nonspecific way. In the late 1980s, the agency moved to a more explicit approach in which the two main components of awards—wage loss (past and future) and noneconomic loss—were configured as separate lines of compensation.¹²⁴

Explicit estimation of noneconomic losses in this revised approach presented a new challenge for the WCB. Out of concern that the conventional tool for grading impairment, the *AMA Guides*, would not be sufficiently sensitive to grade "pure" noneconomic losses, policymakers in Ontario sought to derive alternative bases for measuring and compensating this branch of losses. Thus, the ONELS was born.

Despite the substantial financial investment needed to complete the ONELS, and the enormous effort by participants and researchers it required, findings from the study made barely a ripple. The work did not lead to any major scientific publications, nor did it reshape compensation policy in Ontario. The study's timing was bad. By the early 1990s, Ontario was in a deep recession. The minority provincial government that won power in Ontario in 1990 faced a huge public deficit. There was little appetite in Toronto for innovative social policy, particularly reforms with the potential to hike public expenditures. The ONELS was perceived as having that potential by highlighting under-

122. The WCB is now the Workplace Safety and Insurance Board (WSIB).

123. Sinclair & Burton, *Measuring Non-economic Loss*, *supra* note 81, at 1–2.

124. *Id.*

compensation of noneconomic losses among certain classes of WCB claimants. Its findings were shelved.

The ONELS was conducted by WCB researchers and overseen by a committee of eminent experts in workers' compensation, health economics, decision science, law, and medicine. The study had several parts, but its core component was a survey of nearly ten-thousand workers who had sustained permanent impairments.¹²⁵ The survey was conducted between August 1988 and January 1991.¹²⁶

Surveys took an average of thirty minutes and were conducted face-to-face. The ONELS staff presented each participant with several health conditions, randomly sampled from a master-set of seventy-eight benchmark conditions.¹²⁷ All were consequences of common workplace injuries.¹²⁸

The conditions were presented in an audiovisual format.¹²⁹ Each video portrays at least two injured workers with the relevant condition. A neutral voice narrates, describing in lay terms the medical condition, its symptoms, and the permanent limitations associated with it. The accompanying video footage shows the injured workers working with an occupational or physical therapist and demonstrating how they go about various activities of daily life, coping with some tasks and struggling with others. The subjects portrayed in the videos were actually workers with the injuries described, interacting with their therapists, although the interaction itself was staged for purposes of the video shoot. Therapists advised on the content of the presentations in which they were involved, and helped to identify and recruit suitable patients to showcase the benchmark condition of interest. Each patient was two to five years post-injury.

After watching a video, ONELS participants were asked to rate, using a visual analogue scale, the loss of enjoyment of life they believed they would experience if they were living with the condition portrayed. Instructions specified that they should consider loss of enjoyment of life independent of any economic considerations (in other words, as if they were fully insured for any

125. The sampling frame was 12,000 injured workers. Sinclair & Burton, *Measuring Non-economic Loss*, *supra* note 81, at 5. Seventy-two percent of those approached consented to participation in the study (authors' own calculations).

126. Sinclair & Burton, *Measuring Non-economic Loss*, *supra* note 81, at 1-2.

127. The one exception to random assignment was that researchers checked the selected conditions, randomly replacing selections as necessary, to ensure that respondents would not view a video of a condition that was the same or similar to their own.

128. The benchmark conditions had been selected by the researchers in consultation with WCB physicians with extensive knowledge of workplace injuries. They were designed to capture conditions commonly seen in workers' compensation claims, and to cover a broad range of permanent injuries in terms of type and severity.

129. In pilot work, the researchers compared video presentations with written presentations of the same conditions; there were no statistically significant differences. The investigators decided to present the benchmark conditions via videos, however, because of the diverse educational and ethnic backgrounds of the survey participants. The videos were translated into French, Italian, Spanish, and Portuguese.

economic losses). The analogue scale ranged from 0 (normal health) to 100 (death). Normal health was defined for participants as “normal health for a person of your age.”

C. Step 1: Rating Injuries from the ONELS

The Workplace Safety and Insurance Board, the successor agency to the WCB, provided our team with written transcripts of the voiceover narration and a dataset containing the participants’ ratings and basic socio-demographic data on the participants.¹³⁰ The transcripts, which typically ran three to five pages in length, were reportedly word-for-word renditions of the narration contained in the videos.

Eight of the original seventy-eight benchmark conditions were twins: the same condition was described for a dominant and nondominant limb. Because there was little discrimination in the ratings among twins, only the ratings for the dominant limb were included in this analysis. Five other benchmark conditions had no corresponding data in the ratings dataset, and transcripts for a further two conditions could not be located. This left transcripts on sixty-three benchmark conditions.

The types of injury that led to these conditions, the number of ratings each condition received from ONELS participants, and the mean value of these ratings are shown in Table 2. The ONELS dataset used in this analysis consisted of 27,693 ratings of the benchmark conditions from 8,481 participants. On average, participants rated 3.3 conditions (standard deviation 0.8, range 1–5) and there were an average of 47.7 ratings per condition (standard deviation 21.8, range 8–1,433).

Table 2: Injuries Rated in Ontario Noneconomic Loss Study

Type of Injury	Number of Ratings	Quality-of-Life Rating	
		Mean	Standard Deviation
Head injury (scenario ¹³¹ A)	24	82.8	7.6
Head injury (scenario C)	41	74.6	17.6
Chronic pain (scenario B)	8	71.9	13.7
Heart attack	89	71.5	19.0
Head injury (scenario B)	73	70.0	15.1
Above-knee amputation	531	68.9	15.7

130. WSIB was unwilling to release the videos because they contained live images of injured workers who had not consented to this use of the ONELS data.

131. “Scenario” refers to the condition described. Some types of injuries were presented in multiple scenarios.

Injury to lower back (scenario C)	150	67.4	16.4
Amputation of arm below elbow (scenario A*) - dominant	1050	66.5	16.2
Amputation of leg below knee (scenario A)	628	65.0	15.8
Injury to lower back (scenario B)	211	64.3	16.3
Asthma (scenario B)	192	64.3	18.8
Amputation of arm below elbow (scenario B) - dominant	744	64.2	16.9
Broken pelvis	502	64.2	16.8
Amputation of hand - dominant	1115	63.2	17.0
Injury to lower back (scenario D)	149	62.4	17.8
Chronic pain (scenario A)	9	60.4	14.7
Below-knee amputation (scenario B)	612	57.4	19.2
Amputation of several fingers (scenario A) - dominant hand	565	56.6	17.9
Vibration-induced white finger (scenario B)	8	56.6	29.0
Dermatitis (scenario B)	167	55.2	20.2
Blindness in one eye	259	54.9	20.9
Several broken fingers (scenario A) - dominant hand	627	54.7	18.9
Asthma (scenario A)	129	54.4	18.2
Amputation of several fingers (scenario B) - dominant hand	506	54.1	18.6
Amputation of several fingers (scenario C) - dominant hand	414	53.6	19.6
Vibration-induced white finger (scenario A)	166	52.9	20.2
Amputation of several fingers (scenario A) - non-dominant hand	466	52.7	19.3
Shoulder injury (scenario C) - dominant side	410	52.1	18.4
Broken ankle (scenario A)	499	51.2	18.8
Amputation of several fingers (scenario D) - dominant hand	371	50.5	18.8
Several broken fingers (scenario A) - non-dominant hand	559	50.2	18.9
Amputation of several fingers (scenario B) - non-dominant hand	552	49.4	19.6
Hearing loss (scenario B - higher)	225	47.8	22.3
Injury to knee cap	229	47.4	17.6
Shoulder injury (scenario A) - dominant side	1299	47.3	17.8
Broken elbow - dominant arm	329	46.9	18.7
Amputation of several fingers (scenario C) - non-dominant hand	398	46.6	18.6

Shoulder injury (scenario A) - non-dominant side	626	46.5	18.9
Broken bones in lower leg	472	46.2	19.3
Broken hip	492	45.9	18.8
Injury to knee joint	275	44.9	18.5
Amputation of several fingers (scenario D) - non-dominant hand	307	44.7	18.2
Hearing loss (scenario A - mild)	158	44.2	21.7
Injury to knee ligaments	401	43.8	18.0
Injury to wrist (scenario B) - dominant hand	377	43.2	20.0
Injury to wrist (scenario A) - dominant hand	326	42.5	18.8
Shoulder injury (scenario D) - dominant side	256	41.1	18.8
Broken ankle (scenario B)	280	41.0	19.8
Broken wrist (scenario A) - dominant hand	247	40.8	20.3
Broken heel bone	297	40.3	16.9
Shoulder injury (scenario D) - non-dominant side	257	40.2	19.9
Shoulder injury (scenario B) - dominant side	886	39.9	18.0
Elbow injury - dominant arm	951	39.8	19.0
Dermatitis (scenario A)	113	38.6	18.6
Several broken fingers (scenario B) - dominant hand	384	37.9	19.5
Shoulder injury (scenario B) - non-dominant side	1126	37.8	18.6
Amputation of thumb - dominant hand	1433	37.3	18.8
Amputation of thumb - non-dominant hand	1305	35.2	19.3
Broken wrist (scenario B) - dominant hand	301	35.1	19.6
Amputation of part of finger (scenario A) - dominant hand	378	31.7	18.5
Amputation of part of finger (scenario B) - dominant hand	279	28.4	17.9
Single broken finger - non-dominant hand	503	22.7	17.1
Single broken finger - dominant hand	957	22.3	15.8
All injuries	27,693	47.7	21.8

The analysis of the ONELS data began with reviews of the sixty-three transcripts using an instrument developed specifically for this exercise. Two reviewers did this work: one reviewer was a study investigator trained in internal medicine and the other was a layperson. The reviews were guided by a detailed training manual and a structured assessment form.

The instrument directed reviewers to specify the part(s) of the body and general functions affected by the condition based on the information provided

in the transcript, and then to rate a series of dimensions likely to influence quality of life. Specifically, they rated pain (on an eleven-point scale ranging from “no pain” to “worst pain possible”),¹³² ability to perform ten activities of daily living (on the standard five-point activities-of-daily-living (ADL) scale ranging from “unable to perform task” to “fully independent”),¹³³ impact on emotional or psychological well-being and impact on ability to enjoy social or leisure activities (both on ten-point scales ranging from “no impact” to “devastating impact”). Reviewers scored dimensions with reference to the chronic stage of permanent impairment, not the acute phase immediately following the injury.

The degree of concordance across reviewer judgments was examined by a third investigator not involved in the reviews. Discrepant reviewer judgments about subjective items such as pain level were allowed to stand, while discordant judgments about objective items such as body part affected were resolved by the third investigator, who reviewed the responses in light of the transcript and broke the tie. For some discrepancies, decision rules were also applied—for example, a rule that injuries to an arm or hand would be coded as hand only or arm only unless the transcript explicitly mentioned that both arm and hand were affected. The data was manually coded, entered into an Excel spreadsheet, double-checked for accuracy, and then converted to a Stata file for analysis.

D. Step 2: Linking Data from the ONELS and the Transcript Review

The next step was to use multivariable regression analysis to examine the relationship between the reviewers’ assessments of the various quality-of-life dimensions and the overall rating ONELS participants had made on the visual analog scale. After constructing thirty-eight explanatory variables based on information gathered in the transcript reviews, we ran ordinary least-squares regressions at the rating level. In constructing indicator variables for body parts affected, we used the final determination made by the third reviewer. For the ratings of pain, activity limitations, and impact on emotional well-being and social or leisure activities, we used a mean of the values assigned by the two transcript reviewers.

In preliminary regressions, some indicator variables for detailed body parts had to be dropped due to collinearity; in these situations, the higher-level body part (for example, the hand rather than the finger) was retained in the model. The variables indicating limitations in activities of daily living were examined

132. For pain ratings, the instrument incorporated the NRS-11, a validated and widely used scale in clinical medicine. *See generally* Amelia Williamson & Barbara Hoggart, *Pain: A Review of Three Commonly Used Pain Rating Scales*, 14 J. CLINICAL NURSING 798 (2005).

133. For ratings of the ability to perform activities of daily living, the instrument incorporated the modified Barthel Index, a validated scale proposed by Shah and colleagues. *See generally* Surya Shah et al., *Improving the Sensitivity of the Barthel Index for Stroke Rehabilitation*, 42 J. CLINICAL EPIDEMIOLOGY 703 (1989).

both separately and as a single overall summary variable constructed as the sum of the activity-specific scores. However, none of the specifications of this variable tried in univariate analyses approached statistical significance in its correlations with the ONELS quality-of-life ratings (the *p*-values were all greater than 0.8), so we omitted activities-of-daily-living variables from further consideration.

Table 3 contains the final set of predictors and results from the multivariable regression analysis. The upper half of the table shows coefficients on indicator variables for body parts; the lower half of the table reports on coefficients related to problems in each of the quality-of-life dimensions coded by the reviewers (pain, sensory decrements, and so on). In interpreting the regression coefficients, it is helpful to remember that the higher the rating on the outcome variable, the worse the participant deemed the injury's effect on quality of life to be.

Table 3: Multivariable Predictors of Ontario Workers' Ratings of Lost Quality of Life in Sixty-Three Benchmark Conditions ($n=27,693$)

Dimension	Coefficient	95% Confidence Interval		<i>p</i> Value
Body part affected:				
Brain	1.78	-2.91	6.46	0.46
Face	-12.22	-16.64	-8.21	<0.001
Eyes	7.00	3.19	10.81	<0.001
Other head	-15.67	-23.12	-8.21	<0.001
Central nervous system	-4.28	-7.81	-0.74	0.02
Internal organs	0.22	-3.28	3.72	0.90
One arm	4.78	4.02	5.54	<0.001
Both arms	-12.60	-17.87	-7.33	<0.001
One hand	-2.88	-4.34	-1.42	<0.001
Both hands	15.12	11.73	18.50	<0.001
Leg	-3.82	-6.19	-1.46	0.001
One foot	-11.05	-12.30	-9.80	<0.001
Both feet	-0.27	-11.48	10.94	0.96
Back/spine	-12.73	-16.05	-9.41	<0.001
Other sensory organs	3.74	2.60	4.88	<0.001
Pain ¹³⁴	3.82	3.41	4.24	<0.001
Effects on: ¹³⁵				
Fine motor function	-5.41	-6.63	-4.19	<0.001
Gross motor function	9.28	6.40	12.17	<0.001
Lifting	2.74	1.69	3.78	<0.001
Emotional well-being	8.23	7.60	8.86	<0.001
Sexual function	3.09	1.83	4.36	<0.001
Effect on leisure activities	3.41	2.91	3.91	<0.001
Constant	15.46	14.25	16.67	<0.001

Nearly all variables are statistically significant predictors of ONELS ratings (that is, the *p*-values were less than 0.05). Although we expected all of the dimensions' coefficients to be positive because more severe effects of an injury should produce worse overall quality-of-life valuations (all other things being

134. Measured on a 10-point scale ranging from "no pain" (1) to "worst possible pain" (10). Coefficient refers to a 1-unit increase on the scale.

135. Measured on a 10-point scale ranging from "no impact" (1) to "devastating impact" (10). Coefficient refers to a 1-unit increase on the scale.

equal), it is noteworthy that some are not. Specifically, the coefficients on injuries to several body areas (face, other head, both arms, one foot, and the spine) are negative and nontrivial in size. Given the relatively limited set of conditions examined in this exercise, it is difficult to ascribe these paradoxical negative effects to a specific cause, but there are at least two probable explanations. First, because the range of levels on the various dimensions across the sixty-three vignettes was relatively limited, some collinearity remains across dimensions. The coefficients are interpreted as effects that are conditional on the other dimensions held at fixed levels, but correlation across dimensions complicates interpretation of these marginal effects. Second, the small number of vignettes demanded parsimony in the descriptive system, so it is likely that other omitted quality-of-life dimensions influenced responses in ways that confound estimation of effects for variables included in the model.

Because the purpose of the present exercise was to demonstrate proof of concept, the finding of paradoxical results points to important design considerations that should be taken into account in future efforts to develop health-utilities approaches to valuing noneconomic loss. These include design of a standardized descriptive system in which dimensions are largely orthogonal, and careful selection of conditions to maximize independent variation across dimensions.

E. Step 3: Applying the Weights to Create Noneconomic Loss Scores for Malpractice Injuries

The coefficients derived in the multivariable analysis can be interpreted as weights. The variables represent dimensions of permanent health conditions, and the weights quantify the independent contributions of those dimensions to overall valuations of the condition's impact on quality of life. In theory, then, the weights should be transferable to other conditions. We tested this hypothesis by applying the weights to a small sample of permanent conditions arising from injuries sustained due to medical malpractice.

This data on medical injuries came from a study conducted at Harvard University between 2001 and 2005, the Malpractice Insurers Medical Error Prevention Study (MIMEPS). The data sources and methods of MIMEPS have been described in detail elsewhere.¹³⁶ Briefly, five malpractice-insurance companies based in four regions of the United States participated in the study, contributing data on 1,452 closed claims from four key clinical areas: obstetrics,

136. See generally Tejal K. Gandhi et al., *Missed and Delayed Diagnoses in the Ambulatory Setting: A Study of Closed Malpractice Claims*, 145 ANNALS INTERNAL MED. 488 (2006); Selwyn O. Rogers et al., *Analysis of Surgical Errors in Closed Malpractice Claims at 4 Liability Insurers*, 140 SURGERY 25 (2006); David M. Studdert et al., *Claims, Errors, and Compensation Payments in Medical Malpractice Litigation*, 354 NEW ENG. J. MED. 2024 (2006).

surgery, missed or delayed diagnoses, and medication-related injuries.¹³⁷ Trained physician-reviewers who were specialists in each of these clinical areas reviewed the claim files. Their reviews included judgments about whether the claim involved an identifiable injury due to medical care, the severity of the injury,¹³⁸ and whether the injury was due to medical error.¹³⁹

The current analysis focuses on sixteen injuries selected from among the 889 cases in the MIMEPS sample that had been judged to involve injury due to error. The injuries were selected by reference to three considerations: severity, clinical area, and prevalence among medical-malpractice claims. With respect to severity, MIMEPS reviewers had rated all injuries on the NAIC scale, which includes five categories of permanent injury (minor, significant, major, grave, and death). After excluding death cases, we sampled injuries from each of the other four categories. With respect to clinical area, we used the four areas that formed the basis of the MIMEPS sampling strategy.¹⁴⁰ The combination of these strata meant sixteen groups of MIMEPS injuries (four severity levels times four clinical areas) from which to sample. Although an attempt was made to select an injury from each group, one group (obstetrics, grave) was ultimately dropped because it proved qualitatively impossible to distinguish it from another (obstetrics, major) based on the information available in the MIMEPS dataset. Finally, two investigators, who have together reviewed more than 7,000 medical-malpractice files, decided which injury to choose from among the many within each group. The decision was not random, but based on a judgment about types of harms often seen in malpractice litigation.

Records from the original MIMEPS review captured free-text descriptions of the fifteen injuries chosen, including chronic physical limitations associated with each. For purposes of the current study, the two investigators reviewed these descriptions and scored the injuries using the same instrument used in the earlier review of ONELS transcripts. Once again, the focus of the review was on the chronic condition that stemmed from the permanent injury, not the injury's acute phase.¹⁴¹ The reviews were conducted independently and then compared. Discrepancies were discussed to reach consensus.

Health-Utility-Based Noneconomic Loss (HUBNEL) scores for each of the fifteen conditions were calculated by combining the coefficients in the

137. Alleged injuries in these categories dominate the caseload of malpractice insurers in the United States, accounting for approximately eighty percent of all claims and an even larger proportion of total indemnity costs. Studdert et al., *supra* note 136, at 2025.

138. The reviewers scored injury severity using the nine-point NAIC scale, NAT'L ASS'N OF INS. COMM'RS, *supra* note 62.

139. The reviewers applied the Institute of Medicine's definition of error: "the failure of a planned action to be completed as intended [that is, error of execution] or the use of a wrong plan to achieve an aim [that is, error of planning]." INST. OF MED., TO ERR IS HUMAN: BUILDING A SAFER HEALTH SYSTEM 28 (Janet M. Corrigan & Molla S. Donaldson eds., 2000).

140. See *supra* note 137 and accompanying text.

141. Given the average length of time between the injury date and the filing of a malpractice claim (two years), see Studdert et al., *supra* note 136, at 2027, nearly all injuries in the sample had entered a chronic phase.

regression analysis of ONELS data (that is, the findings from step 2) with the scores on those same quality-of-life dimensions obtained in the review of the selected MIMEPS cases. Specifically, the HUBNEL scores were calculated by multiplying each dimension's score by its corresponding coefficient, or weight, and then summing these values within each condition.

Table 4 shows the resulting HUBNEL scores for the fifteen medical-malpractice injuries. Like the original ratings in the ONELS, the HUBNEL scores fall on a scale from 0 to 100, with higher scores indicating worse quality of life.

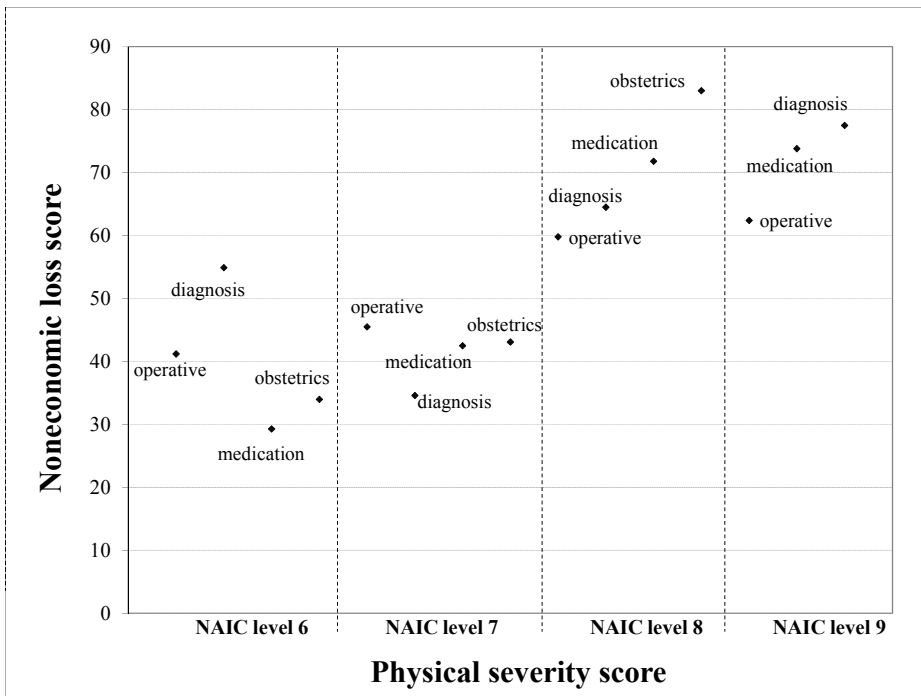
Table 4: Health-Utility-Based Noneconomic Loss (HUBNEL) Scores
Estimated for Medical-Malpractice Injuries

Clinical Area	NAIC Severity Score	Noneconomic Loss Score	Description of Injury
Operative	6	41.2	Nerve injury due to improper arm positioning during general anesthesia for hip surgery. The injury resulted in weakness of the right shoulder and paresthesia of the medial upper arm
	7	45.5	Intracerebral hemorrhage during an ultrasound-guided biopsy that was not medically indicated. The hemorrhage required craniotomy and resulted in long-term neurologic problems including aphasia, seizures, bedwetting, depression, and difficulties performing activities of daily living
	8	59.8	Blindness in right eye resulting from poor post-operative follow-up after cataract surgery
	9	62.4	Quadriplegia from an error during a cervical spine discectomy and fusion
Diagnosis	6	54.9	Physical disfigurement resulting from missed diagnosis of a ruptured pectoralis muscle that could not later be repaired; injury ended the patient's career as a bodybuilder
	7	34.6	Permanent adrenal insufficiency caused by missed adrenal hemorrhage after knee-replacement surgery
	8	64.5	Myocardial infarction and heart failure caused by failure to properly evaluate chest pain
	9	73.8	Metastatic breast cancer resulting from a seventeen-month delay in diagnostic tests for the evaluation of a new breast lump
Medication	6	29.3	Tissue necrosis of forearm resulting from improper infusion of hydrochloric acid and requiring a skin graft
	7	42.5	Bladder dysfunction, foot drop, gait instability, and mild cognitive impairment resulting from an epidural hematoma due to the patient being put on anticoagulation too soon after back surgery and not being appropriately monitored
	8	71.8	Stroke and hemiparesis after patient received wrong dose of anticoagulants following cardiac surgery
	9	77.5	Permanent mental retardation and blindness in infant resulting from cardiac arrest due to inadequate monitoring after hernia-repair surgery and probable overdose of potassium
Obstetrics	6	34.0	Temporary (six-month) colostomy with permanent gastrointestinal side effects caused by erroneous stitching of the colon to the abdominal wall
	7	43.1	Shoulder dystocia resulting in brachial plexus injury to neonate caused by a failure to perform cesarean section
	8	83.0	Cerebral palsy with mild retardation and inability to walk without braces due to failure to diagnose fetal distress during delivery

Several aspects of these results are noteworthy. First, the HUBNEL scores are high—with some exceeding those of any of the ONELS benchmark conditions—attesting to the gravity of some of the malpractice injuries. Second, the NAIC physical-severity measure and the noneconomic loss scores are correlated, with the HUBNEL score increasing monotonically with the NAIC score in the expected direction.¹⁴² For injuries with an NAIC rating of 6, the average across the four clinical areas was 39.9; for ratings of 7, it was 41.4; for ratings of 8, it was 65.8; and for ratings of 9, it was 71.2.

Arranging the HUBNEL scores by NAIC levels shows this correlation more clearly (Figure 1). What it also shows, however, is that there is substantial variation in HUBNEL scores both within and across NAIC levels. In other words, although physical severity and noneconomic loss roughly track one another, the correlation is imperfect. This finding joins others in highlighting the problem of using metrics designed primarily to assess levels of physical injury for determining levels of noneconomic loss.¹⁴³

Figure 1: HUBNEL Scores for a Sample of Medical-Malpractice Injuries, By Clinical Category and NAIC Severity Score



142. There is one exception. The diagnostic injury with an NAIC score of 6 had a much higher HUBNEL score than the diagnostic injury with an NAIC score of 7. That an injury involving disfigurement should be an outlier in correlations with a physical severity metric is not surprising. See *supra* note 67 and accompanying text.

143. An alternative explanation is that the within-level variation is attributable to measurement- or model-specification error. This is unlikely to explain all of the variation, but it probably contributes to some of it.

This empirical analysis has demonstrated the feasibility of generating health-utility-based noneconomic loss scores for medical-malpractice injuries. Although this exercise was limited in scope, it shows proof of concept, and could be extended to tier a much larger sample of injuries. Part VI describes some of the practical issues likely to arise in any such expanded effort, paying special attention to the medical-malpractice context.

VI

OPERATIONALIZING A HEALTH-UTILITIES SCHEDULE

A. Creating a Full Set of HUBNEL Scores

This article has illustrated a general method of producing health-utilities scores to value the noneconomic loss associated with different types of malpractice injuries. The method of review and calculation described in step 3 could easily be repeated for other types of harms arising in personal-injury litigation to produce a larger set of HUBNEL scores.

Practical imperatives steered this analysis toward the ONELS dataset: It proved impossible to locate any other existing ratings of the perceived severity of a large number of injuries. However, the study's use of utility measures derived from a limited assessment of workplace injuries was less than ideal; it necessitated a rather circuitous process and may not have produced a scoring function that appropriately captures all relevant dimensions of malpractice injuries. A more efficient method would be to obtain the utility weights of interest directly, through laypersons' quality-of-life assessments of a set of specific injuries prevalent in tort claims.

However, rather than obtaining global valuations of these injuries (as was done in the ONELS), the preferred approach in contemporary health-utilities research is to disaggregate the health states into constituent dimensions and then elicit ratings on each (as this article did in adapting ONELS ratings for use in the medical-malpractice setting). This produces a more versatile set of weights, capable of ready application to a wide range of injuries and tort settings. The weights become a modular vehicle for calculating HUBNEL-like scores to guide calculations of noneconomic damages. They may be applied in jury rooms, alternative dispute resolution forums, or backroom settlement negotiations—wherever uncertainty over levels of damages arises.

Establishment of tiers based only on the raw HUBNEL scores would be the simplest basis for tiering injuries in a noneconomic-damages schedule. A more sophisticated schedule would adjust the scores according to certain other case characteristics—for example, the duration of quality-of-life effects and age.¹⁴⁴ There is a strong argument, in the case of nonpermanent injuries, for ensuring

144. This discussion is adapted from the TASK FORCE REPORT, *supra* note 1, at 54–56.

the schedule takes into account the time spent in the health state. The rationale is that compensation for noneconomic loss should reflect the length of time over which the plaintiff had to endure the suffering.¹⁴⁵ This is not a novel suggestion; courts in most jurisdictions already permit jurors to calculate noneconomic damages using a per diem method—that is, by determining the noneconomic damages for a particular unit of time, such as one day, and multiplying this amount by the number of days that the plaintiff’s injury is expected to last.¹⁴⁶ Moreover, QALYs and DALYs, the most widely used summary measures of health in priority-setting research, were designed specifically to incorporate this time factor for nonfatal health outcomes.¹⁴⁷

The argument for incorporating information about the plaintiff’s age, independent of considerations about duration of injury, is less compelling. Several surveys have shown public preferences for allocating lifesaving treatment to young adults over older adults and young children.¹⁴⁸ Such preferences may have implications for how the public values noneconomic loss at different points in the lifecycle. This is a value judgment that would need to be made through a deliberative process, rather than through expert decisionmaking.

Adding consideration of case characteristics other than the HUBNEL score will complicate the damages schedule. Tiers would acquire subtiers, and considerations of time will introduce a multiplier that must be algebraically integrated with the HUBNEL score.¹⁴⁹ Grafting additional characteristics into the HUBNEL formula is not technically difficult, but it adds to the complexity, and potentially also to implementability.

B. Assigning Dollar Values

As discussed earlier, the health-utilities approach to scheduling provides a basis only for tiering injuries, not for assigning dollar values to each tier. This

145. See Avraham, *supra* note 41, at 95 (“The total pain and suffering of a sixty-year-old who is assumed to suffer twenty more years of pain and suffering is different than that of a twenty-year-old who would suffer sixty more years.”).

146. Joseph H. King, Jr., *Counting Angels and Weighing Anchors: Per Diem Arguments for Noneconomic Personal Injury Tort Damages*, 71 TENN. L. REV. 1, 13–16 (2003) (describing a split among courts as to the permissibility of per diem arguments but noting that a majority of jurisdictions allow such arguments); TASK FORCE REPORT, *supra* note 1, at 23 (citing Geistfeld, *supra* note 1, at 782).

147. See *supra* note 91 and accompanying text.

148. See generally Magnus Johannesson & Per-Olov Johannson, *Is the Valuation of a QALY Gained Independent of Age?*, 16 J. HEALTH ECON. 589 (1997); P.A. Lewis & M. Charney, *Which of Two Individuals Do You Treat When Only Their Ages Are Different and You Can’t Treat Both?*, 15 J. MED. ETHICS. 28 (1989). The DALY also makes an adjustment of this kind. See Murray, *supra* note 91, at 54–61.

149. Both QALYs and DALYs treat severity and duration as independent, which means that the number of QALYs or DALYs associated with a period of time spent in a particular health state is computed by multiplying the utility weight for that state by the duration. Time preference—that is, discounting of consequences that occur in the future—complicates the computation somewhat, but the general approach remains multiplicative.

second step in creating a schedule of noneconomic damages for malpractice cases would require a separate process. One possible option is to use the precedential approach. A large sample of closed claims could be studied to identify injuries that have HUBNEL scores in each of the tiers established in the damages schedule. Data on settlements and jury awards in these cases could then identify a range of dollar values for each tier (or a single dollar amount, such as the mean or median award in past cases). Another option would be to use outputs from contingent-valuation studies to monetize QALYs. Perhaps the most palatable option from a political standpoint would be to convene a deliberative body to assign dollar values to tiers or QALYs based on the members' independent judgments of what constitutes fair compensation for noneconomic loss. Any such body should include representation from all relevant stakeholder groups in order to maximize the likelihood that its decisions are perceived by the public as fair, reasonable, and legitimate.

C. Application to Wrongful Death Cases¹⁵⁰

The proposals outlined so far contemplate the typical personal-injury case in which the plaintiff sues seeking damages for his own injury. Wrongful death cases brought by the injured person's family present special challenges for quantifying noneconomic damages, especially where the patient died instantaneously and personally experienced no pain and suffering. In such cases, the relevant noneconomic injury is the emotional anguish and loss of companionship suffered by the family of the decedent.

The scheduling approach described above could be applied to wrongful death claims. Ratings of how the death of a family member affects survivors would have to be obtained through a separate process, but could follow essentially the same basic steps as outlined above for deriving HUBNEL scores. Alternatively, policymakers could opt to carve wrongful death cases out from the damages schedule and allow decisionmakers to determine noneconomic awards in such cases on an ad hoc basis.¹⁵¹

D. Use of the Schedule by Juries and Other Decisionmakers¹⁵²

Those charged with determining noneconomic damages could use a damages schedule in at least three different ways. First, decisionmakers could be required to select an amount for noneconomic damages that matches the amount or falls within the range specified for the relevant injury or tier.¹⁵³ The advantages of a mandatory schedule are uniformity of awards for similar injuries (horizontal equity), proportionality of awards according to injury

150. This discussion is adapted from the TASK FORCE REPORT, *supra* note 1, at 59–60.

151. *Cf.* Posner & Sunstein, *supra* note 100, at 584–85 (arguing that valuations of a lost life should be made on a case-by-case basis, as a uniform value would ignore important variations in value across both risks and persons).

152. This discussion is adapted from the TASK FORCE REPORT, *supra* note 1, at 56–57, 62.

153. *See, e.g.*, Bovbjerg et al., *supra* note 8, at 946 (advocating the mandatory approach).

severity (vertical equity), predictability of awards for parties to litigation and liability insurers, and strong potential for cost control. The primary drawback is that the decisionmaker has little or no ability to adjust awards for exceptional cases.¹⁵⁴ In the case of juries, there may also be state law barriers to imposing a binding schedule—for example, it may be deemed to abridge the right to jury trial protected by the state’s constitution.

A second approach would be to make the schedule purely discretionary or advisory in nature. It could be provided to decisionmakers on the assumption that they are free to use or disregard it as they choose. The advantages and disadvantages of this alternative are the reverse of the above: It allows decisionmakers wide latitude to ensure their awards reflect absolute fairness and would involve fewer legal and political complexities; however, the goals of horizontal and vertical equity, predictability, and cost control may be only weakly served, depending on how frequently decisionmakers chose to depart from the schedules.

A middle-ground approach would be to use a presumptive schedule. The amounts specified in the schedule would be presumptively applied unless particular circumstances in a case created a strong justification for an upward or downward departure. Litigants might be required to justify a departure, or decisionmakers might be required to award an amount within the prescribed range (or close to the prescribed amount) unless they made a specific finding that an upward or downward departure was justified.

Where the primacy of individualized decisionmaking about noneconomic damages is valued either for political or for constitutional reasons, a relatively nonbinding schedule is preferable. Decisions about when and how the schedule is deployed are best made by local legal experts, following review of relevant constitutional precedents concerning due process and jury trial rights and consideration of feasible jury instructions for courts of the relevant jurisdiction.

E. Updating the Schedule¹⁵⁵

Damages schedules require maintenance. Regular review and updating of the dollar values is critical in order to ensure the schedule continues to reflect contemporary social judgments about the value of noneconomic losses. Updating the dollar values could consist of a simple annual adjustment for inflation.¹⁵⁶ Alternatively, if the initial dollar amounts were set using the

154. Bovbjerg and colleagues have suggested that a post-trial process could be created in which plaintiffs would have the opportunity to argue that their case should be considered atypical and given a supplementary damages award. They suggest the process could be administrative in nature, not requiring the plaintiff to pursue a full judicial appeal. *Id.* at 948.

155. This discussion is adapted from the TASK FORCE REPORT, *supra* note 1, at 59.

156. Bovbjerg et al., *supra* note 8, at 963.

precedential approach, the update might require a fresh analysis of settlement and award levels in recent cases.¹⁵⁷

It may also be advisable to periodically revisit the structure of the tiers. Clinical experts should be consulted to determine whether advancements in treatment and rehabilitation have materially changed the pain, suffering, and quality-of-life losses associated with the various injuries specified in the tiers. Some conditions may require reclassification to a lower tier.

VII CONCLUSION

Juries, courts, lawyers, accident insurers, and legal scholars continue to struggle with how to assess noneconomic loss and decide noneconomic damages in personal-injury litigation. The lack of clear guidance on how to “quantify the unquantifiable” has allowed inconsistency and unpredictability to flourish in this component of damages assessments, with adverse impacts for the fairness, efficiency, cost, and perceived legitimacy of the civil justice system. One noted commentator recently coined noneconomic damages “the irrational centerpiece of our tort system.”¹⁵⁸

Caps on noneconomic damages are a procrustean solution to the problem. They tackle the perceived excesses of runaway liability costs, but skirt the fundamental policy questions: What is the right level of noneconomic damages for particular harms, and how should that be determined? Caps preserve some inequities and worsen others, and if they ameliorate inequities at all, they do so accidentally.

This article presents an alternative to flat caps. Methodologies used to grade health states, developed over decades to aid health program evaluations and difficult resource-allocation decisions, could be gainfully trained on the problem of how to evaluate noneconomic losses. Using a health-utilities index as the basis of a schedule of noneconomic damages for medical-malpractice injuries is an attractive idea. The approach embeds subjective valuations in a standardized empirical framework, respects concepts of vertical and horizontal equity, and promises to reduce variability and boost predictability in noneconomic awards. What it does not do is provide dollar valuations for the tiers it creates. That is a normative task best addressed through a separate process.

This article also demonstrated the feasibility of creating such a health-utilities-based schedule. As a technical matter, the task is relatively straightforward—indeed, starting with a set of ratings derived from valuations

157. Not discussed here is the practical complication that, in any updating exercise referencing precedent, the data would be “tarnished” if the damages valuations examined were themselves the result of application of the schedule. One possible way around this problem would be to draw the data from other jurisdictions that do not use a damages schedule and that are thought to have similar social values to the jurisdiction updating its schedule.

158. Paul V. Niemeyer, *Awards for Pain and Suffering: The Irrational Centerpiece of Our Tort System*, 90 VA. L. REV. 1401, 1401 (2004).

of tort-related harms, a luxury not available for the empirical analysis reported in this article, would have made the process much simpler. Nonetheless, even with a scientifically sound schedule in hand, several important practical questions remain. To what extent should the schedule extend beyond health-state valuations and include consideration of other case-level characteristics in setting weights or scores? How strictly should decisionmakers apply the schedule? And what process should be used to assign dollar values or multipliers? Uncertainty also remains about the willingness of judges and juries, decisionmakers in alternative dispute resolution settings, and litigants to accept a noneconomic-damages schedule.¹⁵⁹

These are precisely the kinds of issues that careful state-based experimentation with a health-utilities-based noneconomic-damages schedule could iron out. At a time when the federal government's interest in testing innovations in the medical-liability system is running high,¹⁶⁰ the noneconomic-damages schedule, preferably one based on a health-utilities approach, is an idea that begs serious consideration.

159. For an indication of the spirited defense of jury discretion and unfettered case-by-case decisionmaking a schedule like this would be likely to encounter, see Thomas C. Galligan, Jr., *The Tragedy in Torts*, 5 CORNELL J.L. & PUB. POL'Y 139, 172 (1996). See also Sanders, *supra* note 47, at 507–14.

160. See Press Release, Agency for Healthcare Research and Quality, U.S. Dep't of Health & Human Servs., HHS Announces Patient Safety and Medical Liability Demonstration Projects (June 11, 2010), available at <http://www.ahrq.gov/news/press/pr2010/hhsliabawpr.htm>.