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RETHINKING MEDICAL MONITORING*

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INTRODUCTION

Tort law has struggled to accommodate indeterminate victims of toxic exposure. In the paradigm case, a defendant exposes a population to a toxin, increasing the incidence of a particular disease.¹ For example, suppose that the exposure has increased a population's rate of liver cancer from 10 in 100,000 to 15 in

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¹ The "paradigm case" is borrowed from Daniel A. Farber, *Toxic Causation*, 71 MINN. L. REV. 1219, 1238 (1987), which contains an excellent discussion of causation issues in toxic tort cases. See also *Allen v. United States*, 588 F. Supp. 247, 413 (D. Utah 1984), *rev'd* 816 F.2d 1417 (10th Cir. 1987) ("Consider, for example, the problem of the 'indeterminate plaintiff': We may know . . . that a group of people has a specific type of cancer and that some of them contracted that cancer from exposure to [a particular toxin], but we do not know which *individuals* of that group were affected by [that toxin]."); *In re Agent Orange Prod. Liab. Litig.*, 597 F. Supp. 740, 833-37 (E.D.N.Y. 1984).

100,000. Under traditional tort standards, none of the cancer victims could recover because two-thirds of them would have contracted the disease anyway.² Courts and commentators have vigorously debated whether to impose liability in this type of case.³ After all, the defendant likely *did* cause one-third of the cancer cases.⁴

Recently, this debate has intensified as increasing numbers of plaintiffs have sought access to the tort system. In particular, the tort system now faces not only actual disease victims but also exposed persons who have not yet developed symptoms of disease. These post-exposure, pre-symptom ("PE/PS") plaintiffs have sought to maintain tort actions under a variety of theories, including increased risk of disease⁵, fear of disease⁶, and lost quality of life.⁷ Perhaps their most successful path, however, has been to seek recovery for the costs of medical monitoring.⁸

² Traditional tort law standards would require a plaintiff to prove, by a preponderance of the evidence, that the exposure more likely than not caused her cancer. See Farber, *supra* note 1, at 1238; *infra* notes 53-54, 82-84 and accompanying text. No plaintiff in the paradigm case, however, can satisfy this standard because it is more likely than not that any individual cancer case is unrelated to the exposure.

³ See, e.g., *In re Agent Orange*, 597 F. Supp. at 740; *Allen*, 588 F. Supp. at 247; Farber, *supra* note 1; David Rosenberg, *Causal Connection in Mass Exposure Cases: A "Public Law" Vision of the Tort System*, 97 HARV. L. REV. 849 (1984).

⁴ Farber, *supra* note 1, at 1238.

⁵ See, e.g., *Gideon v. Johns-Manville Sales Corp.*, 761 F.2d 1129 (5th Cir. 1985); *Brafford v. Susquehanna Corp.*, 586 F. Supp. 14 (D. Colo. 1984); *cf.* *Sterling v. Velsicol Chem. Corp.*, 647 F. Supp. 303, 322 (W.D. Tenn. 1986), *rev'd*, 855 F.2d 1188, 1205 (6th Cir. 1988) (refusing to uphold enhanced risk claim where level of increase in risk was below 30%).

⁶ See, e.g., *Sterling*, 855 F.2d at 1188; *Jackson v. Johns-Manville Sales Corp.*, 781 F.2d 394, 413 (5th Cir. 1986); *Potter v. Firestone Rubber and Tire Co.*, 863 P.2d 795, 818 (Cal. 1993).

⁷ See, e.g., *Thompson v. National R.R. Passenger Corp.*, 621 F.2d 814 (6th Cir. 1980); *Kumcz v. Honda N. Am., Inc.*, 166 F.R.D. 386 (W.D. Mich. 1996); *Swiler v. Baker's Super Mkt., Inc.*, 277 N.W.2d 697 (Neb. 1979); *Mariner v. Marsden*, 610 P.2d 6 (Wyo. 1980).

⁸ Plaintiffs who seek compensation for medical monitoring generally do not purport to seek recovery for anxiety, nor for any physical consequence of the exposure. Rather, "[m]edical monitoring is . . . intended to provide healthy plaintiffs with diagnostic examinations for the latency period of exposure-related diseases in the hope that early detection and treatment of the disease will be beneficial to the victim." Carey C. Jordan, Comment, *Medical Monitoring in Toxic Tort Cases: Another Windfall for Texas Plaintiffs?*, 33 HOUS. L. REV. 473, 483 (1996). See *Potter*, 863 P.2d at 821 ("In the context of a toxic exposure action, a claim for medical monitoring seeks to recover the cost of future periodic medical examinations intended to facilitate early detection and treatment of disease caused by a plaintiff's exposure to toxic substances."); Bill Charles Wells, *The Grin Without the Cat: Claims for Damages from Toxic Exposure Without Present Injury*, 18 WM. & MARY J. ENVT. L. 285, 293 (1994) ("An action for medical monitoring seeks

Medical monitoring first gained widespread attention when the New Jersey Supreme Court decided *Ayers v. Township of Jackson* in 1987.⁹ The *Ayers* court concluded that a group of plaintiffs who had been exposed to toxic substances in their drinking water could recover medical surveillance costs from their municipality, although none of the plaintiffs had manifested symptoms of disease.¹⁰ During the next several years, a number of courts followed *Ayers'* lead.¹¹ In 1997, however, the United States Supreme Court took a markedly different approach in *Metro-North Commuter Railroad Co. v. Buckley*.¹²

In *Metro-North*, the Court considered whether a PE/PS plaintiff could recover medical monitoring costs in a Federal Employers' Liability Act ("FELA") case.¹³ Despite *Ayers* and its progeny, the Court concluded that there was not "sufficient support in the common law" to support the claim.¹⁴

[W]e are . . . troubled . . . by the potential systemic effects of creating a new, full-blown, tort law cause of action The reality is that competing interests are at stake — and those interests sometimes can be reconciled in ways other than simply through the creation of a full-blown, traditional tort law cause of action.¹⁵

The Supreme Court's *Metro-North* decision places the "tort" of medical monitoring at a crossroad, marking an important juncture at which to examine the competing interests to which the Court refers.¹⁶ This Article begins this examination by briefly sketching the

to recover only the cost of periodic medical examinations needed to detect the onset of physical injury from chemical exposure.").

⁹ 525 A.2d 287 (N.J. 1987).

¹⁰ See *infra* notes 33-39 and accompanying text for a discussion of the New Jersey Supreme Court's opinion in *Ayers*.

¹¹ See, e.g., *In re Paoli R.R. Yard PCB Litig. (Paoli II)*, 35 F.3d 717, 787 (3rd Cir. 1994); *Potter*, 863 P.2d at 795; *Burns v. Jaquays Mining Corp.*, 752 P.2d 28 (Ariz. Ct. App. 1987); *Hansen v. Mountain Fuel Supply Co.*, 858 P.2d 970, 979-81 (Utah 1993); see also *infra* notes 40-46 and accompanying text.

¹² 521 U.S. 424, 117 S. Ct. 2113 (1997).

¹³ 521 U.S. at ___, 117 S. Ct. at 2116. The plaintiff, a pipefitter, sued his employer, a railroad company, for exposing him to asbestos.

¹⁴ *Id.* at ___, 2124.

¹⁵ *Id.*

¹⁶ This "crossroad" has become even more significant in light of recently filed class actions against the manufacturers of "fen-phen," a diet pill produced from the drugs Redux and fenfluramine. See Richard B. Schmitt, *Thinning the Ranks: Diet-Pill Litigation Finds Courts Frowning on Mass Settlements*, WALL ST. J., Jan. 8, 1998, at A1. These lawsuits attempt to link fen-phen to heart valve problems in the pills' users. The suits, however, do not seek damages related to the heart valve problems. Instead, they seek

doctrinal development of medical monitoring. In so doing, the Article challenges the assumption that it is appropriate to construe the leading cases as creating a unique cause of action. Instead, the Article argues that medical monitoring simply describes a potential remedy in established tort actions. From that baseline, the Article asserts that courts ordinarily should award medical monitoring damages to a PE/PS plaintiff only when toxic exposure has more than doubled that plaintiff's risk of disease—that is, when the plaintiff can prove that if she later contracts the disease, the defendant's conduct was more likely than not the cause.¹⁷ In most other cases, the Article concludes, the tort system is simply the wrong place for plaintiffs to seek recovery.¹⁸

I. THE DEVELOPMENT OF MEDICAL MONITORING

A. Future Medical Expenses

Although awards for medical monitoring in toxic exposure cases are unusual, it is commonplace for courts to award future medical expenses in traditional tort settings.¹⁹ Typically, courts award such damages where a plaintiff has suffered some physical impact and is seeking medical care to treat the resulting harm.²⁰

The impact case that most directly influenced later courts considering medical monitoring claims is the District of Columbia Court of Appeals' decision in *Friends For All Children, Inc. v. Lockheed*

damages for the costs of medical monitoring for future heart valve problems. *Id.*

¹⁷ See *infra* notes 71-81 and accompanying text.

¹⁸ See *infra* notes 154-81 and accompanying text (discussing the circumstances under which the government should fund medical monitoring programs for exposed individuals).

¹⁹ See generally 22 AM. JUR. 2D *Damages* § 919 (1988); see also *Metro-North*, 521 U.S. at ___, 117 S. Ct. at 2121 (citing RESTATEMENT (SECOND) OF TORTS § 924(c) (1977)); J. STEIN, STEIN ON PERSONAL INJURY DAMAGES § 5.18 (2d ed. 1991); Jordan, *supra* note 8, at 486 & n.73 (citing *Coll v. Sherry*, 148 A.2d 481, 486 (N.J. 1959)).

²⁰ See Leslie S. Gara, *Medical Surveillance Damages: Using Common Sense and the Common Law to Mitigate the Dangers Posed by Environmental Hazards*, 12 HARV. ENVTL. L. REV. 265, 277 (1988). Gara cites to *Hartley v. Matejka*, 585 S.W.2d 240 (Mo. Ct. App. 1979), as typical. In *Hartley*, "the defendant's automobile struck a police car, and the defendant was at fault. Following the accident, the police officer went to a hospital emergency room for a medical examination and x-rays to determine if he was injured in any way as a result of the accident. The tests failed to reveal an injury, but the jury awarded damages for the costs of the precautionary exam, believing testimony that it was reasonably sought as a result of the defendant's act." Gara, *supra*, at 277.

*Aircraft Corp.*²¹ *Friends For All Children* involved a claim on behalf of 150 Vietnamese orphans who survived a military transport plane crash. The plaintiffs sought an injunction ordering the plane's manufacturer to finance a medical surveillance program to determine whether depressurization of the plane's cabin caused the children to suffer brain damage.²² The district court concluded that the manufacturer should compensate the children for the costs, and the appellate court agreed. The court reasoned that such compensation was no different from a damage award in a simple, everyday tort action. As an example, the appellate court provided a hypothetical case involving "Smith," who knocked down "Jones" while driving a motorbike through a red light.²³ In the hypothetical, Jones entered a hospital where doctors recommended that he undergo tests to determine whether he suffered internal head injuries. The tests came back negative, but Jones sued Smith for costs associated with the diagnostic exams.²⁴ The court concluded:

From our example, it is clear that even in the absence of physical injury Jones ought to be able to recover the cost for the various diagnostic examinations proximately caused by Smith's negligent action. . . . The cause of action . . . accords with commonly shared intuitions of normative justice which underlie the common law of tort. The motorbike rider, through his negligence, caused the plaintiff, in the opinion of medical experts, to need specific medical services. . . . Similarly, in this case, the crash exposed the plaintiffs to the risk of serious brain damage, . . . [and] comprehensive diagnostic examinations are needed to determine whether and to what extent treatment may be necessary.²⁵

²¹ 746 F.2d 816 (D.C. Cir. 1984), *aff'g* *Friends For All Children, Inc. v. Lockheed Aircraft Corp.*, 587 F. Supp. 180 (D.D.C. 1984).

²² *Friends For All Children*, 587 F. Supp. at 188.

²³ *Friends For All Children*, 746 F.2d at 825.

²⁴ *Id.*

²⁵ *Id.* The *Friends For All Children* courts, however, did not envision direct payment to the plaintiffs to compensate them for the cost of medical surveillance. Rather, the district court ordered the defendant to pay money into a court registry to which the plaintiffs would submit vouchers (reviewable by the defendant) describing the medical care received and the cost for that care. See *Friends For All Children*, 587 F. Supp. at 202. Later medical monitoring decisions echoed this hesitation to award plaintiffs lump-sum damages. See *Potter v. Firestone Tire and Rubber Co.*, 863 P.2d 795, 825 (Cal. 1993); *Ayers v. Township of Jackson*, 525 A.2d 287, 314 (N.J. 1987); *Hansen v. Mountain Fuel Supply Co.*, 858 P.2d 920, 982 (Utah 1993). Indeed, this hesitation was among the United States Supreme Court's primary reasons for disallowing the medical monitoring claim in *Metro-North*. See *Metro-North Commuter R.R. Co. v. Buckley*, 521 U.S. 424, ___, 117 S. Ct. 2113, 2122-23 (1997).

Subsequent courts seem to suggest that, through this language, the court in *Friends For All Children* broke new ground by permitting the plaintiffs to recover medical surveillance costs.²⁶ However, this is hardly the case. To the extent that *Friends For All Children* articulated even a slight extension of existing tort doctrine, the opinion must be viewed within its unusual (if not unique) fact setting.²⁷ The facts of *Friends For All Children*, for example, should limit its application to an impact—if not a physical injury—situation.²⁸ Moreover, the case involved a discrete number of plaintiffs (at least compared to a mass exposure case), and the remedy was limited to diagnostic testing (it did not extend to lifetime medical monitoring).²⁹ Further, the *Friends for All Children* court explicitly refused to award money damages, instead ordering equitable relief and a court registry to pay for surveillance costs.³⁰

Indeed, prior to 1987, little (if any) precedent existed to support medical monitoring damages absent an impact that threatened imminent harm.³¹ In 1987, however, the New Jersey Supreme

²⁶ See, e.g., *Potter*, 863 P.2d at 823; *Ayers*, 525 A.2d at 308; *Hansen*, 858 P.2d at 977.

²⁷ See George W.C. McCarter, *Medical Sue-Veillance: A History and Critique of the Medical Monitoring Remedy in Toxic Tort Litigation*, 45 RUTGERS L. REV. 227, 234-35 (1993) (describing *Friends For All Children* as "anomalous").

²⁸ See *Metro-North*, 521 U.S. at ___, 117 S. Ct. at 2122 (distinguishing asbestos exposure case from *Friends For All Children*, which the Court described as a "traumatic physical impact" case).

²⁹ See McCarter, *supra* note 27, at 235 n.34 ("Contrasting the limited remedy in *Friends* with the possible right to lifetime monitoring under *Ayers* suggests that 'diagnostic testing' is not synonymous with 'medical monitoring' as now understood.").

³⁰ McCarter, *supra* note 27, at 235 n.34; see also *infra* notes 111-16 and accompanying text.

³¹ Cf. *Mergenthaler v. Asbestos Corp. of Am.*, 480 A.2d 647 (Del. 1984) (rejecting the claims of spouses of asbestos workers due to a lack of proof of exposure to asbestos fibers); *Morrissey v. Eli Lilly & Co.*, 394 N.E.2d 1369, 1376 (Ill. App. Ct. 1979) ("possible future damages in a personal injury action are not compensable unless reasonably certain to occur"). But see *Hagerty v. L & L Marine Servs.*, 797 F.2d 256 (5th Cir. 1986) (upholding medical monitoring award where plaintiff was doused with a considerable dose of toxic chemicals). Some commentators have asserted that *Askey v. Occidental Chemical Corp.*, 102 A.D.2d 130, 477 N.Y.S.2d 242 (4th Dep't 1984), a case involving individuals exposed to toxic waste from a landfill, is the first case to permit medical monitoring costs in the absence of a physical injury. See John J. Kalas, *Medical Surveillance Damages in Toxic Tort Litigation: A Half Hearted Embrace*, 2 U. BALT. J. ENVTL. L. 126, 132-33 (1992) (describing *Askey* as the "first case to herald medical surveillance damages in the hazardous waste context in the absence of the traditional physical injury tort requirement"). However, as Mr. McCarter points out, the decision in *Askey* cannot be read outside the context of *Schmidt v. Merchants Despatch Transp. Co.*, 270 N.Y. 287, 200 N.E. 824 (1936), which held that the statute of limitations in an exposure case

Court decided *Ayers* and altered the legal landscape in the area of medical monitoring.³²

B. *Ayers v. Township of Jackson*

In *Ayers*, residents of Jackson Township, New Jersey, brought an action against their municipality for permitting toxic pollutants from a landfill to leach into an aquifer that provided residential drinking water. The plaintiffs, none of whom sought recovery for illnesses related to toxic exposure,³³ sought damages pursuant to the New Jersey Tort Claims Act for impairment of quality of life, emotional distress, enhanced risk of disease, and medical monitoring.³⁴ A jury awarded damages based on three of these theories,³⁵ but the intermediate appellate court upheld only the judgment based on the impairment of quality of life.³⁶ The New Jersey Supreme Court agreed with the appellate division, except with regard

runs from the date of the last exposure, even where the injured person is unaware of the wrong or his injury. *Schmidt*, 200 N.E. at 827; see *Askey*, 477 N.Y.S.2d at 246-47; *McCarter*, *supra* note 27, at 232-33. The *Askey* court described the proof problems under such a rule as "formidable." *Askey*, 477 N.Y.S.2d at 247. The court continued:

In light of the foregoing, it would appear that under the proof offered here persons exposed to toxic chemicals emanating from the landfill have an increased risk of invisible genetic damage and a present cause of action for their injury, and may recover all "reasonably anticipated" consequential damages. The future expense of medical monitoring, could be a recoverable consequential damage provided that plaintiffs can establish with a reasonable degree of medical certainty that such expenditures are "reasonably anticipated" to be incurred by reason of their exposure.

Id. The fact that medical monitoring damages might be recoverable in light of *Schmidt*, however, does not (and did not) translate into the permission of medical monitoring awards where the "discovery rule" tolls the statute of limitations. *Cf. Gerardi v. Nuclear Util. Serv., Inc.*, 149 Misc. 2d 657, 566 N.Y.S.2d 1002 (Sup. Ct. Westchester County 1991).

³² *Ayers v. Township of Jackson*, 525 A.2d 287 (N.J. 1987). The first reported reference to the plaintiffs' medical monitoring claims is found in the New Jersey Superior Court's decision denying the defendant's motion to dismiss the claims. See *Ayers v. Township of Jackson*, 461 A.2d 184, 190 (N.J. Super. Ct. Law Div. 1983).

³³ 525 A.2d at 297.

³⁴ *Id.* at 292.

³⁵ The trial court judge dismissed the "enhanced risk" claim. See *id.* at 291, 297.

³⁶ *Id.* at 291 (citing appellate court decision).

to the issue of medical monitoring. On that claim, the court reinstated the jury verdict in favor of the plaintiffs. The court concluded:

[W]e hold that the cost of medical surveillance is a compensable item of damages where the proofs demonstrate, through reliable expert testimony predicated upon the significance and extent of exposure to chemicals, the toxicity of the chemicals, the seriousness of the diseases for which individuals are at risk, the relative increase in the chance of onset of disease in those exposed, and the value of early diagnosis, that such surveillance to monitor the effect of exposure to toxic chemicals is reasonable and necessary.³⁷

The Ayers court can be criticized for making some leaps of logic in reaching this conclusion³⁸—not the least of which con-

³⁷ *Id.* at 312.

³⁸ First, the court relied heavily on *Friends For All Children* without recognizing its very different fact setting. (i.e., in *Friends For All Children* the plaintiffs suffered from discrete physical trauma and sought diagnostic examinations; in *Ayers* the plaintiffs suffered from long-term exposure to toxins and sought open-ended medical surveillance). See *supra* note 30 and accompanying text.

Second, the Ayers court premised its decision on an assumption that the plaintiffs had experienced a "significant" level of enhanced risk of disease. See Ayers, 525 A.2d at 309 (the appellate court's "formulation unduly impedes the ability of courts to recognize that medical science may necessarily and properly intervene where there is a significant but unquantified risk of serious disease") (emphasis added); *id.* at 303 ("[t]he jury could reasonably have inferred from [the plaintiffs' expert's] testimony that the risk, although unquantified, was medically significant.") (emphasis added). The intermediate appellate court in Ayers, however, had concluded that the record did not "rule out the probability that such increase [was] so microscopically small as to be meaningless." Ayers v. Township of Jackson, 493 A.2d 1314, 1323 (N.J. Super. Ct. App. Div. 1985), *aff'd in part, rev'd in part*, 525 A.2d 287 (1987). The supreme court's apparent reliance on a significant level of enhanced risk, therefore, may have been unsupported.

Third, despite recognizing the plaintiffs' claims, the court expressed dissatisfaction with the normal method of compensating plaintiffs through a lump-sum payment. Instead, the court suggested that medical surveillance payments in mass exposure cases be administered through court-supervised funds. "A lump-sum verdict," the court conceded, "attempts to estimate future expenses, but cannot predict the amounts that actually will be expended for medical purposes." Ayers, 525 A.2d at 314 (emphasis added). Nevertheless, the court refused to disturb the jury's lump-sum award. See *id.* at 315 ("Such a result would be unfair to these plaintiffs, since the medical-surveillance issue was tried conventionally, and neither party requested the trial court to withhold from the jury the power to return a lump-sum verdict for each plaintiff in order that relief by way of a fund could be provided."); see also *Metro-North Commuter R.R. Co. v. Buckley*, 521 U.S. 424, ___, 117 S. Ct. 2113, 2122-23 (1997).

In short, the Ayers court expanded the *Friends For All Children* rule into an entirely different factual realm. It did so upon a dubious assumption that the plaintiffs experienced a significant level of enhanced risk, and it did so despite conceding that the normal method for awarding tort law damages was less than satisfactory in this case.

cerns the court's questionable assumption that the plaintiffs suffered from a "significant" enhanced risk of disease.³⁹ Nevertheless, several courts soon followed *Ayers*' lead and permitted PE/PS plaintiffs to recover medical monitoring damages without proof of a quantified level of enhanced risk of disease.

C. After *Ayers*

In the late 1980's and early 1990's, several courts permitted PE/PS plaintiffs to maintain actions for medical monitoring costs,⁴⁰ and a number of commentators applauded the development.⁴¹ However, little consensus formed on exactly what these court decisions had created. Some commentators viewed the decisions as creating a new and unique cause of action.⁴² Others asserted that the decisions simply described a medical monitoring remedy.⁴³ Still others argued that medical monitoring referred to both.⁴⁴

This lack of consensus has made it difficult to discuss medical monitoring on common ground.⁴⁵ To lay the groundwork for a

³⁹ See *supra* note 38.

⁴⁰ See, e.g., *In re Paoli R.R. Yard PCB Litig. (Paoli II)*, 35 F.3d 717, 787 (3rd Cir. 1994); *Burns v. Jaquays Mining Corp.*, 752 P.2d 28, 33-34 (Ariz. Ct. App. 1987); *Potter v. Firestone Tire and Rubber Co.*, 863 P.2d 795, 821-25 (Cal. 1993); *Hansen v. Mountain Fuel Supply Co.*, 858 P.2d 970, 979-81 (Utah 1993); see also *Redland Soccer Club, Inc. v. Dep't of Army and Dep't of Defense of the United States*, 696 A.2d 137 (Pa. 1997). The New Jersey Supreme Court, itself, articulated some limits to the *Ayers* rule in 1993 when it decided *Theer v. Philip Carey*, 628 A.2d 724 (N.J. 1993). In *Theer*, the court refused to permit the award of medical monitoring damages to the wife of an asbestos worker who was only indirectly exposed to toxins from washing her husband's clothes. See *id.*

⁴¹ See, e.g., *Gara*, *supra* note 20; see also *Blumenberg*, *infra* note 49; *Slagel*, *infra* note 56.

⁴² See *Gara*, *supra* note 20, at 267 ("This cause of action is both desirable from a public policy perspective and consistent with tort and damages theory.") (emphasis added); Susan L. Martin & Jonathan D. Martin, *Tort Actions for Medical Monitoring: Warranted or Wasteful*, 20 COLUM. J. ENVT'L. L. 121, 122 (1995) ("This article concludes that creating a cause of action for medical monitoring when there is no demonstrable injury is unwarranted.") (emphasis added).

⁴³ See *Potter*, 863 P.2d at 823 ("Recognition that a defendant's conduct has created the need for future medical monitoring does not create a new tort. It is simply a compensable item of damage when liability is established under traditional tort theories of recovery."); Steven H. Huff et al., *Medical Monitoring: Who Pays for Medical Surveillance when People are Exposed to Toxic Substances?*, 73 MICH. B.J. 1044, 1045 (1994) ("One must first still prove the elements of a traditional tort before medical monitoring costs are recoverable." (footnote omitted)).

⁴⁴ See *Wells*, *supra* note 8, at 294 ("[m]edical monitoring claims may be either an element of legal damages, an independent tort, or equitable relief.").

⁴⁵ Vague standards for a new medical monitoring tort create trouble for litigants and

useful discussion, this section of the Article disputes the notion that Ayers and its progeny have created a unique medical monitoring cause of action. Instead, the Article suggests that the phrase "medical monitoring" should only be used to describe a remedy that courts might award, under clearly defined circumstances,⁴⁶ to plaintiffs who prove the elements of an established tort law cause of action.

1. Organizing Principles

Modern tort actions are generally organized around the concepts of fault, causation, and damages.⁴⁷ The leading medical monitoring decisions, however, do not adhere to this structure. For example, when listing the necessary factors for recovery, some courts vaguely suggest that defendants will be liable for medical monitoring costs whenever they expose a person to a toxin.⁴⁸ In contrast, others courts refer to "negligent exposure," suggesting that a plaintiff must prove fault.⁴⁹ No court, however, addresses whether (or why)

judges alike. Potential plaintiffs, for example, have few signals about when it might be sensible to invest in medical monitoring litigation. Potential defendants have little information upon which to base risk assessment decisions. Moreover, judges who face future medical monitoring claims are undoubtedly frustrated trying to make sense of the patchwork of decisions that fail to explain why medical monitoring claims are permitted or not. See *infra* notes 117-53 and accompanying text (discussing the benefits of a medical monitoring standard clearly aligned with a level of enhanced risk).

⁴⁶ These "circumstances" relate primarily to a clearly defined level of enhanced risk of disease. See *infra* notes 71-81 and accompanying text.

⁴⁷ Professor Nicolas P. Terry, for example, explains that courts normally distribute tort law fact patterns among broad "allocation models" based on the defendant's level of fault. See Nicolas P. Terry, *Collapsing Torts*, 25 CONN. L. REV. 717, 718-19 (1993). Professor Terry asserts that "the search for an allocational ground zero has distilled to a concentration of scholarship on whether tort liability, historically, was fault-based or strict liability-based." *Id.* at 720.

⁴⁸ See, e.g., *Day v. NLO*, 851 F. Supp. 869, 881 (S.D. Ohio 1994). The Reporters for the American Law Institute's Enterprise Liability Report equivocate a bit in this regard, stating that the imposition of medical surveillance costs "will facilitate tort litigation that directs a meaningful and timely sanction against *hazardous activities*." 2 AMERICAN LAW INSTITUTE ENTERPRISE RESPONSIBILITY FOR PERSONAL INJURY 379 (1991) [hereinafter *Enterprise Responsibility Report*] (emphasis added). The Reporters' use of the phrase "hazardous activities" seems to imply that strict liability might be an appropriate allocation model in a medical monitoring case in light of the RESTATEMENT (SECOND) OF TORTS's position that tort liability ought to be imposed on those who engage in "abnormally dangerous activities." RESTATEMENT (SECOND) OF TORTS §§ 519-20 (1977).

⁴⁹ See, e.g., *In re Paoli R.R. Yard PCB Litig. (Paoli II)*, 35 F.3d 717, 787 (3d Cir. 1994) (plaintiff must show that he was exposed "through the negligent actions of the defendant") (quoting *In re Paoli R.R. Yard PCB Litig. (Paoli I)*, 916 F.2d 829, 852 (3d

it would treat a PE/PS medical monitoring claim any differently than it would treat a post-exposure case involving physical harm with regard to fault.⁵⁰ Of course, distinctions between fault-based and no-fault torts are not necessarily static. Distinctions are important, though, because actors often make risk-management, insurance, and litigation decisions based on such cues.⁵¹

To provide clear signals, courts (and commentators) should refrain from casting medical monitoring as a unique cause of action. Instead, courts should award medical monitoring damages only within the context of well-established tort theories that actors understand and within a body of established tort law doctrine.⁵² By so doing, courts will improve predictability and certainty compared to the current environment in which few people agree on what medical monitoring means, and in which liability depends on a fact-finder's assessment of vague factors that have little explicit connection to the nature of a defendant's activity.

Cir. 1990)); *Hansen v. Mountain Fuel Supply Co.*, 858 P.2d 970, 979 (Utah 1993) ("exposure was caused by the defendant's negligence . . ."). It is hard to imagine, however, that medical monitoring proponents would consciously *limit* medical monitoring to a negligence theory. This is especially true in light of the argument that deterrence and cost internalization are the primary reasons for recognizing a new cause of action. See Amy B. Blumenberg, Note, *Medical Monitoring Funds: The Periodic Payment of Future Medical Surveillance Expenses in Toxic Exposure Litigation*, 43 HASTINGS L.J. 661, 682 (1992) (mentioning "the deterrence of future toxic torts as a result of potentially costly liability for ongoing medical surveillance."); Gara, *supra* note 20, at 279 ("Requiring the tortious actor to internalize the costs of medical surveillance necessitated by his activity may result in an efficient allocation of resources."); Huff et al., *supra* note 43, at 1045-46 ("allowing such a recovery acts as a deterrent against the 'irresponsible discharge of hazardous substances'"); see also *Potter v. Firestone Rubber and Tire Co.*, 863 P.2d 795, 824 (Cal. 1993) ("there is a deterrence value in recognizing medical surveillance claims . . ."). If deterrence is the motivation, why not assign PE/PS medical monitoring cases to a strict liability model? Such an assignment might allocate more risk to defendants than would limiting such cases to negligence. See Terry, *supra* note 47, at 721 ("the effect of the assumed strict liability operational rules *should* be to redistribute a large number — more than negligence, fewer than absolute liability — of . . . risks").

⁵⁰ After all, it is normally the character of the defendant's conduct (not the nature of the plaintiff's harm) that drives such a decision.

⁵¹ See Terry, *supra* note 47, at 720. Thus, according to Professor Terry, courts have a responsibility to "define the fact pattern they intend to allocate, provide information as to the precise risk-distribution sought, and provide operational rules for individual decision making." *Id.* at 721-22.

⁵² Courts, for example, might award medical monitoring damages in certain circumstances when the plaintiffs prove the elements of negligence, nuisance, or even trespass. Courts also might award medical monitoring damages in a strict liability action if the defendant's conduct is "abnormally dangerous" as that term is commonly understood. See *supra* note 48 and accompanying text (citing RESTATEMENT (SECOND) OF TORTS §§ 519-520 (1977)).

2. Causation and the Question of Injury

Regardless of whether a medical monitoring plaintiff proceeds on a fault-based or a no-fault theory, the plaintiff also must prove actual causation—an essential element in any tort cause of action.⁵³ As Professor Robert A. Baruch Bush has written, in tort law an "individual is responsible for *all* he does, but for *only* what he does."⁵⁴ Medical monitoring plaintiffs, however, have a significant problem—they are not truly seeking compensation for what the defendant has done, rather they are seeking compensation to protect against what the defendant's conduct might do in the future.⁵⁵

Proponents of a medical monitoring tort have worked around this problem by creatively defining the PE/PS plaintiff's "injury." Recognizing that the mere possibility of future harm is not sufficient to support recovery,⁵⁶ they attempt to characterize the injury as the exposure itself or simply the reasonable need for additional medical surveillance.⁵⁷ Under this view, a defendant's conduct caused the

⁵³ See W. PAGE KEETON, ET AL., PROSSER AND KEETON ON TORTS § 41 (5th ed. 1984); see also ROSCOE POUND, THE SPIRIT OF THE COMMON LAW 37 (1921); Paul J. Zwier, "Cause in Fact" in Tort Law — A Philosophical and Historical Examination, 31 DEPAUL L. REV. 769, 784-85 (1982).

⁵⁴ Robert A. Baruch Bush, *Between Two Worlds: The Shift from Individual to Group Responsibility in the Law of Causation of Injury*, 33 UCLA L. REV. 1473, 1474 (1986).

⁵⁵ See Martin & Martin, *supra* note 42, at 122 ("Traditionally, plaintiffs in tort cases bear the burden of proving by a preponderance of the evidence that they have been injured by the defendants. . . . In medical monitoring cases, these basic principles must be avoided for plaintiffs to be successful."); Wells, *supra* note 8, at 287 ("non-injury" claims, such as medical monitoring, "attempt to avoid the necessity of proving causation by doing away with the need to prove injury."). The troubling issue of causation in mass exposure cases has spawned a wealth of interesting legal scholarship, only a fraction of which can be addressed here. For examples of work in the area, see Farber, *supra* note 1; Michael D. Green, *Expert Witnesses and Sufficiency of Evidence in Toxic Substances Litigation: The Legacy of Agent Orange and Bendectin Litigation*, 86 NW. U. L. REV. 643 (1992); Glen O. Robinson, *Probabilistic Causation and Compensation for Tortious Risk*, 14 J. LEGAL STUD. 779 (1985); Rosenberg, *supra* note 3; Wendy E. Wagner, *Choosing Ignorance in the Manufacture of Toxic Products*, 82 CORNELL L. REV. 773 (1997).

⁵⁶ See Allan T. Slagel, Note, *Medical Surveillance Damages: A Solution to the Inadequate Compensation of Toxic Tort Victims*, 63 IND. L.J. 849, 859 (1988).

⁵⁷ See Blumenberg, *supra* note 49, at 675 (dilemma could be resolved by recognizing that individuals suffer from "a present, compensable injury, i.e., exposure to a level necessitating medical surveillance."); Gara, *supra* note 20, at 275 (if "the injury claimed is the medically determined 'need' for surveillance, the question for causation is relatively straightforward."); Jesse R. Lee, *Medical Monitoring Damages: Issues Concerning the Administration of Medical Monitoring Program*, 20 AM. J.L. & MED. 251, 263 (1994) (problem could be avoided if "plaintiffs will characterize their exposure as injury in fact,

exposure (or the need for additional surveillance) even if the defendant did not cause physical harm or even a quantifiable enhanced risk of disease. Proponents support this characterization as consistent with the Restatement of Torts' definition of an injury as any "legally protected interest."⁵⁸

If extended to PE/PS cases, however, this type of argument could lead to an unprecedented expansion of the tort system. Susan L. Martin and Jonathan D. Martin, for example, point to the large number of hazardous waste sites in this country—and, more broadly, to the large number of chemicals to which most people are exposed—as reason to be concerned about a permissive reading of the injury requirement in toxic exposure cases.

[I]n the very near future we may all have reasonable grounds to allege that some negligent business exposed us to hazardous substances and to get medical experts to testify that . . . there is a reasonable medical necessity for us to receive regular medical testing. The imminence of this scenario suggests that courts may be shortsighted in their willingness to give up the injury element in medical monitoring cases.⁵⁹

Statistics support the breadth of Martin and Martin's argument. According to the United States Environmental Protection Agency ("EPA"), *billions* of pounds of hazardous chemicals are emitted into the air each year,⁶⁰ and nearly twenty percent of the U.S. population (approximately 40 million people) live within four miles of a hazardous waste site that the EPA has placed on its National Priority List.⁶¹ As the Supreme Court stated in *Metro-North*:

[T]ens of millions of individuals may have suffered exposure to substances that might justify some form of substance-exposure-related medical moni-

rather than mere risk of future injury.").

⁵⁸ Citing to the RESTATEMENT, for example, one commentator asserts:

[T]he entire history of the development of tort law shows a continuous tendency to recognize as worthy of legal protection interests which were previously not protected at all. . . . [I]n the torts context, "the meaning of the word 'injury' . . . differs from the sense in which the word 'injury' is often used, to indicate the invasion of the interest in question has been caused by conduct of such a character as to make it tortious."

Gara, *supra* note 20, at 272-73; see also RESTATEMENT (SECOND) OF TORTS § 924 (1979).

⁵⁹ Martin & Martin, *supra* note 42, at 130-31.

⁶⁰ See Paul J. Komyatte, *Medical Monitoring Damages: An Evolution of Environmental Tort Law*, 23 COLO. LAW. 1533, 1533 (1994) (citing United States General Accounting Office, *Air Pollution: EPA's Strategy and Resources May Be Inadequate to Control Air Toxics* (Washington, D.C.: GAO/RCED-91-143, June 26, 1991) at 9)).

⁶¹ *Id.* Komyatte reports that "eight out of ten Americans live near some type of hazardous waste site." *Id.* (footnote omitted).

toring And that fact, along with uncertainty as to the amount of liability, could threaten both a "flood" of less important cases . . . and the systemic harms that can accompany "unlimited and unpredictable liability" ⁶²

Most medical monitoring proponents at least implicitly recognize this overbreadth concern and suggest setting some hurdle to limit the exposure-as-injury theory.⁶³ The proposed hurdle in most cases is the level of enhanced risk of disease.⁶⁴ This reliance on enhanced risk is ironic since these same proponents almost always declare that enhanced risk itself is *not* compensable.⁶⁵ Medical monitoring advocates insist that this distinction is logical. The Ayers

⁶² *Metro-North Commuter R.R. Co. v. Buckley*, 521 U.S. 424, ___, 117 S. Ct. 2113, 2123 (1997).

⁶³ Several courts insist on proof of physical harm. See, e.g., *Ball v. Joy Tech., Inc.*, 958 F.2d 36 (4th Cir. 1991); *Purjet v. Hess Oil Virgin Islands Corp.*, No. Civ. 1985/28-4, 1986 WL 1200, at *4 (D. V.I. Jan. 8, 1986).

⁶⁴ See, e.g., *In re Paoli R.R. Yard PCB Litig. (Paoli II)*, 35 F.3d 717, 787 (3rd Cir. 1994) (plaintiff must suffer from "a significantly increased risk of contracting a serious latent disease.") (citing *In re Paoli R.R. Yard PCB Litig. (Paoli I)*, 916 F.2d 829, 852 (3d Cir. 1990)); *Potter v. Firestone Tire and Rubber Co.*, 863 P.2d 795, 824-25 (Cal. 1993) ("the relative increase in the chance of onset of disease in the exposed plaintiff . . . compared to (a) the plaintiff's chances of developing the disease had he or she not been exposed, and (b) the chances of the members of the public at large of developing the disease"); *Ayers v. Township of Jackson*, 525 A.2d 287, 312 (N.J. 1987) (a "relative increase in the chance of onset of disease in those exposed"); *Hansen v. Mountain Fuel Supply Co.*, 858 P.2d 970, 979 (Utah 1993) (increased risk which must be "significant"). The Reporters for the ALI *Enterprise Responsibility Report* (apparently facing some resistance to the entire concept of medical monitoring) suggested that a "substantial" level of enhanced risk should exist before the need for medical monitoring would be considered an injury in a particular case. See Troyen A. Brennan, *Environmental Torts*, 46 VAND. L. REV. 1, 69 & n.261 ("Medical monitoring was this Article's most controversial recommendation when I presented a draft to ALI's General Meeting in May, 1991"). The Reporters explain:

To use a hypothetical example, it would be inappropriate for a court to order a defendant to fund annual colonoscopies for all 100,000 people residing in the area of a toxic exposure where the exposure is projected to increase the incidence of colon cancer from 3 to 5. A much more substantial disease risk should be indicated before damages are awarded to cover individually tailored modes of medical surveillance

Enterprise Responsibility Report, *supra* note 48, at 379-80 n.60.

Most commentators—even those who advocate a liberal injury requirement—end up agreeing, at least in a backhanded fashion. See Gara, *supra* note 20, at 276 ("the relevant question becomes whether medical testimony that *there exists an enhanced danger of a future injury* can be considered 'mere speculation.'") (emphasis added).

⁶⁵ See *Paoli II*, 35 F.3d at 785; *Ayers*, 525 A.2d at 307-08; *Hansen*, 858 P.2d 976 & n.6; see also *Potter*, 863 P.2d at 825 (permitting recovery for medical monitoring will not allow damages to be awarded "solely upon a showing of an increased but unquantified risk resulting from exposure to toxic chemicals.").

court, for example, asserted that a medical monitoring claim stands on "different footing" than an enhanced risk claim because the former attempts to compensate only the cost of medical care that might facilitate early diagnosis and treatment of disease, while the latter forces judges and juries to speculate about damages that might never occur.⁶⁶ The author of an oft-cited article on medical monitoring concurs:

[Claims for enhanced risk] are clearly a matter of speculation; plaintiffs making such claims request compensation for an injury that may never in fact develop. By contrast, [claims for medical monitoring] involve a *present injury*: plaintiffs are seeking compensation for readily ascertainable costs to be expended upon what can be verified as a reasonably necessary medical procedure.⁶⁷

At first glance, this distinction is appealing. However, when one recalls that significant enhanced risk is almost always a predicate to medical monitoring recovery, the distinction begins to look like an enhanced risk "Trojan horse": enhanced risk itself is not compensable, but if you demonstrate an increased risk of disease, you can recover medical monitoring costs . . . as a means of compensation for the enhanced risk. This Article asserts that the law should be more straightforward: in certain cases, enhanced risk is compensable, and the cost of medical surveillance may be part of the appropriate remedy.⁶⁸

⁶⁶ Ayers, 525 A.2d at 307-08. To be fair, the Ayers majority limited its discussion to a situation where the enhanced risk of disease was unquantified and where the plaintiffs had not yet manifested any symptoms of disease. *Id.* at 306.

⁶⁷ Gara, *supra* note 20, at 286.

⁶⁸ Of course, medical monitoring logically must be predicated upon evidence that the monitoring will make early detection and treatment of disease possible and beneficial. See, e.g., *Paoli*, 35 F.3d at 787. In addition, medical monitoring recovery does not automatically preclude the possibility that "enhanced risk," itself, has some compensable value. See, e.g., Note, *Latent Harms and Risk-Based Damages*, 111 HARV. L. REV. 1505 (1998); Keith W. Lapeze, Comment, *Recovery for Increased Risk of Disease in Louisiana*, 58 LA. L. REV. 249 (1997); Deirdre A. McDonnell, Comment, *Increased Risk of Disease Damages: Proportional Recovery as an Alternative to the All or Nothing System Exemplified by Asbestos Cases*, 24 B.C. ENVTL. AFF. L. REV. 623, 640 (1997); see also *Jackson v. Johns-Manville Sales Corp.*, 781 F.2d 394 (5th Cir. 1986) (en banc); *Gideon v. Johns-Manville Sales Corp.*, 761 F.2d 1129 (5th Cir. 1985). However, in any PE/PS situation, a reference to the level of increased risk of disease is almost unavoidable. For example, in the medical monitoring context, even if one accepts the "reasonable-need-for-surveillance-as-injury" argument, proof of what constitutes "reasonable need" will almost surely come from expert medical testimony. Inevitably, the expert's opinion will relate to the plaintiff's level of enhanced risk.

When approached in this fashion, things become almost straightforward from a traditional tort law perspective. Regardless of the underlying theory, a plaintiff needs to prove that the defendant's act or omission caused his injury. The injury is not the "exposure" or the "need for surveillance"; it is the fact that the exposure enhanced the plaintiff's risk of disease.⁶⁹ The only difficult issue, and the issue that few people address, is the level of enhanced risk that should give rise to tort liability.⁷⁰ The following section attempts to resolve that problem.

II. AWARDING DAMAGES FOR MEDICAL MONITORING

A. *The Enhanced Risk Standard*

It is clear that funding for medical surveillance of individuals who have been exposed to toxic substances would, in many instances, have a positive societal impact.⁷¹ The tort system, however, may not be the appropriate place to obtain such funding.⁷² In particular, tort law should apply only when a PE/PS plaintiff can prove that, if she were to develop the disease, it would be more likely than not that the exposure actually caused the disease. In terms of enhanced risk, this would require a plaintiff to prove that the exposure more than doubled her risk of disease.⁷³

This proposed standard requires several initial refinements. First, the proposed standard should apply only to plaintiffs who have suffered no symptoms of disease, nor any significant physical trauma. For those who have, courts should continue to treat medical monitoring costs as a "future medical expenses" component of

⁶⁹ See Brennan, *supra* note 64, at 67 ("Compensation for monitoring through a system of periodic examinations for plaintiffs, recognizes that increase risk is a form of injury.") (emphasis added). Professor Brennan later adds: "[T]here must be some scintilla of evidence of a toxic injury, or a significant potential for such injury, before medical monitoring can be granted." *Id.* at 69 (emphasis added).

⁷⁰ See *infra* notes 154-80 and accompanying text for a discussion of how administrative compensation should fill the void when tort law would not apply.

⁷¹ See *infra* notes 137-46, 167, 181 and accompanying text.

⁷² See *infra* notes 147-53 and accompanying text; see also *infra* notes 154-81 and accompanying text.

⁷³ See *infra* notes 85-95 and accompanying text. Using the "paradigm case," see *supra* note 1 and accompanying text, as an example, a plaintiff ordinarily would need to demonstrate that the exposure increased her chances of contracting cancer from 10 in 100,000 to more than 20 in 100,000 in order to recover medical monitoring costs from the defendant in a tort action.

damages.⁷⁴ This recognizes that medical monitoring in a PE/PS case is an extension of established tort principles, yet connects the extension to the tradition of individualized causation.⁷⁵ Second, when possible, the standard should relate to relevant individual circumstances concerning the risk of disease.⁷⁶ Third, the standard should incorporate a minimum level of enhanced risk as the threshold to medical monitoring recovery.⁷⁷ Admittedly, defining such a threshold is difficult. One might, for example, suggest an absolute cutoff—for example, no recovery unless there is a five or ten or twenty percent absolute increase in risk. A less arbitrary threshold, however, could be established by following a suggestion from Professor Troyen Brennan. Professor Brennan proposes that courts limit medical monitoring recovery to those who have been exposed to “significant concentrations of one of the . . . most toxic chemicals as designated by the [Agency for Toxic Substances and Disease Registry (“ATSDR”)].”⁷⁸ As opposed to a numerical enhanced risk cutoff, Professor Brennan’s suggestion has the benefit of clarity and rationality in that those who compile the ATSDR list are primarily concerned with the overall risk posed by each substance.⁷⁹ Finally,

⁷⁴ See *Metro-North Commuter R.R. Co. v. Buckley*, 521 U.S. 424, ___, 117 S. Ct. 2113, 2122 (1997) (citing *Hagerty v. L & L Marine Services, Inc.*, 788 F.2d 315 (5th Cir. 1986); *supra* notes 19-20 and accompanying text.

⁷⁵ See *infra* notes 85-106 and accompanying text.

⁷⁶ For example, if a plaintiff in the paradigm case, see *supra* notes 1-2 and accompanying text, is a heavy smoker, and if an expert testifies that smokers have a background risk rate of 15 cancer cases per 100,000, then that plaintiff must prove that the exposure has caused her to have more than a 30 in 100,000 risk of disease to recover medical monitoring damages in a tort action.

⁷⁷ Such a threshold would ensure that a reasonable relationship exists between medical monitoring damages and damages eventually paid for a proportion of diseases that actually ensue. As the Reporters for the *Enterprise Responsibility Report* explain, “it would be inappropriate for a court to order a defendant to fund [medical surveillance] for all 100,000 people residing in the area of a toxic exposure where the exposure is projected to increase the incidence of [a particular disease] from 3 to 5.” *Enterprise Responsibility Report*, *supra* note 48, at 379-80 n.60 (citing SARA § 104(i)(9) as utilizing a similar standard in an analogous context); see *id.* at 373-74 (compensation for slight increases in risk—“on the order of 2 or 3 percent . . . should fall mainly within the purview of state and federal environmental regulation.”); Brennan, *supra* note 64, at 69.

⁷⁸ See Brennan, *supra* note 64, at 69. Professor Brennan, who describes the issue as “tractable,” asserts that setting a threshold “will be necessary to prevent the overdeterrence that would come with excessively broad use of medical monitoring damage awards.”

⁷⁹ See CERCLA § 104(i); see also *infra* note 122 and accompanying text. The approach, however, need not be absolutely rigid. Courts, for example, should be given the flexibility to award damages in cases where plaintiffs are exposed to toxins that pose a comparable risk to those on the ATSDR, even if the toxin is not on the list.

this proposal would permit the award of medical monitoring damages in appropriate cases under any established "allocation model."⁸⁰ Damages, for example, would not be limited to negligence cases, as some medical monitoring proponents suggest.⁸¹

B. *Justifying the Standard*

1. Connection to Causation

The standard set forth above is designed to ensure that, when tort law awards medical monitoring damages, it maintains a connection to traditional causation principles. As discussed above, tort law ordinarily requires that a plaintiff connect her injury, by a preponderance of the evidence, to the defendant's act or omission.⁸² If medical monitoring damages are awarded without regard to an enhanced risk standard, the causation rule is completely destroyed—that is, in many cases, the law would force a defendant to bear the responsibility of monitoring for the possible onset of a disease that likely was unconnected to its conduct. Under this Article's proposed standard, however, a connection to the tradition of individual responsibility exists⁸³—the defendant is asked only to bear the cost of monitoring for the onset of disease that, under the preponderance rule, would not have occurred but for the defendant's act or omission.⁸⁴

⁸⁰ See *supra* note 47.

⁸¹ See *supra* note 49 and accompanying text. It is important to emphasize that this proposal does not suggest that other individuals who have been exposed to toxins, but who have not yet manifested any disease, should never receive financial assistance for medical monitoring. This assistance, however, should not come from the tort system. See *infra* notes 154-81 and accompanying text; see also *infra* notes 147-53 and accompanying text.

⁸² See *supra* note 2 and accompanying text.

⁸³ See *supra* notes 53-54.

⁸⁴ Although not entirely conventional (nor uncontroversial), the level of expansion from traditional causation principles envisioned by this proposal has precedent. For example, in the well-known case of *Summers v. Tice*, 199 P.2d 1 (Cal. 1948), the California Supreme Court permitted the plaintiff to proceed in a tort action against two hunters who may have shot him, without forcing the plaintiff to prove by a preponderance of the evidence that either hunter caused his harm. See Andrew R. Klein, *Beyond DES: Rejecting the Application of Market Share Liability in Blood Products Litigation*, 68 TUL. L. REV. 883, 891-94 (1994) (arguing that the rule in *Summers* retains substantial "links" to the traditional rule of causation); see also RESTATEMENT (SECOND) OF TORTS § 433B (1992). Similarly, a number of courts have permitted plaintiffs to proceed in tort actions where plaintiffs have proven only that the defendant's conduct reduced their chance of

a. *Enhanced Risk and the Preponderance Standard*

The above assertion is not meant to oversimplify the difficulties that plaintiffs face in proving actual causation in toxic exposure cases.⁸⁵ In general, plaintiffs must clear two hurdles. First, plaintiffs must prove general causation (that the substance is capable of causing disease).⁸⁶ Second, they must prove specific causation (that the substance caused the particular plaintiff's disease).⁸⁷ Because scientific proof of specific causation is often difficult to obtain, many courts permit plaintiffs to prove specific causation by showing that the exposure increased their risk of contracting disease.

The finder of fact is asked to infer that because the risk is demonstrably greater in the general population due to exposure to the substance, the claimant's injury was more likely than not caused by that substance. Such a theory concedes that science cannot tell us what caused a particular plaintiff's injury. It is based on a policy determination that when the incidence of a disease or injury is sufficiently elevated due to exposure to a substance, someone who was exposed to that substance and exhibits the disease or injury can raise a fact question on causation.⁸⁸

Substantial debate has ensued over the level of increased risk sufficient to support a finding of causation under a preponderance of the evidence rule. On one end of the spectrum are proponents of a "strong" version of the preponderance rule. These individuals would require epidemiological evidence⁸⁹ that exposure increased

survival. See *Herskovitz v. Group Health Coop. of Puget Sound*, 664 P.2d 474 (Wash. 1983); Robinson, *supra* note 55 at 792.

⁸⁵ See Green, *supra* note 55; Ora Fred Harris, *Toxic Tort Litigation and the Causation Element: Is There Any Hope of Reconciliation*, 40 S.W. L.J. 909, 911-12 (1986).

⁸⁶ See GERALD W. BOSTON & M. STUART MADDEN, *LAW OF ENVIRONMENTAL AND TOXIC TORTS* 342-45 (West 1994) (quoting *Sterling v. Velsicol Chem. Corp.*, 855 F.2d 1188 (6th Cir. 1988)); *Merrell Dow Pharm., Inc. v. Havner*, 953 S.W.2d 706 (Tex. 1997), cert. denied 118 S. Ct. 1799 (1998) (citing Joseph Sanders, *From Science to Evidence: The Testimony on Causation in the Bendectin Cases*, 46 STAN. L. REV. 1, 14 (1993)); see also Kenneth S. Abraham, *Individual Action and Collective Responsibility: The Dilemma of Mass Tort Reform*, 73 VA. L. REV. 845, 860 (1987) (referring to general and specific causation as "substance" and "source" causation).

⁸⁷ See Abraham, *supra* note 86, at 860.

⁸⁸ *Havner*, 953 S.W.2d at 715.

⁸⁹ Epidemiology is the scientific discipline concerned with disease distribution and determinants among human populations. For a clear and concise introduction to epidemiology, see Gerald W. Boston, *A Mass Exposure Model of Toxic Causation: The Content of Scientific Proof and the Regulatory Experience*, 18 COLUM. J. ENVTL. L. 181, 231-274 (1993). Professor Boston describes the two major types of epidemiological studies: case-control studies and cohort studies. Case-control studies "compare individuals with the disease (cases) to persons who do not have the disease (controls) in an attempt to ret-

the probability of causation by more than fifty percent and particularistic proof that the substance injured a particular plaintiff.⁹⁰ Indeed, some commentators argue that epidemiological evidence *alone* cannot establish actual causation in an individual case.⁹¹

Others, however, argue for a "weaker" version of the preponderance rule that would support verdicts solely upon statistical evidence that causation was "more than 50 percent probable."⁹² A number of courts have interpreted "more than 50 percent probable" as the equivalent of evidence that the "relative risk" of disease is greater than two.⁹³ If relative risk is greater than two, the risk of disease in the exposed population would be more than double the risk of disease in the unexposed population.⁹⁴ This, of course, is the standard proposed by this Article as a threshold for the recovery of medical monitoring damages.⁹⁵

A doubling threshold, however, is not without its critics,⁹⁶

respectively determine commonalities within the diseased group which may reveal a relationship to an exposure to a chemical agent." *Id.* at 233. Cohort studies, "begin with a group of exposed persons, compare them to a group of individuals who were not exposed, and track them prospectively to determine the incidence over time within the two groups of a specific disease being investigated." *Id.* at 234; see also *Havner*, 953 S.W.2d at 715; Green, *supra* note 55, at 646-53.

⁹⁰ *Havner*, 953 S.W.2d at 715 (citing *In re Agent Orange Prod. Liab. Litig.*, 611 F. Supp. 1223 (1984)); Rosenberg, *supra* note 3, at 857.

⁹¹ See *Havner*, 953 S.W.2d at 715.

⁹² *Id.* (citing Rosenberg, *supra* note 3, at 857-58 and quoting *In re Agent Orange*, 611 F. Supp. at 1262).

⁹³ Relative risk compares the risk of disease among an exposed population with the risk of disease among a non-exposed population. Mathematically, relative risk can be defined as $R1/R2$ where $R1$ = the rate of disease among the exposed population and $R2$ = the rate of disease in the non-exposed population. Boston, *supra* note 89, at 235; see Green, *supra* note 55, at 647. "If the relative risk equals one (i.e., the numerator is the same as the denominator), the risk in the exposed group is the same as the risk in the nonexposed group, and there is no suggestion of any association between the exposure and the disease in question. If the relative risk is greater than one, the risk in the exposed group is greater than in the non-exposed group, and there is a positive association between the exposure and the disease." Boston, *supra* note 89, at 235; Green, *supra* note 55, at 647.

⁹⁴ *Havner*, 953 S.W.2d at 717-18; *Daubert v. Merrell Dow Pharm., Inc.*, 43 F.3d 1311, 1320 (9th Cir. 1995); *DeLuca v. Merrell Dow Pharm., Inc.*, 911 F.2d 941, 958 (3rd Cir. 1990); *Hall v. Baxter Healthcare Corp.*, 947 F. Supp. 1387, 1403 (D. Or. 1996); *Manko v. United States*, 636 F. Supp. 1419, 1434 (W.D. Mo. 1986); *Marder v. G.D. Searle & Co.*, 630 F. Supp. 1087, 1092 (D. Md. 1986); *Cook v. United States*, 545 F. Supp. 306, 308 (N.D. Cal. 1982).

⁹⁵ See *supra* note 73 and accompanying text.

⁹⁶ For example, one must ensure that the relative risk fits into an appropriate confidence interval before scientists will conclude that the statistical evidence is significant.

especially so as it requires epidemiological proof.⁹⁷ Professor Michael D. Green, for example, has argued that courts should not apply a burden of production that requires epidemiological evidence because, in many instances, such evidence simply does not exist.⁹⁸ Instead, Professor Green argues that "plaintiffs should be

See *Havner*, 953 S.W.2d at 723 ("A confidence interval shows a 'range of values within which the results of a study sample would be likely to fall if the study were repeated numerous times.'") (quoting Linda A. Bailey et al., *Reference Guide on Epidemiology*, in FEDERAL JUDICIAL CENTER, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 169, 173 (1994)); *Havner*, 953 S.W.2d at 723 ("The generally accepted significance level or confidence interval in epidemiological studies is 95%, meaning that if the study were repeated numerous times, the confidence interval would indicate the range of relative risk values would result 95% of the time.") (citations omitted). See also BOSTON & MADDEN, *supra* note 86, at 379-81 (citing K.J. ROTHMAN, MODERN EPIDEMIOLOGY 116 (1986)). In addition, a careful fact-finder might reach a conclusion opposite from the inference raised by an epidemiological study if strong particularized evidence exists. See *Havner*, 953 S.W.2d at 718 ("We do not hold . . . that a relative risk of more than 2.0 is a litmus test or that a single epidemiological test is legal sufficient evidence of causation. Other factors must be considered."); *Grassis v. Johns-Manville Corp.*, 591 A.2d 671, 675 (N.J. Super. Ct. App. Div. 1991) ("Where, however, study after study has shown some positive correlation, although not to the factor of 2.0, it might be said that asbestos is at least a producing factor in some colon cancers, even if the precise biological process has not yet been defined."); see also *In re Joint E. & S. Dist. Asbestos Litig.*, 964 F.2d 92, 97 (2d Cir. 1992) (citing *Grassis*, 591 A.2d 671 (N.J. Super. Ct. App. Div. 1991)).

⁹⁷ See Green, *supra* note 55; see also Margaret A. Berger, *Eliminating General Causation: Notes Toward a New Theory of Justice and Toxic Torts*, 97 COLUM. L. REV., 2117 (1997); Wagner, *supra* note 55. Professor Wagner challenges the entire notion that toxic tort plaintiffs ought to bear the burden of proof on the issue of causation. Professor Wagner argues that such a rule is premised on an incorrect perception "that scientific research on the long-term safety of products is produced spontaneously and in abundance, irrespective of the law." Wagner, *supra* note 55, at 774. Instead, Professor Wagner argues for a revised causation standard that places much of the burden of scientific uncertainty on toxic tort defendants. Under Professor Wagner's proposal, if a "manufacturer is not able to publicize the 'minimal' safety research on its product where some potential for exposure exists . . . , the plaintiff is entitled to a presumption that the insufficiently tested product caused her harm. The plaintiff thus establishes a prima facie case with proof of the following: (1) inadequate minimal testing on a product, (2) normal or foreseeable exposure to the product, and (3) serious harm that might be causally linked to exposure to the product." *Id.* at 834-35.

⁹⁸ Green, *supra* note 55, at 674-95. Professor Green explains:

For most potentially toxic substances, there will not be a solid body of epidemiologic evidence on which to rely. Epidemiology is expensive and time consuming, even ethically proscribed in certain contexts. There are thousands upon thousands of synthetic agents being used in the United States that might pose toxic risks, yet only a tiny fraction have been the subject of any epidemiologic inquiry. . . . Imposing a burden of production that includes an epidemiologic threshold will screen out all of these cases, but at a cost of precluding more refined attempts, based on animal studies, structure analysis, available knowledge about biological mechanisms and related evidence, to make an assessment of whether there exists a causal relationship.

required to prove causation by a preponderance of the *available evidence*, not by some predetermined standard that may require nonexistent studies."⁹⁹

It is important to understand, however, that Professor Green does not reject the doubling standard itself; rather, he objects that courts have wrongly "created a veneer of infallibility and conclusiveness to epidemiology studies."¹⁰⁰ In addition, Professor Green's argument is made in the context of cases where plaintiffs are currently suffering from disease, not in the context of cases involving pre-symptom plaintiffs. In the latter type of case, the enhanced risk standard should be at *least* as strong as the standard applied in the former type of case—if only because of the vastly increased number of potential lawsuits.¹⁰¹

The primary hesitation about tort access in all cases involving probabilistic evidence, of course, is the risk of being wrong about the causal association and thereby deterring useful activity.¹⁰² These risks are exponentially larger, however, if the tort system allows plaintiffs to obtain medical monitoring costs before they

Id. at 680 (footnotes omitted).

⁹⁹ Green, *supra* note 55, at 674-95. Professor Green continues:

This means that in every case involving an alleged toxic agent for which a mature epidemiologic record does not exist, analysis of the sufficiency of plaintiff's evidence would begin by considering the universe of available evidence of toxicity. Theoretically, this could be limited to structure-activity analysis or a series of adverse case reports. Evaluating the likelihood that the agent was truly toxic (and ultimately whether, even if it was toxic, it caused plaintiff's injury) would require the assessment of an expert schooled in that scientific area. Even more difficult, where some evidence existed in two different areas—say *in vitro* and structure-activity—scientists who could span both fields would be required to make a considered assessment of the weight of the available evidence.

Id. at 681 (footnotes omitted).

¹⁰⁰ Green, *supra* note 55, at 699.

¹⁰¹ Even in the former type of case, Professor Green concedes that "opening the courthouse doors to plaintiffs entering with such thin and attenuated evidence . . . is discomfiting and unfortunate." Green, *supra* note 55, at 681. Nonetheless, in such cases, Professor Green thinks the balance of interests tilts toward tort access. *Id.* ("the reality is that stronger and better evidence is unavailable through no fault of anyone and a decision based on the preponderance of the available evidence . . . would seem in keeping with the role of the civil justice system."). As discussed below, however, the same is not necessarily true in cases where plaintiffs seek medical monitoring costs before manifesting any symptoms of disease.

¹⁰² This has been one criticism of Bendectin and breast implant litigation. See, e.g., MARCIA ANGELL, *SCIENCE ON TRIAL: THE CLASH OF MEDICAL EVIDENCE AND THE LAW IN THE BREAST IMPLANT CASE* (1996); MICHAEL D. GREEN, *BENDECTIN AND BIRTH DEFECTS: THE CHALLENGES OF MASS TOXIC SUBSTANCE LITIGATION* (1996).

manifest any symptoms of disease.¹⁰³ Where these individuals can present strong evidence that would connect future disease to the toxic exposure (i.e., if their chance of disease has doubled), the risks are less troubling. Indeed, the threat of tort liability in such a case might actually mitigate costs associated with future disease.¹⁰⁴ If these individuals cannot present such evidence, however, tort access should be denied. In such cases, the link to causation is too tenuous, and the threat of overdeterrence is simply too great.¹⁰⁵

b. *Proportional Liability*

A number of scholars, however, assert that traditional notions of causation (even as extended by the use of statistical evidence) have little value in modern toxic tort litigation.¹⁰⁶ Professor Glen O. Robinson, for example, is among those who call for the application of "proportional liability" in cases where toxic exposure has increased a plaintiff's risk of disease. Professor Robinson explains:

Assuming that the risk is one that would give rise to liability when the actual loss is suffered, why not adjudicate the entire case by awarding the victim the present value of the risk at the point at which the risk can be identified and given some measurable value? The value is equal to the present value of the future losses multiplied by the estimated probability of their occurrence.¹⁰⁷

While the proposal in this Article does not call for such a radical change in the tort system, the proposal is not necessarily inconsistent with the views of those who advocate proportional liability.¹⁰⁸

¹⁰³ For example, think of the paradigm case set forth in the introduction to this Article. See *supra* notes 1-2 and accompanying text. If our discussion focuses on post-manifestation plaintiffs, the tort system must address fifteen plaintiffs. If the tort system focuses on pre-manifestation plaintiffs, it might be forced to address 100,000 individuals who were exposed to the toxin.

¹⁰⁴ See *infra* notes 114-16, 143-46, 181 and accompanying text.

¹⁰⁵ See *supra* note 78; *infra* notes 120-36 and accompanying text.

¹⁰⁶ See, e.g., Robinson, *supra* note 55; Rosenberg, *supra* note 3.

¹⁰⁷ Robinson, *supra* note 55, at 786; see Rosenberg, *supra* note 3, at 881 ("From the standpoint of corrective justice, the proportionality rule is unquestionably more effective than the preponderance rule in achieving the tort system's goal of preserving the value of entitlements."); cf. *Enterprise Responsibility Report*, *supra* note 48, at 369-75 (advocating proportionate compensation if the attributable fraction of disease at a particular level of exposure is between 20 and 80%).

¹⁰⁸ Some scholars, however, suggest that the tort system's use of "probabilistic causation" would require some limitations. For example, Professor Brennan argues:

[I]f carried to an extreme, use of probability of causation would challenge our fundamental assumptions about evidence and tort causation. For example,

For example, Professor Robinson argues that one of the virtues of proportional liability is that it would force the risk creator to bear the burden of expected loss, while shifting responsibility to the risk bearer to monitor that risk and take action to reduce its scope.¹⁰⁹ The proposal in this Article serves the same goal, but focuses on compensating victims with a high level of enhanced risk. In this way, the proposal actually sharpens the efficiency of the tort system by reducing the chance that tort law might pay individuals for protections that they would not otherwise choose to purchase.

For example, few (if any) medical monitoring proponents suggest that courts award lump-sum damages to plaintiffs,¹¹⁰ presumably because they fear that plaintiffs will spend the money on goods and services other than medical surveillance.¹¹¹ Logic dictates that

courts could consider every individual with lung cancer a member of a potential group of plaintiffs who could sue all the producers of particulate-matter air pollution. A small attributable fraction of all lung cancers could be attributable to this type of air pollution, perhaps less than one percent. If consolidation of such a large class were possible, the case would be viable for plaintiffs and their attorneys. Indeed, courts potentially could conceptualize many sorts of injuries as such mass torts, undermining common-law doctrine in a worrisome manner.

Brennan, *supra* note 64, at 63. In addition, those scholars who view "corrective justice" as the ultimate goal of tort law would likely reject a system of proportional liability. See, e.g., Ernest J. Weinrib, *Toward a Moral Theory of Tort Law*, 2 J.L. & PHIL. 37 (1982); *infra* note 119; cf. Christopher H. Schroeder, *Corrective Justice and Liability for Increasing Risks*, 37 UCLA L. REV. 439 (1990) (arguing that proportional liability does not necessarily violate corrective justice principles).

¹⁰⁹ The risk bearer, according to Professor Robinson, is in the best position to make such decisions, for example, by purchasing insurance to protect against the harm. Robinson, *supra* note 55, at 787-88.

¹¹⁰ The Utah Supreme Court, for example, echoed the sentiments of the New Jersey Supreme Court in *Ayers* when it stated that:

any award must provide for the defendant's payment of only the costs of the medical monitoring services that will actually be provided to the plaintiff. The trial court should not order payment to the plaintiff, in a lump sum or otherwise, of damages representing the costs of future monitoring.

Hansen v. Mountain Fuel Supply Co., 858 P.2d 970, 982 (Utah 1993); see also *Burns v. Jaquays Mining Corp.*, 752 P.2d 28, 34 (Ariz. Ct. App. 1987); *Potter v. Firestone Rubber and Tire Co.*, 863 P.2d 795, 825 & n.28 (Cal. 1993); Brennan, *supra* note 64, at 67-69; *Enterprise Responsibility Report*, *supra* note 48, at 379 ("We do not favor awarding damages under the label of 'medical monitoring' and having the money paid directly to plaintiffs to be spent on additional medical attention only if they are so inclined.").

¹¹¹ Lee, *supra* note 57, at 268 & nn.113-14 (conceding that plaintiffs who receive lump-sum payments for such costs "show some propensity to spend the money on things other than diagnostic tests."). The Reporters for the ALI project state that "[t]his was reportedly the eventual outcome of the litigation in [*Ayers*]." *Enterprise Responsibility*

the lower the enhanced risk, the greater the odds that this would occur. Creating a system that encourages payment for services that individuals would not choose to purchase absent coercion makes little sense. In fact, in discussing the similar topic of risk-based claims for emotional distress in mass exposure cases, Professor David Rosenberg argues that the welfare of such plaintiffs may actually be reduced under such conditions:

[S]uch damages decrease the welfare of potential plaintiffs by taking money from [the exposed individuals] in their healthy state — through, for example, wage reductions and increased prices resulting from defendants passing through the costs of higher liability insurance — and providing them with damages that have lower marginal utility in their unhealthy state. . . . This cost pass-through is the pervasive fact underlying tort liability dealing with business risks. That most consumers of insurance would rationally reject coverage for mental distress is confirmed by the fact that such coverage is virtually nowhere to be found on the private insurance market or in any state or federal program for workers' compensation or social insurance.¹¹²

If it is true that medical monitoring plaintiffs who receive lump-sum "compensation" might spend their money on unrelated goods and services, Professor Rosenberg's argument would apply in the medical monitoring context: plaintiffs would be paying through higher prices and reduced wages for insurance that they would not choose to purchase on their own. As Professor Rosenberg points out,¹¹³ the threat of accrued liability for eventual harm *should* create proper incentives for defendants to make reasonable investments in medical monitoring on their own.¹¹⁴ If defendants have decided not to do so with those who have a low or unquantified enhanced risk of disease, this might signal that permitting tort law recovery would lead to overdeterrence. To the extent that tort law should be used to improve efficiency,¹¹⁵ however, the focus should be on

ity Report, *supra* note 48, at 379 n.59.

¹¹² David Rosenberg, *Individual Justice and Collectivizing Risk-Based Claims in Mass-Exposure Cases*, 71 N.Y.U. L. Rev. 210, 226 (1996).

¹¹³ *Id.* at 234-35 (Professor Rosenberg makes this point in the context of medical monitoring claims, which he calls "mitigation" claims).

¹¹⁴ *Id.* at 234-35.

¹¹⁵ Professor Rosenberg explains that "risk-based claims for mitigation" (such as actions for medical monitoring costs) might still be useful where "counterincentives" exist that might discourage a defendant from taking mitigation actions. *Id.* at 235. For example, Professor Rosenberg states that defendants might logically fear that members of the public will wrongly overestimate the risk of an activity, thereby subjecting the defendant to "overbearing investigation and regulation, unjustified disparagement, and a flood of ha-

plaintiffs with a higher enhanced risk of disease, as these individuals are logically the ones who would more likely spend damage awards on medical surveillance.

2. Efficient Risk Allocation

The above argument raises another point in support of this Article's proposed standard: the standard would improve the efficiency of risk allocation compared with the current muddle of vague medical monitoring standards and proposals.

Numerous legal scholars identify deterrence as one of tort law's primary goals.¹¹⁶ Ideally, tort law should achieve this goal by encouraging actors to limit risk-taking actions to an economically efficient level.¹¹⁷ Medical monitoring advocates routinely align their advocacy with this purpose.¹¹⁸

If actors could confidently predict medical monitoring liabilities, this type of argument would be persuasive. Under current standards that permit recovery regardless of the level of enhanced risk,¹¹⁹ however, efficient deterrence is unlikely. First, the lack of a predictable standard undoubtedly increases transaction and litiga-

rating law suits." *Id.*

¹¹⁶ See Gary T. Schwartz, *Mixed Theories of Tort Law: Affirming Both Deterrence and Corrective Justice*, 75 TEX. L. REV. 1801, 1801 (1997) (describing a "major camp" of tort scholars who understand tort liability "as an instrument aimed largely at the goal of deterrence, commonly explained within the framework of economics."). There are, however, other scholars who view corrective justice, rather than deterrence, as the fundamental goal of tort law. See Symposium, *Corrective Justice and Formalism: The Care One Owes One's Neighbors*, 77 IOWA L. REV. (1992). A discussion of this sometimes acrimonious debate is beyond the scope of this article. However, for a good account of the parameters of the debate, see Schwartz, *supra*.

¹¹⁷ See Rosenberg, *supra* note 112, at 234 ("[T]he deterrence aim of tort liability seeks to induce potential business defendants to limit their risk taking to economically efficient levels not only for purposes of maximizing the aggregate social welfare, but also for purposes of avoiding distributionally regressive effects on the less well off in society.").

¹¹⁸ See *supra* note 49. As one commentator has written:

Requiring the tortious actor to internalize the costs of medical surveillance necessitated by his activity may result in an efficient allocation of resources. Thus, societal resources will be spent only on those products and services possessing worth greater than their 'aggregate' (business and social) costs. . . . Societal production will consequently be altered to reflect consumer choice.

Gara, *supra* note 20, at 279.

¹¹⁹ See *Potter v. Firestone Rubber & Tire Co.*, 863 P.2d 795, 817 (Cal. 1993); *Ayers v. Township of Jackson*, 525 A.2d 287, 304 (N.J. 1987); *Hansen v. Mountain Fuel Supply Co.*, 858 P.2d 970, 979 (Utah 1993).

tion costs.¹²⁰ Second, the typical deterrence argument fails to adequately consider whether a defendant's activity might be replacing more dangerous risks than it has created.

The latter concern is the more fundamental of the two. Forcing defendants to internalize unmaturing risk in the nature of medical monitoring expenses—without a defined and significant enhanced risk hurdle—raises serious concerns of overdeterrence. Initially, it places in the hands of the legal community extremely wide latitude in deciding which public risks should be addressed. In broader contexts, commentators such as Peter Huber have argued that tort law is a poor place to make such decisions.¹²¹

Huber's views regarding risk allocation certainly have not escaped criticism.¹²² However, even Huber's most severe critics appear to disagree only on a "macro" scale. Professors Clayton P. Gillette and James E. Krier, for example, have criticized Huber's general conclusions as overly-ambitious and "remarkably prema-

¹²⁰ Plaintiffs in such an environment are likely motivated by factors unrelated to deterring the maximum amount of risk. See *infra* notes 122, 147-52 and accompanying text. Defendants, meanwhile, are encouraged to litigate where they might otherwise settle disputes if the standards were more clear. It is worth noting that litigation costs in this context are no small matter. Professor Gary T. Schwartz, for example, estimates that for every dollar that comes into the tort system, only forty or fifty cents ends up compensating injured victims. Gary T. Schwartz, *The A.L.I. Reporters' Study*, 15 U. HAW. L. REV. 529, 537 (1993). He argues that "when tort law is considered from the perspective of efficiently compensating accident victims, its very high overhead becomes quite hard to justify." *Id.*; see also Michael J. Saks, *Do We Really Know Anything About the Behavior of the Tort Litigation System—And Why Not?*, 140 U. PA. L. REV. 1147, 1183-89, 1281-83 (1992) (stating that transaction costs are the most expensive part of litigation and reporting that in the middle 1980s "it cost society \$1.92 to deliver \$1 of compensation to a victim of negligent injury." *Id.* at 1282.); Stephen D. Sugarman, *Doing Away with Tort Law*, 73 CAL. L. REV. 555, 598-603 (1985) (discussing high transaction costs involved in Agent Orange, Bendectin, asbestos, and IUD litigation).

¹²¹ See Peter Huber, *Safety and the Second Best: The Hazards of Public Risk Management in the Courts*, 85 COLUM. L. REV. 277 (1985). Huber wrote:

For the plaintiff's bar, the most attractive risks are those for which the evidence is the most unusual and lurid, the class to be represented the largest, and the problems of proof the lowest. According to these criteria, the risks that happen to land at the top of the list are not likely to be those that would be selected by risk experts engaged in a sober examination of the competing sources of risk in a market filled with a rich variety of hazardous substitutes.

Id. at 318; see also E. Donald Elliot, *Why Courts? Comment on Robinson*, 14 J. LEGAL STUD. 799, 803 (1985) ("there is . . . reason to believe that other institutions are better equipped than lay courts and juries to assess risks.").

¹²² See, e.g., Clayton P. Gillette & James E. Krier, *Risk, Courts, and Agencies*, 138 U. PA. L. REV. 1027 (1990).

ture."¹²³ Gillette and Krier, however, "stop short of saying that the present institutional arrangements are, . . . the best we can hope for given current understanding."¹²⁴ Therefore, it is worth exploring whether public risk assessment through the tort system makes sense in the specific context of this Article. That is, who should assess risk when potential medical monitoring claimants have been exposed to toxic substances but have not yet manifested any symptoms of disease?

In this context, a tort regime that fails to apply a defined enhanced risk standard will provide little check on litigation that is driven by factors unrelated to the actual risks of a defendant's activity.¹²⁵ In fact, "erratic risk internalization" ultimately might impose more costs on safer activities in some markets, thereby encouraging consumption of more dangerous goods and services.¹²⁶ This is exactly the opposite of what medical monitoring advocates envision when they support using courts to address public risk.¹²⁷

In a 1985 article, Huber used the example of childhood vaccinations to support his argument that agencies deter public risk more efficiently than courts. Clearly, the development of mandatory public programs to vaccinate children reduced an enormous amount of public risk—i.e., the harm caused by childhood diseases. Yet, vaccinations do have dangerous side effects that harm a small number of users.¹²⁸ For example, while the whooping cough vaccination saves more than 400 lives each year, it also causes serious brain damage in a very small number of people.¹²⁹

¹²³ *Id.* at 1031.

¹²⁴ *Id.*

¹²⁵ This, once again, might help explain why proponents fear that medical monitoring plaintiffs might not actually spend "compensation" on medical monitoring costs. See *supra* notes 111-16 and accompanying text.

¹²⁶ Huber, *supra* note 121, at 292.

¹²⁷ See Gara, *supra* note 20, at 279.

¹²⁸ Huber, *supra* note 121, at 285 ("vaccination, like everything else, is not perfectly safe").

¹²⁹ Huber described the situation as follows:

[U]se of the vaccine prevents an estimated 322,000 cases of whooping cough per year. An estimated 457 persons per year would die of the disease without the vaccination program; use of the vaccine reduces annual mortality to 44, for a net annual savings of 413 lives. Tragically, however, about 1 in every 310,000 recipients experiences serious, long-term brain damage. Without the vaccine there would be 29 such cases per year; vaccination raises that figure to 54 cases, an increase of 25 cases per year. The aggregate figures could scarcely be less ambiguous: receiving the vaccine increases the risk of one particular form of injury a little, but drastically reduces the risk of another.

The brain damage cases, despite the obvious overall benefit of the vaccination program, constitute a "public risk."¹³⁰ It should be obvious, however, that a rational tort system would not want to deter this public risk so as to revert to the disease's original (and much greater) risk. Yet, in the late 1970s and early 1980s, when the tort system was used as the primary vehicle for addressing the risk, this is exactly what happened as increasing numbers of lawsuits threatened to drive vaccine manufacturers out of the market.¹³¹ Fortunately, in 1986, Congress placed restrictions on litigation against vaccine manufacturers when it enacted the National Childhood Vaccine Injury Act ("NCVIA") to compensate children who suffer from the side effects of childhood vaccinations.¹³² Commentators generally have praised the NCVIA for stabilizing vaccine prices and alleviating fears of vaccine shortages.¹³³

The success of the NCVIA provides at least one contextual argument that administrative agencies have regulated public risk better than the tort system. As Huber's critics might point out, however, it would be premature to conclude from one such anecdote that the tort system should play *no* role in the regulation of public risk. Indeed, even the NCVIA envisions the tort system as supplemental in regulating risks associated with childhood vaccines.¹³⁴ The ultimate goal should be to ensure that the tort system is re-

Huber, *supra* note 121, at 288 (citing A.R. Hinmon & J.P. Koplan, *Pertussis and Pertussis Vaccine; Reanalysis of Benefits, Risks, and Costs*, 251 JAMA 3104 (1984)).

¹³⁰ Huber, *supra* note 121, at 285 ("A mandatory immunization program certainly represents a 'public' hazard: it is universally shared, individually inescapable, and, at least for some, entirely involuntary."). This is similar to a situation where a large number of people are exposed to a toxic substance due to the output of a manufacturing facility.

¹³¹ Huber, *supra* note 121, at 287-89.

¹³² National Childhood Vaccine Injury Act of 1986, 42 U.S.C.A. §§ 300aa-1 to -34 (West 1988).

¹³³ See Kellen F. Cloney, Note, *Aids Vaccine Manufacturers v. Tort Regime: The Need for Alternatives*, 49 WASH. & LEE L. REV. 559, 596 (1992); H. William Smith III, Note, *Vaccinating AIDS Vaccine Manufacturers Against Product Liability*, 42 CASE W. RES. L. REV. 207, 228 (1992). Some commentators, however, have questioned the NCVIA's effectiveness. See Laura Mazzuca, *Shot Through with Problems: A Partial Success, Vaccine Injury Fund Faces Case Logjam, Funding Shortfalls*, BUS. INS., Aug. 24, 1992, at 1, available in 1992 WL 9479842.

¹³⁴ See 42 U.S.C. §§ 300aa-11(a)(4)-(8). For a proposal of how the tort system should co-exist with a legislative compensation scheme in a different factual context, see Andrew R. Klein, *A Legislative Alternative to "No Cause" Liability in Blood Products Litigation*, 12 YALE J. ON REG. 107, 128-134 (1995).

tained where it works best—this ordinarily being where the tortious conduct of an identifiable defendant has caused a defined injury.¹³⁵

To place this discussion squarely in the context of medical monitoring, imagine two situations. In Situation A, BigCo has negligently exposed 5000 citizens of Niceville to "toxene," a chemical that is designated as one of the most toxic substances by the ATSDR.¹³⁶ Epidemiological studies indicate that the level of exposure experienced by Niceville's citizens has increased the risk of liver cancer from 10 in 100,000 to 25 in 100,000.¹³⁷ Experts are willing to testify that medical procedures exist that would make the early detection and treatment of disease possible and beneficial.¹³⁸

In this situation, tort law *should* be the preferred institution to regulate risk, and tort law *should* impose liability on BigCo for the costs of medical surveillance of the 5000 exposed citizens.¹³⁹ We have a defined group of plaintiffs. We can assign the case to an established "allocation model" (the example posits negligence).¹⁴⁰ Moreover, by viewing each individual's "injury" as the enhanced risk of disease (rather than the exposure itself or the need for surveillance), we have a link to the tradition of individualized causation.¹⁴¹ In fact, a logical entity in BigCo's position might well offer medical surveillance to the community before citizens institute litigation. By doing so, BigCo would be mitigating damages that it almost certainly would incur in the future¹⁴² and reduce its litiga-

¹³⁵ See, e.g., Klein, *supra* note 134, at 112-15 (arguing for a "narrowly-focused" legislative compensation scheme in conjunction with a residual tort system in the context of injuries caused by contaminated blood products).

¹³⁶ See *supra* notes 78-79 and accompanying text.

¹³⁷ See *supra* note 89 for a brief description of epidemiology.

¹³⁸ See *Paoli II*, 35 F.3d 717, 787 (3d Cir. 1994) (quoting *Paoli I*, 916 F.2d 829, 852 (3d Cir. 1990)).

¹³⁹ This assumes, however, that the individuals have no risk factors that would alter the increased risk in a manner significant to the "more likely than not" causation standard. See *supra* note 76 and accompanying text. For example, suppose a citizen of Niceville had smoked two packs of cigarettes for twenty years and that the background rate of liver cancer for smokers at this level is 35 in 100,000. If the exposure to toxene increased this individual's risk to 45 in 100,000, the individual should not be permitted to recover the costs of medical surveillance in tort since, in a subsequent action for the actual onset of disease, she would not be able to prove by a preponderance of the evidence that the exposure caused her cancer.

¹⁴⁰ See *supra* note 47; see also *supra* text accompanying note 80.

¹⁴¹ Specifically, any member of the community that ends up developing liver cancer would later be able to prove that it is more likely than not that he did so as a result of BigCo's activities.

¹⁴² See, e.g., Rosenberg, *supra* note 112, at 234-35 (arguing that risk-based claims for

tion costs in the process.¹⁴³ In addition, use of the tort system in this situation would minimize the concerns of those who argue against the use of courts to regulate public risk. Under this Article's proposed standard, a lawyer's choice to file suit in unmatured risk cases would be limited by a relatively clear enhanced risk standard (i.e., the plaintiff will have to prove that if she ultimately contracts the disease, the exposure was more likely than not the cause). Moreover, the choice of which public risks to attack through litigation would be governed partially by expert regulators, since the toxin involved would be on the ATSDR list.¹⁴⁴ Finally, the very fact that the proposal restricts damages to medical surveillance costs means that such expenditures should mitigate future damages. In fact, the use of tort law for this purpose may well be more efficient than funding surveillance through an administrative compensation scheme, which inevitably would involve transaction costs associated with raising funds for its operation.¹⁴⁵

Now, imagine Situation B. In this case, LargeCo exposes 20,000 citizens in Well City to "chemilite," a toxic substance which is not on the ATSDR list. Here, assume that no epidemiological studies are available to prove enhanced risk, although an expert is willing to testify, based on toxicology studies,¹⁴⁶ that the exposure

mitigation are normally unnecessary for deterrence purposes because the "threat of liability for accrued ultimate harm generally creates optimal incentives for defendants to make reasonable investments in medical monitoring, . . . and other actions designed to reduce exposure to liability for accrued ultimate harm.").

¹⁴³ This presumes, of course, that statutes of limitation do not preclude such plaintiffs from later bringing suit. Although this article does not address this topic, courts and commentators are nearly unanimous in asserting that limitation periods should be tolled in mass exposure/latent disease cases. See, e.g., Wells, *supra* note 8, at 326-27; Melissa Moore Thompson, Comment, *Enhanced Risk of Disease Claims: Limiting Recovery to Compensation for Loss, Not Chance*, 72 N.C. L. REV. 453, 468-69 (1994); cf. *Enterprise Responsibility Report*, *supra* note 48, at 376 ("Simply tolling the statute of limitations — either explicitly or through a 'time of discovery' doctrine — would, however, be inefficient in a mass toxic tort case" because of individual variances in latency periods).

¹⁴⁴ See *supra* notes 78-79, 137 and accompanying text.

¹⁴⁵ Most likely, such funding would come through taxation raised from risk creators, like BigCo. See Klein, *supra* note 134, at 115-16. See *infra* notes 174-81 and accompanying text.

¹⁴⁶ Toxicology is the scientific discipline "concerned with the capacity of chemicals or environmental agents to produce harmful effects in living organisms." Boston, *supra* note 89, at 213. Professor Boston explains that "[t]oxicologists study the interactions between chemicals and biological systems, attempt to identify the mechanism of action and attempt to assess quantitatively the relationship between doses of chemicals and responses in living systems." *Id.* Because toxicology studies are not done on humans, however, they are generally considered less reliable than epidemiological studies in proving actual

will lead to some (undefined) level of increased risk of disease.¹⁴⁷ We will further assume an expert is willing to testify that medical procedures exist that would make the early detection and treatment of the disease possible and beneficial.

In Situation B, use of the tort system is much less logical than in Situation A. First, it is unclear to LargeCo whether it will ultimately be responsible for any resulting disease. Because of this uncertainty, LargeCo's incentive to mitigate possible future damages is less than BigCo's incentive in Situation A.¹⁴⁸ Second, without quantified evidence of enhanced risk, it is less clear to plaintiffs that money received in compensation should be used on medical surveillance costs. At a minimum, plaintiffs on the margin would use the money for other goods and services.¹⁴⁹ Finally, even though the ATSDR implicitly recognizes that chemilite is "less" harmful than toxzene, and even though it is possible that less harm will result from LargeCo's conduct than from BigCo's conduct, the larger pool of potential plaintiffs means that plaintiffs' lawyers will more likely be drawn to Situation B than to Situation A.¹⁵⁰

Does this mean that society should not manage the risk in Situation B at all? Not at all. It just means that we should not use the tort system to do so. Rather, in cases where the tort system is unlikely to operate efficiently, legislative and administrative bodies should make risk management judgments.¹⁵¹

causation in a toxic exposure case.

¹⁴⁷ Courts are divided on whether such testimony would be sufficient to support a finding of actual causation. Compare *Wells v. Ortho Pharm. Co.*, 788 F.2d 741 (11th Cir. 1986) and *Ferebee v. Chevron Chem. Corp.*, 736 F.2d 1529 (D.C. Cir. 1984) with *Brock v. Merrell Dow Pharm., Inc.* 874 F.2d 307 (5th Cir. 1989) and *Merrell Dow Pharm., Inc. v. Havner*, 953 S.W.2d 706 (Tex. 1997), cert. denied 118 S. Ct. 1799 (1998).

¹⁴⁸ This, of course, will lead to a situation where it is more likely that litigation over the medical monitoring costs will ensue. Therefore, transaction costs will rise, and time will pass with no one receiving compensation for medical costs.

¹⁴⁹ See *supra* notes 111-16 and accompanying text. Proponents of a liberal medical monitoring rule argue that the solution to this problem is to not award lump-sum damages to plaintiffs. Instead, proponents argue, the courts should behave like an agency and supervise each of the claimant's expenditures. See, e.g., Blumenberg, *supra* note 49, at 683-95. However, if the only proper way to allocate damages in this situation is through an agency-like process, one should consider whether it might not be more sensible to use an agency in the first place.

¹⁵⁰ This, of course, is at the heart of Huber's criticism of the judicial system. See *supra* note 121, 173 and accompanying text. Huber also might point out that this decision would likely occur without regard to the relative productive value of the companies' activities. *Id.*

¹⁵¹ This statement neither intends to idealize administrative risk regulation nor ignore

III. MEDICAL MONITORING OUTSIDE THE TORT SYSTEM

Proposals for administrative alternatives to tort law are not novel.¹⁵² Many proposals, however, exist only in the context of an all-or-nothing debate—i.e., either tort law should be completely eliminated in favor of administrative compensation systems,¹⁵³ or tort law should be broadened to encompass nearly all public risks.¹⁵⁴ As this author has argued, however, there is room for middle ground.¹⁵⁵ The following section asserts that this middle ground can encompass administrative funding of medical surveillance costs for individuals exposed to toxic substances who cannot avail themselves of the tort law standard proposed in this Article.

Consideration of administrative compensation for accident victims requires an evaluation of at least four factors: (1) the program's jurisdiction; (2) the program's financing; (3) claimants' compensation; and (4) claimants' access to the tort system.¹⁵⁶ With respect to medical monitoring, this Article has already addressed the fourth factor.¹⁵⁷ The third factor does not require significant discussion in this context—approved claimants should receive compensation based on expert testimony regarding the level of surveillance that would make early detection of disease possible and beneficial.¹⁵⁸ The remainder of this section deals with the more fundamental factors of jurisdiction and financing.¹⁵⁹

capture theory, which argues that motivations in political markets are similar to those in other markets. See, e.g., Gillette & Krier, *supra* note 122, at 1064-70. Instead, the statement merely intends to precede this Article's argument that there is room for a middle ground in the public risk debate which would delineate circumstances under which both courts and agencies might operate to deter a proper amount of risk.

¹⁵² See Oscar S. Gray, *Symposium: Future Prospects for Compensation Systems*, 52 MD. L. REV. 893 (1993); *Enterprise Responsibility Report*, *supra* note 48, at 441-83 (Chapter on Administrative Compensation Schemes); Abraham, *supra* note 86, at 885-98; Sugarman, *supra* note 120.

¹⁵³ See, e.g., Sugarman, *supra* note 120; Richard J. Pierce, Jr., *Encouraging Safety: The Limits of Tort Law and Government Regulation*, 33 VAND. L. REV. 1281 (1980).

¹⁵⁴ See, e.g., Robinson, *supra* note 55; Rosenberg, *supra* note 3.

¹⁵⁵ See Klein, *supra* note 134, at 111-15.

¹⁵⁶ Klein, *supra* note 134, at 112-34 (citing throughout to Robert L. Rabin, *Some Thoughts on the Efficacy of a Mass Toxics Administrative Compensation Scheme*, 52 MD. L. REV. 951 (1993) and Abraham, *supra* note 86).

¹⁵⁷ That is, in the view of this author, tort law should compensate individual plaintiffs for the cost of medical monitoring in many cases where the plaintiff is able to prove that exposure to a toxic substance has more than doubled her risk of contracting a disease. See *supra* notes 72-81 and accompanying text.

¹⁵⁸ See *In re Paoli R.R. Yard PCB Litig. (Paoli II)*, 35 F.3d 717 (3rd Cir. 1994).

¹⁵⁹ This Article does not, however, purport to propose the particular mechanics of an

A. *Jurisdiction*

An administrative compensation program should have narrowly-defined boundaries.¹⁶⁰ Some commentators disagree and argue that administrative programs must broadly replace tort law.¹⁶¹ Such broad-based proposals, however, rarely offer realistic relief for accident victims who find tort law inadequate. By comparison, narrowly-focused proposals can serve as models of how to help individuals who face obstacles to tort law compensation.¹⁶²

While a medical monitoring program could not predict the exact individuals who might become claimants,¹⁶³ the program would be narrowly focused in restricting its scope to certain types of fact settings (pre-injury toxic exposure cases) and damages (medical surveillance costs). This focus makes sense both prospectively and retrospectively. Looking backwards, the program would replace the tort system's inefficiencies where a defendant's liabilities are least clear to the parties involved.¹⁶⁴ Looking forward, the program would serve the interests of current claimants (who might learn of the onset of disease at an earlier date) and future claimants, by developing epidemiological evidence that might encourage private settlements.¹⁶⁵

administrative compensation scheme. For an example of this author's views on the mechanics of such a scheme for the victims of a contaminated pharmaceutical product, see Klein, *supra* note 134, at 118-20, 123-24, 127-28; see also Paul A. LeBel, *Beginning the Endgame: The Search for an Injury Compensation System Alternative to Tort Liability for Tobacco-Related Harms*, 24 N. Ky. L. Rev. 457 (1997).

¹⁶⁰ See Klein, *supra* note 134, at 112-15; see also Rabin, *supra* note 156, at 964 ("The starting point in any discussion of the components of an administrative compensation scheme is the boundaries question — the determination of which claims fall within the system and which remain under the domain of tort.").

¹⁶¹ See Pierce, *supra* note 153, at 1282-83 ("incremental changes . . . are often inconsistent conceptually and functionally, and most are too limited in scope to offer any real promise for improving the allocation of safety-related resources."); Sugaman, *supra* note 120, at 626 (referring to small-scale proposals as a "crazy quilt" of special interest concessions).

¹⁶² See Klein, *supra* note 134, at 112-14.

¹⁶³ Cf. Klein, *supra* note 134 (proposing an administrative compensation scheme to compensate the easily identified group of hemophiliacs who have been exposed to HIV-contaminated blood products).

¹⁶⁴ See *supra* notes 45, 117-53 and accompanying text.

¹⁶⁵ In this regard, the proposal is nearly consistent with the view of the Reporters for the ALI's Enterprise Liability Report:

The kind of medical monitoring that we envision . . . is some form of scientific epidemiological investigation of where and when the disease actually manifests itself among the exposed group. This work would serve both to

Returning to Situation A and Situation B for an illustration: As discussed above, the exposed individuals in Situation A should use the tort system to recover medical monitoring costs.¹⁶⁶ Because defendant BigCo can foresee future liability for the costs of disease that might become manifest within the population, the hope is that BigCo would fund medical surveillance without litigation.¹⁶⁷ In Situation B, however, the tort system would not encourage such efficient resolution of a dispute.¹⁶⁸ Nonetheless, under today's murky standards, plaintiffs often are encouraged to go forward with litigation anyway. With a clear enhanced risk standard in place, however, this temptation would be greatly reduced, as the plaintiffs' likelihood of success in tort would be diminished.

Situation B likely would arise in one of two contexts—first, where there is a dearth of scientific evidence connecting exposure to any particular level of enhanced risk (we will call this Situation B-1); or, second, where such evidence exists, but the level of enhanced risk is low (i.e., less than double the background rate; we will call this Situation B-2). In Situation B-1, government agencies should have the responsibility of deciding whether to coordinate studies concerning the risks of exposure. As noted above, this would alleviate the fears of exposed individuals; it would mitigate future disease-related costs; and it would help both the tort system and the nation's regulators more effectively govern future instances of exposure to the toxin at issue.¹⁶⁹

Situation B-2 is more difficult. Obviously, the government cannot (and should not) fund studies pertaining to every individual who is exposed to any level of toxic substance. Someone must

inform the medical profession about which people are in real need of early treatment and to provide reassurance to people who turn out not to be at risk.

Enterprise Responsibility Report, *supra* note 48, at 378-79 (footnote omitted).

¹⁶⁶ See *supra* notes 137-46 and accompanying text.

¹⁶⁷ Several commentators, for example, have favorably pointed to a 1986 settlement between Hawaiian consumers and local dairy companies which contaminated the consumers' milk supply with heptachlor, a possibly carcinogenic pesticide. See Gara, *supra* note 20, at 299 ("the \$4,000,000 settlement fund will be used primarily to monitor infants whose mothers consumed the contaminated milk"); *Enterprise Responsibility Report*, *supra* note 48, at 378-79 & n.58 ("A number of studies have been commissioned to document the effect of such exposures, for example through . . . comparisons between lactating mothers in Oahu and lactating mothers elsewhere.").

¹⁶⁸ See *supra* notes 147-52 and accompanying text.

¹⁶⁹ See *supra* notes 105, 114-16, 143-46, 166-67; see also *infra* note 181 and accompanying text.

engage in line-drawing to make reasoned judgments about which activities create more public risks than they replace.¹⁷⁰ In this narrow context, the appropriate decision maker almost certainly should be regulators with scientific expertise, not tort lawyers.¹⁷¹

B. *Funding*

Of course, government-sponsored studies would be expensive and, under current political circumstances, any new government program would need a sound source of funding. Such funding logically should come from the risk-creating entities themselves.¹⁷² Professor Kenneth Abraham has described two ways in which government can charge risk-creating entities to fund administrative compensation systems: (1) quantity-based charges against the manufacturers of toxins based on the volume and toxicity of each item¹⁷³ or (2) quality-based charges against the handlers of toxins that would vary "in accordance with the number of injuries clearly caused by an enterprise's activities."¹⁷⁴ Because the program envisioned here would deal with *pre-injury* claimants—and not on "clearly caused" injuries—it seems logical to focus a funding methodology on quantity-based charges.

Some scholars, however, criticize quantity-based charges for providing inadequate deterrence against risk-producing activities. Professor Jennifer Arlen, for example, argues in favor of "experience rating" through quality-based assessments to ensure that each injurer more directly bears the costs of the risks that it created.¹⁷⁵ This

¹⁷⁰ See Huber, *supra* note 121, at 320; *supra* notes 120-36 and accompanying text.

¹⁷¹ As Huber stated (albeit in the context of a broader argument):

Who then should decide how much public risk we will accept and in what areas? The answer is painfully obvious to almost everyone outside the legal community: expert administrative agencies, not lawyers. To make life safer, faster, we need not more scientists in the legal process, but fewer lawyers in the scientific one.

Huber, *supra* note 121, at 329.

¹⁷² See Rabin, *supra* note 156, at 976 ("Typically, a . . . scheme is financed through charges imposed on those parties engaged in the injury-producing activity.").

¹⁷³ Abraham, *supra* note 86, at 890.

¹⁷⁴ Abraham, *supra* note 86, at 890. See also Bradford C. Mank, *Preventing Bhopal: "Dead Zones" and Toxic Death Risk Index Taxes*, 53 OHIO ST. L.J. 761, 800 (1992) (proposing a "toxic death risk index tax" to be based on the "risks of potential environmental harm rather than actual pollution amounts").

¹⁷⁵ Jennifer H. Arlen, *Compensation Systems and Efficient Deterrence*, 52 MD. L. REV. 1093, 1099 (1993); see Abraham, *supra* note 86, at 890 (quantity-based charges might have "no effect on the level of safety at which the activities using these substances

criticism, however, becomes diminished if a compensation scheme is narrowly focused.¹⁷⁶ Under such circumstances, high-level risk creators already would be forced to internalize medical monitoring costs through the tort system (or through settlements coerced by the threat of liability). We only reach the issue of administrative compensation where the risk level is low or, more likely, less than clear.¹⁷⁷ Experience rating in such cases would be—almost by definition—imprecise. Therefore, it is more sensible to take advantage of the easier-to-administer quantity-based charge system, essentially spreading the cost of learning about the substance's potential harmful effects to all users of a particular substance.¹⁷⁸

In sum, government agencies should decide when (or whether) to fund medical surveillance for populations exposed to toxins where members of the population cannot maintain a tort action and where private settlements have not done so. Funding for such programs should come from the risk-creating entities in the form of taxes on the production or manufacture of harmful toxins. Such programs would place the decision-making process in the proper hands. It would mitigate future disease-related costs, and it would more effectively deter future harm than would an expanded tort system.¹⁷⁹

were conducted, because the charges levied would not vary with these levels of safety").

¹⁷⁶ See Klein, *supra* note 134, at 121-22 (arguing for quantity-based charges to fund a compensation scheme for victims of contaminated blood products).

¹⁷⁷ See *supra* notes 165-73 and accompanying text.

¹⁷⁸ Some commentators question the validity of the argument that quantity-based charges would deter less risk than quality-based charges. See Rabin, *supra* note 156, at 977 ("From a deterrence perspective, it is far from clear that the choice between a flat-tax and a risk-sensitive schedule of charges makes any substantial difference."); Abraham, *supra* note 86, at 891 ("[T]he shift to funds financed by these enterprises would neither sacrifice the incentive-creating capacity of the mass tort system nor increase it substantially."). Even these scholars, however, admit that "[f]airness considerations serve as an alternative rationale for creating as close a linkage as possible between risk-producing activities and financial responsibility for consequences." Rabin, *supra* note 156, at 977.

¹⁷⁹ For anecdotal support of this point, one can again consider the childhood vaccine experience. See *supra* notes 129-36 and accompanying text. After passage of the NCVA, which was financed primarily through taxes on the vaccine manufacturers, vaccine prices fell and shortage problems were alleviated. See *supra* notes 132-34 and accompanying text. Therefore, it at least appears that there was no problem with having the manufacturers internalize the costs associated with the vaccine's side-effects; rather, the problem in the late 1970s and early 1980s was forcing manufacturers to absorb the cost of litigation designed to compensate for the same harm.

CONCLUSION

In rejecting the plaintiff's medical monitoring claim in *Metro-North*, the Supreme Court stated:

We do not deny important competing considerations — of a kind that may have led some courts to provide a form of liability. We do not deny that . . . [the plaintiff] is sympathetic and he has suffered wrong at the hands of a negligent employer. But we are more troubled . . . by the potential systemic effects of creating a new, full-blown, tort law cause of action The reality is that competing interests are at stake — and those interests sometimes can be reconciled in ways other than simply through the creation of a full-blown, traditional, tort law cause of action. We have not tried to balance these, or other competing considerations here.¹⁸⁰

This Article has attempted to balance the "competing considerations" to which the Supreme Court refers. In so doing, this Article has argued that medical monitoring is not, itself, a unique cause of action but simply a description of damages that courts may award under appropriate circumstances where a plaintiff has been exposed to a toxic substance but has not yet manifested any symptoms of disease. In particular, this Article has asserted that a plaintiff ordinarily should recover medical monitoring damages only when she proves that the exposure more than doubled her enhanced risk of disease.¹⁸¹ This standard maintains tort law's connection to traditional notions of causation. It also provides tort law with a more precise ability to promote efficiency than the vague standards set forth in current case law. In other situations, this Article has argued that tort law is not the appropriate place for medical monitoring recovery.

More broadly, this Article has attempted to contribute to the continuing debate over the interplay between the tort system and agency action in assisting those who are (or may be) harmed by the ever-increasing presence of toxins in our society. Hopefully, such coexistence is not only possible but can be beneficial to society's effort to sensibly regulate environmental risks.

¹⁸⁰ *Metro-North Commuter R.R. Co. v. Buckley*, 521 U.S. 424, ___, 117 S. Ct. 2113, 2123-24 (1997).

¹⁸¹ See *supra* notes 71-81 and accompanying text.