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How Far Should Increased Risk Recovery Be Carried in the Context of Exposure to Hazardous Substances?

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INTRODUCTION

Much debate has been directed toward the topic of public protection from latent effects of exposure to toxic substances.[1] Uncertainty as to medical causation makes it difficult to demonstrate that an existing disease or an existing condition was caused by a given tortious exposure.[2] The barriers to recovery are even more pronounced when the plaintiff seeks recovery for a condition or a disease that is not yet present, but is anticipated to result from the tortious exposure.[3] Not only must plaintiffs prove the existence of a causal connection between the exposure and the future condition, but in most jurisdictions, they must also prove that the future condition is reasonably certain or reasonably probable to develop at some point in the future.[4] Since the plaintiff bears the burden of proof, lack of medical evidence generally indicates the plaintiff will be unsuccessful in recovering for anticipated future consequences of past exposure to toxic substances.[5]

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[1] *See* Brachtenbach, *Future Damages in Personal Injury Actions—The Standard of Proof*, 3 GONZ. L. REV. 75 (1968); Elliott, *Goal Analysis Versus Institutional Analysis of Toxic Compensation Systems*, 73 GEO. L.J. 1357 (1985); Comment, *Personal Injury Hazardous Waste Litigation: A Proposal for Tort Reform*, 10 B.C. ENV. AFF. L. REV. 797 (1982-83) [hereinafter Comment, *Personal Injury Hazardous Waste Litigation*]; Comment, *Increased Risk of Disease from Hazardous Waste: A Proposal for Judicial Relief*, 60 WASH. L. REV. 635 (1985) [hereinafter Comment, *Increased Risk of Disease*]. Substances that result in such latent injuries include asbestos, radiation, coal dust, cotton dust, chemical compounds such as benzene, and drugs such as diethylstilbesterol (DES). *See* Note, *Statutes of Limitations and the Discovery Rule in Latent Injury Claims: An Exception or the Law?*, 43 U. PITT. L. REV. 501, 502 (1982).

[2] *See* Dore, *A Commentary on the Use of Epidemiological Evidence in Demonstrating Cause-In-Fact*, 7 HARV. ENVTL. L. REV. 429, 430 (1983).

[3] *See* Comment, *Increased Risk of Disease*, *supra* note 1 at 636, 638.

[4] *See infra* notes 20-33 and accompanying text.

[5] Black & Lilienfeld, *Epidemiologic Proof in Toxic Tort Litigation*, 52 FORDHAM L. REV. 732, 741 (1984).

Difficulties such as these make case-by-case litigation a highly inefficient method for compensating victims and for deterring negligent acts of defendants.[6] At least one commentator has concluded that traditional tort law principles are fundamentally inappropriate to cope with the modern reality of toxic tort problems.[7] Under this view, the public would be protected primarily by criminal prosecution of offenders[8] and by administrative agency regulation.[9] Individual causes of action would be available, if at all, only for diseases and conditions that have become manifest at the time of the claim.[10]

Other commentators have taken a less radical approach to the problem. They suggest that common law tort principles should be adapted to the special circumstances of victims of latent injuries caused by exposure to hazardous substances.[11] These writers cite the inadequacy of statutory and administrative relief for such victims,[12] and suggest that the traditional approach to damage recovery for future injuries[13] should be modified to allow recovery for the increased risk of future diseases and future conditions that develop from a present disease or a present condition caused by the tortious exposure. Several states have already adopted this approach.[14] Further departing from the common law rule, these commentators argue that victims of exposure to toxic substances should be allowed recovery for the increased risk of future conditions and future diseases even if no present injury exists.[15]

This Comment will address both substantive and policy issues that shape the circumstances under which recovery for increased

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[6] *See* Elliott, *supra* note 1, at 1374.

[7] *Id.* at 1358.

[8] *Id.* at 1359.

[9] *Id.*

[10] *Id.* at 1360.

[11] *See* Shaw, Cihon & Myers, *The Discovery Rule: Fairness in Toxic Tort Statutes of Limitations*, 33 CLEV. ST. L. REV. 491, 492-94 (1984-85); Comment, *Personal Injury Hazardous Waste Litigation*, *supra* note 1, at 842-44; Comment, *Increased Risk of Disease*, *supra* note 1, at 635-37.

[12] *Id.*

[13] *See infra* notes 20-33 and accompanying text.

[14] *See infra* notes 80-89 and accompanying text.

[15] *See infra* notes 107-20 and accompanying text.

risk of a future disease or a future condition is desirable, with emphasis on improving the victim compensation system. First, prevailing common law requirements of recovery for future conditions under the "all or nothing" approach will be described.[16] Next, the problems of recovery under the all or nothing approach will be addressed,[17] followed by an analysis of the "extent of the injury rule," a form of increased risk recovery.[18] Finally, arguments will be weighed in support of and in opposition to the extension of increased risk recovery to the situation in which neither present nor future injury can be proven to a reasonable certainty or a reasonable probability.[19]

I. THE TRADITIONAL RULE—ALL OR NOTHING APPROACH

Traditionally, courts have refused to allow recovery for increased risk of a future condition based on the tort law principle that the plaintiff must establish an injury that is not speculative.[20] The prevailing approach allows present damage recovery for the future disease or the future condition, but only if it can be proven, beyond the standard of speculation adopted by the given court, that the disease or the condition will occur in the future.[21] This has been labeled the "all or nothing" approach because the plaintiff either receives full compensation for the future condition,[22] or is barred from recovery until the condition becomes manifest.[23] To show that future injury is not speculative, courts generally require that future injury must be proven

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[16] *See infra* notes 20-37 and accompanying text.

[17] *See infra* notes 39-79 and accompanying text.

[18] *See infra* notes 80-106 and accompanying text.

[19] *See infra* notes 107-29 and accompanying text.

[20] *See* Brafford v. Susquehanna Corp., 586 F. Supp. 14, 17 (D. Colo. 1984) (applying South Dakota law).

[21] *See* Annotation, *Future Disease or Condition, or Anxiety Relating Thereto, as Element of Recovery*, 50 A.L.R. 4th 13, 29 (1986).

[22] Wilson v. Johns-Manville Sales Corp., 684 F.2d 111, 119 (D.C. Cir. 1982) (the alleged future effect may be treated as certain to happen, with full compensation granted for it). *But see* Jordan v. Bero, 210 S.E.2d 618, 641 (W. Va. 1974) (Neely, J., concurring) (supporting a simple probability or pro rata approach).

[23] *See* Annotation, *supra* note 21, at 30.

by a standard of either reasonable certainty or reasonable probability.[24]

Presently, sixteen states have applied the reasonable certainty rule,[25] under which courts allow recovery for the future condition if there is reasonable freedom from doubt as to the condition's future occurrence.[26] While absolute certainty is not required,[27] the reasonable certainty rule is a stricter standard of proof than the reasonable probability rule.[28] The reasonable probability rule has been described alternately as requiring only a reasonable belief "as to the existence or nonexistence of one fact from the existence or nonexistence of some other fact,"[29] a greater than fifty percent chance,[30] or a "more likely than not" standard of proof.[31] Presently, eleven jurisdictions have applied the reason-

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[24] *See infra* notes 25-33 and accompanying text. *But see* Rogers v. Sullivan, 410 S.W.2d 624 (Ky. 1966) (future conditions are treated as part of permanent injury damages); Spurlock v. Spurlock, 349 S.W.2d 696, 698 (Ky. 1961) (after permanence of injury is determined, jury may dispassionately compensate in such measure as to be fair and reasonable).

[25] *See, e.g.,* Bailey v. Bradford, 423 S.W.2d 565, 566 (Ark. 1968); Kahn v. Southern Pac. Co., 282 P.2d 78, 82 (Cal. App. 3d 1955); Bauman v. City & County of San Francisco, 108 P.2d 989, 1000 (Cal. Dist. Ct. App. 1940); Cordiner v. Los Angeles Traction Co., 91 P. 436 (Cal. App. 2d 1907); Morrissy v. Eli Lilly & Co., 394 N.E.2d 1369, 1376 (Ill. App. 1979); Harp v. Illinois Cent. Gulf R.R., 370 N.E.2d 826, 829 (Ill. App. 1977); Lauth v. Chicago Union Traction Co., 91 N.E. 431, 434 (Ill. 1910); Elzig v. Bales, 112 N.W. 540, 543 (Iowa 1907); Larson v. Johns-Manville Sales Corp., 399 N.W.2d 1, 8 (Mich. 1986); Prince v. Lott, 120 N.W.2d 780, 781 (Mich. 1963); Carpenter v. Nelson, 101 N.W.2d 918, 921 (Minn. 1960); Odegard v. Connolly, 1 N.W.2d 137, 140 (Minn. 1941); Bennett v. Mallinckrodt, Inc., 698 S.W.2d 854, 866 (Mo. Ct. App. 1985), *cert. denied,* 106 S. Ct. 2903 (1986); Hahn v. McDowell, 349 S.W.2d 479, 482 (Mo. Ct. App. 1961); Rael v. F. & S. Co., 612 P.2d 1318, 1321 (N.M. Ct. App. 1979); Briggs v. New York Cent. & H.R.R., 69 N.E. 223, 225 (N.Y. 1903); Leonard v. North Dakota Coop. Wool Mktg. Ass'n, 6 N.W.2d 576, 582 (N.D. 1942); Larson v. Russell, 176 N.W. 998, 1002 (N.D. 1919); Paduchik v. Mikoff, 112 N.E.2d 69, 76 (Ohio Ct. of C. P. 1951); Pennsylvania Co. v. Files, 62 N.E. 1047 (Ohio 1901); Barron v. Duke, 250 P. 628, 632 (Or. 1926); Labree v. Major, 306 A.2d 808, 820 (R.I. 1973); Peters v. Hoisington, 37 N.W.2d 410, 416 (S.D. 1949); *Jordan,* 210 S.E.2d at 634; Diemel v. Weirich, 58 N.W.2d 651, 652 (Wis. 1953).

[26] Johnson v. Connecticut Co., 83 A. 530, 531 (Conn. 1912).

[27] *Larson,* 176 N.W. at 1002; *Peters,* 37 N.W.2d at 416.

[28] Strictly defined, the two standards bear no resemblance to one another. Reasonable certainty closely approximates the standard of proof required in a criminal action, whereas reasonable probability requires only a preponderance of the evidence, the ordinary standard of proof in a civil action. *Johnson,* 83 A. at 531.

[29] *Id.*

[30] Gideon v. Johns-Manville Sales Corp., 761 F.2d 1129, 1138 (5th Cir. 1985).

[31] Emerson v. Twin States Gas & Elec. Co., 174 A. 779, 782 (N.H. 1934).

able probability rule to future consequences,[32] while at least five other jurisdictions either have used the term "reasonable certainty" when applying the reasonable probability rule, or have equated the two terms when applying the reasonable probability rule.[33]

The underlying principle behind each standard is the same: justice cannot be administered efficiently on a speculative basis.[34] Jurisdictions adopting the reasonable certainty rule do so because they deem the reasonable probability rule an inadequate protection against conjectural damage awards.[35] Those jurisdictions adopting the reasonable probability rule argue there is no compelling reason to impose a burden of proof that is harsher than the ordinary requirement in a civil action.[36] In addition, courts have argued that the reasonable probability rule is better calcu-

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[32] *See, e.g., Gideon*, 761 F.2d at 1137 (interpreting Texas law); Anderson v. W.R. Grace & Co., 628 F. Supp. 1219, 1230 (D. Mass. 1986); Bonds v. Busler, 449 So. 2d 244, 247 (Ala. Civ. App. 1984); Baldwin v. Robertson, 172 A. 859, 861 (Conn. 1934); *Johnson*, 83 A. at 531; Fort Wayne Transit v. Shomo, 143 N.E.2d 431, 436 (Ind. Ct. App. 1957); Lake Lighting Co. v. Lewis, 64 N.E. 35, 37 (Ind. App. 1902); Entex, Inc. v. Rasberry, 355 So. 2d 1102, 1104 (Miss. 1978); Carlile v. Bentley, 116 N.W. 772, 775 (Neb. 1908); Emerson, 174 A. at 782; Coll v. Sherry, 148 A.2d 481, 486 (N.J. 1959); Budden v. Golstein, 128 A.2d 730, 734 (N.J. Super. Ct. App. Div. 1957), *overruled on other grounds,* Botta v. Brunner, 138 A.2d 713, 725 (N.J. 1958); Martin v. Johns-Manville Corp., 494 A.2d 1088, 1094 n.5 (Pa. 1985); Fisher v. Coastal Transp. Co., 230 S.W.2d 522, 525 (Tex. 1950); Lenz v. City of Dallas, 72 S.W. 59, 62 (Tex. 1903); Norfolk Ry. & Light Co. v. Spratley, 49 S.E. 502, 505 (Va. 1905).

[33] *See, e.g., Wilson*, 684 F.2d at 119 (defines reasonable certainty as more likely than not); Harrington v. Alston, 267 F. Supp. 505, 506 (D.D.C. 1967); Culley v. Pennsylvania R.R., 244 F. Supp. 710, 715 (D. Del. 1965) (recovery for future consequences "may be had only if they will certainly or reasonably and probably result therefrom"); Pierce v. Johns-Manville Sales Corp., 464 A.2d 1020, 1026 (Md. 1983); Davidson v. Miller, 344 A.2d 422, 427 (Md. 1975); Graves v. Harrington, 60 P.2d 622, 626 (Okla. 1936); Holt v. School Dist. No. 71 of King County, 173 P. 335, 337 (Wash. 1918).

[34] *Cf. Budden*, 128 A.2d at 734. The gist of the all or nothing approach is that if recovery is allowed in cases in which the chance of the future condition's occurrence is under 50%, the system would necessarily administer recovery to undeserving plaintiffs over 50% of the time.

[35] *Id.* at 733. If the logic of the all or nothing approach is accepted, a reasonable certainty standard would provide greater efficiency than a reasonable probability standard. The closer the court comes to requiring absolute certainty of the future condition, the fewer the instances of plaintiff recovery for future conditions that do not actually develop.

[36] *Johnson*, 83 A. at 531; Gallamore v. Olympia, 75 P. 978, 980 (Wash. 1904).

lated to balance the opposing interests involved.[37] On the one hand the rule seeks to allow recovery for future injuries only when they will actually occur; on the other hand it seeks to avoid the denial of recovery in cases in which future injuries are not reasonably certain but actually occur.[38]

II. CRITICISMS OF THE ALL OR NOTHING APPROACH

A. The Application of Statutes of Limitation to Latent Injuries

Historically, the most serious obstacle to recovery faced by victims of latent injuries was the applicable statute of limitation.[39] At common law, the statutory period began to run at the time of the injury, which was commonly understood to be at the time of the breach of duty.[40] In the context of toxic torts, however, exposure to harmful substances by itself is not a legally recognized injury.[41] Thus, an exposure victim who suffered no

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[37] *Budden*, 128 A.2d at 734; *cf.* Gulf C. & S.F. Ry. v. Harriet, 15 S.W. 556, 558-59 (Tex. 1891). While recognizing the efficiency of granting compensation only when future consequences are very likely to be realized, the reasonable probability rule also recognizes the unjust result when deserving plaintiffs are denied recovery because they are unable to meet the reasonable certainty standard, even though the future condition that eventually develops was more likely to develop than not at the time of the suit. The argument for increased risk recovery, *infra* notes 80-112 and accompanying text, extends this logic to include plaintiffs who have less than a 50% chance of actually contracting the future disease. Excluding those at increased risk is an inefficient administration of justice in the sense that at least some persons at increased risk will actually develop the future condition and will be uncompensated under either the reasonable certainty or the reasonable probability standards.

[38] *Id.*

[39] Shaw, *supra* note 11, at 494.

[40] PROSSER & KEETON, PROSSER AND KEETON ON THE LAW OF TORTS § 30, at 165 (5th ed. 1984); Shaw, *supra* note 11, at 494.

[41] Adams v. Johns-Manville Sales Corp., 783 F.2d 589, 592 (5th Cir. 1986) (Plaintiff failed to prove any injury other than exposure.); Brafford v. Susquehanna Corp., 586 F. Supp. 14, 17 (D. Colo. 1984) (Plaintiff must prove present chromosomal damage from exposure to radiation in order to state claim.); Laswell v. Brown, 524 F. Supp. 847, 850 (W.D. Mo. 1981) (Increased risk of cancer and cellular damage from exposure did not constitute present injury.), *aff'd*, 683 F.2d 261 (8th Cir. 1982), *cert. denied*, 459 U.S. 1210 (1983); Strickland v. Johns-Manville Int'l Corp., 461 F. Supp. 215, 217 (S.D. Tex. 1978) ("Such a suit would be readily dismissed since there has been no injury. . . ."); Mink v. University of Chicago, 460 F. Supp. 713, 722-23 (N.D. Ill. 1978) (Plaintiffs' allegation of exposure to DES, absent allegation of having suffered a specific injury, failed to state a cause of action.); Larson v. Johns-Manville Sales Corp., 399

illness or disease during the statutory period following exposure would be precluded from bringing an action for the future injuries.[42]

The traditional function of a statute of limitation is primarily to ensure the defendant a fair opportunity to defend an action. The plaintiff is required to bring the action promptly so that evidence will not be lost and facts will not be obscured by the lapse of time.[43] These functions are not served, however, when a statute of limitation is applied in the traditional manner to cases involving exposure to harmful substances, because loss of evidence over time is less significant.[44] The existence of present disease, proximate cause, and future damages are the key issues to be litigated.[45] Evidence for each of these issues tends to develop over time, rather than fade.[46]

As the class of substances known to cause latent injury grew,[47] not surprisingly, thirty-nine states responded by adopting some form of the discovery rule by 1984.[48] Under the discovery rule, a cause of action does not accrue until the plaintiff knows or reasonably should have known of the disease or injury.[49] In some jurisdictions, the statutory period does not begin until the plaintiff reasonably should have been aware of the causal connection between the injury and the previous exposure.[50] While the use of the discovery rule increases the time in which defendants are vulnerable to suit, it promotes judicial efficiency by allowing a plaintiff to avoid litigation until the disease actually

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N.W.2d 1, 5 (Mich. 1986) (quoting *Strickland*); Locke v. Johns-Manville Corp., 275 S.E.2d 900, 905 (Va. 1981) (Legally and medically, there is no injury upon inhalation of asbestos fibers.).

[42] *Larson*, 399 N.W.2d at 5.

[43] 51 AM. JUR. 2D *Limitations on Actions* § 17 (1970).

[44] *Larson*, 399 N.W.2d at 6 (quoting Wilson v. Johns-Manville Sales Corp., 684 F.2d 111, 119 (D.C. Cir. 1982)).

[45] Wilson v. Johns-Manville Sales Corp., 684 F.2d 111, 119 (D.C. Cir. 1982); *Larson*, 399 N.W.2d at 6.

[46] *Id.*

[47] Note, *supra* note 1, at 501.

[48] Shaw, *supra* note 11, at 494-95 n.20; *see* McGovern, *The Status of Statutes of Limitations and Statutes of Repose in Product Liability Actions Present and Future*, 16 FORUM 416, 421-23 (1980) (a general survey of state statutes).

[49] Shaw, *supra* note 11, at 494-95.

[50] *Id.*

develops.[51] In jurisdictions where the discovery rule has been adopted, statutes of limitation are no longer an unjust barrier to recovery for latent injuries.[52]

B. The Modern Approach to Claim Preclusion

An additional criticism of the all or nothing approach is that due to the broadened use of claim preclusion[53] as a method of achieving judicial economy, a plaintiff generally will not be able to bring one suit for present injuries and other suits for subsequent injuries as they become manifest. This is because the judgment in the first action operates as an absolute bar to any subsequent action involving the same claim or the same cause of action.[54]

Traditionally, the mere fact that two actions were related to the same occurrence or transaction was not sufficient to establish them as the same cause of action.[55] Thus, under the present procedural systems of some jurisdictions, an action for damages arising from present injury may be determined not to involve the same claim as an action for damages arising from anticipated future injury, even if the injury is caused by the same exposure to toxic substances.[56] Within such a system, the all or nothing rule is not a harsh barrier to the ultimate recovery of future damages. If a plaintiff is unable to prove that future disease is reasonably certain or reasonably probable, the plaintiff may still be able to seek recovery for damages arising out of the future disease when it becomes manifest.[57]

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[51] Pierce v. Johns-Manville Sales Corp., 464 A.2d 1020, 1027 (Md. 1983).

[52] *See* Shaw, *supra* note 11, at 496-97.

[53] *See infra* note 59 and accompanying text.

[54] *See* Lawlor v. National Screen Serv. Co., 349 U.S. 322, 326-27 (1955); Gideon v. Johns-Manville Sales Corp., 761 F.2d 1129, 1136 (5th Cir. 1985); Carbonaro v. Johns-Manville Corp., 526 F. Supp. 260, 262 (E.D. Pa. 1981), *aff'd,* 688 F.2d 819 (3d Cir. 1982).

[55] 46 AM. JUR. 2D *Judgments* § 408 (1969).

[56] Eagle-Pitcher Indus., Inc. v. Cox, 481 So. 2d 517, 520 (Fla. Dist. Ct. App. 1986); Devlin v. Johns-Manville Corp., 495 A.2d 495, 500 (N.J. Super. Ct. Law Div. 1985); Ayers v. Township of Jackson, 525 A.2d 1314, 287, 300 (N.J. 1987).

[57] *See Eagle-Pitcher Indus., Inc.*, 481 So. 2d at 520 (If the rule against claim splitting does not bar a second action for latent injuries, the rationale for permitting future damages in the first action vanishes.).

Recently, however, along with the adoption of the Federal Rules of Civil Procedure, most states have adopted the federal approach to claim preclusion.[58] This approach, also taken by the Second Restatement of Judgments, defines a claim as "all rights of the plaintiff . . . against a defendant with respect to all or any part of the transaction, or series of connected transactions, out of which the first action arose."[59] Under such modern procedural systems, the claim is related to the wrongful act itself, not to the various forms of harm which result.[60] Thus, a plaintiff must recover in a single action all damages, both present and future, which relate to the tortious act.[61]

The modern procedural systems create a major obstacle to the toxic tort plaintiff who has suffered present injury, but is unable to prove future injuries to a reasonable certainty or a reasonable probability. The plaintiff may choose to wait until the possible future consequences become manifest. This would result in a loss of recovery for present injury, unless the future condition becomes manifest within the statute of limitations applicable to the present injury. In the alternative, the plaintiff may bring suit for present injury during the statutory period, even though the plaintiff would be unable to recover damages for the mere possibility of future disease or future condition under the all or nothing approach. This would result in preclusion of a later action should the future disease become manifest.[62] In light of these potentially harsh results, a strong argument can be made for a risk recovery rule[63] which would allow a plaintiff to bring an action for present injury during the statutory period and to seek recovery for the increased risk of future

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[58] *See* Rush v. City of Maple Heights, 147 N.E.2d 599 (Ohio), *cert. denied,* 358 U.S. 814 (1958). *See generally* AM. JUR. DESK BOOK, Item No. 126, at 406 (1979) (comparison of state court rules to Federal Rules of Civil Procedure and to Federal Rules of Evidence).

[59] RESTATEMENT (SECOND) OF JUDGMENTS § 24(1) (1980).

[60] *Gideon,* 761 F.2d at 1136-37 (There is not a discrete cause of action for each harm.).

[61] Johnson v. Connecticut Co., 83 A. 530, 531 (Conn. 1912).

[62] *See Gideon,* 761 F.2d at 1137 (plaintiff seeking damages for asbestos also had to bring action for future development of mesothelioma in the same action or claim would be split).

[63] *See infra* note 80 and accompanying text.

injuries that cannot be proven to a reasonable certainty or reasonable probability.[64]

C. *The Difficulties in Proving that Latent Injury Is "Reasonably Certain" or "Reasonably Probable"*

Yet another obstacle to recovery under the all or nothing approach is that relatively few victims of toxic substance exposure are able to prove that a future disease is reasonably probable or reasonably certain to develop.[65]

Under a strict application of either the reasonable certainty or the reasonable probability rule, quantitative data produced by epidemiological studies is insufficient by itself to establish that a given tortious act, such as exposure to radiation, will cause a future condition, such as leukemia or cancer.[66] This is because epidemiological data is based on the correlation between two variables in a control group and a test group,[67] but does not provide information on the causal connection between a single person's exposure to a hazardous substance and the subsequent development of a disease.[68] Further, the correlation established by quantitative data is unlikely to indicate that victims of exposure as a class have greater than a fifty percent chance of developing the future disease.[69] It is even less likely that over half the cases in which the future disease is developed by members of the test group will be attributable to the exposure.[70]

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[64] *See infra* notes 96-98 and accompanying text.

[65] *See* Comment, *Personal Injury Hazardous Waste Litigation*, *supra* note 1, at 831.

[66] Dore, *supra* note 2, at 433-34; *see, e.g.*, Bennett v. Mallinckrodt, Inc., 698 S.W.2d 854 (Mo. Ct. App. 1985) (recovery denied because proof of reasonable certainty was based on mathematical probabilities alone), *cert. denied*, 106 S. Ct. 2903 (1986).

[67] Dore, *supra* note 2, at 432.

[68] *Id.* at 433.

[69] Comment, *Increased Risk of Disease*, *supra* note 1, at 638-39; *see Wilson*, 684 F.2d at 120 n.45 (chance of developing mesothelioma after exposure to asbestos is estimated at 15%); Black & Lilienfeld, *supra* note 5, at 758 (the relative risk is increased 50-80% by exposure).

[70] *See* Black & Lilienfeld, *supra* note 5, at 758-68. Even if the chance of developing the latent disease is over 50%, the plaintiff is still likely to have difficulty proving that the particular tortious exposure will cause the future disease. For example, assume that out of a given population of 2000 people, all 1000 people in the test group (all members exposed) contracted cancer. If 600 of 1000 people in the control group (no members

The reasonable certainty or reasonable probability of a future disease is likewise difficult to establish through oral testimony. Generally, courts allow only expert testimony to establish the likelihood of future disease.[71] Courts often focus on whether the expert medical witness uses the term "reasonable certainty" or "reasonable probability" in his or her testimony, rather than viewing the testimony as a whole to determine whether it supports a finding by the jury of reasonable certainty or reasonable probability.[72] While the distinction between "possibility" and "probability" is significant under the all or nothing approach, the expert witness, who is merely trying to express an opinion, might not use the terms in such a precise fashion.[73] Furthermore, since the expert's opinion is usually based on the problematic quantitative data discussed above, the expert is unlikely to be able to form an opinion that can rise to the level of a reasonable certainty or a reasonable probability standard.[74]

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exposed) also contracted cancer, the relative risk factor for a person exposed to the same amount of toxic substances as the test group would be computed as follows:

$$\frac{1000/1000}{600/1000} = 1.667 \text{ Relative Risk Factor}$$

Id. at 758. Thus, the exposure has increased the plaintiff's relative risk of cancer by 67%. The percentage of future cases of cancer attributable to the exposure alone, however, would be computed as follows:

$$\frac{.5\% \text{ of Population exposed } (1.667\text{-}1)}{.5\% \text{ of Population exposed } (1.667\text{-}1)} + 1 = .40$$

(40% of the cancer cases developed by the test group attributable to the toxic exposure alone.)

Id. at 761. Thus, the plaintiff would be unable to establish from this data that cancer will more likely than not be the result of the tortious exposure, even though the plaintiff is more likely than not to contract cancer eventually. *Id.* at 767-68.

[71] *Gideon*, 761 F.2d at 1137. *But see* Carpenter v. Nelson, 101 N.W.2d 918, 922 (Minn. 1960) (expert testimony is not the only competent testimony on which to establish the certainty of future damages).

[72] *See, e.g.*, Elzig v. Bales, 112 N.W. 540, 543 (Iowa 1907); Briggs v. New York Cent. & H. R.R., 69 N.E. 223, 224 (N.Y. 1903). *But see e.g.*, Thompson v. Underwood, 407 F.2d 994, 997 (6th Cir. 1969) ("Obviously, a court should not disregard the substance of a doctor's testimony merely because he fails to use the magical words 'reasonable medical certainty.' "); Bauman v. City and County of San Francisco, 108 P.2d 989, 1000 (Cal. Ct. App. 1940) ("The law does not require a doctor to state that future results are 'reasonably certain' to occur before his testimony is admissible.").

[73] Black & Lilienfeld, *supra* note 5, at 743.

[74] *See* Comment, *Personal Injury Hazardous Waste Litigation, supra* note 1, at 832-33; *supra* notes 66-70 and accompanying text.

The difficulties of proof under the all or nothing rule force the vast majority of toxic tort victims to wait until future conditions become manifest before seeking recovery.[75] From a practical standpoint, victims are often left with no relief for future injury.[76] At the very least, the plaintiff is forced to bring two actions.[77] The inherent harshness of the all or nothing approach in the context of toxic torts has led courts either to ill-reasoned and inconsistent decisions,[78] or to allow recovery on suspect evidence[79] in an attempt to circumvent the rule.

III. A SOLUTION—THE EXTENT OF THE INJURY APPROACH

In response to the hardships imposed by the all or nothing rule, several commentators have called for recovery based on the increased risk of contracting a future condition, rather than predicating recovery on actual development of the future condition.[80] The most widely accepted form of this risk recovery approach, known as the "extent of the injury" rule, compensates victims for the increased risk of future diseases and future conditions caused by presently manifest injuries arising out of the tortious exposure.[81] Damages are granted in proportion to the jury's reasonable estimation of the risk,[82] not for the full value of the injury that the plaintiff would have received under the all or nothing approach.[83] In this way, plaintiffs that are unable to prove that a future condition is reasonably certain or reasonably probable to develop still gain some measure of compensation

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[75] *See* Comment, *Increased Risk of Disease, supra* note 1, at 639.

[76] *See supra* notes 39-64 and accompanying text.

[77] *See supra* notes 55-57 and accompanying text.

[78] *See* Black & Lilienfeld, *supra* note 5, at 741.

[79] *Id.* at 735; *see* Mashaw, *A Comment on Causation, Law Reform, and Guerrilla Warfare*, 73 GEO. L.J. 1393, 1395-96 (1985) ("[A]ll these plaintiffs' victories in the courts are based on shockingly bad science.").

[80] *See* Comment, *Personal Injury Hazardous Waste Litigation, supra* note 1, at 844; Comment, *Increased Risk of Disease, supra* note 1 at 639.

[81] *See* Comment, *Increased Risk of Disease, supra* note 1, at 639-40.

[82] *See* Leenders v. California Hawaiian Sugar Refining Corp., 139 P.2d 987 (Cal. 1943) (size of damage award did not indicate that jury awarded damages for infection, but for actual impairment of eye from decreased resistance to infection).

[83] *See supra* note 22 and accompanying text.

for the possibility of future conditions while seeking recovery for present damages within the statutory period.[84]

Presently, at least seven state courts have applied the extent of the injury approach.[85] In addition, federal courts in four other jurisdictions have construed state law to allow recovery for increased risk when injury is present.[86] Damages for increased risk were granted in the form of pain and suffering in two of the aforementioned jurisdictions.[87] In four states, the increased risk was determined as part of the jury's assessment of present injuries.[88] Only five courts have apparently recognized increased

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[84] *See infra* notes 92-98 and accompanying text.

[85] *See, e.g.*, Bonds v. Busler, 449 So. 2d 244, 246 (Ala. Civ. App. 1984); Zell v. Umphrey, 34 So. 2d 472, 473 (Ala. 1948); Armour & Co. v. Cartledge, 176 So. 334, 338 (Ala. 1937); *Leenders*, 139 P.2d at 991; Coover v. Painless Parker, Dentist, 286 P. 1048 (Cal. Ct. App. 1930); Lindsay v. Appleby, 414 N.E.2d 885, 891 (Ill. App. Ct. 1980); York v. Grant Truck W. R.R., 390 N.E.2d 116 (Ill. App. Ct. 1979); Harp v. Illinois Cent. Gulf R.R., 370 N.E.2d 826, 830 (Ill. App. Ct. 1977); Davis v. Graviss, 672 S.W.2d 928, 932 (Ky. 1984); Dunshee v. Douglas, 255 N.W.2d 42, 47 (Minn. 1977); Feist v. Sears, Roebuck & Co., 517 P.2d 675, 680 (Or. 1973); Walsh v. Brody, 286 A.2d 666, 668 (Pa. Super. Ct. 1971); Schwegel v. Goldberg, 228 A.2d 405, 409 (Pa. Super. Ct. 1967); *cf.* Murphy v. City of Waterloo, 123 N.W.2d 49, 55-57 (Iowa 1963) (damages ruled not excessive, but court unclear whether they were awarded on the basis of increased risk of epilepsy, or restricted to the abnormality proven to a reasonable probability by electroencephalogram (E.E.G.) results).

[86] *See, e.g.*, Martin v. City of New Orleans, 678 F.2d 1321 (5th Cir. 1982), *cert. denied*, 459 U.S. 1203 (1983) (interpreting Louisiana law); Sterling v. Velsicol Chem. Corp., 647 F. Supp. 303 (W.D. Tenn. 1986) (apparently interpreting Tennessee law); Brafford v. Susquehanna Corp., 586 F. Supp. 14 (D. Colo. 1984) (apparently interpreting South Dakota law); McCall v. United States, 206 F. Supp. 421 (E.D. Va. 1962) (apparently interpreting Virginia law); *see also* Traylor v. United States, 418 F.2d 262 (6th Cir. 1969) (interpreting Kentucky law); Carbonaro v. Johns-Manville Corp., 526 F. Supp. 260, 263 (E.D. Pa. 1981), *aff'd*, 688 F.2d 819 (3d Cir. 1982) ("Someone contracting one asbestos-related disease should know that asbestos exposure increases the risk of other latent injuries, and that medical knowledge may entitle the plaintiffs to damages for the increased risk."); Starling v. Ski Roundup Corp., 493 F. Supp. 507, (M.D. Pa. 1980) (Pennsylvania law allows for some measure of speculation in awarding future damages).

[87] *See, e.g.*, *Martin*, 678 F.2d at 1326; *Lindsay*, 414 N.E.2d at 891; *York*, 390 N.E.2d at 121; *Harp*, 370 N.E.2d at 830.

[88] *See, e.g.*, *Bonds*, 449 So. 2d at 246-47 (jury considered one percent increase in risk of developing epilepsy to assess the value of an existing condition); *Leenders*, 139 P.2d at 991 (jury properly considered increased risk in determining the extent of present injury); *Coover*, 286 P. at 1050 (since predisposition to future disease in itself is some damage, it may be considered in assessing present injury); *Dunshee*, 255 N.W.2d at 47 (because scarring of artery was present, plaintiff also recovered for increased risk of stroke); *Feist*, 517 P.2d at 680 (". . . as a matter of common sense, a jury can properly

risk recovery as a separate element of damages.[89]

Courts rejecting the extent of the injury approach have done so on the basis that "increased risk" is too speculative to be used as a standard for awarding damages.[90] Since the odds are against "increased risk" persons ever contracting the future condition, allowing recovery would more often than not compensate plaintiffs suffering no ultimate injury.[91]

Courts adopting the extent of the injury approach rationalize that since the present injury has been proven to a reasonable medical certainty or reasonable medical probability, and since the present injury caused the increased risk, it is not speculative to consider the increased risk in assessing damages.[92] Absent present injury, however, increased risk from exposure alone is considered too speculative as a standard on which to base relief.[93] Indeed, the court in *Starling v. Ski Roundup Corp.*[94] admitted that even when present injury exists, the award of damages for increased risk involves a degree of speculation.[95]

The extent of the injury approach is more effectively supported on policy rather than substantive grounds. The primary benefit of the extent of the injury approach is that a plaintiff bringing an action for present damages within the statutory period will not be forced to split the claim when unable to prove that a future condition is reasonably certain or reasonably probable. As previously stated, a victim of toxic exposure often will be unable to meet the requirement of proof mandated by the all

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make a larger award of damages in a case involving a skull fracture of such a nature as to result in a susceptibility to meningitis than in a case involving a skull fracture of such a nature as not to result in any such danger. . . .").

[89] *See Sterling*, 647 F. Supp. at 332; *Brafford*, 586 F. Supp. at 17; *McCall*, 206 F. Supp. at 426; *Davis*, 672 S.W.2d at 932; *Schwegel*, 228 A.2d at 409.

[90] *See* Ayers v. Township of Jackson, 525 A.2d 287, 308 (N.J. 1987) ("[T]he highly contingent and speculative quality of [a] . . . claim based on enhanced risk . . . renders it novel and difficult to . . . resolve."); Davidson v. Miller, 344 A.2d 422, 427 (Md. 1975).

[91] *Ayers*, 525 A.2d at 308.

[92] *Dunshee*, 255 N.W.2d at 47; *Feist*, 517 P.2d at 680; *Walsh*, 286 A.2d at 668.

[93] *See Brafford*, 586 F. Supp. at 17 (plaintiff must show present injury in form of cellular damage to recover for increased risk of cancer).

[94] 493 F. Supp. 507, 510 (M.D. Pa. 1980).

[95] *Id.* at 510-11 (Jury may use a measure of speculation in aiming at an award for damages, especially future damages which are not always easy or certain.).

or nothing approach.[96] The result in the majority of states is that the plaintiff's claim for future injuries will be precluded by an action for present injuries during the statutory period.[97] If the plaintiff could not recover for increased risk of the future conditions, unfairness necessarily would result under such a procedural system, since past, present, and future damages must be determined in one action.[98]

A secondary argument in favor of the extent of the injury approach is that producers of hazardous substances would be forced to internalize a greater percentage of the costs resulting from their tortious activities. If victims of toxic exposure are denied recovery because they cannot meet the significant legal standards of proof, such producers are allowed to profit from their harmful actions.[99]

Theoretically under the extent of the injury approach, victims of toxic exposure as a class would be compensated in proportion to the damages they sustain,[100] although each individual plaintiff would be either overcompensated or undercompensated.[101] From a policy standpoint, this is preferable to the situation under the all or nothing approach, even in jurisdictions which have adopted the reasonable probability standard.[102] The traditional approach does allow some deserving victims to receive full compensation for future conditions. The ultimate result, however, is a windfall for a select few who do not develop the future condition after

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[96] *See supra* notes 65-79 and accompanying text.

[97] *See supra* notes 58-64 and accompanying text.

[98] *Schwegel*, 228 A.2d at 409.

[99] *See* Comment, *Personal Injury Hazardous Waste Litigation, supra* note 1, at 850.

[100] *See Leenders*, 139 P.2d at 991 (since the plaintiff recovers for future injuries in proportion to the increased risk, the total amount of damages awarded over the entire class of plaintiffs exposed will approximate the amount of damages actually suffered by plaintiffs as a class).

[101] *Cf.* Comment, *Personal Injury Hazardous Waste Litigation, supra* note 1, at 851. The extent of the injury approach may be seen as an averaging device. Since it is impossible to predict whether a given plaintiff will actually contract the future disease, each is compensated in proportion to the increased risk. Those who contract the future disease are necessarily undercompensated, but not to the degree that would exist if their claims were split under the all or nothing approach. Similarly, those who do not contract the future disease are necessarily overcompensated, but not to the extent of the plaintiff who recovers full damages. *Id.*

[102] *See supra* notes 31-32 and accompanying text.

proving to a reasonable certainty or reasonable probability that the condition would develop, and no compensation for the vast majority of victims who are unable to prove more than a mere increased risk.[103]

A final point may be made in favor of the extent of the injury rule. Even in jurisdictions which allow a second cause of action for future injuries,[104] a delay of the claim destroys the deterrent value of the damage award.[105] Because of the typically long latency periods associated with toxic exposure diseases, the threat of liability for present tortious conduct may lie twenty to forty years in the future. Thus, it is unlikely that businesses will be deterred from exposing the public to more toxic waste.[106] The extent of the injury approach is one way to make liability more immediate for such offenders.

IV. INCREASED RISK RECOVERY WITHOUT THE REQUIREMENT OF PRESENT INJURY

Recently, several commentators have criticized the extent of the injury approach for not going far enough to ensure that victims of exposure to toxic substances are adequately compensated.[107] Specifically, they have argued that a plaintiff who has been exposed to toxic materials, but has suffered no present injury, should be able to recover damages for the increased risk of future disease.[108]

At first glance, this argument appears logically sound. If the increased risk alone is recognized as a non-speculative element of damages[109] there is no compelling reason to allow recovery

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[103] *See* Comment, *Increased Risk of Disease, supra* note 1, at 636-37 (Due to the difficulty of proof and the requirement that all damages past, present, and future be recovered in one action, many plaintiffs will be unable to recover future damages.).

[104] *See supra* notes 55-57 and accompanying text.

[105] Mashaw, *supra* note 79, at 1394.

[106] *Id.* (The dual goals of the tort system are compensation and deterrence, but the present value of a liability thirty years in the future is almost zero, even if the injury is enormous.).

[107] *See* Comment, *Personal Injury Hazardous Waste Litigation, supra* note 1, at 833; Comment, *Increased Risk of Disease, supra* note 1, at 643-44.

[108] Comment, *Increased Risk of Disease, supra* note 1, at 643-52.

[109] *See, e.g.*, Sterling v. Velsicol, 647 F. Supp. 303, 322 (W.D. Tenn. 1986) ("There is simply no element of speculation in awarding those damages.").

for increased risk when exposure is followed by present injury, but not to allow recovery when there is no present injury.[110] Under this approach, proof of exposure to toxic chemicals alone would be sufficient to satisfy the non-speculative injury requirement.[111] Meritless claims would be eliminated by requiring proof of proximity to the hazardous waste, as well as the duration, intensity and frequency of exposure.[112]

The argument for increased risk recovery without the present injury requirement, however, overlooks the speculative nature of increased risk damages that traditionally has prevented courts from allowing risk recovery in any form.[113] The present injury requirement is based on the tort law principle that a plaintiff must establish an injury that is not speculative.[114] Recovery for increased risk has been allowed only in cases in which the plaintiff has proven present injury beyond mere exposure, indicating that increased risk alone is still viewed as a speculative injury.[115]

In addition, the policy arguments supporting the extent of the injury approach are unpersuasive when arguing for risk recovery without a present injury requirement. In states where the discovery rule has been adopted, the plaintiff need not bring an action for future conditions until the conditions become manifest.[116] Since no present injuries exist, there is no reason, beyond convenience, for the plaintiff to be allowed to bring an action for damages before future conditions develop.[117] No un-

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[110] *Cf.* RESTATEMENT (SECOND) OF TORTS § 46 (1965) (no requirement of present physical injury).

[111] *See* Comment, *Increased Risk of Disease, supra* note 1, at 643-52.

[112] Comment, *Personal Injury Hazardous Waste Litigation, supra* note 1, at 848.

[113] *See supra* notes 90-95 and accompanying text.

[114] Brafford v. Susquehanna Corp., 586 F. Supp. 14, 17 (D. Colo. 1984).

[115] *See supra* note 41.

[116] *See supra* note 48 and accompanying text (discovery rule adopted in at least thirty-nine states).

[117] Eagle-Pitcher Indus., Inc. v. Cox, 481 So. 2d 517, 520 (Fla. App. 1985)(when rule against claim splitting does not operate to bar a claim, no rationale for permitting future damage in a present action exists); *see also* Devlin v. Johns-Manville Sales Corp., 495 A.2d 495, 500 (N.J. Super. Ct. Law Div. 1985) ("In denying plaintiffs' damage claim at this time for enhanced risk this court concomitantly recognizes their right to sue in the future should the increased risk created by the exposure to asbestos come to fruition.").

fairness exists when the plaintiff may recover all damages at a later date.[118] While recovery for increased risk due to exposure alone would have greater deterrence value,[119] it would not lead to greater compensation for victims of toxic exposure as a class, since those who later develop the future disease would still be able to bring an action for damages.[120]

To date, no court has applied the risk recovery rule when no present injury existed,[121] although the *Sterling v. Velsicol*[122] decision could be interpreted to extend to such situations. *Sterling* involved a class action for injuries resulting from water supply contamination by a chemical waste burial site. Each of five class representatives suffered numerous present and past injuries as a result of the exposure, including headaches, dizziness, kidney infection, nausea and vomiting, skin rash, eyesight deterioration, mouth soreness, seizures, and destruction of the immune system.[123] In its opinion, the court specifically stated that increased susceptibility to kidney disease, liver disease, and cancer were present conditions for which damages could be recovered.[124] The court further asserted that such damages were recoverable under traditional principles of damage law.[125] The court's intention is unclear, however, since the cases cited as allowing recovery for enhanced risk allowed such recovery only when injury was present. For example, in *Feist v. Sears, Roebuck and Co.*,[126] a boy was hit by a cash register and suffered a basal skull fracture. The court did not hold that increased risk of meningitis was an independent element of damages, but that it was the basis for finding some future disability arising out of

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[118] *See supra* note 52 and accompanying text.

[119] Mashaw, *supra* note 79, at 1394.

[120] *Cf. Eagle-Pitcher Indus., Inc.*, 481 So. 2d at 520 (The situation in which there are no present injuries and one cause of action for future damages is analogous to the situation in which the plaintiff has a separate cause of action for present and future damages. It is not necessary in either case to allow the plaintiff to recover for future damages in a present action to arrive at a just result.).

[121] *See supra* notes 85-86 and accompanying text.

[122] 647 F. Supp. 303 (W.D. Tenn. 1986).

[123] *Id.* at 325-44.

[124] *Id.* at 321.

[125] *Id.*

[126] 517 P.2d 675 (Or. 1973).

the present injury to the boy's skull.[127] Similarly, in *Schwegel v. Goldberg*,[128] the plaintiff suffered present injury in the form of a skull fracture and a scarring of the brain, resulting in an increased risk of epilepsy. The court held that the jury could weigh the evidence of the increased risk to assess present damages.[129]

CONCLUSION

Despite regulatory efforts to control the growing problem of toxic waste, litigation will continue to be the most significant form of relief for victims of exposure to hazardous substances.[130] The traditional all or nothing approach results in substantial barriers to recovery. Existing standards of proof for future injuries are difficult to satisfy. Courts adopting modern procedural approaches require that damages for all harm arising out of the same transaction or series of related transactions must be recovered in one cause of action.[131]

The extent of the injury approach is justified by strong public policy considerations. Since the plaintiff has only one cause of action to recover all damages from a given transaction or occurrence, the plaintiff should not be precluded from recovering future damages when forced to bring an action for presently manifest injuries during the statutory period. Barriers to recovery under the all or nothing approach often have the effect of precluding such recovery, whereas the extent of the injury approach allows a measure of recovery that would adequately compensate victims as a class.[132]

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[127] *Id.* at 680 (Court held that testimony is sufficient as a basis of finding some disability, since as a result of a basal skull fracture, the plaintiff was susceptible to contracting meningitis.).

[128] 228 A.2d 405 (Pa. Super. Ct. 1967).

[129] [A] scar on the brain, an abnormal condition, resulted from the accident. There was no speculation or guessing as to that medical fact. Nor was the neurosurgeon speculating when . . . he indicated the probabilities of this particular plaintiff suffering from epileptic seizures as a result of a condition caused by this accident.

Id. at 409.

[130] *See supra* notes 6-14 and accompanying text.

[131] *See supra* notes 39-79 and accompanying text.

[132] *See supra* notes 96-106 and accompanying text.

Recovery for increased risk based on exposure alone is conceptually distinguishable from the extent of the injury approach on the grounds that the injury itself is subject to a degree of speculation.[133] Furthermore, strong policy arguments that underlie the extent of the injury approach are not present. A plaintiff with no present injuries from exposure has no compelling need to bring a present action. Thus, it is not unduly burdensome to force such a plaintiff to save the cause of action until some objective physical injury develops.[134] Due to the lack of persuasive policy justification, courts should limit recovery for increased risk of future conditions to situations in which some injury from exposure is manifest.

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[133] *See supra* notes 113-15 and accompanying text.
[134] *See supra* notes 116-20 and accompanying text.