Loss of Chance in Medical Malpractice: The Need for Caution

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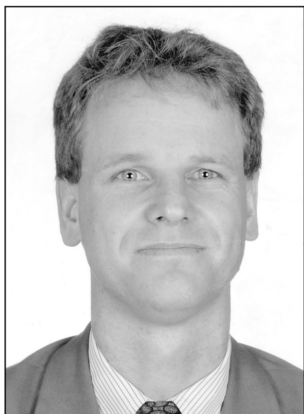

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Loss of chance is a doctrine permitting recovery of damages for the destruction or reduction of prospects for achieving a more favorable outcome. In medical malpractice actions, the loss of chance doctrine permits a claimant with a 50 percent or less chance of survival or better outcome to nevertheless recover damages for any negligence of the physician that reduced this chance of survival or better outcome. Medical malpractice actions based on "loss of chance" raise significant public policy concerns as to the proper scope of a physician's liability. Massachusetts has yet to definitively adopt or address the contours of the doctrine. This article reviews the loss of chance doctrine and suggests that it should not be adopted in Massachusetts.

Basic Concepts of Liability, Causation, and Compensable Harm in Massachusetts

In medical malpractice actions, the claimant bears the burden of showing that (a) the physician deviated from the accepted standard of care; and (b) the deviation proximately caused injury.[1] To establish proximate cause, a plaintiff must prove that the loss was a foreseeable consequence of the negligence and that the negligence was a but-for cause of the loss or harm. Where there is more than one potential cause, the defendant's act or failure to act must be a substantial factor in bringing about the harm.[2] While the plaintiff need not entirely eliminate all other possible causes of the injury or harm, he or she must show, by a preponderance of the evidence, that the defendant's conduct caused the alleged damage.[3]

Causation almost always must be addressed through expert testimony[4] and must be presented to a reasonable degree of medical certainty as opposed to a causal relation that is possible, conceivable or even reasonable.[5] Moreover, causation requires proof of the nature and extent of any injury resulting from the negligent act. Not only must the harm suffered not be speculative, a claim or "threat of future harm, not yet realized, is not enough."[6]

In addition to these basic principles is the preponderance of the evidence standard of proof. That is, there must be a showing that it was more likely than not (greater than 50 percent) that each element of the plaintiff's claim has been met including that the defendant caused the harm in question. This standard is a bedrock of our civil judicial system and represents "an attempt to instruct the fact-finder concerning the degree of confidence our society thinks he should have in the correctness of factual conclusions."[7] The preponderance of the evidence "requires the trier of fact to believe that the existence of a fact is more probable than its nonexistence before he may find in favor of the party who has the burden [of] persua[sion] … of the fact's existence."[8] While lenient, this stan-

1. Murphy v. Conway, 360 Mass. 746, 749 (1972); Semerjian v. Stetson, 284 Mass. 510, 512 (1933).

2. McLaughlin v. Bernstein, 356 Mass. 219, 226 (1969); Coughlin v. Bixon, 23 Mass. App. Ct. 639, 643 (1987); Delicata v. Bourlesses, 9 Mass. App. Ct. 713, 720 (1980).

3. Harlow v. Chin, 405 Mass. 697, 702 (1989); Mullins v. Pine Manor College, 389 Mass. 47 (1983); Berardi v. Menicks, 340 Mass. 396, 402 (1960); Held v. Bail, 28 Mass. App. Ct. 919, 921 (1989).

4. *Berardi*, 340 Mass. at 402; *Held*, 28 Mass. App. Ct. at 921.

5. Glicklich v. Spievack, 16 Mass. App. Ct. 488, 493 (1983) *citing* DeFilippo's Case, 284 Mass. 531, 534-35 (1933).

6. *See generally* W. Page & Keeton et al., Prosser & Keeton on the Law of Torts 30, at 165 and 7, at 31 n.18 (5th ed. 1984).

7. In re Winship, 397 U.S. 358, 370 (1970) (Harlan, J., concurring).

8. Concrete Pipe & Prod. Of Cal. Inc. v. Construction Laborers Pension Trust for S.Cal., 508 U.S. 602, 622 (1993) (quoting *In re Winship*, 397 U.S. at 371-72).

dard represents a *minimum* level of certainty that is necessary for an ordered system of justice. It is not satisfied in terms of a balance of probabilities or statistical preponderance,[9] but, requires that the "fact-finder … evaluate the raw evidence, finding it to be sufficiently reliable and sufficiently probative to demonstrate the truth of the asserted proposition."[10] For instance, if "on all the evidence, it is just as reasonable to suppose that the cause [of harm] is one for which no liability would attach . . . as one for which the defendant is liable, then judgment must be entered for defendant."[11]

Loss of Chance

The loss of chance doctrine is primarily applicable in those cases where the plaintiff had a 50 percent or less chance of survival or better outcome prior to the negligence.[12] Absent special treatment or recognition of the loss, the plaintiff would not be able to meet his or her burden of proof as to causation as it was "more likely than not" (greater than 50 percent) that the underlying condition or disease caused the harm. Where the claimant had a greater than 50 percent chance of survival before the negligence, no special treatment or rule is necessary as the claim can be addressed under the traditional "more likely than not" standard.

Although it has occasionally been alluded to in various types of cases,[13] the loss of chance concept primarily arises in medical malpractice actions. It has arisen in a variety of contexts including claims for failure to timely call emergency services,[14] failure to timely admit to a hospital,[15] failure to properly or timely transfer a patient,[16] and failure to undertake surgical intervention.[17] The doctrine, however, is most commonly found in actions based on the failure to diagnose. In such cases, it is alleged that a negligent delay in the diagnosis of a serious underlying condition or disease (such as cancer) has resulted in the loss or reduction of the chances of a more favorable outcome, or even cure.[18]

To illustrate, assume that (a) a patient suffers from cancer; (b) the patient dies; and (c) an expert testifies that the patient had a 40 to 50 percent chance of surviving with prompt diagnosis and earlier treatment. Under traditional causation principles, there could be no recovery because it was not more probable than not that the patient would have survived absent the failure to diagnose. Under the "loss of chance" doctrine, however, recovery would be allowed for the 40 to 50 percent chance that was lost due to the alleged negligence. Indeed, a "pure" application of the concept would allow for recovery when the chance lost is as low as five or ten percent. Other variations include (a) where the patient is successfully treated but expert testimony is proffered that the delay in diagnosis caused an increased chance that the cancer will recur in the future (from, for example, a 20 percent chance of recurrence to a 40 percent chance of recurrence) and; (b) the patient survives but suffers a statistically reduced chance of survival or better result. These scenarios raise difficult questions. Are such claims cognizable even though the only claimed harm is a potentiality that has not yet occurred and may never occur? What is the compensable harm under the loss of chance doctrine, the loss of chance itself, the ultimate harm, or something else? If such a claim is cognizable should a decrease in chance of survival from a 30 percent chance to a 10 percent chance be the same as a loss of 49 percent to 29 percent?

These illustrations also demonstrate that loss of chance is inconsistent with the traditional concepts of causation and damages. Where the claimant's chance of survival is less than 50 percent, any reduction in that chance by any subsequent negligence does not, under traditional notions of causation, proximately cause the injury. By definition, it is more probable than not that the preexisting condition rather than the delayed diagnosis caused the injury.

Sources of the Doctrine

The origins of the "loss of chance" doctrine are difficult to pinpoint but appear to include a handful of early tort cases,[19] the "rescue" doctrine, certain contract

9. Sargent v. Massachusetts Accident Co., 307 Mass. 246, 250-51 (1940).

10. *Concrete Pipe*, 508 U.S. at 622.

11. Corsetti v. Stone Co., 396 Mass. 1, 23-24 (1985).

12. Steiner v. Dacio, No. 1999 CM 12 0531, 2001 WL 1450980, at *3 (Ohio Ct. App. Nov. 8, 2001).

13. See, e.g., Hake v. Manchester Township, 486 A.2d 836, 840 (N.J. 1985) (prisoner suicide).

14. Blinzler v. Marriott Int'l, Inc., 81 F.3d 1148, 1152 (1st Cir. 1996) (applying New Jersey law).

15. McBride v. United States, 462 F.2d 72, 74-75 (9th Cir. 1972).

16. Thompson v. Sun City Community Hosp., Inc., 688 P.2d 605, 616 (Ariz. 1984).

17. Delaney v. Cade, 873 P.2d 175, 178 (Kan. 1994); Olah v. Slobodian, 574 A.2d 411, 415 (N.J. 1990).

18. *See generally*, Margaret T. Mangan, *The Loss of Chance Doctrine: A Small Price to Pay for Human Life*, 42 S.D. L. Rev. 279 (1997); Darrell L. Keith, *Loss of Chance: A Modern Proportional Approach to Damages in Texas*, 44 Baylor L. Rev. 759 (1996); Lisa Perrochet et al., *Lost Chance Recovery and the Folly of Expanding Medical Malpractice Liability*, 27 Tort & Ins. L.J. 615 (1992); Beth C. Boggs, *Lost Chance of Survival Doctrine: Should the Courts Ever Tinker with Chance?* 16 S. Ill. U.L. J. 421 (1992).

19. *See e.g.*, Burk v. Foster, 69 S.W. 1096, 1098 (Ky. 1902); Craig v. Chambers, 17 Ohio St. 253, 258 (1867).

cases,[20] the Restatement (Second) of Torts,[21] *Hicks v. United States,*[22] and a 1981 Yale Law Review article.[23] As set forth below, a careful review of these sources reveal that they are not a particularly compelling basis for the wholesale adoption of the loss of chance doctrine, especially under Massachusetts jurisprudence.

A. Early Tort Cases

The concept of loss of chance arose periodically in early tort cases. As early as 1867, the Ohio Supreme Court addressed a medical malpractice claim against a surgeon who allegedly mistreated the plaintiff's dislocated shoulder.[24] The surgeon argued that since the shoulder had already been injured at the time the plaintiff was seen by the defendant, any mistreatment could not have caused any injury.[25] The court disagreed, stating that "any [negligence] . . . which diminishes the chances of the patient's recovery . . . would, in a legal sense, constitute injury."[26]

In 1902, a Kentucky intermediary appeals court addressed a claim for failure to diagnose a bone dislocation allegedly resulting in arm muscle weakness and impairment.[27] The court rejected the contention that there could be no recovery because the injuries would have resulted in any event. The court held that "the patient is entitled to the chance for better results . . . That the patient might have [suffered the same outcome] in spite of [proper] treatment, or that ordinarily [bad results occur] . . . is no excuse to the physician who neglects to give his patient the benefit of the chance. . . ."[28]

B. Contractual Origin

Loss of chance also has been recognized in certain contract cases.[29] Where defendants have breached contractual obligations to beauty contestants, prize magazine subscribers and in other related contests, a few courts have allowed recovery for the loss of chance suffered. In the English decision of *Chaplin v. Hicks,*[30] for instance, the plaintiff was one of fifty competitors for an acting contract but was not considered for one of the twelve finalist positions due to the defendant's alleged failure to provide notification.[31] Although the plaintiff did not have a better than 50 percent chance of winning the contest, the court found that the plaintiff had lost the "opportunity of competition," which had monetary value.[32] This recognition gained some limited acceptance with one commentator who asserted that any "chance" that can be bought and sold on the market has value and can thus be the subject of recoverable damages.

> One can buy the chance to win a raffle or a bingo prize, for example, and if deprived of the opportunity to play the bingo game, he could hardly prove that he would have won, but he could easily prove that he lost the chance. Since the chance had a market value, he would presumably be entitled to recover that sum.[33]

The Restatement (Second) of Contracts, in turn, permits recovery for the loss of a chance caused by breach of contract as long as the promise is aleatory (conditioned on an event that is not within the control of the parties) and not otherwise unreasonably uncertain.[34]

While a few courts have adopted this rationale and applied it to similar contests,[35] most courts have refused to do so.[36] Allowing for such a recovery is simply highly speculative and not one which can be fairly quantified.

C. Duty to Rescue

Loss of chance has also been analogized to the "duty to rescue." The most closely analogous "rescue cases" are in maritime law where the common law has imposed an affirmative duty to act should a sailor fall overboard, even though the boat owner is not at fault.[37]

20. *See e.g.*, Wachtel v. Nat'l Alfalfa Journal Co., 176 N.W. 801, 804 (Iowa 1920); Chaplin v. Hicks, 2 K.B. 786 (Eng. C.A. 1911).

21. Restatement (Second) of Torts, §323(a) (1965).

22. 368 F.2d 626, 632 (4th Cir. 1966).

23. King, *Causation, Valuation and Chance in Personal Injury Torts Involving Preexisting Injuries and Future Consequences*, 90 Yale L.J. 1353, 1355 n.7 (1981) (hereinafter King, *Causation*).

24. *Craig*, 17 Ohio St. at 253.

25. *Id.*

26. *Id.* at 261.

27. *Burk*, 69 S.W.2d at 1096.

28. *Id* at 1098.

29. *See, e.g.* Mange v. Unicorn Press, 129 F. Supp. 727, 730 (S.D. N.Y. 1955); *Wachtel*, 176 N.W. at 804; Kansas City, Mexico & Orient Ry. Co. of Tex. v. Bell, 197 S.W. 322, 323 (Tex. 1917); Chaplin v. Hicks, 2 K.B. 786 (Eng. C.A. 1911).

30. 2 K.B. 786 (Eng. C.A. 1911).

31. *Id.*

32. *Id.*

33. Dobbs, Remedies, p. 155 (West 1973).

34. Restatement (Second) of Contracts, §348(3) (1979).

35. *Mange*, 129 F. Supp. at 727; *Wachtel*, 176 N.W. at 801.

36. Phillips v. Pantages Theatre Corp., 300 P. 1048, 1049 (Wash. 1931); Collatz v. Fox Amusement Corp., 300 N.W. 162, 164 (Wis. 1941).

37. *See, e.g.*, Abbott v. U.S. Lines, Inc., 512 F.2d 118, 121 (4th Cir. 1975); Gardner v. Nat'l Bulk Carriers, Inc., 310 F.2d 284, 286 (4th Cir. 1962); Zinnel v. U.S. Shipping Bd. Emer. Fleet Corp., 10 F.2d 47, 48 (2d Cir. 1925). For a non-maritime failure to rescue case, *see* Lohse v. Faultner, 860 P.2d 1306 (Ariz. 1992) (suit against logger for failure to patrol which allegedly would have detected forest fire).

As long as there is a "reasonable possibility of rescue, ample or narrow," failure to try a rescue imposes liability" regardless of the chances of success. This duty has been imposed due to the unique perils of working at sea.

A "rescue" type duty is also found in the Restatement (Second) of Torts, particularly section 323, which provides:

> One who undertakes, gratuitously or for consideration, to render services to another which he should recognize as necessary for the protection of the other's person or thing, is subject to liability to the other for physical harm resulting from his failure to exercise reasonable care to perform his undertaking, if (a) his failure to exercise such care increases the risk of such harm, or (b) the harm is suffered because of the other's reliance upon the undertaking.[38]

Section 323 has been cited and relied upon by a number of courts that have opted to recognize loss of chance as a cognizable theory of recovery. These courts have applied this doctrine to the physician-patient relationship and have interpreted it as an express recognition that loss of chance (or increased risk of harm) is a compensable interest.

D. Hicks v. United States

The 1966 Fourth Circuit decision in *Hicks* is considered by many as the seminal case on loss of chance. There, the decedent died of a bowel obstruction shortly after being examined and released by a physician at a naval base dispensary, who had diagnosed the decedent as having gastroenteritis.[39] The court held that the physician had violated the applicable standard of care and that the plaintiff did not have to "show to a certainty that the patient would have lived had she been hospitalized and operated on promptly." [40] The Fourth Circuit stated:

> When a defendant's negligent action or inaction has effectively terminated a person's chance of survival, it does not lie in the defendant's mouth to raise conjectures as to the measure of the chances that he has put beyond the possibility of realization. If there was any substantial possibility of survival and the defendant destroyed it, he is answerable. Rarely is it possible to demonstrate to an absolute certainty what would have happened in circumstances that the wrongdoer did not allow to come to pass. The law does not in the existing circumstances require the plaintiff to show a certainty that the patient would have lived had she been hospitalized and operated on promptly.[41]

Although *Hicks* was not a true loss of chance case,[42] the above dictum has been repeatedly cited in support of recognizing claims for loss of chance.[43]

E. Professor King

The most notable and commonly cited source for the loss of chance doctrine is a 1981 Yale Law Review article by Professor Joseph King.[44] In the article, Professor King outlined and promoted the theory that a plaintiff's loss of chance is a compensable harm that must be recognized as a separate tort.[45] According to Professor King, "the loss of chance of achieving a favorable outcome or of avoiding an adverse consequence should be compensable and should be valued appropriately, rather than treated as an all or nothing proposition."[46] He asserted that the traditional rule barring recovery when the chance of recovery is under 50 percent is arbitrary, and contrary to the deterrent objectives of tort law because it denies recovery for statistically demonstrable losses resulting from negligent acts. He also contended that the traditional rule is unfair, as the "imponderables" of chance must be grappled with only because of the defendant's conduct.[47] Notably, King analogized loss of chance to the loss of a lottery ticket, an asset of value even though the odds of winning may be less than 50 percent.[48] The article continues to be widely cited and discussed in virtually every jurisdiction that has addressed the issue.

Liability Standards

Nearly every state has struggled in some fashion with the question of whether or not to adopt loss of

38. RESTATEMENT (SECOND) OF TORTS, § 323 ("*Negligent Performance of Undertaking to Render Services") (1965).*

39. 368 F.2d 626, 628-29 (4th Cir. 1966).

40. *Id*. at 632.

41. *Id.*

42. *See* notes 118-19 *infra* and accompanying text.

43. *See, e.g.,* Daniels v. Hadley Memorial Hosp., 556 F.2d 749, 757-58 (D.C. Cir. 1977); McBride v. United States, 467 F.2d 72, 75 (9th Cir. 1972); Whitfield v. Whittaker Memorial Hosp., 169 S.E.2d 563, 566-67 (Va. 1969).

44. King, *Causation, supra* note 23.

45. *Id*.

46. *Id.*

47. *Id.* at 1378.

48. *Id.*

chance as a viable theory of recovery and what standard of liability and measure of damages should apply.[49] The approaches and viewpoints vary substantially.

A. Traditional Approach

A number of jurisdictions have refused to recognize loss of chance as a viable theory of recovery.[50] This is sometimes coined the "all or nothing" view, either the loss of chance is greater than 50 percent, whereby all damages are recoverable or less than 50 percent, where no damages are available. This is the traditional rule as to causation: either the negligent act more likely than not caused the injury thereby allowing for recovery or it did not, preventing any recovery.

The rationale for maintaining the traditional rule is that there is insufficient justification for lowering the burden of establishing causation below the greater than 50 percent standard applicable in all other tort or malpractice actions. Permitting a jury to consider a claim based on evidence not meeting the 50 percent standard would invite the jury to indulge in speculation and conjecture, and permit a verdict to be based on possibility as opposed to probability. Moreover, a lowering of the burden of proof as to causation would be unfair to medical providers, as they could be held responsible for injuries they did not cause. Such a reduction also would impose on medical providers a burden of defending cases merely because no cure was successful, a burden greater than that imposed upon other professionals. Indeed, proponents of this view are critical of loss of chance as it "presumes to know the unknowable."[51]

The leading jurisdictions that adhere to this view include California,[52] Florida,[53] Maryland, Minnesota,[54] Texas,[55] Tennessee,[56] Virginia,[57] South Carolina[58] and Michigan.[59] In *Fennell v. Southern Maryland Hospital Center, Inc.*,[60] for example, the decedent suffered from bacterial meningitis and, according to expert testimony, had lost a 40 percent chance of survival because of the alleged failure of the defendant physician to follow-up the CT scan with a lumbar puncture.[61]

In rejecting recovery for loss of chance, the court in *Fennell* stated:

> Recognition of loss of chance damages would allow a new form of damages as well as allow medical malpractice claims by an entirely new class of plaintiffs who traditionally have had no cause of action at common law. . . . Although their chances of survival were decreased, survival was unlikely; and therefore, actual demonstratable harm, in all probability, did not occur. Recognition of this new form of medical malpractice damages for loss of a chance would undoubtedly cause an increase in medical malpractice litigation, as well as result in an increase in medical malpractice insurance costs.[62]

Texas has similarly rejected recovery for loss of chance. In *Kramer v. Lewisville Memorial Hospital*,[63] it was alleged that a physician had failed to diagnose cervical cancer causing the decedent to lose a 45 percent chance of survival. The court stated:

> Imperfect as it may be, our legal system attempts to ascertain facts to arrive at the truth. To protect the integrity of that goal, there must be some degree of certainty regarding causation before a jury may determine as fact that a . . . defendant did cause the plaintiff's injury and should therefore compensate the plaintiff in damages. To dispense with this requirement is to abandon the truth-seeking function of the law. The more likely than not standard is thus not some arbitrary, irrational benchmark for cutting off malpractice recoveries, but rather a fundamental prerequisite of an ordered system of justice.[64]

49. *Id.*

50. *See, e.g.*, Fennell v. Southern Maryland Hosp. Ctr., Inc., 580 A.2d 206, 215 (Md. 1990); Cornfeldt v. Tongen, 295 N.W.2d 638, 641 (Minn. 1980); Pillsbury-Flood v. Portsmouth Hosp., 512 A.2d 126 (N.H. 1986); Kilpatrick v. Bryant, 868 S.W. 2d 594, 602 (Tenn. 1993).

51. Falcon v. Memorial Hosp., 462 N.W.2d 49, 68 (Mich. 1990) (Riley, C.J., dissenting).

52. Dumas v. Cooney, 235 Cal. App. 3d 1593, 1608; 1 Cal. Rptr. 2d 584, 592 (1991); Simmons v. West Covina Medical Clinic, 212 Cal. App. 3d 696, 706; 260 Cal. Rptr. 772,778 (1989); Bromme v. Pavitt, 5 Cal. App. 4th 1487 (1992).

53. Gooding v. University Hosp. Bldg., Inc., 445 So. 2d 1015, 1020-21 (Fla. 1984).

54. *Cornfeldt*, 295 N.W.2d at 641.

55. Kramer v. Lewisville Memorial Hosp., 858 S.W.2d 397, 406 (Tex. 1993).

56. Kilpatrick v. Bryant, 868 S.W.2d 594, 602 (Tenn. 1993); Steele v. Columbia/HCA Health Care Corp., 2002 Tenn. App. LEXIS 348 (Tenn. Ct. App. 2002).

57. Murray v. United States, 215 F.3d 460, 467 (4th Cir. 2000).

58. Jones v. Owings, 318 S.C. 72, 77 (1995).

59. Mich. Comp. L. 600.2912a (2002).

60. 320 Md. 776, 580 A.2d 206 (1990).

61. *Fennell*, 580 A.2d at 208.

62. *Id.* at 215.

63. 858 S.W.2d 397 (Tex. 1993).

64. *Id.* at 405, *quoting Falcon*, 462 N.W.2d at 66 (Riley, C.J., dissenting).

Recently, a Federal District Court in Alaska[65] and in the state of Arkansas[66] also rejected the doctrine. The district court held that adoption of the loss of chance would disrupt the traditional and statutory causation principles under Alaskan law; that such a far reaching policy decision should be for the legislature; and that loss of chance was particularly ill-suited to a state like Alaska where the necessity of often times delivering medical care in remote locations reduces the availability of all potentially beneficial tests and procedures.[67] In Arkansas, the Supreme Court was more equivocal, stating that the plaintiff had not "provide[d] [the court] with ... citation of authority or convincing argument for [adopting loss of chance]" and that it would revisit the issue upon proper argument.[68]

B. Increased Risk of Harm

Among those courts that have recognized recovery for loss of chance, differences remain as to the applicable standard of liability.[69] Some courts have adopted a "relaxed causation" approach centering on whether there was an "increased risk of harm."[70] Under this approach, once the plaintiff presents competent expert evidence that the physician's failure to diagnose a preexisting condition "increased the risk of harm," the jury then can proceed to consider and value the claim.

The "increased risk of harm" standard is set forth in section 323 of the Restatement (Second) of Torts which permits recovery when it can be established that the defendant's negligence "increased the risk of harm." Under this view, any percentage of loss results in a jury question.[71] Causation is thus "relaxed" as any decrease in the chance of survival or better outcome can constitute an increased risk of harm even if the plaintiff's chances of survival or better outcome were less than 50 percent before the negligence.

Many courts adopting this approach require the jury to decide whether the increased risk of harm was a substantial factor in causing the ultimate harm.[72] For example, where an expert opines that, as a result of a delayed diagnosis of cancer, the patient's chances of survival decreased from 39 percent to 25 percent, it was for the jury to determine whether this reduction in chance of cure was a *substantial factor* in the ultimate outcome. Accordingly, expert testimony is only needed to show the extent of the increased risk of harm while the jury determines what might have occurred if there had been no negligence.[73]As the Supreme Court of New Jersey explained:

> Assuming that the jury determines that the [negligence] increased the risk of harm from the preexistent condition, we use the "substantial factor" test of causation because of the inapplicability of "but for" causation to cases where the harm is produced by concurrent causes. The "substantial factor" standard requires the jury to determine whether the [causation], in the context of the preexistent condition, was sufficiently significant in relation to the eventual harm to satisfy the requirement of proximate cause.[74]

Jurisdictions adopting this approach vary as to what constitutes a sufficient reduction of chance with some courts requiring that the reduction be merely "appreciable," thus making even seemingly minor reductions in chance of cure as low as 5 percent or 10 percent for the jury to consider.[75] Other jurisdictions hold that "any" reduction is compensable.[76] For example, in *Hamil v. Bashline*,[77] the plaintiff's decedent was brought to an emergency room with chest pains.[78] The hospital could not perform an EKG due to difficulties with the EKG machine. The decedent was not offered any further treatment, and opted to go to a private physician's office. The decedent died of a heart

65. Crosby v. United States, 48 F. Supp. 2d 924, 931 (D. Alaska 1999).

66. *Holt,* 43 S.W.3d at 132.

67. *Crosby,* 48 F. Supp. 2d at 932.

68. *Holt*, 43 S.W.3d at 132.

69. *See, e.g.,* Scalfidi v. Seiler, 574 A.2d 398, 406 (N.J. 1990); McKellips v. Saint Francis Hosp., Inc., 741 P.2d 467, 475 (Ok. 1987).

70. *Id.*

71. Restatement (Second) of Torts § 323(a) (1965); Hamil v. Bashline, 392 A.2d 1280, 1286 (Pa. 1978); Beswick v. City of Philadelphia, 185 F. Supp. 2d 418, 433 (E.D. Pa. 2001); *Scalfidi*, 574 A.2d at 401; *McKellips*, 741 P.2d at 475; Thompson v. Sun City Community Hosp., Inc., 688 P.2d 605, 616 (Ariz. 1984).

72. *Scalfidi,* 574 A.2d at 401; *McKellips*, 741 P.2d at 475.

73. *See* Stephen F. Brennwald, *Proving Causation in "Loss of a Chance" Cases: A Proportional Approach,* 34 Cath. U. L. Rev. 747, 761 (1985).

74. *Scalfidi*, 574 A.2d at 406; *see also* Mortensen v. Memorial Hosp., 105 A.D.2d 151, 159 (N.Y. 1984) (jury must find that defendant's negligence was a substantial factor in result and that substantial factor and substantial possibility are the same).

75. *See* Delaney v. Cade, 756 F. Supp. 1476 (D. Kan. 1991) (loss of 5 percent chance "appreciable"); *Thompson*, 688 P.2d at 615 (5 percent to 10 percent loss); Herskovitz v. Group Health Cooperative of Puget Sound, 664 P.2d 474, 475 (Wash. 1983) (loss of 14 percent chance); *but see* Perez v. Las Vegas Med. Ctr., 805 P.2d 589, 592 (Nev. 1991) ("we doubt that a 10 percent chance . . . [is] actionable"); *see also*, Roberson v. Counselman, 686 P.2d 149, 159 (Kan. 1984) (loss of chance need only be "appreciable").

76. Smith v. State Department of Health & Human Hosp., 676 So.2d 543, 546 (La. 1996); Piro v. Chandler, 780 So.2d 394, 401 (La. 2000); Reardon v. Bonutti, 737 N.E.2d 309, 319 (Ill. App. 2000), *citing* Holton v. Memorial Hosp., 679 N.E.2d 1202, 1207 (Ill. 1997).

77. 392 A.2d 1280 (Pa. 1978).

78. *Id.* at 1283.

attack while the EKG was being performed.[79]

The Pennsylvania Supreme Court, relying on section 323(a) of the Restatement, held that a "[p]rima facie case of liability is established where expert medical testimony is presented to the effect that defendant's conduct did, with a reasonable degree of medical certainty, increase the risk that the harm sustained by plaintiff would occur."[80] The court in *Hamil* found that section 323, "relax[ed]" the "degree of certitude normally required [as to causation]."[81]

C. Loss of a Substantial Chance

Another "relaxed causation" formulation of loss of chance is the "substantial" chance approach which allows for recovery where the negligence is found to have resulted in a substantial loss of a patient's chance of survival. The Washington Supreme Court's decision in *Herskovits v. Group Health*[82] is an example of the "substantial chance" approach.[83] There, a physician was sued for failing to properly diagnose the decedent's lung cancer. It was alleged that there was a six-month delay in diagnosis and that the decedent lost a 14 percent chance of surviving five years. The court held that the loss of 14 percent was "substantial" and therefore a compensable loss.

As with the increased harm view, what constitutes a loss of a "substantial" chance remains unclear. For instance, a reduction of a 10 percent chance of survival to 5 percent constitutes a 50 percent reduction, yet when the 10 percent chance is measured against the 90 percent chance of not surviving because of the preexisting condition, it is far less compelling. In most instances, courts leave it to the jury to determine whether the loss of chance was "substantial." In addition, in Kansas, not only must the loss of chance be "substantial" but the resulting harm must also be found to be "substantial."

D. The Pure Chance Approach

Other courts utilize a "pure chance" approach where the actual loss of chance constitutes the injury.[84] Under this approach, which appears to have derived from Professor King's article, the traditional standard for the burden of proof, "more probable than not," purports to remain the same but the loss of chance becomes the compensable interest, not the ultimate injury or death. A plaintiff is required to show, to a reasonable degree of medical certainty or probability, that the physician's failure to diagnose the underlying illness reduced a chance of survival. Courts may require that the loss of chance be "substantial," "meaningful," or simply that there was a loss of a "better" outcome. Importantly, however, the defendant physician is *not* liable for the ultimate harm. Instead, liability is for the value of the lost chance alone. As with the relaxed causation approaches, the pure chance approach does not quantify what specific percentages constitute a substantial or meaningful loss of opportunity.[85] Indeed, a patient who faced a 90 percent chance of dying absent the negligence would have a cause of action for the purported 10 percent deprivation.

The New Hampshire Supreme Court recently recognized an action for loss of chance under the "pure" approach.[86] In *Lord v. Lovett*,[87] the plaintiff suffered a broken neck as a result of an automobile injury.[88] It was alleged that her spinal injury was misdiagnosed and mistreated, causing the loss of a chance of a substantially better recovery.[89] The court held that "a plaintiff may recover for a loss of opportunity injury in medical malpractice cases when the defendant's alleged negligence aggravates the plaintiff's preexisting injury such that it deprives the plaintiff of a substantially better outcome."[90] The court further recognized that the compensable wrong was not the entire injury but the value of the lost opportunity.

E. Hybrid Standards

Other courts adopting loss of chance as a theory of recovery have developed hybrid standards. For example, Wisconsin utilizes the relaxed causation-substantial factor test but requires a showing that (1) the omitted treatment was intended to prevent the very harm that resulted; (2) plaintiff would have submitted to the omitted treatment; and (3) it is more probable than not that the treatment would have lessened or avoided the injury.[91] If this burden is met, it is then for the trier of fact to determine whether the alleged

79. *Id.*

80. *Id.* at 1289.

81. *Id.* at 1286; *see* Beswick v. City of Philadelphia, 185 F. Supp. 2d 418, 433 (E.D. Pa. 2001).

82. 664 P.2d 473, 475, 487 (Wash. 1983).

83. *See* Delaney, 873 P.2d at 178.

84. DeBurkarte v. Louvar, 393 N.W.2d 131, 137 (Iowa 1986); Falcon v. Memorial Hosp., 462 N.W.2d 44, 65 (Mich. 1990); Mayhue v. Sparkman, 627 N.E.2d 1354, 1356 (Ind. 1994); *Perez*, 805 P.2d at 591.

85. *See, e.g.,* Weymers v. Khera, 563 N.W.2d 647, 653 (Mich. 1997); *Perez*, 805 P.2d at 596.

86. Lord v. Lovett, 770 A.2d 1103 (N.H. 2001). This approach was also recently adopted by the Supreme Court of South Dakota that was then abrogated by legislative enactment. Jorgenson v. Vener, 616 N.W.2d 366, 371 (S.D. 2000) (Jorgensen I), *further appellate proceedings*, Jorgenson v. Vener, 640 N.W.2d 485, 486 (S.D. 2002) (Jorgenson II); S.D. Codified Laws 20-9-1.1-1.2 Michie (2002).

87. *Lord*, 770 A.2d 1103 (N.H. 2001).

88. *Id.* at 1104.

89. *Id.*

90. *Id.* at 1106.

91. Ehlinger v. Sipes, 454 N.W.2d 754, 762 (Wis. 1990); Fischer v. Ganju, 485 N.W.2d 10, 20 (Wis. 1993).

negligent conduct was a substantial factor in causing the plaintiff's harm.[92] In considering this question, the jury is free to conclude that the conduct was not a substantial factor because of the underlying disease.[93]

Some courts have used different wording or terminology in expressing the standard of causation for loss of chance. For instance, Illinois' loss of chance rule is that "the defendant's failure to render a timely diagnosis more probably than not compromised the effectiveness of treatment received or increased the risk of harm to the plaintiff."[94]

A further variation is Professor King's recent "reformulation" of the doctrine.[95] Under this revised approach, recovery for loss of chance is permitted where:

> (1) the defendant tortiously failed to satisfy a duty owed to the victim to protect or preserve the victim's prospects for some more favorable outcome; (2) either (a) the duty owed to the victim was based on a special relationship, undertaking, or other basis sufficient to support a preexisting duty to protect the victim's likelihood of a more favorable outcome, or (b) the only question was how to reflect the presence of a preexisting condition in calculating the damages for a materialized injury that the defendant is proven to have probably actively, tortiously caused; (3) the defendant's tortious conduct reduced the likelihood that the victim would have otherwise achieved a more favorable outcome; and (4) the defendant's tortious conduct was the reason it was not feasible to determine precisely whether or not the more favorable outcome would have materialized but for the tortious conduct.[96]

Under this approach — which Professor King does not limit to medical malpractice — risk of future consequences caused by negligent conduct is not recoverable until the harm actually materializes.[97]

The varying standards of proof reflect the stress that the doctrine places on traditional notions of liability and proof, and the fine line between causation and valuation.

Legislative Response

In some states, legislatures have entered into the debate over loss of chance. For example, not long after the Michigan Supreme Court recognized a cause of action for loss of chance, the Michigan legislature enacted an express statutory provision barring any such recovery.[98]

Similarly, the South Dakota legislature abrogated the doctrine shortly after it was recognized by the state Supreme Court in *Jorgensen v. Vener.*[99] There the plaintiff suffered a broken leg requiring the placement of pins and external fixation. A subsequent infection was allegedly negligently treated. The plaintiff was then given the option of amputation or bone and skin grafts which would require two years of treatment and have a 60 percent chance of success. The plaintiff chose amputation. The South Dakota Supreme Court reversed the trial court's entry of summary judgment for the defendant physician expressly adopting the loss of chance doctrine under the increased risk of harm approach.

On remand to the trial court, summary judgment was entered for the defendant physician because the patient testified he would have chosen the amputation. On further appeal to the state Supreme Court, it was held that it was immaterial whether the plaintiff's testimony negated the possibility of a different outcome precluding recovery on a loss of chance claim as the injured party should not be deprived of an opportunity to prove to a jury the amount of damages he suffered as a result of the negligence simply because of an after the fact statement.[100]

The state legislature responded by expressly adopting a statutory provision abrogating the holding in *Jorgensen* and providing that "the application of the so called loss of chance doctrine...improperly alters or eliminates the requirement of proximate causation."[101]

Courts in some jurisdictions like Maryland and California have held that any adoption of loss of chance

92. *Ehlinger,* 155 Wis. 2d at 14, 454 N.W.2d at 759.

93. *Id.* at 763.

94. Scardnia v. Nam, 2002 Ill. App. LEXIS 340 (2002).

95. Joseph H. King, Jr., *"Reduction of Likelihood" Reformulation and Other Retrofitting of the Loss-of-Chance Doctrine*, 28 U. Mem. L. Rev. 491 (1998) (hereinafter, King, *Reformulation*).

96. *Id.* at 495.

97. *Id.* at 496.

98. Falcon v. Memorial Hosp., 462 N.W.2d 44 (Mich. 1990) (recognizing loss of chance doctrine); Mich. Comp. L. 600.2912a(2) (2002) (in medical malpractice action cannot recover for loss of an opportunity to survive or an opportunity to achieve a better result unless the opportunity was greater than 50%"); *see also* Weymers v. Khera, 563 N.W.2d 647, 653 (Mich. 1997) (Michigan does not recognize a cause of action for the loss of an opportunity to avoid physical harm less than death).

99. 616 N.W.2d 366 (S.D. 2000), *further appellate proceedings,* 640 N.W.2d 485 (S.D. 2002).

100. Jorgenson, 640 N.W.2d at 488.

101. S.D. Codified Laws 20-9-1.1, 1.2 Michie (2002).

or other similar alteration of traditional concepts of causation involve weighty public policy considerations which are best left to the legislature free from "judicial tampering."[102] Whether state legislatures other than Michigan and South Dakota take up the issue remains to be seen.[103]

The Harm and Measure of Damages

Even where loss of chance is recognized, views differ in how to quantify and value the harm. Crucial to the debate is how the harm is defined.

Courts recognizing loss of chance as an exception or relaxation of the causation standard but which still require the negligence to be a "substantial factor" in the ultimate injury, either leave the award of damages to the jury's discretion or allow for damages for the ultimate injury.[104] Since the underlying and resulting injury or death remains the compensable harm, full damages are usually recoverable regardless of the actual percentage of reduction in the loss of chance.[105]

Courts which take a narrower approach view only the loss of chance itself as the harm, and thus allow recovery for "only" the value of the reduction of the chance of survival or better outcome caused by the negligence. The methods of discount vary. Some jurisdictions value the harm resulting from the loss of chance by multiplying full damages by the patient's chance of survival at the time of misdiagnosis[106] or by the difference in chance at the time of misdiagnosis versus the chance at the time of actual diagnosis.[107] A variation of this discounting concept takes the number of years upon which the survival probability is based and divides it by the individual's life expectancy.[108] The full damages are then multiplied by this percentage.

For example, in a death case, assume the jury awarded $1,000,000 for the full value of the decedent's life, that the decedent was 45 years old at the time of death; had a life expectancy of 82 years of age; and at the time of misdiagnosis, had a 45 percent chance of cure, which had been allegedly reduced to 15 percent at the time of the actual diagnosis. The recovery would be $1,000,000 under the full damages approach; $450,000 under the percentage chance at time of misdiagnosis approach; $300,000 under the difference between proper and improper diagnosis method; and $451,219 under the life expectancy variation. Regardless of the specific proportional formula, the rationale for discounting is that it apportions damages in relation to the harm caused and, purportedly, neither overcompensates plaintiffs nor unfairly burdens physicians with unattributable fault.

In addition to the full and proportional damage approaches, a few courts have opted to leave the matter to the jury's discretion.[109] Under this approach, the compensable harm is deemed to be intensely factual and one that must be identified and separated from those harms associated with the underlying injury.[110] For instance, one court described the measure of damages as follows:

> Evidence of loss of support, loss of love, and affection and other wrongful death damages is relevant, but not mathematically determinative, in loss of a chance of survival cases, as is evidence of the percentage chance of survival at the time of the malpractice. The plaintiff may also present evidence of, and argue, other factors to the jury, such as that a ten percent chance of survival may be more significant when reduced from ten percent to zero that when reduced from forty to thirty percent. The jury may also consider such factors as that the victim, although not likely to survive, would have lived longer but for the malpractice.[111]

102. *Fennell*, 320 Md. at 793; *Dumas*, 235 Cal. App. Ct. 3d at 1608.

103. *See* Shively v. Klein, 551 A.2d 41, 44 (Del. 1998) (noting given the drastic change in traditional proof that loss of chance represents, the issue is best left to the legislature).

104. *See, e.g.*, Thompson v. Sun City Community Hosp., Inc., 688 P.2d 605, 615-16 (Ariz. 1984); Kallenburg v. Beth Israel Hosp., 45 A.D.2d 177, 179-80 (N.Y. 1974); *see also*, McMullen v. Ohio State University Hosp., 725 N.E.2d 1117, 1122-23 (Ohio 2000) (even where plaintiff has less than 50 per cent chance of survival plaintiff can recover full damages if specific acts of defendant caused the ultimate harm).

105. *See, e.g.,* Mays v. United States, 608 F. Supp. 1476 (D. Colo. 1985) (applying Colorado law), *rev'd on other grounds*, 806 F.2d 976 (10th Cir. 1986); DeBurkarte v. Louvar, 393 N.W.2d 131, 137 (Iowa 1986); *Fennell*, 580 A.2d at 210.

106. The state of New York recently adopted this view in Birbeck v. Central Brooklyn Medical Group, 2001 N.Y. Misc. LEXIS 368 (Aug. 22, 2001).

107. *See, e.g.*, Cahoon v. Cummings, 734 N.E.2d 535, 540 (Ind. 2000); McKellips v. Saint Frances Hosp. Inc., 741 P.2d 467, 469-70 (1987); Soper v. Bopp, 990 S. W.2d 147, 150-51 (Mo. 1999).

108. Boody v. United States, 706 F. Supp. 1458, 1467 (D. Kan. 1989); *see also* Lori R. Ellis, *Loss of Chance as Technique: Toeing the Line at Fifty Percent*, 72 Tex. L. Rev. 369, 376-77 (1993) (discussing various valuation methods).

109. James v. United States, 483 F. Supp. 581 (N.D. Cal. 1980); Evers v. Dollinger, 471 A.2d 405, 417 (N.J. 1984); Greer v. Lammico, 779 So. 2d 894, 900 (La. App. 2000).

110. Smith v. State, Department of Health & Hosp., 676 So. 2d 543, 546 (La. 1996). *See* Todd S. Aagaard, *Identifying and Valuing Injury in Lost Chance Cases*, 96 Mich. L. Rev. 1335, 1348 (1998).

111. *Smith,* 676 So. 2d at 549 n.11.

The Massachusetts Experience to Date

There are relatively few decisions in Massachusetts addressing loss of chance claims. Presently, the Supreme Judicial Court has declared that the issue is unresolved.[112] As it stands today, the two leading decisions are *Glicklich v. Spievack*[113] and *Bradford v. Bay State Medical Center.*[114]

A. Massachusetts's Historical Adherence to Traditional Causation and Damage Principles

Massachusetts, with only limited exceptions, has consistently adhered to the traditional standard as to causation. Indeed, the aforementioned "sources" of the loss of chance doctrine do not have a particularly compelling presence in Massachusetts jurisprudence.

For instance, Massachusetts courts have never adopted the contractual theory of damages set forth in *Chaplin* or otherwise held that loss of chance is a compensable harm. Indeed, there are very few decisions anywhere that have adopted *Chaplin*. Moreover, even those that have, have awarded damages for loss of the value of a chance attended with a high probability of success.[115] In Massachusetts, the only contractual scenario where loss of chance is arguably recognized is with false representations on insurance applications.[116] There, by statute, a misrepresentation in an insurance application will enable the insurer to avoid the policy where the misrepresentation "related to a matter the truth as to which, as compared with the representation, increased the risk of loss."[117]

Similarly, the Fourth Circuit's decision in *Hicks* has only been sparingly cited in Massachusetts.[118] Moreover, a close look at the facts of *Hicks* demonstrates that it was not a loss of chance case. The evidence presented was that had the defendant physician diagnosed the plaintiff's condition earlier, he would have survived. This evidence more than satisfied the traditional more likely than not standard. *Hicks* did not involve the situation where there was a less than 50 percent chance of survival before the alleged failure to diagnose. Two subsequent Fourth Circuit cases have, in fact, acknowledged that *Hicks* was not adopting a loss of chance theory or departure from the traditional rule of proximate cause.[119]

Likewise, Massachusetts has not specifically adopted Section 323 of the Restatement. Massachusetts *has agreed that* "if a person voluntarily assumes a duty or undertakes to render services to another that should have been seen as necessary for her protection, that person may be liable for harm caused because of the negligent performance of his undertaking."[120] However, section 323 and its reference to "increased risk of harm" speaks to a duty of care, not causation.[121] If a person undertakes to care for a person in need of protection where the failure to render care would "increase the risk of harm," then a *duty* of reasonable care is imposed. While Section 323 creates and recognizes a duty of care, it does not alter the traditional rule of damages or causation in anyway and is not valid authority for the recognition of loss of chance.

Massachusetts has addressed failure to diagnose claims under the traditional rule of causation. For instance, in *Wright v. Clement*,[122] the Supreme Judicial Court upheld a defense verdict for a physician who was alleged to have failed to timely diagnose scarlet fever. The court held that although there was evidence of negligence "there [was] nothing to show any probability that [the plaintiff] would have recovered or lived longer or suffered less, if due care had been used."[123]

While Massachusetts permits recovery where a tortfeasor's negligence aggravates a preexisting condition, there nonetheless must be a showing by a preponderance of the evidence that there is a greater likelihood that the harm complained of was due to causes for which the defendant was responsible.

112. Bradford v. Bay State Medical Center, 415 Mass. 202, 208 (1993).

113. 16 Mass. App. Ct. 488 (1983).

114. 415 Mass. 202 (1993).

115. *See Mange*, 129 F. Supp. at 730; *Watchel*, 176 N.W. at 803.

116. Ayers v. Massachusetts Blue Cross, Inc., 4 Mass. App. Ct. 530, 535-36 (1976); Davidson v. Massachusetts Cas. Ins. Co., 325 Mass. 115, 119 (1949); Mass. Gen Laws ch. 175, §186 (2002).

117. *Id.*

118. *Hicks* was cited in *Glichlick* and *Coughlin* as was section 323 of the Restatement but neither "source" was discussed. *See* Coughlin v. Bixon, 23 Mass. App. Ct. 639, 643 (1987); *Glicklich,*16 Mass. App. Ct. at 490.

119. Hurley v. United States, 923 F.2d 1091, 1095 (4th Cir. 1991); Clark v. United States, 402 F.2d 950, 953 n. 4 (4th Cir. 1968). Courts which have followed *Hicks* have also referenced the notion that a chance of a future benefit is a legally compensable interest; that permitting recovery for loss of chance provides a more effective deterrent to poor medical care to patients whose prospects are not good; and that rejection of the loss of chance concept unfairly gives the defendant physician the benefit of uncertainty which is created by the physician's negligence.

120. Thorson v. Mandell, 402 Mass. 744, 748 (1988); Mullins v. Pine Manor College, 389 Mass. 47, 53 (1983); *see also* Anderson v. Fox Hill Village Homeowners Corp., 424 Mass. 365, 367-68 (1997) (*citing* 324A); Parent v. Stone & Webster Engineering Corp., 408 Mass. 108, 113-114 (1990) (*citing* Restatement (Second) of Torts § 324A (2002)). *See also* Rodrique v. United States, 788 F. Supp. 49, 51 (D. Mass. 1991); Cremins v. Clancy, 415 Mass. 289, 296 (1993) (O'Connor, J., concurring).

121. *See, e.g.*, Sherer v. James, 351 S. E.2d 148, 150 (S.C. 1986); *Ehlinger*, 454 N.W.2d at 758.

122. 287 Mass. 175 (1934).

123. *Id*. at 176.

Massachusetts has long been careful in making certain that any awards are based on sound reasoning and evidence pursuant to the preponderance of the evidence standard.[124] Damages are not recoverable if they are speculative or uncertain, regardless of whether the defendant's actions played a role in that uncertainty.[125] Moreover, Massachusetts courts have never recognized a right to damages for the loss of a less than even chance of obtaining a more favorable medical result.

B. Glicklich and Bradford and the Emergence of Loss of Chance in Massachusetts

Glicklich, decided in 1983, involved a claim of failure to diagnose breast cancer that subsequently metastasized to the brain by the time of diagnosis. The plaintiff proffered evidence that both defendant physicians were negligent, one physician's negligence resulting in a loss of a 44 percent chance of survival for ten years (reduction from a 94 percent to 50 percent or less chance of survival) while the other physician's negligence resulted in a reduction of the plaintiff's life expectancy from a 50 percent or less chance of 10 year survival to probable survival for only a year or two by the time of trial.[126] The court upheld the verdict against both physicians as the plaintiff presented expert testimony "that to a reasonable degree of medical certainty the plaintiff would not have had brain metastasis and would have had a much improved chance of survival or longer life" if proper treatment had been provided which was, according to the court, sufficient to meet the proximate cause burden.

Notably, nowhere does the court discuss or mention the doctrine or principle of loss of chance. Indeed, as to one of the defendant physicians, the doctrine was inapplicable as the plaintiff had a greater than 50 percent chance of survival (94 percent) prior to the negligence. However, as to the second physician, the testimony was that the patient had only a 50 percent or less chance of survival at the time of the negligence. Accordingly, the plaintiff's verdict was upheld even though the undisputed evidence presented was that it was more likely than not (51 percent or greater) that the underlying condition of the plaintiff caused harm as opposed to the physician's negligence.

To be sure, the court did identify — "metastasis and a much improved chance of survival" as apparently satisfying the burden of proof as to causation. It did so, however, without any mention or discussion of "loss of chance" and otherwise recited the traditional burden of proof as to causation as being the operative standard. The court made no effort to harmonize this discrepancy, and the decision therefore cannot be considered an express adoption of the loss of chance doctrine. Notable also is that the court assumed, without discussion, that evidence as to stage progression of cancer is probative to the issue of survivability and that damages were being limited to only "those damages which were the natural and probable consequences" of the particular physician's negligence.

The reported cases following *Glicklich* have neither identified what constitutes a "much improved chance of survival" nor stated what expert testimony is required. For instance, in *Joudrey v. Nashoba Community Hosp. Inc.,*[127] the Appeals Court held an offer of proof to be sufficient under *Glicklich* where the proffered expert letter stated that the defendant physician had been negligent in misdiagnosing a tumor as benign and that a proper earlier diagnosis would have led to proper management which, in turn, "would likely have improved any disease free interval and quality of life, and in addition, would likely had added to a longer life and improved chance of overall survival."[128]

Similarly, in *Cusher v. Turner*,[129] the Appeals Court affirmed a jury verdict which found a defendant physician responsible for a three-year delay in diagnosing ovarian cancer. The court held the expert testimony effectively provided that "based upon reasonable medical probability, the plaintiff's cancer would not have metastasized and she would have had a much improved chance of survival or at least a longer life."[130] The court did not identify what the differences were in the chances of survival before and after the diagnosis, did not limit damages to the particular loss, and found the failure of the plaintiff's experts to state when the cancer to have metastasized to be of no consequence as the experts had testified that the failure of the defendant physician to order tests "injured the plaintiff."[131]

In *Gray v. Krieger,*[132] the plaintiff was awarded $750,000 on a claim that an orthopedic surgeon had failed to properly investigate a lesion revealed by x-ray. As a result, the plaintiff was subsequently diagnosed

124. *See, e.g.,* Lowrie v. Castle, 225 Mass. 37, 40 (1916).

125. *See, e.g.,* H.D. Watts Co. v. American Bond & Mgt. Co., 267 Mass. 541, 552-53 (1929) (loss of profits are recoverable so long as they are "capable of ascertainment by reference to some definitive standard"); John Hetherington & Sons Ltd. v. William Firth Co., 210 Mass. 8, 22 (1911).

126. *Glicklich*, 16 Mass. App. Ct. at 490-91.

127. 32 Mass. App. Ct. 974 (1992).

128. *Id.* at 977.

129. 22 Mass. App. Ct. 491 (1986).

130. *Id.* at 447.

131. *Id.* at 498.

132. 27 Mass. App. Ct. 583 (1989).

with a rare bone cancer that required surgery and extensive treatment. At the time of trial, the plaintiff was being examined at six-month intervals for signs of recurrence of the cancer or its metastasis.[133] The plaintiff's expert testified that the prognosis was "guarded."[134]

In upholding the award based on the increased severity of the treatment, probability of metastasis, and emotional distress, the court criticized defense counsel's failure to "take steps which might have focused the minds of the jury more sharply upon the questions of damages."[135] Notably, it was agreed that the cancer was already present at the time of misdiagnosis and there was no reference to any evidence of the differences in the "probability of metastasis" before and after the misdiagnosis and that the expert's testimony on prognosis as "guarded" was found to be of evidentiary value.

The Supreme Judicial Court first directly addressed loss of chance in *Bradford.* The court in *Bradford* reviewed the sufficiency of an offer of proof where the decedent had died of a ruptured, infected aortic aneurysm. The plaintiff claimed that the defendant physician should have performed emergency surgery to repair the aneurysm. The plaintiff's expert's opinion was that, had earlier surgery been performed, the patient "might have survived" but that an infected aneurysm has a high mortality rate of 50 to 60 percent. Accordingly, the result was that had the surgery been performed the decedent would have had a 40 to 50 percent chance of survival, and a 50 to 60 percent chance of dying.[136]

The court recognized that under traditional causation standards, the claim would fail as the decedent's chances of survival were no greater than even. However, it "question[ed] a rule of law that would totally exonerate a negligent physician from tort liability when the patient had a fair, but less then even chance of survival if the physician had not been negligent." It stated that the question of law remains unresolved; was not for the tribunal below to resolve; and that until resolved, the tribunal should address the issue by asking "whether or not the alleged negligence of a defendant was more probably than not a cause of the loss of a substantial chance to survive."[137] It then concluded that the offer of proof was sufficient. Justices O'Connor and Lynch dissented, stating that such a change in the traditional causation test constituted a "radical departure from traditional tort law" and should not be adopted as it would leave to speculation the question of whether the alleged negligence resulted in injury or death.

In substance, the *Bradford* court adopted the "substantial chance" approach to loss of chance for purposes of offers of proof only and left to another day the issue of whether such a theory of recovery will, in fact, be recognized. The court also gave no indication as to what would constitute a "substantial" loss of chance, whether any "substantial" loss of chance must be found to be a "substantial factor" in the resulting harm, or what harms are compensable.

The reported cases since *Bradford* have been limited to the sufficiency of offers of proof. In *Keppler v. Tufts,*[138] for example, the court found that the offer of proof was "barren of any evidence to suggest beyond conjecture or speculation that [the plaintiff's] cancer extended to other parts of her body, or progressed to a more advanced stage" between the time of the alleged failure to diagnose and the time of the diagnosis of cancer.[139] This failure made it impossible to show whether the physician's negligence either "more probably than not "caused the loss of a substantial chance to survive or that the plaintiff would have "lived longer or suffered less."[140]

As to damages, the issue was loosely addressed in both *Glicklich* and *Krieger*. In *Glicklich*, the court ruled that the two defendant physicians could be found liable, but only for those damages that were the natural and probable consequences of their respective alleged negligence. The court held that the damages could be apportioned between the two physicians with respect to the percentage chance of survival that was lost under one physician's care.[141] The amount of the damages was left entirely to the jury. In *Krieger*, the court found compensable damages to include extension of the lesion, the broken leg "and its sequelae," the autograft, increased severity of treatment, added restrictions to plaintiff's life, and the emotional distress as a result of the misdiagnosis.

Policy Considerations

Neither *Glicklich* nor *Bradford* are compelling authority that Massachusetts will expressly recognize loss of chance. Indeed, the *Bradford* decision reflects

133. *Id*. at 586.

134. *Id*.

135. *Id*. at 589.

136. *Bradford*, 415 Mass. at 208.

137. *Id*. at 209.

138. 38 Mass. App. Ct. 587 (1995).

139. *Id*. at 592.

140. *Id*.

141. *Glicklich*, 16 Mass. App. Ct. at 497. In a footnote, the court noted that there had been no objection to the court's jury instructions which informed the jury that the alleged shortening of the patient's life could be considered in the damage determination including the apprehension, fear, and consequential suffering caused as a result of contemplating her shortened life. The court held that damages could not be awarded for loss of enjoyment of life beyond actual life expectancy. *Id.* at 495 n. 3.

concern and conflict over whether the doctrine should be adopted. If adopted, what will constitute a loss of a "substantial chance of survival" remains to be seen, as does the specific standard of proof and measure of damages.

The arguments in favor of allowing recovery for loss of chance have some appeal. It is certainly a powerful notion that human life is precious and that even the loss of only a small chance of cure or survival is a significant loss.[142] Equally compelling is the argument that acts of negligence as to patients with poor prognoses should not go unredressed and that it is fundamentally unfair to permit recovery where the negligence had a 51 percent possibility of producing the harm complained of but denying any recovery where the proof is only a 50 percent possibility.[143] Less persuasive are the arguments that (a) adoption of the loss of chance theory of recovery eliminates shopping for an expert who will say that a patient's life expectancy is 51 percent as opposed to 49 percent; (b) without this avenue of recovery, health care providers may be less inclined to perform a full spectrum of testing in less than optimistic cases; and (c) physicians should not be allowed to take advantage of any uncertainty in outcome that resulted from their negligence.

Despite these arguments, however, substantial countervailing considerations militate against allowance of damage awards for loss of chance.[144] First, it is simply unfounded to assume that, absent such a theory of recovery, health care providers will not provide proper treatment to critically ill patients or those patients whose prognosis is poor. Not only is such a position unsupportable, it has no application to loss of chance cases based on negligent misdiagnosis as the physician does not realize at the time of the purported negligence that the patient is ill.

More fundamentally, the practice of medicine is not an exact science and in most instances there is more than one acceptable approach. For every treatment, there are undoubtedly other physicians who might have performed or used a different one with different results. "Health care providers could find themselves defending cases simply because another course of action could possibly bring a better result."[145] Indeed, "every mammogram is a potential plaintiff."[146] Exacerbating the issue are the immense technological possibilities and testing procedures.[147] To impose liability on physicians based on loss of chance is to impose a burden that no other professional malpractice defendant carries.[148] It likewise may well "encourage a proliferation of defensive medicine, an escalation of medical costs, and an unwarranted expansion of liability exposure" with "troubling implications."[149]

There is also a substantial question as to whether loss of chance truly offers a more equitable tort scheme. In fact, as noted by the Maryland Supreme Court, from a purely statistical viewpoint, loss of chance produces more errors than traditional causation principle.[150] For example, assume there are 99 cancer patients; each has a 33 1/3 percent chance of survival; each was subject to a failure of diagnosis; and that, as a result, they all died. Under traditional principles of causation, *none* of the patients would be able to recover because it was more probable than not that the underlying condition caused their deaths. Statistically, however, had all 99 patients received proper treatment, 33 would have survived and 66 would have died as a result of the underlying condition. Consequently, traditional causation principles would have resulted in 33 errors by denying recovery to all 99 patients. On the other hand, applying the loss of chance rule allowing for a discounted recovery, there would errors in all 99 cases. That is, with proper care, 33 of the 99 patients would have recovered but they each would only receive one-third of the appropriate recovery. The remaining 66 patients who would have died as a result of the preexisting condition would then receive a windfall by receiving a one-third recovery.[151]

It is also significant that Massachusetts has opted not to adopt a pure comparative negligence statute. If a plaintiff's contributory negligence is 51 percent or greater, recovery is barred. Allowing recovery for a "loss of chance" even under a proportional damage approach is fundamentally at odds with this long-established scheme.

Recognition of loss of chance would also run counter to the general efforts of the legislature to con-

142. William D. Fletcher Jr. & Jeffrey J. Clark, *The Need For The Uniform Adoption of the Loss of Chance Doctrine in Delaware*, 1 Del. L. Rev. 241, 261 (1998).

143. *Fennell*, 580 A.2d at 216 (Adkins, J., dissenting).

144. *See generally* Perrochet, *supra* note 18.

145. Gooding v. Univ. Hosp. Bldg., Inc., 445 So. 2d 1015, 1019 (Fla. 1984).

146. Cunningham, *Failure to Diagnose Cases Are on the Rise*, Massachusetts Lawyer's Weekly (Oct. 29, 2001) at 1, *quoting* Boston Attorney Charles P. Reidy III.

147. *Id*.

148. *Dumas*, 235 Cal. App. 3d at 1608, *citing Gooding*, 445 So. 2d at 1019-20.

149. *Dumas*, 235 Cal. App. 3d at 1608.

150. *See Fennell*, 580 A.2d at 208-13.

151. *See id*. at 789-90 *citing Brennwald*, supra note 73, at 779 n. 254.

trol malpractice actions and insurance premiums. The medical malpractice tribunal and the legislative limits on certain damages in medical malpractice actions have been enacted in a concerted effort to control insurance and litigation costs. Loss of chance effectively creates a potentially new category of damages. Indeed, failures to diagnose cancer claims have resulted in, by far, the most substantial verdicts in recent years. Further, if adopted, there is no logical reason not to apply loss of chance to other claims or to other professionals where the result was less than optimum.[152]

Most compelling, however, is that any adoption of the loss of chance doctrine marks a significant erosion of traditional causation and burden of proof principles. "Lost chance of survival theory does more than merely lower the threshold of proof of causation: it fundamentally alters the meaning of causation."[153] The increased risk of harm approach both relaxes the standard of causation and permits full damages to be recovered despite the size of the increased risk of harm caused by the defendant. The substantial chance approach, in turn, permits the causation element to go to the jury based solely upon evidence of an alleged loss of a substantial possibility of a better outcome which, nonetheless, did not, more likely than not, cause the harm.[154]

Even under the proportional damage approach, where the jury attempts to calculate the full value of the decedent's life and then award damages based on the percentage equating to the loss of chance, the standard burden of proof is altered. For instance, a 25 percent loss of chance of survival or better outcome is both a "mere possibility" of harm and specific proof that, more likely than not, the defendant did not cause plaintiff's injury.[155] The only way a defendant physician can escape liability in any amount would be to establish with certainty — 100 percent—that the negligence caused no harm.[156]

Moreover, allowing damages in an amount equal to the injury resulting directly from the loss of chance and not the ultimate condition is problematic as the loss of chance itself is that of avoiding the very ultimate condition which is purportedly not in issue.[157] The argument that negligent physicians benefit if loss of chance is not adopted rings hollow as it is blackletter law that negligent conduct is only tortious if it results in a compensable injury and absent such an injury, the physician has not avoided anything. Allowing a claimant to recover even a reduced amount of damages from a physician equates to holding physicians liable despite the greater likelihood that the plaintiff's ultimate condition would have resulted absent any negligence of the defendant physician.[158] Accordingly, no matter what approach is adopted, loss of chance not only lowers the burden of proof as to causation but by allowing recovery in those instances where the lost chance is 50 percent or less effectively shifts the burden of proof regarding causation to the defendant physician.[159]

In sum, while the loss of chance presupposes to vindicate an important interest—victims of negligence who had a fair but less than 50 percent chance of a better outcome—it results in the dilution of an already lenient measure of certainty. To allow the measure of proof for medical causation to be so diluted is to severely undercut the truth-seeking function of the courts.[160]

Practical Considerations

Aside from the underlying policy considerations, there are a number of practical issues that arise with any adoption of the loss of chance doctrine including its relationship with the wrongful death statute; the role and influence of experts, statistics and other means of proof, especially in cancer cases; what type or degree of harm is compensable; how is the issue presented to the jury; whether the doctrine should be applied "across-the board;" and whether it permits recovery for future, unmaterialized harms.

A. Wrongful Death/Survivorship Action

Loss of chance is fundamentally inconsistent with the Massachusetts Wrongful Death statute. The statute imposes liability where a "person who by his

152. Fischer, *Tort Recovery for Loss of Chance*, 36 Wake Forest L. Rev. 605, 611-12 (2001) (recognizing that there is no principled reason not to apply loss of chance to lack of informal consent cases, failure to warn regarding products, legal malpractice and other areas); *but see, e.g.*, Stroud v. Arthur Andersen & Co., 37 P.3d 783, 792 n.38 (Ok. 2001) (court refused to address whether loss of chance applied outside of medical malpractice); Williams v. Wraxall, 33 Cal. App. 4th 120, 135-36; 39 Cal. Rptr. 2d 658 (1995) (loss of chance not recognized in California and not applicable in non-medical malpractice context); Bowl, Inc. v. Wisconsin Electric Power Co., 501 N.W.2d 788, 806 (Wis. 1993) (refusing to apply loss of chance outside of medical malpractice); Hardy v. Southwestern Bell Telephone Co., 910 P.2d 1024, 1025-26 (Ok. 1996) (refused to apply relaxed causation standard to failure to complete 911 call); Daugert v. Pappas, 704 P.2d 600 (Wash. 1985) (refused to apply loss of chance to legal malpractice).

153. *Falcon*, 462 N.W.2d at 65.

154. *Id.* at 4-7.

155. *Id.*

156. *Id.*

157. *Id.*

158. *Id.*

159. Marvin Devlin, *Gambling with the Future: Defense of the Loss of Chance*, The Medlaw Update, Spring 2000 at 6.

160. *Fennell*, 580 A.2d at 214.

negligence causes the death of a person."[161] Damages are, in turn, to equate to the "fair monetary value of the decedent" to the statutory beneficiaries.[162] Accordingly, the statute allows for recovery only where the negligent act or omission causes death. Moreover, the statute provides for a cause of action for the benefit of the legal beneficiaries, spouses, parents, and children of the deceased person. Loss of chance is inconsistent with this basic statutory structure, as the claim is not seeking redress for the death but for a diminishment in the chances of survival.

Further, a wrongful death beneficiary did not lose the loss of chance. As a result, many courts which have either adopted or refused to adopt loss of chance have found that the doctrine is not compatible with wrongful death absent legislative amendment and must be asserted as an independent survivorship action.[163] Other courts, however, have held that a wrongful death action can be brought where the defendant's alleged negligence increased the risk of harm resulting in death and that survival actions can be brought when the decedent dies from the underlying disease or other cause and the plaintiff claims the decedent suffered a decreased life expectancy.[164]

B. *"Across the Board" Application*

Another issue is whether the loss of chance should be applied "across the board"; that is, does recognition of the loss of chance doctrine allow the physician to utilize the concept to reduce damages? If a patient had a 49 percent of survival which was lost through misdiagnosis and therefore is entitled to recover 49 percent of the value of his or her life under the pure chance or proportional damage theory, then a patient who had a 51 percent chance of cure which was lost through negligence perhaps ought to be limited to 51 percent of the value of the life lost. Currently, medical malpractice claimants, under existing tort concepts, are entitled to recover all of their damages even where a physician is only 51 percent negligent.[165]

Only a few courts have directly addressed the issue. Most have refused such an application with little analysis.[166] New Jersey, on the other hand, has inferentially recognized that loss of chance should be applied across-the-board.[167] If the loss of chance is viewed as the compensable harm, then there is no logical reason not to apply it across the board.[168]

C. *Valuing The Harm and Potential Future Injury*

As with the applicable standard for recovery for loss of chance, courts also differ as to the proper measure of damages. As set forth above, most courts either award full damages or apply a discounting or proportional valuation. Under these approaches, either the ultimate injury or the loss of chance itself is the compensable harm. Neither view, however, properly focuses on a meaningful measure of damages.[169] Rather, the only true injury is the palpable and cognizable harm that resulted from the particular loss of chance.[170]

The failure to require a palpable and cognizable harm resulting from the loss of chance can lead to bizarre results. For example, in *Jorgensen* where the plaintiff suffered a reduction in the chance of a successful bone graft as a result of the physician's alleged negligence but otherwise testified that he would have not opted for the graft due to the rigors and disability it would have posed, the court nonetheless permitted the case to go to the jury on the issue of damages.[171] This prompted a vigorous dissent that touched upon a fundamental problem with loss of chance:

> The plaintiff here can both disclaim a medical remedy and sue for not having been denied it. Thus, a patient's own decisions about courses of treatment become wholly irrelevant. The doctor must pay for not giving a patient a choice the patient would never have chosen. The expansion of liability here is breathtaking. Medical malpractice law now becomes a Pickwickian parlor game. There will be com-

161. MASS. GEN LAWS ch. 229, § 2 (2002).

162. *Id.*

163. Dowling v. Lopez, 440 S.E.2d 205, 208 (Ga. App. 1993); Botello v. McWhorter, No. 07-00-0218-CV, 2001 WL 25712, at *2 (Tex. App. Feb. 12, 2001); United States v. Cumberbatch, 647 A.2d 1098, 1099 (Del. 1994); Parker v. Wilk, No. C.A. 93C-12-076-JEB, 2002 WL 555063 at *1 (Del. Super. April 16, 2002).

164. *Fennell*, 580 A.2d at 214; Cahoon v. Cummings, 734 N.E.2d 535, 544 (Ind. 2000); Cuhna v. Fisher, 2000 Conn. Super. LEXIS 1762 (Conn. Super. 2000) *citing* Burkowski v. Sacheti, 682 A.2d 1095 (Conn. 1996).

165. *See generally*, Jonathan P. Kieffer, *The Case for Across-the-Board Application of the Loss-of-Chance Doctrine*, 4 DEF. COUNS. J. 568, n.4 (1997); Ellis, *Loss of Chance as Technique: Toeing the Line at Fifty Percent*, 72 TEX. L. REV. 369 (1993); King, *supra* note 23, at 1386.

166. *See* Donnini v. Ouano, 810 F.2d 1163 (Kan. 1991); Pietrantonio v. United States, 827 F. Supp. 458, 462 (W.D. Mich. 1983); *see also* Liotta v. Rainey, N. 77396, 2000 WL 1738355, at *4 (Ohio App. Nov. 22, 2000) (loss of chance does not apply where chances were not less than 50%).

167. *Scalfidi*, 574 A.2d at 406-07 (applying loss of chance where negligence resulted in loss of 75% chance); Boody v. United States, 706 F. Supp. 1458, 1464 (Kan. 1989) (applied loss of chance where decedent had 51% chance of survival).

168. *See generally* Kieffer, *supra* note 165; King, *supra* note 23.

169. *See Aagaard*, *supra* note 110, at 1335-39.

170. *Id.*

171. Jorgenson v. Vener, 640 N.W.2d 485, 487 (S.D. 2002).

> pensation for loss even if only illusory, a product of statistics, conjured up and displayed in so many pixels. All a jury needs to do is count them and, of course, add dollar signs.[172]

A further flaw with the loss of chance doctrine is exemplified in the case where the only loss is the increased chance of a future injury such as cancer recurrence or relapse.[173] If it is the loss of chance that is the injury, then whether the plaintiff survives or not should not matter.[174] Such a result is troubling since there is no loss of chance if the claimant has not succumbed to the underlying disease or if there is no physical or emotional injury. Some courts have allowed awards for fear of recurrence of cancer in the future based on the failure to diagnose.[175] In doing so, they are permitting recovery even though it is not more probable than not that the cancer will reoccur.[176]

Other courts have refused to recognize such a compensable harm. The New Mexico Supreme Court recently made clear that the compensable injury in loss of chance cases is the *actual* harm and that speculation or prognosis of future harm is not appropriate.[177] According to the court, it is "the underlying injury caused by the presenting problem and the exacerbation of the presenting problem which evinces the chance that has been lost."[178] Courts, in fact, have been reluctant, in other contexts, to allow for recovery for claims based on increased risk of harm such as "cancer phobia" cases where the claimant has been exposed to a carcinogen but has not developed cancer or suffered a physical injury.[179] Even those courts that do allow recovery in such cases limit recovery to emotional distress arising from the alleged *fear* of future disease and not for the increased chance of contraction in the future.

At a minimum, limiting damages to the palpable harms resulting from the loss of chance constitutes an appropriate effort to hold physicians liable only for the harm they caused, not the underlying condition.[180] In so doing, there is no need for any recognition of a loss of chance cause of action and certainly no need to alter or relax the traditional burden of proof, causation, or damage rules. If, for instance, a plaintiff suffered a decrease in his or her chance of survival from 40 to 25 percent as a result of the negligence, neither the 15 percent "loss of chance" or the fact that the patient ultimately died from the underlying condition is material. What would be material is any resulting palpable harm unrelated to the ultimate harm such as additional surgery, medical costs and expenses, or other specific harm that would not have arisen absent the negligence. Of course, the burden remains on the plaintiff to demonstrate the specific harm and courts must ensure that the proffered evidence is relevant and reliable and not otherwise speculative. Such an approach is holding the physician liable for negligence which has caused a compensable injury apart from the pre-existing condition and there is no need to in anyway alter the more likely than not standard or adopt a "loss of chance" theory of recovery.

The failure to identify and define the proper harm has inappropriately perpetuated the acceptance of the loss of chance doctrine.

D. Matters of Proof

In failure to diagnose cases involving loss of chance, a particular dynamic is at work. The fact-finder is forced to address the degree to which the underlying disease (such as cancer) advanced between the defendant's treatment and the subsequent diagnosis, and the extent to which earlier diagnosis and treatment would have altered the prognosis. This is an inherent uncertainty. Moreover, a claimant in such cases is seeking to walk a fine line in that he or she is asserting that the underlying condition was sufficiently ad-

172. *Id.* at 491.

173. *See, e.g.*, Alexander v. Scheid, 726 N.E.2d 272, 280-82 (Ind. 2000) (even though cancer in remission and ultimate injury not yet materialized may still recover under loss of chance); James v. United States, 483 F. Supp. 581, 587 (N.D. Cal. 1980) (same); Boryla v. Pash, 960 P.2d 123, 127 (reversed directed verdict as there was evidence that a three month delay in diagnosing breast cancer could have increased plaintiff's risk of recurrence).

174. *Fennell*, 580 A.2d at 213 ("if courts are going to allow damages solely for the loss of chance or survival, logically there ought to be recovery for loss of chance regardless whether the patient succumbs to the unrelated pre-existing medical problem or miraculously recovers despite the negligence and unfavorable odds").

175. *Aagaard*, *supra* note 110, at 1345-47; *citing* Evers v. Dollinger, 471 A.2d 405 (N.J. 1984); *Brennwald*, *supra note 73, at 788*.

176. *Id*.

177. Alberts v. Schultz, 975 P.2d 1279, 1285 (N.M. 1999); Janson v. Christensen, No. 93-15038 1994 WL 279262, at 4 (9th Cir. June 22, 1994); *cf. Alexander*, 726 N.E.2d at 277.

178. *Alberts*, 973 P.2d at 1285; *see* Perez, 805 P.2d at 592;*Fennell*, 580 A.2d at 213.

179. Fournier J. Gale & James L. Goyer, *Recovery for Cancerphobia and Increased Risk of Cancer*, 15 CUMB. L. REV. 723, 736-41 (1985); Aagaard, *supra* note 110, at 1344; *see also* Michael D. Hultquist, *Fear of Cancer as a Compensable Cause of Action*, 30 SPG-BRIEF 8, 9 (2001); David C. Minneman, Annotation, *Future Disease or Condition, or Anxiety Relating Thereto, as Element of Recovery*, 50 A.L.R. 4th 13 (1986 & Supp. 1994).

180. *Janson*, 1994 WL 279262, at 4 (must be actual physical injury for recovery in loss of chance claim); Jackson v. University Hosp., 809 So. 2d 1145, 1153-54 (La. 2002) (negligence must cause loss of chance injury).

vanced and apparent that it should have been diagnosed while at the same time asserting that the cancer was not so far along so as to prevent a timely diagnosis that would have significantly approved the prognosis. Within this dynamic, an "expert" opinion is proffered that there has been a reduction in the likelihood of cure or survival due to the alleged negligence.

Courts recognizing loss of chance actions inevitably address the necessity of addressing statistical proof as it is the most common means by which the decreased or loss of a more favorable outcome is valued. Statistical proof as to loss of chance presents a unique and additional set of problems as it is based on studies and varies depending upon the underlying condition, treatment modality, and pool. An opinion that a patient had a 30 percent chance of survival for five years means that three of ten people in a medical study lived five years while seven did not. Moreover, the survival groups usually include not only those who were "cured" but those in remission and those who still have the cancer and are undergoing treatment. Further, the resulting statistics are only as good as the underlying pools from which they are extracted. Indeed, Massachusetts has long recognized that proof, based on statistical evidence alone, is disfavored.[181] At a minimum, the proffered statistics must be based on reliable data and other probative evidence.[182] To have any value they must be analogous to the particular claimant and underlying condition at issue. For instance, the specific therapy utilized in the study, the study's demographics, age, treatment, and control group must be considered.

A further problem with statistical proof in loss of chance cases is that survivability statistics are measured from the time of diagnosis. That is, survivability is measured by how many patients with similar cancer survive for set periods of time usually five and ten years. These studies do not, however, account for survivability at any other point. For example, assume a plaintiff in a failure to diagnose case asserts that he has lost a 40 percent chance of surviving for five years as a result of the alleged negligence. Assume that the patient proceeds to live for three years without a reoccurrence by the time of trial. The loss of chance of survival, based at the time of diagnosis, is now completely irrelevant. The loss of any chance greatly diminishes each year that the patient survives and clinical studies simply do not keep account of this development. Survivability statistics are simply not kept for any time other than the time of diagnosis.

A related problem is that these studies upon which survivability is based do not account for the timing of the diagnosis. "[I]f cancer is detected at an earlier stage than it would have been in the natural course of the disease, then the time between diagnosis and death is lengthened, making survival appear longer."[183] This is referred to as "lead time bias" or "the time advantage in diagnosis offered by screening over the natural course of the disease" and represents a potential skew in the valuation of the loss of chance.[184] As Professor King has noted: "One must avoid the temptation to merely compare the outcomes of those diagnosed 'early' with those diagnosed 'late' without making an appropriate adjustment that measures the survival from a common stage in the natural progression of the disease."[185]

In addition to survivability statistics, loss of chance proffers are commonly made based on alleged stage progression. While such evidence has superficial appeal, it can be misleading. For instance, it may be argued that a loss chance of increased survival occurred because the claimant went from Stage I to either a Stage II, III or IV between the time of misdiagnosis and proper diagnosis. The problem with this approach is that staging is meant to be used for medical treatment decisions, not as courtroom proof on causation. Staging does not identify when the cancer developed, when it metastasized, whether it is an invasive or aggressive cancer or whether an earlier diagnosis would have altered any outcome. The fact that a cancer is found to have progressed from one stage to another does not necessarily correlate to a loss of survivability. In perhaps the only reported case to touch upon the issue to date, a Florida appellate court held that an expert's opinion that the plaintiff's cancer progressed from one stage to another due to a failure to diagnose must be subject to judicial scrutiny and screening for reliability before any such testimony is allowed before a jury. There, the court recognized that while staging assists physicians in identifying treatment options, it is not intended to determine when the cancer spread.[186]

Evidence as to false negative rates may also be highly relevant. For instance, if a physician is alleged

181. Commonwealth v. Beausoleil, 397 Mass. 206, 217 n. 15 (1986); *see also* Laurence H. Tribe, *Trial By Mathematics: Precision and Ritual in the Legal Process,* 84 Harv. L. Rev. 1329 (1971)

182. Commonwealth v. Gomes, 403 Mass. 258, 273-75 (1988).

183. *King, supra* note 95, at 549.

184. *Effective Clinical Practice, Primer on Lead Time, Length and Overdiagnosis Bias* (March/April 1999) at http://www.acponline.org/index.html (visited October 26, 2001); Thomas J. Gates, *Screening for Cancer, Evaluating the Evidence,* AMERICAN FAMILY PHYSICIAN, Feb. 1, 2001 (discussing and defining various bias in cancer screening).

185. *King, supra* note 95, at 550.

186. Holy Cross Hospital Inc. v. Marrone, 816 So. 2d 1113, 1118 (Fla. App. 2001).

to have failed to diagnose cancer because she did not conduct a certain test, what effect does that test's false negative rate have on any asserted loss of chance? If it is determined that a patient lost a 40 percent chance of survival through the failure to conduct diagnostic testing with a false negative rate of 10 percent, should the lost chance be reduced? Indeed, there was 10 percent chance that had the testing been timely conducted that it would not have detected the cancer. In the above example, the 40 percent loss of chance would be reduced to 36 per cent (40 x .90 = 36 percent).[187]

The availability and impact of treatment also may affect survivability. A study involving no treatment or different treatment from that undergone by the claimant may well not be indicative of the chances of survival of the claimant. Similarly, the claimant's age and general health must also be considered.[188] In essence, there must be credible evidence relating the statistics to the facts of the case and to the particular plaintiff.

Finally, fundamental to any expert proffer through either statistical proof, stage progression, or other assertion of loss of chance, is the assertion, in failure to diagnose cancer cases, that early detection results in better outcome. This position is embraced by various medical organizations. It is certainly true in some respects. However, such a view lacks a proper balance of the successes or failures of early diagnosis and the biology of cancer.

The loss of chance doctrine, in fact, unequivocally assumes a correlation between early diagnosis and chance of survival. While there is substantial support for this assumption, the premise is not universally true.[189] Many medical commentators have long urged caution in unquestioningly accepting this principle absent recognized and established controlled studies.[190] According to one researcher:

> No wonder time is not of the essence in cancer diagnosis, 'late' cases often outliving the 'early' ones. The survival rates after different periods of delay before seeking medical advice often show a curious paradox - the greater the delay and the longer the history of symptoms, the greater was the survival rate.[191]

Another commentator stated the issue more generally:

> The scientifically informed but ever hopeful public greets the purported breakthroughs [in cancer research] with enthusiasm. When treatment failure occurs following diagnosis which could have occurred earlier, there is a strong tendency to conclude that disability and/or death ensued because of the doctor's negligence Until we correct the unduly high expectations of our diagnosis and therapeutic capabilities in this field, all of us will suffer the social consequences.[192]

Given the nature of loss of chance — especially the complexities of cancer — any adoption of the loss of chance doctrine mandates that courts exert great caution and control over proffers of proof. In *Commonwealth v. Lanigan,*[193] the Supreme Judicial Court made clear that expert testimony must have scientific validity and evidentiary relevance and reliability before it can be admitted. Moreover, the trial judge is to serve as a "gatekeeper" and preclude any proffered expert opinion that is not supported by scientifically valid reasoning which is applicable to the specific facts of the case.[194] Accordingly, courts must employ their gate-

187. *King*, *supra* note 95, at 555.

188. *See, e.g.,* Wiggins & Callan, *Age Related Variation in Treatment and Outcome of Patients with Breast Carcinoma,* CANCER (2000) (reproduced GERIATRICS April, 2000).

189. Not Diagnosable, Nor Early Enough, at http://www.healthlibrary.com/reading/cancer/chap5.htm (visited July 31, 2002) ("the clinician even if he diagnoses cancer at the earliest possible stage, is dealing only with the late stages of disease process"), citing F.J.C. Roe: *Cancer as a Disease of the Whole Organism*, THE BIOLOGY OF CANCER (E.J. Ambrose and F.J.C. Roe,ed. (1996); *see also* Studies Conflict Over Cancer Treatment, at http://www.thesandiegochannel.com /sh/health/conditionsaz/news-health-990401-195520.html (discussing two studies published in The Lancet which come to divergent conclusions as to effects of early diagnosis of breast cancer); H.G. Welch, *Are Increasing 5-Year Survival Rates Evidence of Success Against Cancer?*, 283 JAMA 2975-78 (June 14, 2000) (stating that lead time bias skews survival rates for prostate cancer).

190. Carol Lewis, *Breast Cancer: Better Treatments Save More Lives*, at http://www.fda.gov/fdac/features/1999/499_breast.html (visited July 31, 2002).

191. Not Diagnosable, Nor Early Enough, *supra* note 189.

192. Plotikin & Blankenberg, *Breast Cancer—Biology and Malpractice*, 14 Am. J. Clin. Oncol. 254, 265 (1991).

193. 419 Mass. 15 (1994).

194. *Id.* at 26.

keeping function and preclude any wayward, outdated, or baseless and unreliable proffer of or opinion as to an alleged reduced chance of survival.[195] A claimant's expert should not be allowed to opine that the plaintiff lost a substantial chance of cure or survival without specific reference to the specific methodology, basis, and reliability of this opinion.[196] Moreover, statistics alone should not be sufficient to satisfy a claimant's burden of proof.[197] The expert must be required to present competent and reliable testimony that the probability of recovery of *the particular plaintiff under the circumstances faced by the plaintiff* falls within the statistical range quoted for patients with the particular underlying disease.[198] The expert's methodology and statistical basis must be reasonable and supported by established studies, research, and peer review (including, in the case of pre-existing cancer, pathological, immunological, cytologic, radiographic, or other similar studies). The process and type of metastasis must be addressed as well as the type of cancer, its characteristics, classification, biology, grade, differentiation, the patient's age and health,[199] and the impact of treatment. "Loss of chance," by definition, is fraught with uncertainty, thereby mandating evidentiary vigilance and the need for proper, reliable and supportable expert testimony.

Conclusion

Whether Massachusetts adopts loss of chance and allows its use outside of offers of proof remains to be seen. Without question, the doctrine places great strain upon the judicial truth-seeking process and, at a minimum, must be subject to rigid controls where only substantial losses supported by reliable and pertinent expert testimony are compensable and where recovery is not permitted for unmaterialized harms or otherwise based upon conjecture. Even with such controls, however, it remains fundamentally unfair to adopt such a doctrine as it marks a drastic and unnecessary dilution of basic and longstanding notions of causation and burdens of proof.

195. *Beausoleil*, 397 Mass. at 217, n.15; Anthony v. Chambless, 500 S.E.2d 402, 406 (Ga. App. 1998) (summary judgment properly granted as opinion as to 50% loss of chance did not take into account age, state of health, and post-operative complications); Alexander v. Smith & Nephew, PLC., 98 F. Supp. 2d 1310, 1317 (N.D. Okl. 2000) (precluding testimony of medical causation expert as it was unreliable under *Daubert* even if loss of chance relaxed causation standard applies); Sylvester v. Fremont Medical Center, 2002 Cal. App. Unpub. LEXIS 7839 (Cal. App. 2002) (summary judgment entered for defendant physician in failure to diagnose as expert for plaintiff failed to sufficiently justify opinion that negligence as opposed to underlying condition caused death).

196. *See* Greer v. Lammico, 779 So.2d 894, 903-04 (La. App. 2000) (rejecting *Daubert* claim as to claimant's expert's opinion as to spread of cancer); Holy Cross Hospital Inc. v. Marrone, 816 So. 2d 1113, 1118 (Fla. 2001) (expert's testimony that plaintiff's conditioned worsened based on staging statistics must be subject to court evaluation under Frye); Wallace v. St. Francis Hospital & Medical Center, 688 A.2d 352, 354 (Conn. App. 1997) (expert opinion as to causation in loss of chance properly excluded as expert not a surgeon and could not opine as to effect of surgical outcome); Bunting v. Jamieson, 984 P.2d 467, 470-71 (Wyo. 1999) (mandating clear and fair application of Daubert factors to medical expert opinion as to causation.); *Alexander*, 98 F. Supp. 2d at 1310-18.

197. National Cancer Institute, *Understanding Prognosis and Cancer Statistics*, http://cis.nci.nih.gov/fact/8_2.htm (visited August 8, 2002) ("It is important to understand that statistics alone cannot be used to predict what will happen to a particular patient because no two patients are exactly alike). Wiggins & Callan, *Age Related Variation in the Treatment and Outcome of Patient with Breast Carcinoma*, Cancer, (2000) (reproduced Geriatrics, April, 2000).

198. *Herskovits*, 664 P.2d at 490 (Brachtenbach, J., dissenting).

199. *See* Dilling & Goldwein, *The Treatment of Cancer*, http://cancer.med.upenn.edu (visited October 22, 2001).