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COMMENT

PROVING CAUSATION IN “LOSS OF A CHANCE” CASES: A PROPORTIONAL APPROACH

For more than a century, an individual who has been harmed because of another’s negligence has been allowed to recover damages from the person causing the harm. 1 To prevail in a negligence lawsuit, the plaintiff must show: (1) that the defendant owed the plaintiff 2 a certain duty of care; 3 (2) that the duty was breached; 4 (3) that the breach caused the plaintiff harm; 5 and (4) that actual harm resulted. 6 All of these elements have been the subject of considerable debate among judges and legal scholars. 7 Yet, the “cau-

1. W. Prosser & W. Keeton, The Law of Torts § 28, at 161 (5th ed. 1984). The authors note that “negligence began to gain recognition as a separate and independent basis of tort liability [during the first half of the nineteenth century].” Its rise, they state, coincided to a significant extent with the increase in the number of accidents that occurred during the Industrial Revolution. Id.

2. The identity of the plaintiff naturally will vary depending on whether the action is one for personal injury or one for wrongful death. For purposes of simplification, this Comment will generally use the term “plaintiff” regardless of whether the plaintiff in a particular case is the individual who was harmed (personal injury) or whether the plaintiff is a survivor of the individual harmed (wrongful death).

3. W. Prosser & W. Keeton, supra note 1, § 30, at 164-65. A duty has been defined as “an obligation, to which the law will give recognition and effect, to conform to a particular standard of conduct toward another.” Id. § 53, at 356. To answer the question whether one owes another a particular duty, one must ask the question “whether the plaintiff’s interests are entitled to legal protection against the defendant’s conduct.” Id. at 357. It is clear, then, that the term duty “is only an expression of the sum total of those considerations of policy which lead the law to say that the plaintiff is entitled to [legal] protection.” Id. at 358.

4. Id. § 30. Courts frequently state that proof of the breach of a duty owed establishes negligence. Id. The two following elements merely determine whether the negligence is “actionable”—that it will give rise to an action for damages.


6. W. Prosser & W. Keeton, supra note 1, § 30, at 165. A defendant may act negligently without causing any harm. In such instances, only a nominal amount may be recovered. Restatement (Second) of Torts § 907 comment a (1979). Prosser and Keeton also note that negligence which causes a “threat of future harm, not yet realized, is not enough.” W. Prosser & Keeton, supra note 1, § 30, at 165. In this regard, see infra notes 301-05 (discussing future harm cases).

7. See, e.g., M. Shapo, The Duty to Act: Tort Law, Power, & Public Policy
sation” requirement has undoubtedly spurred the greatest judicial controversy.8

The law of negligence divides causation into two parts: cause-in-fact and proximate cause.9 The traditional cause-in-fact test is the “but for” test.10 The plaintiff must show that “but for” the defendant’s breach of duty, harm would not have occurred.11 Where two or more causes concur to produce harm, and either cause alone would have produced the harm, the “but for” test is replaced by the “substantial factor” test.12 Otherwise, each defendant could claim that his negligence was not a “but for” cause of the harm, and escape liability.13 In such cases, the plaintiff must show that one or more of the potential causes was a “substantial factor” in producing the harm.14 The second aspect of causation, proximate cause, involves the legal policies limiting the liability of a defendant whose conduct was a cause-in-fact of the injury.15 Because harm, in a philosophical sense, can be traced to very remote causes, the law limits the chain of causation to causes that are fairly “proximate.”16

The plaintiff in a negligence action need not prove cause-in-fact to a cer-

8. W. Prosser & W. Keeton, supra note 1, § 41, at 263 n.1.
9. See generally id. §§ 41-45. Cause-in-fact, however, is generally viewed as a part of the overall “proximate cause” question. Id. § 42, at 279.
10. Id. § 41, at 265.
11. Thus, if the harm would not have occurred “but for” the defendant’s negligence, the negligence is a cause-in-fact of the harm. If, on the other hand, harm would have occurred in spite of the defendant’s act or omission, the act or omission is not a “but for” cause of the harm for which the defendant can be held liable. Id. at 266. The “but for” test is increasingly being replaced by the “substantial factor” test. See, e.g., Roberson v. Counselman, 235 Kan. 1006, 686 P.2d 149 (1984).
12. Id. at 266-68. Despite the amorphous nature of the expression “substantial factor,” Prosser thought it undesirable to reduce the concept to more concrete terms. He believed that a jury could use its judgment in determining whether a particular force was a substantial factor in producing harm. Id. at 267. The notion, however, seems to have retained the “but for” requirement except where each of two forces would have been sufficient to cause the harm independently of the other. Id. at 268.
13. Id. at 266-67.
14. Courts have sometimes used the substantial factor test in conjunction with legal causation. Id. at 278. Use of the substantial factor rule in this fashion, Prosser and Keeton note, often allows the jury to decide questions that should be decided by the judge. Id.
15. See generally W. Prosser & W. Keeton, supra note 1, § 42.
16. Prosser and Keeton remark that although the word “proximate” literally means “near,” “mechanical closeness” is not the actual meaning of the term “proximate cause.” Id. at 273. A more accurate label for the concept would be “legal cause” or “responsible cause.” Id. Proximate cause involves questions of cause-in-fact, apportionment of damages, liability for unforeseeable consequences, intervening causes, as well as the shifting of responsibility from one entity to another. Id. at 279.
tainty. The evidence will be sufficient if it affords the jury a reasonable basis to conclude that the defendant's negligence "probably" or "more-likely-than-not" was the "but for" cause of the harm. Where the evidence shows only a possibility of causation, however, the court must direct a verdict for the defendant.

In recent years, a growing line of cases, termed "loss of a chance" cases, has put a strain on this traditional causation analysis. In a loss of a chance case, a tortfeasor, through his negligence, causes an individual to lose a chance to avoid some form of physical harm. To illustrate, suppose that John Doe, who is experiencing severe bouts of coughing, visits his private physician to determine the cause of his symptoms. His physician refers him to a radiologist, who x-rays Doe's chest and discovers Stage One cancer. Suppose further that the average Stage One patient possesses a statistical forty percent chance of long-term survival. Through carelessness, an individual on the radiologist's staff notifies Doe's private physician that the x-rays were normal, and, as a consequence, the untreated cancer continues to spread. Several months later, Doe's condition drastically worsens, and he

17. Id. § 41, at 269.
18. Id.
19. Id. See also Annot., 135 A.L.R. 516-29 (1941).
22. This hypothetical was generally patterned after James v. United States, 483 F. Supp. 581 (N.D. Cal. 1980). Some of the facts were modified, however, to give the reader a clearer understanding of the impact of chances on tort litigation.
23. The American Joint Committee on Cancer has developed an intricate classification system for cancer. See American Joint Committee on Cancer, Manual for Staging of Cancer (2d ed. 1983). The committee has set up the "TNM" progression, which focuses on three general stages of the disease. Id. at 3. Stage One denotes the presence of a primary tumor (T), Stage Two refers to regional lymph node involvement (N), while Stage Three describes distant metastasis (M) (spread of the disease to distant regions of the body). Id. at 6. These stages have been further classified, a subject beyond the scope of this Comment. Id. at 6-8.
24. Cancer statistics are based on various "survival rates," which represent the length of time victims have survived after a given date, whether it be the date of diagnosis or of the beginning of treatment. Id. at 11. For most types of cancer, five-year studies are conducted. In breast and prostate cancer cases, however, somewhat longer testing periods are necessary, due to the risk of recurrence in the distant future. See generally id. at 11-21.
again visits his physician. The cancer is finally rediscovered, but unfortunately, it can no longer be treated. Doe’s statistical chances of long-term survival are practically nil. Several months later, he dies. His widow brings a wrongful death action, alleging that the delay in diagnosis caused her husband’s death.26

At trial, expert testimony reveals that the radiologist was negligent in failing to communicate the correct findings to the patient’s physician.27 Although the evidence shows that the negligence decreased Doe’s chances to live by nearly forty percent, however, this is not enough to meet the “more-likely-than-not” standard of proof.28 To satisfy the current standard of

25. Wrongful death and survival statutes have been in force for over a century. C. McCORMICK, HANDBOOK ON THE LAW OF DAMAGES §§ 93-94 (1935). For a brief discussion of their provisions, see Coliseum Motor Co. v. Hester, 43 Wyo. 298, 3 P.2d 105 (1931). For a thorough analysis of wrongful death statutes and survival actions, and an extensive exposition of caselaw, see generally M. MINZER, J. NATES, C. KIMBALL, & D. AXELROD, DAMAGES IN TORT ACTIONS ch. 29 (1984) [hereinafter cited as TORT ACTIONS]. For a further discussion of their effect on loss of a chance cases, see infra notes 292-300 and accompanying text.


27. This discussion will assume that the defendant has been found negligent (duty and breach of that duty). There is a strong tendency, when discussing damages in negligence actions, and especially in a medical malpractice context, to drift into notions of culpability. Nothing in this Comment, however, should be construed as arguing the validity of methods currently used to determine whether a physician or other potential tortfeasor should be held liable.

28. See RESTATEMENT (SECOND) OF TORTS § 433B comment a, which states:

[1] In civil cases, the plaintiff is required to produce evidence that the conduct of the defendant has been a substantial factor in bringing about the harm he has suffered, and to sustain his burden of proof by a preponderance of the evidence. This means that he must make it appear that it is more likely than not that the conduct of the defendant was a substantial factor in bringing about the harm. A mere possibility of such causation is not enough; and when the matter remains one of pure speculation and conjecture, or the probabilities are at best evenly balanced, it becomes the duty of the court to direct a verdict for the defendant.

Id. (emphasis added). As an example of the operation of this rule, the Restatement gives the following illustration:

While A is driving his automobile, his three-year-old child falls out of the car, and lands on his head on the highway. Before A can stop his car and return to the child, it is run over by B’s negligently driven automobile. In A’s action against B for the
proof of causation, a "loss of a chance" plaintiff must show that the victim of negligence probably would have survived had he been treated properly.\textsuperscript{29} If the victim probably would not have survived, the cause of death was not the negligence, but the preexisting cancer. To meet this standard, Doe's wife must establish that, prior to the negligent act or omission, her husband possessed a chance of survival of at least fifty-one percent. Because the evidence in Doe's case shows only a forty percent initial chance of survival, the court will direct a verdict for the negligent defendant.\textsuperscript{30} The court will find that the probable cause of death is the preexisting condition because, prior to the defendant's negligence, the cancer had already decreased Doe's chances of survival from one-hundred percent to forty percent.\textsuperscript{31}

It is readily apparent that under this approach, a slight variation in an individual's initial chances of avoiding harm may produce very different outcomes at trial. For example, if a victim has lost a chance of avoidance of fifty-one percent or more, a jury will be permitted to find that the negligence probably was the "but for" cause of the ultimate injury and award full damages.\textsuperscript{32} If another victim has lost a fifty percent chance or less, the great

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\item[30.] See, e.g., Cooper v. Sisters of Charity, 27 Ohio St. 2d 242, 272 N.E.2d 97 (1971).

\item[31.] Because of these probabilities, "[r]ecoverable damages, if any, would depend on the extent to which it appeared that cancer killed the patient sooner than it would have with timely diagnosis and treatment, and on the extent to which the delay in diagnosis aggravated the patient's condition, such as by causing additional pain." King, supra note 20, at 1364.

\item[32.] See, e.g., Herskovits v. Group Health Cooperative, 99 Wash. 2d at 633, 664 P.2d at 486 (Pearson, J., concurring).
\end{footnotes}
majority of courts would not allow the jury even to consider the evidence.\textsuperscript{33} No prima facie case of causation would have been established because the evidence indicated that the preexisting condition, rather than the negligence, probably was the "but for" cause of the harm.\textsuperscript{34}

The current approach naturally produces these "all-or-nothing" results on the defendant's side as well. A defendant who caused another to lose a fifty percent chance will face no liability.\textsuperscript{35} Conversely, a defendant who caused someone to lose a fifty-one percent chance will face absolute liability, although there was a forty-nine percent chance that the harm would have occurred despite his negligence.\textsuperscript{36}

To correct this disparate treatment, several courts have chosen to alter proof requirements with regard to causation. Some courts have ruled that because the defendant has made it impossible to determine what would have happened in the absence of his negligence, the jury should be allowed to consider \textit{any} evidence indicating that a chance was lost, whether or not that evidence demonstrates a probability that the harm could have been avoided.\textsuperscript{37} Other courts have held that the plaintiff need only show that the victim of negligence possessed a "substantial possibility" of survival.\textsuperscript{38}

A growing number of commentators, however, have argued that altering proof requirements fails to solve the inequity of the "all-or-nothing" approach.\textsuperscript{39} The solution to the problem, they have maintained, lies not in the modification of causation principles, but rather in the redefinition of the harm that the victim suffered.\textsuperscript{40} In loss of a chance cases, the harm or injury is not death or some other obvious harm. Rather, it is the loss of the chance to avoid the harm or to achieve a positive outcome.\textsuperscript{41} Under this analysis of the negligence question, chances would fall into the "harm" category, rather
than under the causation element. For example, while the plaintiff may not be able to prove that the defendant's negligence probably caused the decedent's death, he is able to prove that it probably caused the decedent to lose a chance to avoid the death. Under this model, damages parallel the extent of the chance that the victim lost. These writers have argued that this proportional analysis eliminates the extreme results generated by the current approach. The loss of a forty percent chance produces a damages award of forty percent of a full recovery, while the loss of an eighty percent chance brings an eighty percent recovery.

This Comment will examine the judicial treatment accorded the loss of a chance in personal injury and wrongful death actions. It will maintain that the failure of the courts to recognize that the loss of a chance is in itself an injury has created a distorted and inequitable remedial system. It will begin by considering the disparate analyses courts have used when addressing loss of a chance cases. The majority of cases cited involve medical malpractice. The loss of a chance problem, however, is present in other contexts in which personal injuries or death occur. This Comment will also discuss whether chances to live or to achieve better health should be recognized as personal interests whose loss should give rise to an action for damages. It will then consider several difficulties such an approach could present and outline possible solutions. This Comment will conclude that chances are valuable interests that should be protected by law. Damages awarded for the loss of those interests should parallel the extent of the chance the victim has lost.

I. THE LABYRINTH OF LOST CHANCES: HOW COURTS HAVE VIEWED THE LOSS OF A CHANCE DOCTRINE

Courts confronting a personal injury or wrongful death claim invariably

42. Id. See Herskovits v. Group Health Cooperative, 99 Wash. 2d at 634, 664 P.2d at 487 (Pearson, J., concurring).

43. See King, supra note 20, at 1364.

44. Id. at 1382-84.

45. Id. at 1376.

46. See infra text accompanying notes 273-82.


48. See, e.g., Davis v. Graviss, 672 S.W.2d 928 (Ky. 1984) (loss of a chance caused by the negligence of a motor vehicle operator).
focus on the overt harm suffered by the plaintiff. Then, they attempt to determine whether that harm was "probably" caused by the defendant's negligence. If a case calls for an investigation into the victim's chances of avoiding harm, courts generally require a medical expert to testify, with a reasonable degree of medical certainty, that the victim probably would have avoided the harm or achieved a better result but for the defendant's negligence. If the testimony indicates that there was only a fifty percent or lesser chance of avoidance or improvement, this probability is not established, and the defendant prevails.

In *Kuhn v. Banker*, an early case decided by the Ohio Supreme Court, the plaintiff claimed he had been injured as a result of the physician's failure promptly to discover the disunion of the neck of his femur. A medical expert testified that, more likely than not, the harm would have ensued despite prompt discovery. The court held that to prove causation, the plaintiff must show that the injury probably could have been prevented with timely treatment. Because the expert was unable to testify that the harm proba-

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49. See supra note 6 and accompanying text.
50. See supra note 18 and accompanying text.
51. The term "reasonable certainty" is used by some courts in reference to the certainty of an expert witness's convictions concerning the substance of his testimony. See *Kravinsky v. Glover*, 263 Pa. 8, 21, 396 A.2d 1349, 1355-56 (1979) (an expert may state that he is reasonably certain that the negligent act was a substantial factor in bringing about the injury). In *Boose v. Digate*, 107 Ill. App. 2d 418, 246 N.E.2d 50 (1969), the Illinois Court of Appeals asserted:

[W]hen a Doctor is asked to base his opinion on a reasonable degree of medical certainty the certainty referred to is not that some condition in the future is certain to exist or not to exist. Rather, the reasonable certainty refers to the general consensus of recognized medical thought and opinion concerning the probabilities of conditions in the future based on present conditions.

*Id.* at 423, 246 N.E.2d at 53. More commonly, the phrase "reasonable certainty" is used in reference to the standard by which future consequences and damages in general must be proved. See, e.g., Annot., 18 A.L.R.3d 10, 21 (1968) (future pain and suffering); Annot., 18 A.L.R.3d 88, 97 (1968) (impairment of earning capacity).

52. See supra note 29.
53. See supra note 30 and accompanying text.
54. 133 Ohio St. 304, 13 N.E.2d 242 (1938).
55. *Id.* at 308, 13 N.E.2d at 244.
56. *Id.* at 312, 13 N.E.2d at 245. The court commented that proof of causation is not established by evidence of the percentage of recoveries achieved in similar cases. *Id.* Otherwise, the court stated, a plaintiff who could show that 51% of similarly situated patients had achieved a good result would prevail, while another, who could only demonstrate that 50% of similarly situated individuals survived, would lose. *Id.* This aspect of the court's holding fails to recognize that this is the usual method whereby causation in personal injury claims is established. When a physician testifies about a patient's chances, he is basing that testimony either on his own experience with patients or on the experiences of his colleagues, possibly supplemented by case studies and other medical literature. See Rosenberg, infra note 267. Ironically, when questioned about the possibility of recovery with proper treatment, the physician
bly could have been prevented, the plaintiff did not meet his burden of proof.57 The court emphasized that "[t]he loss of [a] chance . . . standing alone, is not an injury from which damages will flow."58

A. Hicks v. United States: Raising False Hopes

For years, the reasoning in Kuhn v. Banker represented the standard by which to evaluate causation in loss of a chance cases. Plaintiffs who could not meet the standard of proof expressed in that decision had little hope of ever receiving compensation for the loss of their opportunities for improved life or health.59 Then, in 1966, a decision of the United States Court of Appeals for the Fourth Circuit appeared to provide new hope to these victims.

In Hicks v. United States,60 the administrator of a decedent's estate brought suit under the Federal Tort Claims Act61 alleging that the patient's death from an undiagnosed bowel obstruction had been caused by the defendant's negligence.62 The action was dismissed by the trial court, which

in Kuhn prefaced his answer by saying: "[I]t is our experience that . . . ." 133 Ohio St. at 308, 13 N.E.2d at 244 (emphasis added). Thus, the physician's testimony clearly indicated the grounds for his knowledge. If he had testified that there was a probability of recovery, it would have been because the majority of similarly situated patients he had observed had survived.

57. 133 Ohio St. at 315, 13 N.E.2d at 247.
58. Id.
59. See, e.g., Connellan v. Coffey, 122 Conn. 136, 138-41, 187 A. 901, 902-03 (1936); Harvey v. Silber, 300 Mich. 510, 520-21, 1 N.W.2d 483, 487 (1942); Paduchik v. Mikoff, 112 N.E.2d 69 (1951). But see Burk v. Foster, 114 Ky. 20, 69 S.W. 1096 (1902), where a patient involved in a wagon accident was examined by a physician who negligently failed to discover a dislocation of the humerus bone. When the dislocation was noticed three months later, treatment could no longer be undertaken. Id. at 22, 69 S.W. at 1096. The plaintiff claimed that, as a result of the negligence, the muscles in his arm had atrophied, and his arm had become practically useless. Id. The defendant countered by asserting that the same outcome probably would have resulted despite proper treatment. Id. at 24, 69 S.W. at 1097.

The Kentucky Court of Appeals, reversing the lower court, stated:

We think . . . the patient is entitled to the chance for the 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 . . . .

Id. at 26, 69 S.W. at 1098.

In Craig v. Chambers, 17 Ohio St. 253, 254 (1867), a surgeon was accused of negligently treating the patient's dislocated shoulder. The defendant argued that the plaintiff had not proved that the negligence caused an injury. The Ohio Supreme Court explained that "any [negligence] which diminishes the chances of the patient's recovery . . . would, in a legal sense, constitute injury." Id. at 261. This passage, however, was thought by the Kuhn v. Banker court to represent obiter dictum. Kuhn, 133 Ohio St. at 315, 13 N.E.2d at 246.

60. 368 F.2d 626 (4th Cir. 1966).
62. See supra note 27.
accepted the government's argument that death would have ensued regardless of proper treatment. The plaintiff appealed, and the Fourth Circuit reversed. In what has become an oft-quoted passage, the Fourth Circuit stated that "[w]hen a defendant's [negligence] has effectively terminated a person's chance of survival," the defendant will not be allowed to "raise conjectures as to the measure of the chances that he has put beyond the possibility of realization." If the defendant has destroyed a substantial possibility of survival, he will be liable for damages.

The court then drew an analogy between a physician's failure properly to treat a dying patient and admiralty law's "failure to rescue" doctrine, as applied in Gardner v. National Bulk Carriers. In Gardner, a seaman failed to report to his watchpost, prompting the crew to explore the vessel. Unfortunately, the effort proved unsuccessful. The shipmaster was notified of the seaman's disappearance, but made no attempt to search the waters through which the vessel had just passed. The district court heard conflicting testimony regarding the likelihood of rescue and the seaman's chances of surviving a fall from the ship. It concluded that the plaintiff had not met the burden of proving that a search probably would have saved the crewman. The Fourth Circuit reversed, holding that the reasonable possibility of rescue was enough to establish causation and that the shipmaster's negligence contributed to the seaman's death.

63. 368 F.2d at 628.
64. Id. at 633.
65. Hicks, 368 F.2d at 632.
66. Id. The meaning of the term "substantial possibility" is unclear. At least one commentator believes that, under that standard, a plaintiff could recover for the loss of a chance of less than 51%. See King, supra note 20, at 1368 n.52. The Hicks case did not resolve this uncertainty. See infra note 77.
67. 310 F.2d 284 (4th Cir. 1962).
68. Id. at 285.
69. Id.
70. Id.
71. Id. There was expert testimony that, under the prevailing environmental conditions, a man overboard could have survived and could have been saved by a search. Libellant's expert testified that a search of the course traveled by the vessel between the time the crewman was last seen and the time he was noticed missing "would probably have succeeded." Id. Respondent's expert pointed out that the seaman was ill, and may have fainted and fallen overboard, or may have attempted suicide. Id. at 286. Furthermore, there was speculation that one falling overboard would be sucked into the propeller, or would be attacked by sharks. Id. at 289 (Haynsworth, C.J., dissenting). It is clear, then, that the preponderance of the evidence did not show that, more likely than not, the seaman would have been rescued.
73. 310 F.2d at 288.
74. Id. at 287. The court went as far as to say that the failure to attempt a rescue, coupled with a reasonable possibility of success, automatically imposes liability. Id.
On the surface, *Hicks*’ reference to *Gardner* implies that a person may recover damages for the loss of a chance of fifty percent or less. The words “substantial possibility” tend to denote a recognition of the value of these chances. It is fairly clear, however, that the *Hicks* court did not intend such a result. *Hicks* merely reemphasizes the traditional standard of proof of causation. It makes it clear that causation is to be proved by a probability, rather than by a certainty. Moreover, the causation analysis focuses on the physical harm suffered. That analysis is not concerned with lost chances other than in ascertaining whether the loss of these chances may have resulted in the victim’s death.

Although *Hicks* merely restates the holding of *Kuhn v. Banker*, a sizeable number of courts have been led astray by the court’s reference to a “substantial possibility.” They have concluded that the Fourth Circuit, in *Hicks*, intended to create a new standard of proof for plaintiffs who can only prove

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75. *See* King, *supra* note 20, at 1369 n.53.
76. *See supra* note 66.
77. First, the administrator in *Hicks*, 368 F.2d 626 (4th Cir. 1966), had established through expert testimony that the decedent would have possessed at least a 75% chance of survival had proper treatment been rendered. *Id.* at 632. Thus, the loss of a chance was not at issue in the case. Second, the court commented that a plaintiff in a medical malpractice action need not prove “but for” causation to a certainty. *Id.* Some state courts apparently had been applying a standard of proof that required “certain” proof of causation. *See*, e.g., Menarde v. Philadelphia Transp. Co., 376 Pa. 497, 501, 103 A.2d 681, 684 (1954). *See also* Hamil v. Bashline, 243 Pa. Super. 227, 235-36, 364 A.2d 1366, 1370 (1976), which seemed to require an “actual certainty” showing of causation by the plaintiff. The holding was subsequently reversed by the Pennsylvania Supreme Court, 481 Pa. 256, 273, 392 A.2d 1280, 1288-89 (1978), which reinstated, at least theoretically, the traditional more-likely-than-not test. Although causation need not be proved to a certainty, the plaintiff still must show a probability of “but-for” causation. 368 F.2d at 632. Third, the discussion in *Hicks* is followed by a reference to Harvey v. Silber, 300 Mich. 510, 2 N.W.2d 483 (1942), which held that a plaintiff’s proof must show a probability of survival. *See id.* at 520, 2 N.W.2d at 487. Finally, two years later, the court in Clark v. United States, 402 F.2d 950 (4th Cir. 1968), rejected the argument that *Hicks* had altered causation principles to allow recovery for the loss of a chance. In a footnote, the court explained that *Hicks* could not have established a new standard of causation, because the case had been decided under the Federal Tort Claims Act, which directs a federal court to apply state law in resolving disputes. *Id.* at 953 n.4.
79. *See* King, *supra* note 20, at 1369 n.53.
that a "substantial possibility," or chance, of survival was destroyed.\textsuperscript{81} These courts have then attempted to apply this remedy for the "loss of a substantial possibility," causing questionable results to be reached in the process.

In \textit{Jeanes v. Milner},\textsuperscript{82} for example, a mother whose thirteen-year old son died of throat cancer brought a malpractice action against a physician. She claimed that the doctor had negligently delayed the transmission to a pathologist of slides of the soft tissue of the boy's throat.\textsuperscript{83} Testimony at trial indicated that during the delay, the lymphosarcoma (throat cancer) progressed from Stage One to Stage Two.\textsuperscript{84} At Stage One, the survival rate for this type of cancer stood at thirty-five percent, while at Stage Two, the chance of survival decreased to twenty-four percent. The United States District Court for the Eastern District of Arkansas dismissed the action at the close of plaintiff's case, concluding that a jury could not find "but for" causation from the loss of an eleven percent chance.\textsuperscript{85} The United States Court of Appeals for the Eighth Circuit reversed,\textsuperscript{86} rejecting the assertion that a jury verdict for the plaintiff could only be based upon speculation and conjecture.\textsuperscript{87} Applying Arkansas law, the court emphasized that a plaintiff is not required to show causation to a mathematical certainty, or to exclude every other possible hypothesis concerning the cause of death.\textsuperscript{88} Where different conclusions could be drawn, the court wrote, it is the jury's task to choose "what seems to [it] to be the most reasonable inference."\textsuperscript{89}

In \textit{Jeanes}, the court held that a jury may conclude that the loss of an eleven percent chance of survival caused the patient's death. The case, however, does not appear to stand for the proposition that the loss of a chance is itself an injury worthy of redress.\textsuperscript{90} The injury for which the defendant could be found liable was the boy's death.\textsuperscript{91}

\begin{footnotesize}
\footnotesize{392 A.2d 1280 (1978) (citing Hicks and Cooper v. Sisters of Charity, 27 Ohio St. 2d 242, 272 N.E.2d 97 (1971) (noting that its decision was in harmony with other judicial authority)).

81. See cases cited supra note 80.
82. 428 F.2d 598 (8th Cir. 1970).
83. \textit{Id.} at 599.
84. \textit{Id.} at 604.
85. \textit{Id.} at 598.
86. \textit{Id.} at 605.
87. \textit{Id.} at 604.
88. \textit{Id.} (citing Lanier v. Trammell, 207 Ark. 372, 180 S.W.2d 818 (1944)).
89. \textit{Id.} (quoting Lavender v. Kurn, 327 U.S. 645, 653 (1946)).
90. Several judges of the Washington Supreme Court, however, believe that \textit{Jeanes} provides compensation for lost chances. See Herskovits v. Group Health Cooperative, 99 Wash. 2d at 631-32, 664 P.2d at 485 (Pearson, J., concurring) (\textit{Jeanes} holds that lost chances, rather than death, are the injury).
91. It is difficult to understand, from a logical standpoint, how a jury applying a traditional causation analysis could arrive at the requisite conclusion. While the loss of an 11%}
\end{footnotesize}
In *Thomas v. Corso*, the plaintiff, who had been struck by an automobile, was taken to a hospital emergency room. A nurse recorded the patient's vital signs and contacted the defendant, an "on-call" physician. The physician did not believe that the patient's condition required his personal observation. Subsequently, the patient was transferred from the emergency room to another ward, where he died several hours later of massive internal bleeding. The plaintiff prevailed at trial. On appeal, the defendant-physician urged the Court of Appeals to reverse, maintaining that the medical testimony had shown that even with timely treatment, the patient had possessed only a possibility of survival. Relying on *Hicks*, the Maryland Court of Appeals held that the evidence was sufficient for the jury to find that a "substantial possibility of survival" had been lost because of the defendant's negligence.

It is difficult to determine from the court's opinion whether it intended a substantial possibility to mean a probability. It seems clear, however, that the loss of a chance was not viewed as the compensable injury. Death was still considered the injury, but the jury could now find that the defendant caused the death if he destroyed a "substantial possibility" of survival.

**B. Hamil v. Bashline: A New Test for Plaintiffs**

The *Jeanes* and *Thomas* decisions present a departure from traditional proof requirements applicable in negligence actions. Another group of courts has fashioned a rule which, although purporting to retain the "more-likely-than-not" requirement, actually distorts the standard of proof of causation. The Pennsylvania case of *Hamil v. Bashline* established this...
new trend. In Hamil, the Pennsylvania Supreme Court approved of a Pennsylvania Superior Court's resort to section 323(a) of the Restatement (Second) of Torts in relaxing the threshold of proof required to make out a prima facie case of causation.

Hamil was a malpractice case in which a patient, Hamil, was taken by his wife to an emergency room after he complained of severe chest pains. A physician ordered an electrocardiogram (EKG), but the EKG machine did not function and the test could not be performed. The physician instructed the staff to obtain another machine, and thereupon left the hospital. When no machine could be located, and after her husband was offered no other treatment or assistance, the patient's wife took him to a private physician. The patient subsequently died of a heart attack in the private physician's office, during the performance of an EKG.

At trial, one expert testified that if proper treatment had been rendered by the hospital, the patient would have had a seventy-five percent chance of surviving the heart attack he had suffered. The defendant's expert disagreed, insisting that at the time of the patient's arrival at the hospital, death was imminent and inevitable regardless of any treatment. The trial court directed a verdict for the defendant, finding that the expert testimony had not shown causation to a sufficient degree of certainty.

On appeal, the Superior Court held that under section 323(a) of the Restatement (Second) of Torts, a prima facie case of causation had been presented. It therefore reversed the lower court's ruling, and granted a


103. Section 323(a) provides:

Negligent Performance of Undertaking to Render Services

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 things, 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.

RESTATEMENT (SECOND) OF TORTS § 323(a) (1965).


105. 481 Pa. at 262, 392 A.2d at 1283.

106. Id.

107. Id. at 262-63, 392 A.2d at 1283.

108. Id. at 263, 392 A.2d at 1283.

109. Id.

110. Id.

111. Id.

112. Id.
new trial. On retrial, a jury returned a verdict in favor of the defendant-hospital.

Reviewing the case on appeal, the Supreme Court granted the plaintiff a third trial, and held that the trial court's instruction regarding causation had been misleading. The court then turned to the issue of what expert testimony was required in order for the plaintiff to establish a prima facie case of causation. It began by explaining that most tort actions allege that the defendant unleashed a dangerous force that injured the plaintiff. This case, however, involved a situation, recognized in section 323(a) of the Restatement, where the defendant failed to protect the plaintiff from another harmful source, namely, the preexisting heart trouble.

Ruling that this factual difference warranted a deviation from normal proof requirements, the court then set up a two-part analysis for the trial court to follow on remand. The trial court initially was to determine whether the defendant's negligence increased the patient's chances of dying. If the negligence increased those chances, the jury would then be required to evaluate the increased risk and to decide whether the increase was a "substantial factor" in producing the death. If the jury found that it was a substantial factor, causation would be established.

Under the new test, the court wrote, negligence must still have been a substantial factor in producing the death. However, the jury, rather than the medical expert, must make the determination of causation, based on its evaluation of the increased risk. In situations falling under section 323(a), therefore, expert testimony would only be needed to show the extent of the increased risk of harm. A jury, given the evidence of the increased risk, would be as qualified as an expert to determine what might have happened in the absence of negligence.

113. Id.
114. Id. at 275, 392 A.2d at 1289-90. The lower court's instruction had implied that in order for the plaintiff to prevail, he must show that the defendant's negligence was the sole cause of the harm, rather than a substantial factor in producing the harm. Id. at 274 n.13, 392 A.2d at 1289 n.13.
115. Id. at 266, 392 A.2d at 1285.
116. Id. at 269, 392 A.2d at 1286.
117. Id.
118. Id.
119. Id.
120. Id.
121. Id. at 272, 392 A.2d at 1288.
122. Id. at 273, 392 A.2d at 1288.
123. Id.
124. The court cited RESTATEMENT (SECOND) OF TORTS § 433B (1965) in support of this holding. 481 Pa. 271, 392 A.2d 1287. In § 433B comment b, the Restatement gives the example of a child who drowned in an unguarded pool. The Restatement noted that because "the
A recent case applying the Hamil reasoning is Herskovits v. Group Health Cooperative.\textsuperscript{125} In Herskovits, an expert testified that as a result of a delay in diagnosis of the decedent’s lung cancer, the patient’s chances of survival decreased from approximately thirty-nine percent to twenty-five percent.\textsuperscript{126} In its opinion, the majority conceded that the plaintiff’s expert was unable to testify that “more-likely-than-not,” the delay had caused the patient’s death.\textsuperscript{127} Nevertheless, it held that the jury could find that the reduction of the patient’s chances of survival from thirty-nine percent to twenty-five percent caused the patient’s death.\textsuperscript{128} The court ruled that under section 323(a) of the Restatement, once the plaintiff has introduced evidence that the defendant’s negligence increased the risk of harm, the jury may “go further and find that such increased risk was in turn a substantial factor in bringing about the resultant harm.”\textsuperscript{129}

In Thompson v. Sun City Community Hospital,\textsuperscript{130} the Supreme Court of Arizona followed Hamil’s lead. In Thompson, a patient arrived at a private hospital with a leg injury, but because the patient’s insurance coverage was inadequate, he was transferred to another hospital for treatment.\textsuperscript{131} When

126. Id. at 612, 664 P.2d at 475.
127. Id. at 611-12, 664 P.2d at 475.
128. Id. at 614, 664 P.2d at 476-77.
129. Id. at 617, 664 P.2d at 478 (citing Hamil v. Bashline, 481 Pa. 256, 392 A.2d 1280 (1978)). Superficially, use of the substantial factor test in this context would appear logical, given that loss of a chance cases involve multiple causes. Unlike the traditional substantial factor model, however, it cannot be said that both causes would have been “but for” causes of the harm. As one commentator observed, use of the substantial factor test in this context is “truly novel.” Herskovits v. Group Health Cooperative, 99 Wash. 2d at 638, 664 P.2d at 489 (Brachtenbach, J., dissenting). Justice Brachtenbach remarked that except where two forces are coequal causes of the harm, “the defendant’s act cannot be a substantial factor when the event would have occurred without it.” Id.

The Hamil reasoning was also applied in Evers v. Dollinger, 95 N.J. 399, 471 A.2d 405 (1984). Evers involved a delay in the diagnosis of breast cancer. One of plaintiff’s experts claimed that because of the delay, the plaintiff faced a 25% statistical risk of recurrence. 95 N.J. at 404-05, 471 A.2d at 408. The cancer, in fact, recurred prior to trial. Id. at 403-04, 471 A.2d at 407-08. The Supreme Court of New Jersey first held that § 323(a) of the Restatement applied to medical malpractice actions. Id. at 417, 471 A.2d at 415. It then cited its approval of the Hamil holding. Id. It premised its approval, however, on the fact that the patient’s cancer had recurred. The court declined to address the question whether the risk of recurrence, standing alone, represents an actionable injury. Id. at 406, 412 n.7, 471 A.2d at 409, 412 n.7.

131. Id. at 600, 688 P.2d at 608.
the patient suffered residual leg impairment, his mother filed suit, alleging that the delay in treatment resulting from the transfer had increased her son's risk of suffering such impairment.\textsuperscript{132}

At trial, the defendant's experts testified that even absent negligent treatment, the patient possessed only a five to ten percent chance of complete recovery with proper treatment.\textsuperscript{133} The plaintiff's expert did not quantify the extent of the lost chance, but testified that the patient's chances would have been "substantially better" with proper treatment.\textsuperscript{134} The plaintiff requested that the jury be instructed that a recovery could be based upon evidence that the defendant increased the risk of harm.\textsuperscript{135} The trial court instead instructed the jury that the plaintiff could not recover absent proof that the defendant's negligence probably aggravated the injury.\textsuperscript{136} When the jury found for the hospital, the plaintiff appealed, seeking adoption of the requested instruction.\textsuperscript{137}

On appeal, the Supreme Court of Arizona concluded that in order to protect the "chance interest," the jury should be allowed to decide whether the loss of the five to ten percent chance probably caused the injury.\textsuperscript{138} The court held that the jury must still find that the negligence probably caused the harm.\textsuperscript{139} The jury, however, would now be allowed to consider the evidence of the lost chance in determining whether that probability had been established.\textsuperscript{140}

The court acknowledged that the rule "permits the jury to engage in some speculation with regard to cause and effect," but it was quick to add that it was the defendant's negligence that had created the need for speculation.\textsuperscript{141} Because of this, the court wrote, the jury should be allowed to find causation

\begin{flushleft}
\textsuperscript{132} Id.
\textsuperscript{133} Id. at 607, 688 P.2d at 615.
\textsuperscript{134} Id.
\textsuperscript{135} Id. at 605, 688 P.2d at 613.
\textsuperscript{136} Id.
\textsuperscript{137} Id. at 601, 688 P.2d at 609.
\textsuperscript{138} Id. at 608, 688 P.2d at 616.
\textsuperscript{139} Id.
\textsuperscript{140} Id. If the court desired to protect the chance interest, however, it should have dispensed entirely with an examination of whether the negligence probably caused the death. Under the court's analysis, the jury would only be permitted to protect the chance interest when it found that the lost chance was sufficiently significant to have been the probable cause of death. Any chance that "probably" did not cause death would still go uncompensated, and consequently, unprotected. See infra note 233.
\textsuperscript{141} 141 Ariz. at 607-08, 688 P.2d at 615-16. This argument failed to convince at least two judges of the Washington Supreme Court. In his dissent in Herskovits v. Group Health Cooperative, 99 Wash. 2d at 609, 637-38, 664 P.2d at 474, 488, Justice Brachtenbach, joined by Justice Dimmick, cautioned that "[m]alpractice suits represent a class of controversies where extreme caution should be exercised in relaxing causation requirements." Id.
\end{flushleft}
under "any plausible theory." The court further noted that its new formulation merely recognized that juries often reduce damages to reflect accurately the extent of the plaintiff's loss.

C. Cooper v. Sisters of Charity, Inc.: Reaffirming the Majority Rule

The meandering analyses advanced by courts attempting to circumvent the traditional standard of proof were sharply criticized in Cooper v. Sisters of Charity, Inc. In Cooper, a young boy who had been hit by a truck was taken to a hospital and treated. The boy subsequently died. The plaintiff argued that the hospital failed to perform certain crucial tests, and that, as a result, a necessary surgical procedure was not performed. Had it been performed, the plaintiff argued, the boy's life would have been saved. The court heard conflicting testimony from two medical experts. One physician testified that there was no way to determine whether the patient would have survived had the surgery been performed. Another expert indicated that with surgery, the patient may have had a fifty percent chance of survival.

The Ohio Court of Appeals affirmed a directed verdict for the defendant, holding that a plaintiff must prove that the defendant's negligence "more-likely-than-not" caused the patient's injury. The court acknowledged that it was tempting, in malpractice situations, to rely on relaxed standards of proof, because life itself is often at stake. Citing Hicks, the court remarked that human emotions compel the view that the loss of any chance of survival should render the death compensable. The court denied recovery, however, fearing that such a rule would be so "loose" that it would be unjust.

142. 141 Ariz. at 608, 688 P.2d at 616.
143. Id. See Orloff & Stedinger, infra note 249.
144. 27 Ohio St. 2d 242, 272 N.E.2d 97 (1971).
145. Id. at 244, 272 N.E.2d at 98-99.
146. Id. at 252, 272 N.E.2d at 104.
147. Id. at 252-53, 272 N.E.2d at 104.
148. Id. at 242, 272 N.E.2d at 97.
149. Id. at 251, 272 N.E.2d at 103.
150. Id.
151. Id. at 252-53, 272 N.E.2d at 103. This represents yet another example of a misreading of the Hicks case. For other examples, see supra note 77 and accompanying text.
152. 27 Ohio St. 2d at 252, 272 N.E.2d at 103. In Hiser v. Randolph, 126 Ariz. 608, 617 P.2d 774 (1980), a diabetic patient was taken to a county hospital in a semicomatose state. Upon the patient's arrival, the nurse in charge of the emergency room immediately contacted the "on-call" physician. 126 Ariz. at 609, 617 P.2d at 775. When the "on-call" physician, Dr. Randolph, was informed that the patient was Mrs. Hiser, he stated that the nurse should call Mrs. Hiser's private physician, Dr. Arnold. Id. The nurse complied, but Dr. Arnold likewise refused to attend to the patient, stating that it was the duty of the on-call physician to render aid to emergency patients. Id. Dr. Randolph was again contacted, and again refused to see
The Supreme Court of Florida recently adopted Cooper's reasoning in *Gooding v. University Hospital Bldg., Inc.* In *Gooding*, a patient was taken to the emergency room of a Florida hospital, where he was left untreated by the hospital staff, which believed that the patient's private physician would soon arrive to examine the patient. When the doctor finally reached the hospital, the patient went into cardiac arrest and forty-five minutes later, he died.

At trial, the plaintiff established that the inaction of the emergency room staff constituted negligence. However, no expert testified that had the patient been properly treated, he probably would have survived. Nevertheless, the trial court instructed the jury that if it found that the negligence destroyed a significant chance of survival, it could return a verdict for the plaintiff. The jury found the hospital liable, and awarded $300,000 in damages to Gooding's estate. The district court reversed, ruling that if Gooding's chances of survival were at most fifty percent, a verdict must be
directed in favor of the defendant.\textsuperscript{159}

The Supreme Court of Florida affirmed,\textsuperscript{160} citing \textit{Cooper}.\textsuperscript{161} The court alluded to a "perceived unfairness" facing plaintiffs who could prove a possibility rather than a probability of causation,\textsuperscript{162} but stressed two arguments indicating why causation should not be satisfied by a lesser standard of proof. First, the court remarked that health care providers could be placed in the position of having to defend cases "simply because a patient fails to improve or where serious disease processes are not arrested because another course of action could possibly bring a better result."\textsuperscript{163} Second, the court noted that no other professional malpractice defendant must defend against this lower standard.\textsuperscript{164}

\section{Do Chances Possess Value?}

\subsection{A Visceral Answer}

The current causation approach requires the finder of fact to determine whether the decedent's chances to live or to achieve a more favorable result were more probable than not.\textsuperscript{165} Once the evidence shows that a probability did or did not exist, the inquiry ends.\textsuperscript{166} As a result, chances of less than fifty-one percent are treated as if they were nonexistent. A more sensible

\begin{itemize}
\item \textsuperscript{159} University Hosp. Bldg., Inc. v. Gooding, 419 So. 2d 1111, 1115 ( Fla. Dist. Ct. App. 1982). The district court noted that its decision was in conflict with two other district court opinions. \textit{Id.} at 1114. In Hernandez v. Clinica Pasteur, Inc., 293 So. 2d 747 ( Fl. Dist. Ct. App. 1974), a Florida court held that evidence that the decedent would have had a "better" chance to survive with prompt medical attention was enough to allow the jury to consider the causation question. \textit{Id.} In Dawson v. Weems, 352 So. 2d 1200 ( Fl. Dist. Ct. App. 1977), the court ruled that a hospital's administration of blood from a blood bank, rather than from a fresh source, deprived the patient of his "best chance" to survive, and presented evidence from which a jury could find causation. 352 So. 2d at 1203. Acknowledging the conflict among the districts, the \textit{Gooding} court certified the causation question to the Florida Supreme Court. University Hosp. Bldg., Inc. v. Gooding, 419 So. 2d at 1114-15.
\item \textsuperscript{160} 445 So. 2d at 1020-21.
\item \textsuperscript{161} \textit{Id.} at 1020.
\item \textsuperscript{162} \textit{Id.} at 1019.
\item \textsuperscript{163} \textit{Id.} at 1019-20. This argument fails to realize that many suits are brought each year simply because a patient experienced a poor result, or because the family believed that other measures should have been taken to protect a loved one.
\item \textsuperscript{164} \textit{Id.} at 1020. The court cited Freeman v. Rubin, 318 So. 2d 540 (Fla. Dist. Ct. App. 1975), which held that a plaintiff alleging legal malpractice must show that "but for" the attorney's negligence, recovery could have been obtained in the underlying suit. 318 So. 2d at 543. To rationalize use of the traditional test by noting that it is used in other contexts, however, does not address the real question—that concerning the rule's validity.
\item \textsuperscript{165} See \textsc{Restate ment (Second) of Torts} § 433B comment a (1965).
\item \textsuperscript{166} See Comment, \textit{supra} note 47, at 885 (courts apply the probability standard because of ease of application, but fail "to take the logical step of proportioning damages to that probability").
\end{itemize}
Loss of a Chance Cases

approach would be to redefine the victim's injury as the loss of a chance. Instead of attempting to determine whether the physical harm was caused by negligence, a court could examine the extent of the victim's lost chances for cure or improvement and grant a recovery that mirrors the extent of those chances.\textsuperscript{167} When viewing the question in the negligence setting, the harm suffered would be the loss of the chance.\textsuperscript{168} The relevant inquiry would be whether the defendant "probably" caused a reduction in the victim's chances. If causation were found, the court would provide compensation for the lost chance in direct proportion to the extent of the lost chance.\textsuperscript{169}

Several American courts and commentators have viewed chances as interests worthy of protection in their own right.\textsuperscript{170} In James v. United States,\textsuperscript{171} a plaintiff complained that the defendant negligently failed to inform him that an abnormality had been discovered by a radiologist during a preemployment physical.\textsuperscript{172} Through a clerical error, the x-ray and the radiologist's report were refiled without having been seen by the treating physician.\textsuperscript{173} As a result, the abnormality, which was lung cancer, went untreated for almost two years.\textsuperscript{174} When James's symptoms worsened, he sought help from his personal physician.\textsuperscript{175} X-rays revealed a large mass in James's right lung, but by this time the cancer could not be surgically removed.\textsuperscript{176} The plaintiff was treated with radiation, which successfully placed the disease in remission.\textsuperscript{177}

At trial, experts testified that even with proper treatment, James's chances of long-term survival were slight.\textsuperscript{178} Despite this testimony, the court held that the plaintiff had shown that timely diagnosis and treatment "would have offered at least a chance" to successfully arrest, if not cure, the tu-

\textsuperscript{167} See text accompanying notes 273-82.
\textsuperscript{168} King, supra note 20, at 1363-64.
\textsuperscript{169} See text accompanying notes 273-82.
\textsuperscript{170} See cases cited supra note 59. See also King, supra note 20; Wolfstone, supra note 20. Legal literature has paid little attention to the place of chances in personal injury actions. For one discussion of proportionate recovery in mass tort litigation, see Delgado, supra note 47.
\textsuperscript{171} 483 F. Supp. 581 (N.D. Cal. 1980).
\textsuperscript{172} 483 F. Supp. at 584.
\textsuperscript{173} Id. at 583.
\textsuperscript{174} Id.
\textsuperscript{175} Id.
\textsuperscript{176} Id.
\textsuperscript{177} Id. Because the patient had not yet died, the court was forced either to acknowledge the value of chances or dismiss the case. See supra note 129 (discussing Evers v. Dollinger, 95 N.J. 399, 471 A.2d 405 (1984)) and infra notes 301-05 and accompanying text.
\textsuperscript{178} 483 F. Supp. at 585-86.
The court then added that "[n]o matter how small that chance may have been . . . no one can say that the chance of prolonging one's life . . . is valueless." The court awarded damages of $35,000 for the chance element.

In *O'Brien v. Stover*, the defendant, who had negligently treated a cancer patient, claimed at trial that the decedent would have died regardless of the negligence. The United States Court of Appeals for the Eighth Circuit found that the cancer *O'Brien* suffered from carried an overall thirty percent chance of survival. The court held that the loss of the chance should be redressed. A verdict of $50,000 was upheld on appeal.

The concurring opinion of Judge Pearson, in *Herskovits v. Group Health Cooperative*, maintained that "[t]he loss of a . . . chance [should be recognized] as an actionable injury." Judge Pearson rejected the notion, enunciated in the majority opinion and in *Hamil v. Bashline*, that causation of death could be shown by proof of the loss of a chance of less than fifty-one percent. The injury that could be proved by a probability is the loss of the chance of survival. The opinion demonstrates the clearest judicial understanding to date of the notion of recovery for loss of a chance. It should be referred to by other courts desiring to provide their jurisdictions with a more rational framework in which to evaluate damages for loss of a chance in personal injury and wrongful death actions.

### B. The Hypothetical Market Theory

The *James* and *O'Brien* decisions, as well as the concurring opinion in

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179. *Id.* at 587.
180. *Id.*
181. *Id.* at 587.
182. 443 F.2d 1013 (8th Cir. 1971).
183. *Id.* at 1017-18.
184. *Id.* at 1018.
185. *Id.* The patient's chances of survival, however, were probably greater than 30%. The court found that although the overall chances of survival of the group of patients suffering from this type of cancer stood at 30%, this patient's tumor probably had not progressed as far as the tumors of other patients in the group. *Id.*
186. *Id.*
187. 99 Wash. 2d at 619, 664 P.2d at 479.
190. 99 Wash. 2d at 624, 664 P.2d at 481.
191. For a brief discussion of the concurrence's theory, see W. PROSSER & W. KEETON, supra note 1, at 272.
192. The one potential flaw of the opinion lies in its treatment of the wrongful death issue. See infra notes 294-97 and accompanying text.
Herskovits, rest on the unwritten premise that chances possess value in their own right, and that loss of such value merits redress. One of the first decisions attempting to articulate a rationale for this conclusion was the English case of *Chaplin v. Hicks*.

In *Chaplin*, a young woman had been selected by newspaper readers from a field of 6000 hopefuls to be one of 50 semifinalists in a beauty contest. The fifty contestants were then asked to appear personally before the defendant, who would choose the twelve women he considered to be the most attractive. Of the twelve winners, four would win first prize, four would take second place, and four would place third. The prizes consisted of three-year acting contracts of differing salaries. Unfortunately, the defendant failed to notify the plaintiff of her selection as a semifinalist, and as a result she failed to appear for the final evaluation. The plaintiff brought suit, and the jury returned a verdict in her favor, awarding her approximately $\frac{1}{19}$th of the total value of the prizes. The Court of Appeal affirmed, holding that chances to win represent compensable interests. In his opinion, Lord Justice Williams espoused a "hypothetical market theory" by remarking that "a jury might well take the view that such a right, if it could have been transferred, would have been of such a value that

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193. [1911] 2 K.B. 786 (C.A.). Although the case addressed the loss of a chance in a contract setting rather than in a tort setting, its reasoning is equally relevant in the latter context.

At least one American contract case seems to suggest that a lost chance, standing alone, should be compensated. In *Kansas City M. & O. Ry. v. Bell*, 197 S.W. 322 (Tex. Civ. App. 1917), a hog breeder alleged that had his hogs been shipped to a stock show on time, he would have won first, rather than second, prize. The court remarked:

"The chance might be worth little or nothing, or it might be worth, under some circumstances, the full amount of the premium offered for the best of the class in which plaintiff was to be a competitor. In such a case, evidence as to all such matters as would tend to show the probability that the plaintiff would be successful in the competition would be admissible, and . . . it would then be left to the good sense of the jury trying the case to determine the value of the plaintiff's chance in the competition."

*Id.* at 323.


194. 2 K.B. at 788.

195. Miss Chaplin, the plaintiff, was awarded £100 out of a total purse of £1872. *See Comment*, *supra* note 47, at 880. The jury's award undoubtedly resulted from its subjective evaluation of Miss Chaplin's likelihood of winning a prize, as it does not exactly correspond to the one in 12 statistical probability of winning. This calculation probably represents an application of the "personalistic" method of estimating probabilities. This theory assesses probabilities by reference to the finder of fact's confidence in a particular proposition. For further explanation of this theory, see Kaplan, *Decision Theory and the Factfinding Process*. 20 STAN. L. REV. 1065, 1066-67 (1968).

everyone would recognize that a good price could be obtained for it."

Mange v. Unicorn Press is another case in which the "hypothetical market theory" was used to allow recovery. In Mange, the plaintiff lost a chance to be one of 23,548 contestants to compete for 210 prizes, with a grand prize of $307,500. The court rejected the argument that damages would be too speculative to merit compensation and held that the plaintiff's chances of success would have had some market value.

Several American commentators have written favorably about the market theory of damages. Professor Dobbs has noted that although some hoped-for gains are too uncertain to warrant full recovery, a value can be placed on the chance or opportunity to achieve the gains. In cases where the value of a chance is difficult to estimate, a court could hear evidence of the value that a market buyer or trader would be willing to give for the opportunity to achieve the gain. For example, if A bought the chance (ticket) to win a bingo prize, but through B's negligence was prevented from attempting to win the prize, A would be unable to establish that she probably would have won the prize. She could prove, however, that she lost a chance to win, and attempt to establish the market value of the negligently inflicted loss of that chance.

Professor Malone, in his well-known essay on causation, remarks on cases presenting difficulties of proof for the plaintiff. Malone proposes that where such chances can be reduced to a market value, they should be recognized as interests in their own right. Rather than deny recovery, Malone

197. Id.
199. Id. at 730.
200. The commentators addressed the loss of a chance theory in the contract setting. However, as it is stated in Note and Comment, infra note 213, there is less basis for denying recovery for the loss of a chance in tort cases since, contrary to contract cases, contemplation of the parties is immaterial.
202. Id.
203. Id.
205. Id. at 80. Malone remarks that troublesome causation questions could be resolved by shifting the focus from the overt harm to chances. He cited the case of Valentine v. Minneapolis St. P. & S. Ste. M. Ry., 155 Mich. 151, 118 N.W. 970 (1908), where the court stated that "even though the plaintiff's chance . . . was . . . 'a gambler's chance,' he had a right to take it, and the defendant had no right to destroy such chance . . . ." 155 Mich. at 158-59, 118 N.W. at 974. Malone believes that courts often grant or deny recovery for lost chances based on the various policy thrusts involved in a given situation. Where an intentional tortfeasor causes harm, lost chances may occasionally be redressed. Interestingly, Malone states:

[w]here the policy thrust of the rule violated by defendant is short and timid, as in a
contends that courts should make an adjustment in damages awarded.\textsuperscript{206}

Professor Schaefer also argues that where a lost opportunity to achieve a gain has a market value, concomitant damages should be awarded.\textsuperscript{207} Schaefer maintains that any chance has a hypothetical market value.\textsuperscript{208} He notes, however, that courts have been loathe to extend this principle to non-contest situations. This judicial hesitancy exists despite the fact that such an approach would prevent undercompensation of plaintiffs where their losses were uncertain and would prevent overcompensation of plaintiffs by awarding them less than would be awarded under the traditional "all-or-nothing" approach.\textsuperscript{209}

As early as 1867, an Ohio court held that the loss of a chance of recovery constituted a legally recognizable injury.\textsuperscript{210} Despite this auspicious beginning, subsequent judicial decisions have refused to treat the loss of a chance as a compensable injury. One must ask, therefore, whether the economic argument somehow falls short in the realm of personal injury.

A hypothetical question may provide the answer: If a thirty percent chance to live could be purchased in a market, would a patient having no chance to live be willing to buy the thirty percent chance? Or, would he reason that his life was not valuable enough to risk buying a chance of less than fifty-one percent? The answer may depend on one's appetite for life,

\begin{quote}
malpractice suit where a physician is charged with an error of diagnosis or treatment, the court will not permit the patient to attempt to show the jury that his chances of recovery were lessened to a measurable extent by the physician's shortcomings. Instead, the matter will be posited on an all-or-nothing basis . . . .
\end{quote}

\textit{Id.} at 81 (emphasis added). This passage highlights the prevalent attitude toward medical malpractice until the middle of the 20th century. It is uncertain whether many courts still view the policy implications in this manner. In his dissent in Herskovits v. Group Health Cooperative, 99 Wash. 2d at 642, 664 P.2d at 491, however, Justice Brachtenbach quotes Malone for the proposition that where health care providers are implicated, courts should be loathe to relax proof requirements. Justice Brachtenbach was apparently referring to the majority's holding that causation could be found from the loss of a 14 percent chance. Application of the "pure" loss of a chance theory might not raise the same objections.

\textsuperscript{206} Malone, supra note 204, at 80.

\textsuperscript{207} Schaefer, \textit{Uncertainty and the Law of Damages}, 19 WM. & MARY L. REV. 719, 762-63 (1978). In addition to the market theory rationale, Schaefer argued that while a specific gain may not be achieved in a particular instance, some gains will be achieved when a series of opportunities are involved. \textit{Id.} at 762. Personal injury plaintiffs can make a similar argument. While this particular patient might or might not have gained the desired outcome, some in a group (or series) of patients would have experienced positive results. Thus, rather than deny recovery because of proof problems, courts should recognize that a patient possessed at least a chance, and award proportionate recovery. \textit{See also} Delgado, supra note 47, at 892-93.

\textsuperscript{208} Schaefer, supra note 207, at 763.

\textsuperscript{209} \textit{Id.}

\textsuperscript{210} Craig v. Chambers, 17 Ohio St. 253, 254, 261 (1867), \textit{cited in} Cooper v. Sisters of Charity, 27 Ohio St. 2d at 250, 272 N.E.2d at 102.
but in a nation whose ideals consist of "life, liberty, and the pursuit of happiness,"\(^{211}\) it is difficult to believe that even a small chance to live bears no value whatsoever.\(^{212}\) The billions of dollars being spent on medical research designed to save or prolong life clearly emphasize our general belief that life is valuable. If the loss of an opportunity to benefit from a contract is deemed valuable, how much greater should be the worth of a chance to live or a chance to achieve greater health?\(^{213}\)

### C. The Probability Theory

Another group of commentators has articulated a "probabilistic" rationale for compensating lost chances. While this theory is more scientific, it is also more complex. Its superficial complexity, however, should not detract from an understanding of its true import.

Professor King, in his pioneering work on loss of a chance, posited the following illustration\(^ {214}\) Suppose there is a jar, and that a jury determines, after hearing evidence of the jar's contents, that it probably contains some pennies. The jury then estimates that the jar contains forty cents. Thus, the value of the jar is determined to be forty cents. If a defendant negligently misplaced this jar, a court would award the plaintiff forty cents.

Now, take another jar, and suppose that the jury concludes after hearing evidence that it contains one hundred coins, forty being worth one dollar, and the remaining sixty having no value. If someone were to pick one coin, there is a forty percent chance that a one dollar coin would be picked.\(^ {215}\) Moreover, if one hundred individuals picked a coin from one hundred ident-

\(^{211}\) The Declaration of Independence para. 2 (U.S. 1776).

\(^{212}\) Professor Schaefer remarked, "an opportunity in which the chance of success is very small may be quite valuable if the prize is great." Schaefer, supra note 207, at 763 n.165.

\(^{213}\) See Note and Comment, The Rule of Certainty in Damages and the Value of a Chance, 10 MICH. L. REV. 392, 394 (1911) (noting that there is less basis for denying recovery for loss of a chance in tort cases since, contrary to contract cases, contemplation of the parties is immaterial).

Lost opportunities are also valuable for other reasons. First, an individual who realizes that his chances of survival have been reduced to almost nothing faces much greater stress than one who still holds a hope for cure. Second, a person suffering from an incurable illness may find that the negligence has shortened the number of years or months of life the patient previously possessed. Therefore, there has been a loss of the opportunity to benefit from a potential scientific breakthrough. At the time this article went to press, a new method of diagnosing and treating cancer with "monoclonal antibodies" was being tested, with encouraging results. See Sikora, Monoclonal Antibodies in Oncology, 1982 J. CLINICAL PATHOLOGY 369. See also Tiple, Beyond Supermouse: Changing Life's Genetic Blueprint, 166 NAT'L GEOG. 818, 830-32 (1984).

\(^{214}\) See King, supra note 20, at 1353, 1376-77. The illustration has been somewhat modified.

\(^{215}\) Id. at 1377.
tical jars, each individual would pick, on the average, forty cents. The value that would be lost were each person prevented from picking a coin would therefore be forty cents.

Yet, courts applying the traditional causation rule will deny recovery in the latter situation because the chance that a one dollar coin would be picked is less than fifty-one percent. Based on this hypothetical, however, it would be arbitrary to allow recovery in case of loss of the first jar while denying recovery where a chance to pick a dollar coin from the second jar is destroyed. To the plaintiff, the value of both jars is forty cents. But by focusing on the one dollar coin, instead of the plaintiff's chances of picking it, courts value the second jar differently. Undoubtedly, courts reason that a person would either pick one dollar or nothing, and that to award forty cents would be erroneous. But when the probabilities are finally accounted for, it is beyond dispute that each chance is worth, on the average, forty cents.

It would, of course, be preferable to know what the actual outcome would have been absent the defendant's negligence. The responsibility for the harm could then be attributed to its proper source. The loss of a chance concept, however, operates precisely where several potential causes make it impossible to determine which force produced the harmful outcome. In the personal injury context, it is known that the victim picked "nothing" from the "jar of life." But it is not known whether he would have picked the dollar had it not been for the defendant's negligence.

Rather than throw this uncertainty entirely on the plaintiff or on the defendant, the loss of a chance method awards damages in accordance with the statistical chance of survival each individual originally possessed. Where a patient possessed only a twenty or thirty percent chance of survival, it will appear that the patient would have died despite proper care. This conclusion, however, ignores the reality that twenty or thirty patients in a group of

216. Id.
217. Realizing this, Professor Stein suggested that where each person in a group of 100 faces a 50% probability of suffering harm because of negligence, and therefore, statistically, 50 people will suffer the harm and 50 will not, half of the claimants will have been harmed because of the negligence. He argues, therefore, that these 50% chances should be recognized as compensable interests. Plaintiffs' proof should then attempt to show the extent of the increased susceptibility to (or lost chance to avoid) the harm. J. STEIN, PERSONAL INJURY AND DEATH ACTIONS § 106 (1972).
218. The chance theory would also facilitate resolution of potentially perplexing fact patterns. For instance, the traditional rule would have difficulty determining whether causation could be found where a patient who initially possessed a seventy percent chance of survival saw those chances reduced to 40%. See King, supra note 20, at 1378 n.85. The loss of a chance rule would compensate the plaintiff for the 30% loss suffered because of negligence.
It is impossible to know whether a particular victim fell within the percentage that would have survived. It is known, however, that prior to the tort, the victim fell within the class of individuals each possessing a twenty or thirty percent chance of survival. It is also known that because of the defendant's negligence, the patient is now in a group of patients possessing a smaller chance to live. To deny this reality and award damages on an "all-or-nothing" basis fails to provide a remedy commensurate with the interest the victim lost, namely, a chance for a better outcome.

III. CHANCES AND THE TORT COMPENSATION SCHEME

A. The Vascillating Standard of Proof

The preceding discussion has argued that chances should be compensated because they represent valuable interests. There are additional reasons for integrating chances into the tort remedial structure, the most crucial of which is the elimination of the incentives for courts to tamper with the traditional causation standard of proof.

When a victim of negligence is unable to establish, more likely than not, that the defendant caused him harm, some courts manipulate proof requirements to allow the innocent plaintiff to recover from the admittedly negligent defendant. In *Thomas v. Corso*, the Maryland Court of Appeals allowed the case to go to the jury upon testimony that the decedent "may" have survived with proper care. The *Thomas* decision seems to have lowered the proof requirement to the point where it has become meaningless. The jury is allowed to engage in pure speculation in arriving at a finding of causation. The same holds true for *Jeanes v. Milner*, where the court allowed the jury to consider whether an eleven percent reduction in the patient's chances of survival caused the patient's death. It is difficult to understand how the jury can infer, from the loss of an eleven percent chance...
of survival, that death probably resulted because of negligence. A jury finding of causation necessarily would be based upon speculation and conjecture in such an instance.\footnote{225}

The case of \textit{Hamil v. Bashline}\footnote{226} is also troubling because it holds that a prima facie case of causation is presented by evidence that the defendant's negligence merely increased the individual's risk of harm. Admittedly, there was evidence in \textit{Hamil} that the decedent would have possessed a seventy-five percent chance of survival with proper treatment.\footnote{227} Under the \textit{Hamil} court's holding, however, a case could go to a jury even in the absence of any evidence that the plaintiff \textit{probably} would have avoided the ultimate harm with proper treatment.\footnote{228} In this respect, the \textit{Hamil} decision allows the jury to speculate as to cause and effect. Moreover, \textit{Hamil} retains the requirement that the defendant's negligence be a substantial factor in producing the harm. It thus perpetuates the inequities of the all-or-nothing approach.

\textbf{In \textit{Herskovits v. Group Health Cooperative}}\footnote{229} and \textit{Thompson v. Sun City Community Hospital, Inc.},\footnote{230} the fears raised in \textit{Hamil} came to life. In neither case was there evidence that the harm probably could have been avoided with proper care.\footnote{231} In \textit{Herskovits}, the decedent lost approximately a fourteen percent chance of survival. In \textit{Thompson}, the individual would have possessed approximately a five to ten percent chance of avoiding residual leg impairment. Yet in both cases the jury was allowed to decide whether the loss of those chances "probably" caused the person's injury. As Justice Pearson remarked in his concurrence in \textit{Herskovits}, evidence that an

\footnote{225} See supra note 91. As noted in Justice Brachtenbach's dissenting opinion in \textit{Herskovits v. Group Health Cooperative}, 99 Wash. 2d at 609, 640, 664 P.2d at 474, 490, while evidence of the loss of a chance is relevant in an evidentiary sense, "[t]here is an enormous difference between the 'any tendency to prove' standard . . . and the 'more likely than not' standard for proximate cause." \textit{Id.} Even though several bits of evidence may provide enough bricks to build a wall of probability, the evidence in \textit{Jeanes} did not provide any such evidence.\footnote{226} 481 Pa. 256, 392 A.2d 1280 (1978).

\footnote{227} \textit{Id.} at 263, 392 A.2d at 1283.

\footnote{228} \textit{See infra} note 184.

\footnote{229} 99 Wash. 2d 609, 664 P.2d 474 (1983).


\footnote{231} Because of this dearth of evidence, Justice Dolliver, in his dissent in the \textit{Herskovits} case, remarked, "whether the [decedent's] chances [of survival] were 25 percent or 39 percent . . . in both cases, it was more probable than not he would have died." 99 Wash. 2d at 644, 664 P.2d at 492. The Justice cited the nearly century-old case of \textit{Davis v. Guarnieri}, 45 Ohio St. 470, 490, 15 N.E. 350, 361 (1887), where it was said, "[i]t is legally and logically impossible for it to be probable that a fact exists, and at the same time probable that it does not exist." 99 Wash. 2d at 644, 664 P.2d at 492. Therefore, it would be pure speculation, wrote the Justice, for a jury to conclude that the defendant's negligence probably caused the patient's premature death when all of the evidence indicated that the preexisting condition probably caused the death. \textit{Id.}
individual lost a fourteen percent chance of survival gives the jury nothing on which to base a finding of liability under the “more probable than not” standard of proof.\textsuperscript{232} It does allow a finding that a chance of survival probably was lost. A finding of liability with regard to death or to permanent leg impairment, however, would be the product of pure speculation.\textsuperscript{233}

The foregoing decisions reflect the courts’ inclination to hold a negligent defendant liable when his negligence made it difficult to ascertain what caused the harm. Although these courts purport to retain the probability or more-likely-than-not standard, their new rules concerning the sufficiency of proof allow those standards to be satisfied by evidence that a substantial possibility of survival existed or that an individual possessed a small chance of avoiding harm or of achieving a better result.

While departure from traditional proof requirements may be appropriate in some contexts,\textsuperscript{234} allowing plaintiffs to recover full damages\textsuperscript{235} upon the introduction of such evidence invites irrational and inequitable results. Theoretically, under these rules, one hundred physicians each responsible for no more than a few deaths could face liability for the sum total of all the deaths occurring.\textsuperscript{236} Altering proof requirements, therefore, is not the best solution

\begin{itemize}
\item \textsuperscript{232} 99 Wash. 2d at 622, 664 P.2d at 480.
\item \textsuperscript{233} The Thompson case is also troubling because of its insistence that the jury find that the harm probably resulted from the loss of a chance. While the Thompson opinion claims to recognize the value of the “chance interest,” it is in fact considering the chance interest only to determine whether the lost chance “probably” caused the patient some overt harm. Thus, the focus is not on lost chances as the injury, but rather on the ultimate harm, residual leg impairment.
\item This retention of the more-likely-than-not test also distorts damages awards. Under the court’s approach, if a jury concluded that the loss of a 60% chance probably caused death, the jury apparently would be expected to award only 60% of a normal damages award. If on the other hand, the jury found that a lost chance of 15% “probably” did not cause the harm, it would be expected to award no damages. The “all-or-nothing” approach thus becomes the “something-or-nothing” approach. Therefore, although Thompson appears to favor plaintiffs, it probably favors defendants on the issue of damages.
\item Typically cited is the context where two defendants act simultaneously and harm results. Only one actor, however, caused the harm. See, e.g., Kuhn v. Bader, 89 Ohio App. 203, 101 N.E.2d 322 (1951); State v. Newberg, 129 Or. 564, 278 P. 568 (1929). In one such situation, the California Supreme Court shifted the burden of proof to the defendants. Summers v. Tice, 33 Cal. 2d 80, 199 P.2d 1 (1948).
\item The Thompson court apparently would not require that full damages be awarded where the jury concluded that the lost chance caused the ultimate injury. See supra note 233.
\item For example, by allowing a jury to find causation from an eleven percent loss, the Jeanes court made it possible that defendant-doctors could face full liability for 100 deaths, although, statistically, they caused only 11 deaths. It is difficult to imagine, however, that a jury would actually find that the loss of an eleven percent chance constituted a “substantial factor” in producing a patient’s death. Of course, the jury might ignore causation requirements and award partial damages. See Orloff & Stedinger, infra note 249, at 1173.
\end{itemize}
to the problems of proof faced by plaintiffs who have lost chances of survival.

The loss of a chance theory, on the other hand, virtually eliminates the difficulties presented by the traditional causation analysis. Courts no longer would need to decide whether causation may be established by a possibility rather than a probability. The mystery surrounding the meaning of the term "substantial possibility" would be eliminated. Most importantly, plaintiffs and defendants would not be subjected to the current approach's "all-or-nothing" system of compensation. Instead, a court would examine the victim's chances for a favorable outcome. If the plaintiff proved that the victim lost a certain chance, the plaintiff could recover damages in proportion to the proven loss.

B. Escaping Liability by Creating Doubt

A third convincing reason to abandon the present compensation scheme was articulated in Hicks v. United States. In Hicks, the court advanced the notion that a tortfeasor should not escape liability because of the uncertainty he has created regarding causation. This rationale was accepted in Herskovits v. Group Health Cooperative, where a decedent lost a fourteen percent chance of survival as a result of the health care provider's negligence. The court stated that "it is not for the wrongdoer, who put the possibility of recovery beyond realization, to say afterward that the result was inevitable."

This argument, however, does not warrant the elimination of traditional proof requirements. Unfortunately, some courts maintain that the rationale advanced in Hicks justifies throwing the burden of doubt entirely upon the defendant. Such a rule, however, would expose tortfeasors to liability greatly in excess of culpability. For the sake of fundamental fairness, if nothing else, proportional redress should be the limit of compensation.

237. See generally Hicks v. United States, 368 F.2d 626, 632 (4th Cir. 1966) (court in dicta uses the phrase "substantial possibility").
238. See infra text accompanying notes 273-82.
239. 368 F.2d at 632.
240. Id.
242. Id. at 614, 664 P.2d at 476.
243. Id. See Thompson v. Sun City Community Hosp., Inc., 141 Ariz. at 608, 688 P.2d at 616; see also Note, Torts—Medical Malpractice—Rejection of "But For" Test, 45 N.C. L. REV. 799, 806 (1967) (physician should be fully liable if he caused the loss of plaintiff's chance of escaping death or injury).
244. See supra note 236.
C. "Justice" under the Chance and the Traditional Rules

In negligence actions, causation is often a very difficult determination to make. When two potential causes of the harm exist, the inquiry becomes even more complex. In an attempt to overcome this uncertainty in a loss of a chance case, the current rule requires the jury to determine whether the victim of negligence probably would have avoided the threatened harm "but for" the defendant's negligence. While this method is fairly simple to apply, it does not adequately address the situation where a victim of negligence cannot prove the harm probably would have been avoided "but for" the negligence but where the victim nevertheless lost a valuable chance. The loss of a chance theory fills this remedial gap by redefining the injury in terms of lost chances and by tailoring damages to those chances. Since the theory neither overvalues nor undervalues the chances, the inequities produced by the "all-or-nothing" standard are corrected, and fair results are achieved in each case.

Fair results, however, may not always be accurate. A result is "accurate" when the jury finds the actual cause of the harm. Thus, a result would be inaccurate if the jury concluded that the defendant's negligence caused the harm when, in fact, a preexisting condition caused it.

Unfortunately, neither the traditional standard nor the chance theory results in accurate decisions in all cases. Under the traditional rule, some plaintiffs will recover full damages although the defendant did not cause the decedent's death. Others will not recover any damages although the defendant's negligence caused the patient's demise. Under the chance rule, some plaintiffs will receive a partial award proportionate to the size of the lost chance even though negligence was not the cause of the harm. Conversely, others who deserved full recovery will receive only a partial award.

245. See supra note 29.
246. The all-or-nothing standard is prevalent in other areas of tort law, such as contributory negligence, contribution, and indemnity. The inequities that it invariably produces have led many writers to urge its abandonment in those contexts as well. See Schwartz, Contributory and Comparative Negligence: A Reappraisal, 87 YALE L.J. 697, 722 n.112 (1978) ("[l]iability in proportion to fault is the slogan of comparative negligence"). See also Landes & Posner, Joint and Multiple Tortfeasors: An Economic Analysis, 9 J. LEGAL STUD. 517, 550-52 (1980) (analyzing the economic efficiency of the rule of contribution among joint tortfeasors); Schaefer, supra note 207, at 740-41; Ursin, Judicial Creativity and Tort Law, 49 GEO. WASH. L. REV. 229, 233 (1981). See generally Note, Comparative Negligence, 81 COLUM. L. REV. 1668 (1981).
247. For example, the deaths of 30 patients (in a group of 100) who would have lived with proper treatment would not be compensated if their chances of survival did not amount to at least 51%. If the patients each possessed a 70% chance, however, each death would be compensated because it appears that each patient probably would have survived.
248. The death of a patient who possessed a 30% chance will always be compensated by
unfortunate reality exists because it is impossible to determine whether the harm would have resulted in the absence of negligence. Some erroneous decisions are inevitable under either rule. An examination of both standards should proceed, then, to an inquiry into which standard results in the most equitable system of compensation.

Professors Orloff and Stedinger\(^2\) have tested the relative merit of the two systems of compensation by using four criteria: First, they calculated the total number of errors each method produced.\(^2\) Second, they determined the number of dollars that would be paid erroneously to defendants and plaintiffs because of these errors.\(^2\) Third, they determined the number of "large" errors each system produced.\(^2\) Finally, they tested the bias of each theory.\(^2\)

Orloff and Stedinger's mathematical calculations reveal that the "all-or-nothing" rule produces fewer numerical errors than the loss of a chance rule.\(^2\) Moreover, the amount of money damages erroneously paid is smaller under that rule than under the chance rule.\(^2\) Superficially, a rule that produces fewer and smaller compensation errors seems preferable. Sat-

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249. See Orloff & Stedinger, A Framework for Evaluating the Preponderance-of-the-Evidence Standard, 131 U. PA. L. REV. 1159 (1983), upon which most of this segment was based. Professors Orloff and Stedinger wrote their article in response to an earlier work authored by Professor Kaye. See generally Kaye, The Limits of the Preponderance of the Evidence Standard: Justifiably Naked Statistical Evidence and Multiple Causation, 1982 AM. B. FOUND. RESEARCH J. 487. The Kaye article compared the proportionality (chance) rule with the preponderance of the evidence (current) rule, and concluded that under the current rule, fewer dollars were paid mistakenly by defendants or were received mistakenly by plaintiffs. Id. at 502. The Orloff work analyzes further the variance between the two rules and concludes that "[n]either rule is preferable under all of the tests." Orloff & Stedinger, supra, at 1172. It acknowledges, however, that the fact that fewer large errors are produced by the chance rule makes that standard more bearable to the litigant of modest means. Id.

250. Orloff & Stedinger, supra note 249, at 1161-63.
251. Id. at 1163-65.
252. Id. at 1165-68.
253. Id. at 1168-71.
254. Id. at 1163. To compare the two rules, take a group of 99 patients who each possessed a \(\frac{1}{3}\) chance of survival. The current rule would deny recovery in all 99 cases, as each patient possessed a less than probable chance of recovery. Actually, however, 33 of the 99 would have lived. Thus, the traditional rule produces 33 errors. The chance rule would award each plaintiff \(\frac{1}{3}\) of the normal value of the case. Yet only 33 patients would have survived. Thus, the 33 plaintiffs whose decedents would have survived with proper care will receive only \(\frac{1}{3}\) of the deserved recovery, while the 66 whose decedents did not die as a result of negligence will be overcompensated by \(\frac{1}{3}\). The chance rule therefore produces errors in all 99 cases.

255. Id. at 1164-65. The errors produced by the traditional rule are "complete errors," because no recovery is allowed where full recovery should have been granted. If a complete error is held to equal X, the current standard produces errors (in the form of erroneous pay-
isfied with these findings, however, critics of the chance rule fail to examine several additional factors that may bear more heavily upon the decision whether to retain or to reject the all-or-nothing approach.

The third factor is the number of large errors produced under each rule. Large errors are extremely significant because they impact more heavily on some parties than on others, depending upon the party's financial standing. Large companies, for example, generally are able to prepare for costly errors and to absorb their effects. By contrast, individuals often are unable to prepare for a financial disaster and may be "broken" by large errors. If the injured party provided substantial financial support or extensive household services, the loss of his contribution, coupled with the failure to provide a remedy for that loss, may affect surviving family members severely. Large errors may cause bankruptcy, the loss of a home, or a great reduction in the standard of living. Thus, a mere analysis of the number and size of a rule's errors ignores the significance of the hardship large errors produce in individual cases.

According to Orloff and Stedinger, a calculation of the number of large errors created by each rule reveals that the loss of a chance concept produces significantly fewer large errors than the current rule. Thus, although the chance rule creates more errors, the relative hardship created by the errors may be less in many cases. In personal injury litigation, a rule that produces fewer large errors should be preferable despite the greater number of errors.

A final measure of the two rules' efficiency calls for a comparison of the distribution of the errors each produces. This determination is important
because it reflects the bias that is built into each rule. When a rule produces compensation errors that systematically fall more heavily on plaintiffs than on defendants, or vice-versa, there is bias.\textsuperscript{265} Orloff & Stedinger examine this concept in terms of wrongful payments.\textsuperscript{266}

The “all or nothing” rule throws wrongful payments either entirely on defendants or entirely on plaintiffs.\textsuperscript{267} When it is found that the negligence “more-likely-than-not” caused the harm, defendants always will be found liable. In all cases where the chances are fifty percent or less that harm would have been avoided, the plaintiffs will lose. This rule, therefore, creates lopsided results and is biased.\textsuperscript{268}

Under the loss of a chance theory, however, the defendants consistently pay for the actual extent of the harm they have caused.\textsuperscript{269} Where one hundred individuals each possessed a seventy percent chance of survival, the defendants will pay for seventy deaths, rather than for one hundred deaths. Plaintiffs, on the other hand, receive exactly the amount they deserve. If one hundred plaintiffs each possessed a thirty percent chance, they will be compensated, as a class, for thirty deaths. Under the “all or nothing” approach, they would have received nothing, because of their less-than-probable chances of survival. Under the loss of a chance rule, therefore, bias is virtually nonexistent.\textsuperscript{270}

The foregoing comparison of the two systems of compensation demonstrates that the loss of a chance rule casts less hardship on plaintiffs while producing a more evenly-balanced system of compensation. This is because the loss of a chance rule attempts to impose liability in proportion to fault.\textsuperscript{271} If a victim of negligence lost a thirty percent chance, the plaintiff

\textsuperscript{265} Id.

\textsuperscript{266} Id. Whenever a defendant incurs a cost that he should not bear, or a plaintiff does not recover an amount that is due him, there is a wrongful payment. Id.


\textsuperscript{268} Orloff & Stedinger, supra note 249, at 1169. Because of the bias produced by the current rule, Professor Kaye has acknowledged that the chance rule is preferable in this context. Kaye, supra note 249, at 502-03.

\textsuperscript{269} Orloff & Stedinger, supra note 249, at 1169. See also Rosenberg, supra note 267, at 884-85.

\textsuperscript{270} Orloff & Stedinger, supra note 249, at 1169-70.

\textsuperscript{271} The imposition of liability in proportion to fault is becoming widespread in tort law. It was recently followed in the products liability case of Sindell v. Abbott Laboratories, 26 Cal. 3d 588, 163 Cal. Rptr. 132, 607 P.2d 924, \textit{cert. denied}, 101 S. Ct. 286 (1980). In Sindell, a cancer victim proved that she had been injured by DES, a drug her mother had ingested while pregnant with her. She was unable to prove, however, which manufacturer had produced the particular tablets her mother had taken. Therefore, she did not prove, more likely than not, which company had manufactured the tablets. Without such proof, and with 200 potential manufacturer-targets, there was only a small chance that any one caused the injury. Rather
would recover thirty percent of a full damage award. Conversely, an individual who lost a seventy percent chance would receive only seventy percent of a full award. The thirty percent chance would never be treated as a zero percent chance, as is currently done, and the seventy percent chance would not be valued as if it were a certainty, because it is not.

IV. INCORPORATING THE CHANCE THEORY

A. Placing a Value on Chances

If it is accepted that chances represent "interests" worthy of protection, it is necessary to outline a method by which plaintiffs may be compensated for their loss. The preceding discussion has repeatedly alluded to proportional recovery for the loss of a chance. At least three methods for assessing damages for such a loss are available to trial courts.

The simplest way to value chances is to allow the jury to determine the proper value of a lost chance without extensive guidance from the court. A jury would first determine the magnitude of the chance that was lost. Then, it would subjectively evaluate the value of the lost chance, and arrive at an award. This method would be simple to apply, and would permit the jury

than deny recovery altogether, the California Supreme Court adjusted causation principles by placing on each defendant the burden of showing that it could not have produced the tablets in question. 607 P.2d at 937. Absent such a showing, the defendant would be liable for damages in proportion to its market share at the time of the mother's ingestion of the drug. Id. Since there was a chance that one of the five named defendants caused the injury, each was held liable in proportion to that chance (represented by the company's market share at the time the drug was ingested).

Liability in proportion to fault also underlies recently enacted comparative negligence statutes. See Schwartz, supra note 246.

272. It is difficult, of course, to predict the precise effects the chance rule would have upon plaintiffs and defendants. Two comments, however, should be made. First, defendants' overall administrative costs may or may not increase. More suits might be brought because of the new rule, and these would need to be defended against or settled. It must be remembered, however, that many suits are presently brought and settled even though causation is debatable. Thus, even administrative costs may not increase. Second, an increase in administrative costs, if any, should be mitigated by the lower total damages payed by defendants. This lower payout of damages should result because chances that are too insignificant to warrant the filing of a lawsuit would continue to go unpaid, and chances that are very significant would receive only proportionate awards, rather than the current 100 percent awards.

273. See, e.g., Chaplin v. Hicks, [1911] 2 K.B. 786 (C.A.). It is likely that juries presently factor into their damage awards the relative value that they deem has been stripped from the plaintiff. See Kalven, The Jury, the Law, and the Personal Injury Damage Award, 19 Ohio St. L. J. 158, 164-68 (1958). See also Orloff & Stedinger, supra note 249, at 1173 ("juries frequently apply the [chance] rule, [despite being instructed to apply the traditional rule]"). Thus, lost chances may already be receiving compensation in spite of the all-or-nothing approach. It is also widely known that settlement offers often originate because of unclear liability, as where defendants realize that there was negligence and that it conceivably may have
great leeway in granting what it felt was an appropriate award. It is most useful where there is a dearth of statistical proof regarding a negligence victim's chances of avoiding harm. However, because the goal of the chance concept is to allocate correctly damages among plaintiffs and defendants, another method of valuation would be preferable where medical evidence regarding an individual's chances of survival is available.

Another method of valuation, which can be employed best with statistical proof, awards damages in direct proportion to the chance of survival that the plaintiff lost.\textsuperscript{274} Under this method, if the jury determined that a patient lost a forty percent chance to live, it would then be instructed to assess wrongful death damages and to multiply the figure it reached by forty percent.\textsuperscript{275} This method, commonly termed the "simple probability" method of valuation,\textsuperscript{276} allocates damages more accurately while offering simplicity and ease of application.

The simple probability method, however, is not always as accurate as a third method of valuation, called the "weighted mean" method.\textsuperscript{277} The difference between these two methods can best be explained through the following illustration, conceived by Professor King.\textsuperscript{278} Suppose that, because of the defendant's negligence, a previously healthy patient incurs a thirty percent chance of developing blindness at some future date. Medical testimony establishes that the most likely date of onset is age fifty. The jury then determines that the value of the plaintiff's vision at age fifty is $100,000. Under the simple probability method, the jury would multiply $100,000 by the thirty percent chance, and award $30,000 in damages.\textsuperscript{279}

A more precise valuation of the plaintiff's lost chance to avoid blindness might be possible if the medical testimony could assess the chances of developing blindness at several future dates, rather than at only one. Assume, for instance, that a medical expert can state that the patient's chances of becoming blind at age fifty are twenty-five percent; at age forty, four percent; and at

\textsuperscript{274} See King, supra note 20, at 1382.
\textsuperscript{275} Thus, lost earnings, loss of consortium, and other standard elements of wrongful death damages would be assessed and weighed by the finder of fact in the same fashion that ordinary wrongful death damages are estimated.
\textsuperscript{276} See Note, The Labor-Management Relationship: Present Damages for Loss of Future Contracts, 71 YALE L.J. 563, 571 (1962). See also C. Mccormick, supra note 25, at § 31. Others have called it the "expected value" rule. See Orloff & Stedinger, supra note 249.
\textsuperscript{277} Id. While the example concerns a claim for future consequences, a similar analysis could be applied to a case involving a preexisting condition, since both variations deal with lost chances and probabilities.
\textsuperscript{278} Id. at 1383.
age thirty, one percent. Again, the overall chance is thirty percent. The jury then determines that the loss of the plaintiff’s eyesight at age fifty would result in a $100,000 loss, at age forty in a $200,000 loss, and at age thirty in a $300,000 loss. The weighted mean method would then multiply the value of the plaintiff’s eyesight at each age by the percentage probability of the plaintiff losing his eyesight at that age to arrive at an award.\textsuperscript{280}

This last method may appear to call for rather complex testimony and mathematical calculations, and may lead some to fear that it would be unmanageable. The calculations involved, however, are no more complex than those undertaken in a sophisticated claim for lost future wages, where future bonuses, benefits, and promotions must be factored into a final damages award.\textsuperscript{281} In any event, judges should not allow the difficulty of assessing damages to defeat a plaintiff’s right to recovery.\textsuperscript{282}

\section*{B. \textit{The Problem of Statistics}}

Probabilistic and statistical evidence comprises a substantial portion of the evidence submitted in loss of a chance actions. This is because there is usually no direct proof of the causal connection between the defendant’s negligence and the victim’s injury. For lack of better evidence, plaintiffs’ counsel rely on statistics that show the outcome achieved by individuals similarly situated to the victim.\textsuperscript{283}

The use of statistics in trials, however, has created great controversy among both judges and commentators.\textsuperscript{284} It has been argued that statistics are often misleading, and may lead the finder of fact to erroneous conclusions.\textsuperscript{285} Some believe that juries are overly impressed by numbers that epi-

\textsuperscript{280} \textit{Id.} at 1384. In the example given, the plaintiff would receive: ($100,000 \times 25\%') + ($200,000 \times 4\%) + ($300,000 \times 1\%) = $36,000. While this method yielded a higher result than the simple probability method, the amount of the recovery depended upon the value of the lost chance at various dates. The result achieved would have been different had the values of the victim’s eyesight at ages 30 and 40 been varied.

\textsuperscript{281} See generally DEUTSCH & RAFFA, DAMAGES IN TORT ACTIONS §§ 109.00-.80 (1984).

\textsuperscript{282} See C. MCCORMICK, supra note 26, at § 27.

\textsuperscript{283} In some cases, even statistical evidence may not be available. In such cases, the jury should be permitted to estimate the plaintiff’s chances of survival, based on any available evidence. See Kaplan, supra note 195 (discussing the personalistic method of estimating probabilities). Damages, of course, should reflect the degree of the chance the plaintiff lost.


\textsuperscript{285} An oft-cited example by courts and commentators is that of a colorblind pedestrian
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demiologists and lawyers throw out during the course of a trial.286 Thus, many courts require that to establish causation, the plaintiff must introduce “particularistic” proof of the fact in dispute.287 It is reasoned that “particularistic” evidence represents “harder” proof, and that such proof is necessarily more reliable than probabilistic evidence.288

There is some validity to the concern over the use of “naked” statistical evidence to prove causation of either death or some other overt injury.289 who is hit by a cab. The town in which he lives features two cab companies. One owns three blue cabs, the other, one orange cab. It is argued that if statistics alone are looked to in determining causation, the Blue Cab Co. will end up paying for all accidents caused by cabs involving colorblind individuals. For a more provocative example of the possible misuse of statistics, see People v. Collins, 68 Cal. 2d 319, 66 Cal. Rptr. 497, 438 P.2d 33 (1968). For a more recent example of misuse of statistical evidence, see Cramer v. Morrison, 88 Cal. App. 3d 873, 153 Cal. Rptr. 865 (1979).

286. Professor Lawrence Tribe of Harvard has argued that “the very mystery that surrounds mathematical arguments—the relative obscurity that makes them at once impenetrable by the layman and impressive to him—creates a continuing risk that he will give such arguments a credence they may not deserve and a weight they cannot logically claim.” Tribe I, supra note 284, at 1334. Tribe’s contention has been attacked by two scholars, who claim: “Influential as Tribe’s paper has been, like much legal scholarship, it is a Swiss cheese of assumptions about human behavior.” Saks & Kidd, Human Information Processing and Adjudication: Trial by Heuristics, 15 LAW & Soc’y REV. 123, 125 (1981) (footnotes omitted). One commentator asserts that “[c]ontrary to Tribe’s assumption, individuals do not tend to be overly impressed with statistical information. . . . If anything, they give it too little attention.” Brook, Inevitable Errors: The Preponderance of the Evidence Standard in Civil Litigation, 18 TULSA L.J. 79, 98 (1982).

287. See Ryan v. Eli Lilly & Co., 514 F. Supp. 1004 (D. S.C. 1981); Namm v. Charles E. Frost & Co., 178 N.J. Super. 19, 427 A.2d 1121 (App. Div. 1981); DePass v. United States, 721 F.2d 203 (7th Cir. 1983). In his dissent in DePass, Judge Posner chastised the majority for upholding a federal district court’s refusal to admit statistical evidence in a personal injury suit. He stressed that the compensatory goal of tort law “cannot be attained or even approximated if judges shut their eyes to consequences that scientists have found are likely to follow from particular types of accidents, merely because the scientists’ evidence is statistical.” Id. at 206-10.

288. See Saks & Kidd, supra note 286, at 150.

289. See cases cited supra note 285. But see Saks & Kidd, supra note 286, at 151-54 (contending that all “particularistic” proof is in fact probabilistic). One writer has commented: “All knowledge of past as well as future events is probabilistic. Inevitably it rests on intuitive or more rigorously acquired impressions of the frequency with which similar events have occurred in like circumstances.” Rosenberg, supra note 267, at 870. See also W. PROSSER & W. KEETON, supra note 1, at 270 (noting that proof of causation is nothing more than a projection based upon previous observation).

While opponents of the use of statistical evidence in trials warn that such evidence is unreliable, it must be answered that the eyewitness account, the “paradigm” of particularistic evidence, is one of the most unreliable methods of proof known. Rosenberg, supra note 267, at 872. See also Winter, The Jury and the Risk of Nonpersuasion, 5 LAW & Soc’y REV. 335, 338 (1971) (“[t]here is surely no way of saying that a careful assessment of ‘mathematical chances,’ which concedes the possibility of error, is less reliable evidence than a direct statement based on a witness’ perceptions, which are also subject to error, however unconceived.” Id.).
Loss of a chance plaintiffs, however, are not introducing statistical evidence to prove causation. Rather, they are attempting to establish the extent of the harm that they have suffered. Thus, the question facing courts is how to measure damages. The use of statistics to prove damages has been accepted for years. Loss of a chance plaintiffs, therefore, should be allowed to introduce statistical evidence concerning a victim's chances of survival.

If statistical evidence is permitted into evidence, each litigant should be afforded the opportunity to contest and argue the reliability of the other party's evidence. If some studies are shown to be less reliable or less pertinent than others, the jury should be free to assess the comparative value of the studies. Counsel, through cross-examination, would be afforded the opportunity to refute the validity of a particular item of evidence by showing that a study's test controls were flawed or that they were incomplete in some respect, or that the variables upon which the results were premised are somehow inapplicable to the case at bar. At the close of the evidence, the jury would determine what chance, if any, the victim had lost.

C. Wrongful Death and Time Limitation Statutes

1. Death Statutes and the Chance Theory

If a court decides to grant recovery for the loss of a chance, it will confront the prohibitive legal wall known as the "wrongful death statute." Such statutes, patterned after Lord Campbell's Act, typically require a showing.

290. See Herskovits v. Group Health Cooperative, 99 Wash. 2d at 635 n.2, 664 P.2d at 482 n.2 (Pearson, J., concurring) ("The statistical data relating to the extent of the decedent's chance of survival are considered to show the amount of damages, rather than to establish proximate cause.").


292. Lord Campbell's Act provides in part:

Whereas no Action at Law is now maintainable against a Person who by his wrongful Act, Neglect, or Default may have caused the Death of another Person, and it is oftentimes right and expedient that the Wrongdoer in such Case should be answerable in Damages for the Injury so caused by him; 'Be it therefore enacted by the Queen's most Excellent Majesty . . . . That whenever the Death of a Person shall be caused by the wrongful Act, Neglect, or Default, and the Act, Neglect, or Default is such as would (if Death had not ensued) have entitled the Party injured to maintain an Action and recover Damages in respect thereof, then and in every such Case the Person who would have been liable to an Action for Damages . . . .'

9 & 10 Vict CAP. XCIII (93) (26th Aug. 1846) (emphasis added).
that the negligent act or omission "caused" the victim's death. Because of these statutes, wrongful death plaintiffs have phrased their complaints in terms of causation of death. In loss of a chance cases, however, a plaintiff is not trying to recover for a wrongful death, but for the loss of a chance to avoid the death. A concurring judge in the Washington case of Herskovits v. Group Health Cooperative, realizing the problems posed by the Washington wrongful death statute, explained that he would interpret the wrongful death statute as being applicable to loss of a chance cases. The judge rationalized this result by pointing to the nebulous meaning of the word "cause." A person would be found to have "caused" another's death "whenever he cause[d] a substantial reduction in that person's chance of survival." This rationale is rather unattractive, as it leaves the focus on causation of death, rather than on damages.

In order for plaintiffs to recover properly for these losses, then, these statutes should probably be amended. Only minor changes in the language of the states' respective wrongful death statutes, however, would be necessary. These statutory amendments should stress that there is a right of action for the negligent deprivation of a chance of survival. It should be explained that the injury for which a remedy is provided is the chance of survival, rather than death. The judge or jury would evaluate the magnitude of the lost chance, and award proportionate recovery, rather than attempt to find causation of death from the fact of a substantial reduction in chances. The statutes would emphasize that chances are compensable only in proportion to their magnitude. Thus, even the loss of an eighty percent chance would not warrant full recovery.

Any statutory amendment should also address the type of proof admissible in loss of a chance cases. Since the issue would be one of calculating damages, statistical proof should be sufficient to establish the degree of harm.

293. See, e.g., 42 PA. CONS. STAT. § 8301 (1982) ("an action may be brought to recover damages for the death of an individual caused by the wrongful act or neglect . . . of another . . . "); CAL. CIV. PROC. CODE § 377 (West 1973) ("when the death of a person . . . is caused by the wrongful act or neglect of another, his heirs . . . may maintain an action for damages . . . ").
294. 99 Wash. 2d at 619, 664 P.2d at 479 (Pearson, J., concurring).
295. Id. at 634, 664 P.2d at 487.
296. Id. at 635 n.1, 664 P.2d at 487 n.1.
297. Id. at 635, 664 P.2d at 487.
298. The writing of such an amendment is beyond the scope of this article. Therefore, only brief suggestions will be presented.
suffered by the victim.\textsuperscript{300}

2. Statutes of Limitations and Future Consequences

Statutes of limitations may present a problem where a victim faces a possibility of future harm but has not yet suffered the harm. As in other loss of a chance cases, courts insist upon proof of a probability future harm.\textsuperscript{301} If no such proof is available, one court has hinted that the plaintiff may have to wait until the harm materializes before bringing suit.\textsuperscript{302} To deny recovery until the harm occurs, however, may cause the plaintiff to fall outside of the statute of limitations.\textsuperscript{303} Moreover, witnesses may die, or their memories may fade. To deny recovery until the harm occurs, therefore, may foreclose any recovery by the plaintiff. While there may be ways in which statutes of limitations could be circumvented, it is difficult to see how necessary evidence could be preserved and the defendant's presence guaranteed. Thus, recovery should be allowed although the victim has not yet suffered the ultimate harm.

Moreover, waiting until the harm occurred would not aid in the determination of causation. No matter how long one waited, it would never be possible to determine whether the preexisting condition or the subsequent loss

\textsuperscript{300} See supra notes 290-91 and accompanying text.

A few cases have allowed or argued for recovery for the mere possibility of future harm. In Feist v. Sears, Roebuck & Co., 267 Or. 402, 517 P.2d 675 (1973), the plaintiff sought recovery where the defendant's negligence created a possibility that the plaintiff might some day contract meningitis. The court allowed the jury to assess the value of the newly created susceptibility and to award proportionate damages. A later Oregon case, Pelcha v. United Amusement Co., 44 Or. App. 675, 606 P.2d 1168 (1980), provided recovery where the defendant's negligence created a 30% to 45% possibility of the need for future surgery. Id. at 677-78, 606 P.2d at 1168-69.

In Jordan v. Bero, 210 S.E.2d 618 (W. Va. 1974), a concurring opinion asserted:


\textsuperscript{303} See generally Rosenberg, supra note 267, at 895 n.168.

[\textsuperscript{302}] Id. at 640-41.
of a chance produced the harm. For example, if a breast cancer patient possessed a twenty percent risk of recurrence of the cancer prior to the negligence, and such patient now possesses a forty percent risk, the finder of fact would not be in a better position, in the event of death, to determine whether the patient could have been saved had proper and timely treatment been rendered. Thus, the victim should be allowed to bring an action in the usual fashion, and recover for the increased risk of harm.

V. Conclusion

This Comment has argued that chances to live, to achieve a positive outcome or to avoid an injury represent valuable interests. Purely visceral feelings dictate such a conclusion. Market theories and probabilistic concepts reinforce this human intuition. The all-or-nothing rule's denial of this reality is arbitrary and leads to an inefficient system of tort remedies. Furthermore, it unfairly casts the burden of uncertainty created by the defendant upon the innocent plaintiff. Finally, while the rule seeks to provide compensation to injured victims of negligence, it fails to tailor the remedy to their injuries. Tortfeasors and victims are thus treated as pawns in an "all-or-nothing" lottery.

To remedy these inequities, courts must broaden their focus and examine the interests the victim has lost. It must be recognized that chances are valuable interests. Where negligence reduces a patient's chances to avoid harm, the plaintiff should be compensated. That compensation should parallel the extent of the harm—the loss of the chance—the victim has suffered. Until this is done, courts sitting in personal injury actions will undoubtedly continue to modify causation and proof principles in an effort to correct an

304. In Evers v. Dollinger, 95 N.J. at 421, 471 A.2d at 405, the concurring justice questioned the court's holding that a mere risk of future harm should not be compensable in the absence of materialization of that harm. He then added:

I do not dispute the significance of resultant harm in the overall analysis of medical injury and assessment of damages. I do not believe, however, that such resultant harm constitutes a sine qua non, a condition precedent before there can be recovery for an actual albeit unquantified increase in the risk of such harm. The Court is here troubled by a seeming inability to quantify the risk of future cancer. But, adding the incurrence of future harm as a requirement for the recovery for such increased risk does not resolve the dilemma since the risk still remains unquantified. The inadvertent effect of such a court rule is that those victims, who undeservedly have been put in greater peril in terms of their survival, are not permitted to be compensated for this peril unless they have suffered a resurgence of their cancer.

Id. (Handler, J., concurring).
305. Id.
obviously deficient remedial structure. These modifications, however, merely aggravate the deficiencies within that structure. It is therefore urged that chances be recognized as valuable interests, and accorded their proper place in the spectrum of tort damages.

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