NOTE

Causation in Medical Malpractice: A Modified Valuation Approach

I. INTRODUCTION

Traditionally, the standards for causation in medical malpractice actions have been limited to three general categories.[1] The first category is the "reasonable medical certainty" standard. This standard requires a showing of reasonable medical certainty, based on expert testimony, to prove causation.[2] The second category is the "reasonable probability" or "more likely than not" standard and requires a showing of a greater than fifty percent chance of physical recovery in the absence of negligence.[3] The third category, the "substantial possibility" or "substantial factor" standard, requires a showing that the defendant's act was a substantial factor in causing the loss of a substantial possibility of recovery by the plaintiff.[4]

Each of these traditional standards has been criticized for its "all-or-nothing" approach to damages.[5] Professor King has suggested that a valuation system of damages based on the percentage of lost chance would be a more just and appropriate approach.[6] This Note examines the traditional approaches to causation in medical malpractice as well as the valuation approach. It also outlines a "modified valuation approach," which will provide a more just result than the traditional approaches while avoiding the highly speculative and costly results inherent in a "pure valuation system." In addition, this "modified valuation approach" is compared to the other approaches by applying them to hypothetical fact patterns. Finally, this Note considers the possible costs of such a system relative to other more traditional approaches.

II. THE TRADITIONAL CAUSATION STANDARDS

Traditionally, three standards of causation have been employed in medical malpractice cases. The oldest and most stringent standard of causation is the "reasonable medical certainty" standard.[7] A subsequent standard is commonly referred to as the "reasonable probability" or "more-likely-than-not" standard.[8] This standard represents the majority view.[9] The most recent and least stringent standard has been called the "substantial possibility" or "substantial factor"

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1. Smith, *Increased Risk of Harm: A New Standard for Sufficiency of Evidence of Causation in Medical Malpractice Cases*, 65 B.U.L. REV. 275, 279–82 (1985).

2. Bertram v. Wunning, 385 S.W.2d 803, 807 (Mo. App. 1965).

3. Cooper v. Sisters of Charity, 27 Ohio St. 2d 242, 272 N.E.2d 97 (1971).

4. Kallenberg v. Beth Israel Hosp., 45 A.D.2d 177, 357 N.Y.S.2d 508 (1974).

5. King, *Causation, Valuation, and Chance in Personal Injury Torts Involving Preexisting Conditions and Future Consequences*, 90 YALE L.J. 1353, 1354 (1981).

6. *Id.*

7. *See infra* text accompanying notes 14–22..

8. *See infra* text accompanying notes 23–39.

9. Andel, *Medical Malpractice: The Right to Recover for the Loss of a Chance of Survival*, 12 PEPPERDINE L. REV. 973, 977 (1985).

standard.[10] Each of these standards results in what has been referred to as an "all-or-nothing" award of damages.[11] "All-or-nothing" refers to the tendency of the traditional standards to give a full award of damages if the requisite standard is met and to deny any award of damages if the standard is not met.[12] As the hypothetical fact patterns will indicate, these approaches place the entire risk of error on the losing party in a particular action. "Risk of error" refers to the probability that the jury reached an incorrect conclusion regarding the cause of the plaintiff's injury. In other words, if the plaintiff had a 75% chance of physical recovery in the absence of the defendant's negligence, there is a 25% chance that the injury was due to the plaintiff's preexisting condition and not the negligence of the defendant. In one out of four cases in which the jury finds for the plaintiff, the jury would be incorrect in requiring that the defendant fully compensate the plaintiff for his injury.[13]

A. *The "Reasonable Medical Certainty" Standard*

This standard of causation requires a showing that the injury was, to a reasonable medical certainty, due to the negligence of the defendant.[14] The definition of "reasonable medical certainty" has varied widely among jurisdictions. The range of probability required begins at a 51% chance of recovery in the absence of negligence[15] and ends at greater than 90%.[16] At the 51% level, this standard varies only in name from the "reasonable probability" standard.

Because of the broad variation in the application of this standard, it has been criticized as vague and unpredictable.[17] In addition, there is significant doubt as to the understanding of medical experts regarding proper application of the standard.[18] Furthermore, employing this standard has resulted in a total lack of compensation for persons who would have had a high probability of physical recovery had there been no negligence.[19] Such a denial of compensation places a disproportionate share of the risk of error on the plaintiff. If the plaintiff had a 90% chance of physical recovery in the absence of negligence, there was a 90% probability that the injury was due to the defendant's negligence and not the pre-existing condition.[20] A judgment for the defendant would place a 90% risk of error on the plaintiff.[21] Because of the disproportionate risk of error placed on the plaintiff and confusion on the part of experts and juries, this standard of causation has fallen into disfavor.[22]

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10. *See infra* text accompanying notes 40–59.
11. *See* King, *supra* note 5, at 1354.
12. *Id.*
13. "Holding the defendant liable to the plaintiff for the entire harm without any consideration of the preexisting condition, however, is . . . unsound." *Id.* at 1359.
14. *See* Smith, *supra* note 1, at 279–80.
15. Merriman v. Toothaker, 9 Wash. App. 810, 814, 515 P.2d 509, 513 (1973).
16. Bertram v. Wunning, 385 S.W.2d 803, 807 (Mo. App. 1965).
17. *Id.*
18. *Id.*
19. *Id.*
20. *See supra* text accompanying note 13.
21. *Id.*
22. *See* Smith, *supra* note 1, at 281.

B. *The "Reasonable Probability" Standard*

This standard, which requires a 51% chance of physical recovery in the absence of negligence, seems to make a fairly even distribution of the risk of error at the beginning of the proceedings.[23] It has been recognized, even by its critics, as ensuring a "rough justice."[24] Because of this virtue, and because of its simplicity, it has been adopted by a majority of jurisdictions.[25] However, at the *end* of the proceedings, the winner bears no risk of error while the loser bears up to a 50% chance of error by the finder of fact.[26] By awarding full compensation in cases where there is a 51% chance of recovery in the absence of negligence, while denying any compensation in cases where there is a 50% or less chance of recovery in the absence of negligence, an "all-or-nothing" result is reached.[27] Of course, in the majority of cases, there is either more or less than a 51% chance of recovery, and the risk of error is reduced proportionately. Yet, in those cases that involve a 50% chance of recovery in the absence of negligence, the plaintiff is denied any compensation. And, in those cases involving a 51% chance of recovery in the absence of negligence, the defendant is required to pay full compensation for the injury. Thus, in an admittedly small number of cases, there is a "talismanic" 1% that shifts the entire risk of error from one party to the other.[28]

The Supreme Court of Ohio demonstrated this aspect of the "reasonable probability" standard in *Cooper v. Sisters of Charity*.[29] In *Cooper*, the plaintiff's son suffered a skull fracture that carried "practically a 100% mortality rate without surgery."[30] The treating physician neglected to conduct appropriate tests that would have revealed the injury.[31] The boy was sent home and died the following morning.[32] Although the plaintiff's expert testified that, with proper treatment, the boy would have had a 50% probability of survival,[33] the *Cooper* court affirmed a directed verdict for the defendant based on a failure by the plaintiff to show a reasonable probability of survival in the absence of negligence.[34] In so doing, the court followed *Kuhn v. Banker*,[35] an earlier Ohio case which held in part that "[l]oss of chance of recovery, standing alone, is not an injury from which damages will flow."[36]

The unacceptable result of such a holding is that physicians are not held accountable for their duty of care to patients with less than a 51% probability of

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23. *See supra* text accompanying note 13.

24. Miller, Herskovits v. Group Health Cooperative: *Negligent Creation of a Substantial Risk of Injury is a Compensable Harm*, 9 U. PUGET SOUND L. REV. 251, 273 (1985).

25. *See supra* note 9.

26. *See supra* text accompanying note 13.

27. *See supra* note 11.

28. *See* Miller, *supra* note 24, at 271.

29. 27 Ohio St. 2d 242, 272 N.E.2d 97 (1971).

30. *Id.* at 247, 272 N.E.2d at 101.

31. *Id.* at 246, 272 N.E.2d at 99.

32. *Id.* at 244, 272 N.E.2d at 99.

33. *Id.* at 252–53, 272 N.E.2d at 101.

34. *Id.* at 254, 272 N.E.2d at 104–05.

35. 133 Ohio St. 304, 13 N.E.2d 242 (1938).

36. *Id.* at 315, 13 N.E.2d at 247.

survival.[37] Thus, the risk of tort liability does not act as a "useful spur to the medical community to exercise due care in the diagnosis and treatment of typically fatal diseases and conditions."[38] In addition, it is maintained that the uncertainty of the outcome in cases when the experts disagree and the resulting windfall to the plaintiff or the defendant may provide an incentive to litigate rather than settle.[39] When such is the case, the administrative costs will be higher.

C. *The "Substantial Possibility" Standard*

Currently, the "substantial possibility" standard represents the minority view.[40] This standard might be considered the opposite of the "reasonable medical certainty" standard.[41] This standard appears to find its roots in the "rescue doctrine."[42] This doctrine was relied upon in *Hamil v. Bashline*,[43] a Pennsylvania Supreme Court case. In *Hamil*, the court cited section 323 of the Restatement (Second) of Torts as authority for relaxing the standard of causation.[44]

> 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 . . . .[45]

Thus, according to *Hamil*, a showing that the physician's negligence was a "substantial factor" in causing the harm to the plaintiff was sufficient to survive a summary judgment for the defendant.[46] This standard has been applied most frequently in cases that involve a failure to diagnose an illness.[47]

In *Herskovits v. Group Health Cooperative*,[48] the lead opinion tempered this result by stating that application of the "substantial factor" test does not "necessitate a total recovery against the negligent party for all damages caused by the victim's death."[49] Rather, the court stated that the "damages caused directly by the plaintiff's premature death" (due to the delay in diagnosis of his cancer) would be the appropriate compensation.[50] By limiting the damage award in this manner, the court relieved some of the burden on the defendant.

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37. *See* Miller, *supra* note 24, at 254.
38. *Id.* at 254–55.
39. *Id.* at 274.
40. *See* Andel, *supra* note 9, at 982.
41. *See supra* text accompanying notes 14–22.
42. *See* Andel, *supra* note 9, at 982.
43. 481 Pa. 256, 392 A.2d 1280 (1978).
44. *Id.* at 269, 392 A.2d at 1286.
45. RESTATEMENT (SECOND) OF TORTS § 323 (1965).
46. *Hamil*, 481 Pa. at 269, 392 A.2d at 1286.
47. Schuler v. Berger, 275 F. Supp. 120 (E.D. Pa. 1967); Evers v. Dollinger, 95 N.J. 399, 471 A.2d 405 (1984).
48. 99 Wash. 2d 609, 664 P.2d 474 (1983). In *Herskovits*, the decedent's probability of survival at 5 years was reduced from 39% to 25% by a negligent delay in the diagnosis of his cancer.
49. *Id* at 619, 664 P.2d at 479.
50. *Id.* The court failed to recognize that the delay in diagnosis did not *necessarily* cause the decedent's life to be shortened. Thus, the defendant still carried a disproportionate share of the risk of error since there was a 61% probability that the decedent would have died within five years in any event.

The most illustrative application of the "substantial possibility" standard occurred in *Kallenberg v. Beth Israel Hospital*.[51] In that case, the plaintiff was permitted to recover wrongful death damages for the negligent destruction of a 20% to 40% chance of survival due to a three-day delay in treatment.[52] There has been speculation that the risk of error placed on the defendant was mitigated by the reduced amount of damages awarded by the jury.[53]

Strangely, current cases allowing recovery for the loss of a "substantial possibility" of survival almost uniformly cite *Hicks v. United States*.[54] In *Hicks*, the court stated in dictum:

> When a defendant's negligent action or inaction has effectively terminated a person's chance of survival, it does not lie in the defendant's mouth to raise conjectures as to the measure of the chances that he has put beyond the possibility of realization. . . . Rarely is it possible to demonstrate to an absolute certainty what would have happened in circumstances that the wrongdoer did not allow to come to pass.[55]

The discussion of a "substantial possibility" was not necessary to the decision in *Hicks* because it was established that there was a "reasonable *probability*" that the decedent would have survived in the absence of negligence.[56]

Like the "reasonable medical certainty" standard, the "substantial possibility" standard places a disproportionate risk of error on one party.[57] Under the latter standard, the defendant bears a disproportionate share of the risk. For example, the defendant may be required to fully compensate the plaintiff when the negligence only eliminated a 10% chance of physical recovery. This would place a 90% risk of error on the plaintiff. In addition, the uncertainty and arbitrariness of this standard may increase costs by providing incentives to litigate rather than settle in the hope of receiving a windfall.[58] Trusting juries to overcome such inequities by adjusting damage awards without specific guidance from the law is unreliable.[59]

III. The Valuation System

A. *History and Application*

In 1981 Professor Joseph King, Jr. wrote the seminal article describing a valuation system for compensating plaintiffs in lost-chance-of-recovery cases.[60] In his article, Professor King pointed out that the "all-or-nothing" approach to causation previously employed not only resulted in inequitable allocation of the risk of error, but also resulted in a great deal of confusion due to constant manipulation

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51. 45 A.D.2d 177, 357 N.Y.S.2d 508 (1974).
52. *Id.* at 179–80, 357 N.Y.S.2d at 510.
53. *See* Miller, *supra* note 24, at 273–74.
54. 368 F.2d 626 (4th Cir. 1966).
55. *Id.* at 632.
56. *Id.*
57. *See supra* text accompanying note 13 and 20.
58. *See* Miller, *supra* note 24, at 274.
59. *Id.*
60. *See* King, *supra* note 5.

of the causation standard in an attempt to achieve equity in individual cases.[61] In its stead, he suggested that the loss of the chance itself be looked upon as the injury (rather than wrongful death, for example).[62]

This approach was best explained in a case note[63] discussing the *Herskovits*[64] case. Although *Herskovits*[65] adopted the "substantial possibility" standard in its lead opinion, a plurality opinion adopted the valuation system suggested by Professor King.[66] Under this system the plaintiff must provide evidence that shows the degree to which his chance of recovery has been reduced by the negligence of the defendant.[67] The damages are valued based on the degree by which the defendant is shown to have diminished this chance of recovery.[68] The facts of *Herskovits*[69] can be used to illustrate the result obtained when the valuation system is employed.

In *Herskovits*,[70] the defendant hospital was responsible for a negligent delay in the diagnosis of the decedent's lung cancer.[71] The delay resulted in a reduction in the decedent's chance of survival at five years from 39% to 25%.[72] Under a valuation system, the plaintiff would not receive damages for wrongful death.[73] Rather, he would receive damages for the 14% by which his chance of recovery had been reduced due to the defendant's negligence.[74] The value of this chance would be the difference in the value of being alive with cancer for five years and the value of death (zero) multiplied by 14%.[75] This approach has been called "a conclusive presumption of proportionate causation."[76] It is justified by the policy of placing the burden of the presumption on the negligent actor rather than the innocent plaintiff.[77] In addition, it is touted for allocating the risk of error of an improper decision fairly between the parties based on the probability that their action or preexisting condition was the actual cause of the harm.[78] Although the plurality in *Herskovits*[79] did not specifically state that the harm must have occurred as a prerequisite to recovery for the loss of chance, this has been suggested as an "entirely rational limitation."[80] The suggested exception to this limitation is the case in which the negligent defendant has

61. *Id.* at 1354–55, 1376–81.
62. *Id.* at 1381–87.
63. *See* Miller, *supra* note 24.
64. Herskovits v. Group Health Cooperative, 99 Wash.2d 609, 664 P.2d 474 (1983).
65. *Id.*
66. *Id.* at 634, 664 P.2d at 487 (Pearson, J., concurring).
67. "A better method of valuation would measure a compensable chance as the percentage probability by which the defendant's tortious conduct diminished the likelihood of achieving some more favorable outcome." King, *supra* note 5, at 1382.
68. *Id.*
69. *Herskovits*, 99 Wash.2d at 611, 664 P.2d at 475.
70. *Id.* at 609, 664 P.2d at 474.
71. *Id.* at 614, 664 P.2d at 476–77.
72. *Id.*
73. *See* King, *supra* note 5, at 1382.
74. *Id.*
75. *Id.*
76. *See* Miller, *supra* note 24, at 280.
77. *Id.*
78. *Id.* at 281.
79. 99 Wash.2d 609, 664 P.2d 474 (1983).
80. *See* Miller, *supra* note 24, at 281.

caused a present physical injury that creates a susceptibility to future medical complications.[81] Under this exception, the plaintiff would be permitted to recover for the enhanced risk of future injury.[82] This exception is compatible with the holding of the Supreme Court of Oregon in *Feist v. Sears, Roebuck and Co.*:

> We believe, as a matter of common sense, that a jury can properly make a larger award of damages in a case involving a skull fracture of such a nature as to result in a susceptibility to meningitis than in a case involving a skull fracture of such a nature as not to result in any such danger, risk, or susceptibility.[83]

B. *Criticism of the Valuation System*

Although it has been argued that such a system justly apportions the risk of error,[84] the "pure" valuation system is not invincible to criticism. First, physicians who are found guilty of medical negligence may incur costs—such as damage to their professional reputation and increased malpractice insurance premiums—which will not be proportionately shared by the plaintiff. Holding a defendant responsible for an injury when there is only a small percentage probability that he *actually caused* that injury is inherently speculative. Although awarding damages that are proportional to that probability helps to justify such a system, the existence of costs that are not amenable to such apportionment detracts from that justification. Second, although the valuation system has been credited with a degree of certainty that would arguably reduce administrative costs by encouraging settlement,[85] it is also apparent that cases which formerly would not go to trial because the minimum requisite standard of causation was not met would now assuredly be meritorious. It is likely that an increased number of cases could be brought by plaintiffs who were previously advised by their attorneys against further expenditure.[86] In addition, it is not entirely clear that the valuation system is certain enough to encourage settlement. A modicum of experience in medical malpractice cases makes the propensity of medical experts for disagreement quite apparent. With wrongful death awards running in the millions of dollars, a 5% or 10% increase in risk—which formerly would not have been prosecuted—may provide adequate incentive to litigate. Increased legal costs would not be the only result of such an increase in litigation. Medical malpractice insurance premiums would, in all likelihood, rise proportionally and, as a result, medical costs would rise.[87] The nationwide call for "tort reform" was triggered by substantial concern for these problems. Because of these concerns regarding the valuation system and the concerns

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81. *Id.* at 282.

82. *Id.*

83. Feist v. Sears, Roebuck and Co., 267 Or. 402, 412, 517 P.2d 675, 680 (1973).

84. *See supra* text accompanying notes 13 and 78.

85. *See supra* text accompanying notes 38 and 58.

86. Contingency fees are often credited with encouraging this kind of advice. Although some cases would still involve damage awards so minute as to make them impractical to prosecute, even a small percentage of lost chance could result in an attractive amount of compensation in high damage actions such as wrongful death.

87. Although the increased amount of damage awards to individuals with less than a 51% chance of recovery might arguably be counter-balanced by the decrease in the size of damage awards to those with a greater than 51% chance of recovery, the increased legal fees paid by insurance companies would *not* be offset in a similar manner.

about unjust results that sometimes occur under the traditional all-or-nothing approaches, this Note will propose a "modified valuation system."

IV. The Modified Valuation System

Professor King suggested that the confusion resulting from manipulation of the standard of causation could be avoided by the application of his valuation system.[88] Under his system the causation issue was avoided—or "satisfied" under *any* traditional standard—because the injury being compensated was the loss of a chance of avoiding the harm and not the harm itself.[89]

As this Note has pointed out, such a system is not without its costs.[90] Some of these costs may be avoided by a modification of the "pure" valuation approach. First, compensation for the loss of a chance of physical recovery would be available only to plaintiffs who have actually experienced the harm that they sought to avoid.[91] There should be no recovery for a diminished chance of avoiding harm if that harm has not occurred. Second, the negligence of the actor must be the *predominant factor* resulting in the loss of the plaintiff's *substantial* chance of avoiding harm. Finally, the plaintiff would be awarded damages for the total amount of any *substantial* chance lost that was lost *predominantly* due to the defendant's negligence. In other words, the element of causation is not ignored or assumed to be satisfied. The "modified valuation system" would require expert testimony to the effect that, *had the patient been in the group of individuals who would have recovered* (for example, the "lucky" 30%), the physician's conduct would have been the *predominant factor* which would have removed the plaintiff from that group. Once this standard has been met, the plaintiff would be compensated for the full value of the lost *substantial chance* which the negligent conduct was the *predominant factor* in eliminating (that is, 30% of the value of the harm, such as wrongful death).

In order to understand this system, two terms must be defined. First, *substantial chance* has much the same meaning as the "substantial possibility" that has been previously used by some jurisdictions.[92] Each jurisdiction will define, by case law or legislation, the lower limit of a *substantial chance*. This Note recommends that less than 10% would be too small to be considered "substantial." Second, *predominant factor* should not be defined in terms of percentages. Instead, a *predominant factor* is the factor the expert feels is the primary or most significant factor in causing the loss of the substantial chance of recovery. This approach more clearly mirrors the thought process of the medical expert than an approach requiring that each factor be assigned a percentage effect on the loss of the chance. This system could be described as a "substantial possibility" standard under which the damages are limited to the "substantial possibility" that was lost.[93] This system is best demonstrated by a comparative application to hypothetical fact patterns.

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88. *See* King, *supra* note 5, at 1353–55, 1376–82.
89. *Id.*
90. *See supra* text accompanying notes 84–87.
91. *See supra* text accompanying notes 80–83.
92. *See supra* text accompanying notes 40–59.
93. *Id.* This description is not wholly accurate because the plaintiff is compensated for the entire substantial chance

V. A Comparative Application To Hypothetical Fact Patterns

In order to facilitate an understanding of the differences in the approaches that have been discussed, three hypothetical fact patterns will be presented and discussed.[94]

A. *The Premature Infant*

A woman arrives at a hospital emergency room complaining of premature labor. An infant of five-months gestation is delivered. Hoping to spare the parents the burden of caring for an infant with a 90% chance of severe brain damage, the physician makes no attempt to resuscitate the infant.[95] The infant remains anoxic (without oxygen) for more than ten minutes but lives nonetheless. The child proves to be profoundly retarded. An expert testifies to the 90% chance of retardation in a child born four months prematurely. An expert also testifies that a normal, full-term infant would become profoundly retarded if left anoxic for a similar time period.

1. *The "Reasonable Medical Certainty" Standard*

As currently applied, there would be no recovery by the parents under this standard of causation.[96] Because there was a 90% chance that the injury would have occurred in the absence of negligence, causation cannot be shown. The result is that a physician has, de facto, no duty of care to such a premature infant.[97]

2. *The "Reasonable Probability" or "More-Likely-Than-Not" Standard*

Because this standard requires a 51% chance that the injury would not have occurred in the absence of negligence, there would be no causation demonstrated in this case.[98] Once again, there is, de facto, no duty of care to the infant because the causation element could not be satisfied.

3. *The "Substantial Possibility" Standard*

Under this standard, the result is unpredictable.[99] If a 10% chance of not sustaining injury is considered a "substantial" chance of recovery, full damages

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that was lost and not the percentage by which it was reduced due to the defendant's negligence. The predominant factor test helps eliminate the inequity created by reducing awards for all defendants but eliminating awards for plaintiffs with less than a 10% chance of physical recovery.

94. Although these fact patterns may have some basis in medical fact, they should not be assumed to be an accurate representation of the actual percentages of chance of recovery.

95. Assume that the physician has a duty of care to an infant of five months gestation. Assume the parents wish to keep the infant and have all possible avenues of care employed. This hypothetical fact pattern is not meant to address the moral considerations or legal duty of a physician in *elective* abortion cases, "right to die" cases, or "right of the parents to withhold treatment" cases.

96. *See supra* text accompanying notes 14–22.

97. *See supra* note 37 and accompanying text. Although that note refers specifically to the "reasonable probability standard," the "de facto no duty of care" argument applies here also.

98. *See supra* text accompanying notes 23–39.

99. *See supra* text accompanying notes 40–54.

could be awarded. This would place the risk of error by the finder of fact entirely on the defendant. It seems unjust that a defendant should bear the full risk of error when the probability of error is 90%.[100] If a 10% chance of recovery is not considered "substantial," the parents would recover nothing just as they would under the previously discussed standards.

4. *The "Valuation System"*

Professor King's valuation approach views the loss of the chance of avoiding harm, rather than the actual harm, as the injury that is to be compensated.[101] As a result, the damages would be calculated based on the value of the infant's lost chance of having normal intellectual ability.[102] If the difference between the infant's current level of mental functioning and a normal level of intellectual ability is valued at $1,000,000, the amount of damages would be equal to his 10% lost chance of being normal multiplied by $1,000,000.[103] This would result in a $100,000 award of damages. The issue, then, is not whether the *retardation* was caused by the physician's inaction, but, whether the *chance* of avoiding retardation was lost due to the physician's inaction.[104]

5. *The "Modified Valuation System"*

Under the "modified valuation system" proposed by this Note, three questions must be answered.[105] First, has the harm *actually* occurred?[106] In this case, the harm has actually occurred. The infant is mentally retarded. Second, was there a *substantial chance* of avoiding that harm in the absence of negligence?[107] This question must be answered by the courts or legislature of each jurisdiction.[108] This Note recommends that any chance of 10% or more be considered substantial.[109] Therefore, the second criterion would be met. The child had a 10% chance of physical recovery prior to the negligence. Third, was the negligent conduct of the defendant the *predominant factor* that resulted in the loss of the chance of avoiding harm?[110] Given the fact pattern described, an expert witness would probably testify that a total lack of action by the physician was the primary factor in eliminating the infant's 10% chance of avoiding harm. One way of viewing this is to say that if the child had been in the "lucky" 10%, the physician's inaction would have been the *predominant factor* that removed him from that group.[111] This deduction is based

100. *See supra* note 13.
101. *See supra* text accompanying notes 60–87.
102. *Id.*
103. *Id.*
104. *Id.*
105. *See supra* text accompanying notes 88–93.
106. *Id.*
107. *Id.*
108. *Id.*
109. *Id.*
110. *Id.*
111. *Id.*

on the testimony that a normal, full-term infant allowed to remain anoxic for a similar period of time had a 100% probability of being mentally retarded.

Finally, the plaintiff's compensation would be calculated by multiplying the 10% lost chance by the $1,000,000 value of the harm actually suffered.[112] The damage award would be $100,000.

B. *Torsion Testicle*

A young man with a painful, swollen testicle visits a physician. The physician negligently fails to diagnose torsion testicle on the first examination and later, after a seventy-two hour delay, discovers his error. The young man loses his testicle. An expert testifies that proper diagnosis and correction within twenty-four hours results in an 80% chance of recovery. He also testifies that after seventy-two hours the chance drops to zero. He further testifies that, had the young man been in the fortunate 80% who would have recovered, a seventy-two hour delay would have eliminated all chance of recovery.

1. *The "Reasonable Medical Certainty" Standard*

Under this standard, the result would depend on the percentage required in the individual jurisdiction.[113] If an 80% chance of recovery is considered adequate to satisfy this standard, a full measure of damages would be awarded, placing the entire risk of error by the finder of fact on the physician even though there was a one-in-five chance that he did not cause the injury.[114] If 80% is inadequate to satisfy the standard, the plaintiff bears an inordinately high risk of error by the finder of fact and receives no damages.[115]

2. *The "Reasonable Probability" or "More-Likely-Than-Not" Standard*

Because the chance of recovery in the absence of negligence is greater than 50%, this system would award full damages to the plaintiff.[116] The defendant would bear the entire risk of error.[117]

3. *The "Substantial Possibility" Standard*

Because this system is primarily applied in cases involving delayed diagnosis,[118] it is almost certain to award full damages to the plaintiff. Eighty percent clearly constitutes a "substantial possibility" of recovery in the absence of negligence.[119]

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112. *Id.*
113. *See supra* text accompanying notes 14–22.
114. *See supra* text accompanying note 13.
115. *Id.*
116. *See supra* text accompanying notes 23–39.
117. *See supra* text accompanying note 13.
118. *See supra* text accompanying note 47.
119. *See supra* text accompanying notes 40–59.

Once again, the defendant would bear the full risk of error (that is, a one-in-five chance that the injury was not due to his negligence).[120]

4. *The "Valuation System"*

The "valuation system" would treat the loss of the 80% chance of saving the testicle as the harm that should be compensated, rather than the loss of the testicle itself.[121] Therefore, if the testicle were valued at $100,000, the damage award would be 80% multiplied by $100,000, resulting in a damage award of $80,000.[122]

5. *The "Modified Valuation System"*

Once again, three questions must be answered in the affirmative in order for the plaintiffs to receive compensation under this system.[123] First, has the harm *actually occurred*?[124] Yes, the young man has lost his testicle. Second, was there a *substantial chance* of avoiding the harm in the absence of negligence?[125] Yes, an 80% chance is clearly substantial. Finally, was the negligent conduct of the defendant the *predominant factor* in the loss of the plaintiff's chance of avoiding harm?[126] In other words, if the plaintiff had been in the "lucky" 80%, was the physician's negligence the *predominant factor* that removed the plaintiff from that group?[127] Based on the testimony that a seventy-two hour delay would diminish the chance of recovery from 80% to zero, yes.

As a result, the plaintiff's compensation would be calculated by multiplying the 80% lost chance by the $100,000 value of the testicle.[128] This would result in a damage award of $80,000.

C. *The Partial Loss of a Chance*

So far, it is difficult to see how the results obtained by applying a "pure valuation system" differ from those obtained by applying a "modified valuation system." The difference in result becomes most apparent in cases involving the loss of a *substantial chance* that is not *predominantly* caused by the defendant's negligent conduct.

A patient with septicemia (a blood infection) dies after she is correctly diagnosed but negligently given the wrong antibiotic resulting in a delay of six hours.[129] An expert testifies that there is a 30% recovery rate for this form of septicemia if treated

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120. *See supra* text accompanying note 13.
121. *See supra* text accompanying notes 60–87.
122. *Id.*
123. *See supra* text accompanying notes 88–93.
124. *Id.*
125. *Id.*
126. *Id.*
127. *Id.*
128. *Id.*
129. Assume that results from a culture and sensitivity test were correct, but either a transcribing or dispensing error followed.

properly when diagnosed. She further testifies that a negligent delay of six hours would have had an uncertain effect, but may have reduced the chance of recovery to 25%.

1. *The "Reasonable Medical Certainty" Standard*

Clearly, this standard would result in no recovery whatsoever.[130] The lost chance involved does not even approach the smallest percentage (51%) ever required under this standard.[131]

2. *The "Reasonable Probability" Standard*

Because this standard requires at least a 51% chance of physical recovery in the absence of negligence, no damages would be awarded the plaintiff based on a partial loss of chance of 5%.[132]

3. *The "Substantial Possibility" Standard*

Because the percentage for a "substantial possibility" has varied, this standard would yield an uncertain outcome.[133] In *Hernandez v. Clinica Pasteur, Inc.*,[134] the court held that expert testimony to the effect that the delay in medical treatment *reduced* the patient's chance of survival was sufficient to support submission to the jury.[135]

Although the court did not explicitly adopt the "substantial possibility" standard of causation, it ruled that expert testimony that the decedent "would have had a better chance to survive if he had received prompt medical attention was sufficient to form a basis for the submission of the issue to the jury."[136] No specific percentage limitations were discussed.[137] Based on the *Hernandez*[138] holding, a jury could theoretically award full compensation for wrongful death based on such testimony. This would result in the defendant bearing a 95% risk of error![139] Due to the inequity of such a holding, the Supreme Court of Florida overruled *Hernandez*[140] in *Gooding v. University Hospital Building, Inc.*[141] In that opinion, the court adopted the holding of *Cooper v. Sisters of Charity*,[142] stating: "No other professional malpractice defendant carries this burden of liability without the requirement that plaintiffs prove the alleged negligence probably rather than possibly caused the injury. . . . We cannot

130. *See supra* text accompanying notes 14–22.
131. *See supra* text accompanying notes 15–16.
132. *See supra* text accompanying notes 23–39.
133. *See supra* text accompanying notes 40–59.
134. 293 So. 2d 747 (Fla. Dist. Ct. App. 1974).
135. *Id.* at 750.
136. *Id.*
137. *Id.*
138. *Id.*
139. *See supra* text accompanying note 13.
140. 293 So. 2d 747 (Fla. Dist. Ct. App. 1974).
141. 445 So. 2d 1015 (Fla. 1984).
142. 27 Ohio St.2d 242, 272 N.E.2d 97 (1971).

approve the substitution of such an obvious inequity for a perceived one."[143] The court did not address intermediate approaches such as valuation of damages. It seems likely that trusting juries to reduce damages to a just level without guidance from the court may lead to questionable and potentially inconsistent results.[144]

4. *The "Valuation System"*

Because the valuation system views even the partial loss of a chance of recovery as the injury to be compensated, the plaintiff would receive the equivalent of 5% of the value of a wrongful death damage award.[145] Under this system, no percentage of lost chance is too small or speculative to be compensated.[146]

5. *The "Modified Valuation System"*

By requiring an affirmative answer to three basic questions, the "modified valuation system" differs in result from the valuation system previously discussed.[147] The first criterion has been met; the patient died of septicemia.[148] The second criterion has been met; the chance of recovery that has been eliminated was *substantial*. The plaintiff has lost a 30% chance of recovery.[149] The third criterion has not been met. The defendant's negligence must be the *predominant factor* in eliminating the plaintiff's chance of avoiding harm.[150] Because the expert testified that the effect of such a delay was uncertain and, at most, responsible for reducing the chance of recovery by one-sixth (5%), there was no evidence to support a finding that the defendant's negligent conduct was the *predominant factor* leading to the loss of the plaintiff's chance of survival. There would be no award of damages under this approach. This approach would avoid the result of holding the physician partially responsible for the death of the plaintiff when the relationship between that death and his conduct was speculative in the extreme.[151] Non-damage related costs to the defendant physician which do not lend themselves to apportionment with the plaintiff would be avoided.[152]

If the hypothetical fact pattern were altered and there was testimony to the effect that the delay was the *predominant factor* in eliminating the plaintiff's 30% chance of recovery, the plaintiff would be entitled to an award of damages for the entire 30%

143. 445 So. 2d 1015, 1020 (Fla. 1984) (citation and footnote omitted).

144. *See supra* text accompanying notes 58–59.

145. *See supra* text accompanying notes 60–87.

146. *Id.*

147. *See supra* text accompanying notes 88–93.

148. *Id.*

149. *Id.* Although the "valuation system" looks to the percent reduction of the chance of recovery that is due to the negligence of the defendant, the "modified valuation system" looks to the total value of the chance which has been eliminated.

150. *Id.*

151. *See supra* text accompanying notes 60–83 discussing the "valuation system."

152. These costs include the damage to his professional reputation and the increase in his malpractice insurance premiums.

of her lost chance.[153] This would provide compensation for a *substantial chance* of recovery that was eliminated *predominantly* due to the defendant's behavior. While such testimony might include a percentage allocation to the negligent conduct, it would not be required.[154] This comports with the common understanding that medicine is not an exact science.[155]

VI. The Costs And Benefits of the "Modified Valuation System"

The traditional all-or-nothing approaches to causation have been criticized for placing an unfair risk of error on one party in a legal action.[156] The "reasonable medical certainty" standard places a disproportionate burden on the plaintiff,[157] while the "substantial possibility" standard places a disproportionate burden on the defendant.[158] The latter standard has also been criticized for being too speculative.[159] The "reasonable probability" standard, while producing a "rough justice," fails to provide the medical community with incentive to give appropriate care to patients with a low probability of recovery.[160] In addition, this standard results in a "talismanic" 1% that shifts up to a 50% risk of error from one party to another.[161] Finally, the traditional all-or-nothing approaches to causation have been criticized for providing an incentive to litigate rather than to settle, due to the uncertainty of their application.[162] Much of the uncertainty under the "substantial possibility" standard results from relying on juries to reduce the damage award to an equitable amount with no guidance from the court.[163]

The "valuation system" is also subject to criticism.[164] First, in its classic form, there is no requirement that an actual injury occur before the lost chance (viewed as the compensable injury under this system) is recompensed.[165] Second, the pure "valuation system" allows a verdict for the plaintiff when the percentage of chance lost due to the defendant's negligent conduct is small and speculative.[166] This is partially justified by a damage award which is proportional to the decrease in the chance caused by the defendant.[167] However, this does *not* take into account other costs to the defendant which cannot be apportioned with the plaintiff—such as damage to his professional reputation and increased malpractice insurance premiums.[168] In addition, such a system would greatly increase the number of cases

153. *See supra* text accompanying notes 88–93.
154. *Id.*
155. 61 Am. Jur. 2d *Physicians, Surgeons, and Other Healers* § 359 (1964).
156. *See supra* text accompanying notes 7–59.
157. *See supra* text accompanying notes 14–22.
158. *See supra* text accompanying notes 40–59.
159. *Id.*
160. *See supra* text accompanying notes 24, 37, and 38.
161. *See supra* text accompanying note 28.
162. *See supra* text accompanying note 38 and 58.
163. *See supra* text accompanying note 59.
164. *See supra* text accompanying notes 60–87.
165. *See supra* text accompanying note 80.
166. *See supra* text accompanying notes 60–83.
167. *Id.*
168. *Id.*

that have the potential to go to trial and, therefore, would increase costs.[169] While it has been suggested that such a system provides certainty which would encourage settlement,[170] there is reason to doubt that expert opinions will be consistent enough to create such a high level of certainty.[171]

The "modified valuation system" achieves a balance between these competing interests. First, by requiring that the lost chance be a *substantial* one, the modified approach decreases some of the speculation and cost inherent in the valuation approach.[172] Fewer cases will meet these requirements than would meet the requirements of a "pure valuation system." Second, by requiring that the defendant's negligent conduct be the *predominant factor* in eliminating the chance of recovery, the modified approach protects the defendant from nonapportionable costs in extremely speculative cases.[173] This advantage to the defendant is balanced by the fact that the plaintiff receives compensation for the full amount of the lost chance if the *predominant factor* criterion is met.[174] Finally, the modified approach avoids the "talismanic" 1% of the "reasonable probability" standard[175] and allocates the risk of error more fairly between the parties than the traditional all-or-nothing approaches.[176]

There are two major criticisms of the "modified valuation system." First, the system may be seen as too subtle and complex for a jury to employ. The court can overcome this difficulty by providing the jury with the three questions to be answered: 1) Was there an *actual harm*?; 2) Was there a loss of a *substantial chance of recovery*?; 3) Was the negligent conduct of the defendant the *predominant factor* in eliminating that chance?[177] The court can then instruct the jury concerning the calculation of the damage award based on the above answers.[178] Second, such a system, by increasing access to the courts for persons unable to meet a more stringent traditional standard—such as the "reasonable probability" standard—would increase administrative costs. While this is no doubt true, the increase in costs would be less dramatic than the increase resulting from a "pure valuation system."[179]

Finally, the American Medical Association (AMA) has suggested a very similar standard of causation:

> The plaintiff must prove that it is more likely than not that the physician's negligence was a contributing factor in causing the plaintiff's injury. If the physician's negligence was a contributing factor, his liability is limited solely to the extent of his responsibility for the

169. *See supra* text accompanying notes 86–87.
170. *See supra* text accompanying note 85.
171. *See supra* text accompanying notes 86–87.
172. *See supra* text accompanying notes 60–87.
173. *See supra* text accompanying notes 166–68.
174. *See supra* text accompanying note 149.
175. *See supra* text accompanying note 28.
176. *See supra* text accompanying notes 14–59.
177. *See supra* text accompanying notes 88–93.
178. *Id.*
179. *See supra* text accompanying notes 172–74.

injury. The physician will not be liable for the contributions of other individuals, including the patient, or other factors such as the patient's preexisting medical condition.[180]

The requirement that it be more likely than not that the physician's negligence was a contributing factor in causing the injury is not unlike the "predominant factor" prong of the modified valuation approach.[181] Indeed, in application they may be indistinguishable. In addition, the limiting of the physician's liability to the percentage of harm to which his negligence contributed is, in essence, a valuation system of damages. That the AMA favors such a system supports the contention that defendants, at least, believe the system more fairly distributes the risk of error by allowing physicians to avoid paying for contributions to the injury that are beyond their control, such as the actions of patients who fail to follow medical advice.

VII. Conclusion

The "modified valuation system" proposed allows sufficient flexibility to avoid injustice inherent in the current "all-or-nothing" systems.[182] In addition, it avoids the unlimited speculation and almost universal recovery of damages inherent in the "pure valuation system."[183] The subtlety and complexity of the modified system are not excessive, and it may achieve benefits in terms of justice that outweigh the increased costs to society.[184]

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180. AMA/Specialty Society Medical Liability Project, A Proposed Alternative to the Civil Justice System for Resolving Medical Liability Disputes: A Fault-Based, Administrative System (January 1988) (unpublished manuscript) (on file at the Ohio State Law Journal).

181. *See supra* text accompanying notes 92–93.

182. *See supra* text accompanying notes 14–59.

183. *See supra* text accompanying notes 60–87.

184. Tom Lenhart, a colleague, has suggested an interesting system for the valuation of damages. His system is based on the probability that the physician's negligence caused the actual harm. Under that system, a patient would be entitled to damages based on the amount that the risk of harm was increased by the physician's negligence. Therefore, if the physician increased the risk of harm from 5% to 10%, the patient would be entitled to a 50% damages recovery. The major difficulty with this system is that it results in awards that are not dependent on the degree of negligence. For example, if a physician committed a seriously negligent act that increased the plaintiff's risk of death from 20% to 40%, the plaintiff would be entitled to a 50% award for wrongful death. However, if a less serious error were made which increased the risk of death from 3% to 9%, the plaintiff would be entitled to a 66% award for wrongful death. It is undeniable, however, that this system represents the *odds* that the physician caused the *actual* harm very accurately.