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**"I'm not Half the Man I Used to Be:[closesmartdoublequote]  
Exposure to Risk without Bodily Harm in Anglo-American and  
Israeli Law**

Benjamin Shmueli

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# **“I’M NOT HALF THE MAN I USED TO BE”: EXPOSURE TO RISK WITHOUT BODILY HARM IN ANGLO-AMERICAN AND ISRAELI LAW**

*Benjamin Shmueli\**

## ABSTRACT

*This Article addresses the fundamental and age-old question of defining harm in tort law. It follows the case of the trapped Chilean miners, among others. It challenges, in a comparative view, the common notion that no compensation will be awarded for tortious conduct that produces no actual loss or damages because pure risks that have not yet materialized are not considered a harm.*

*Can damages be awarded by the risk creator to a plaintiff who was exposed to a medical risk or to radiation or toxins and whose risk of becoming ill or suffering harm has thus been tortiously increased, even though he cannot demonstrate present bodily harm? Some scholars view increased risk as an “incomplete” tort entitling victims to partial damages proportional to the increase. Others view the exposure as a “complete” tort in itself. I examine each of these rationales against the overarching goals of tort law. Examination of these rationales will serve as a practical and theoretical basis for discussing the harder question: how to compensate healthy plaintiffs in cases of potential future harm where the plaintiff is not the person he used to be following the exposure to the risk, but cannot point at a substantial bodily harm. I examine various categories of “healthy” plaintiffs in order to test the limits of these*

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*rationales. Through these categories, I address the key question of whether compensation is merited, and if so, what its proper scope is.*

*I show a practical difference between viewing increased risk as an “incomplete” or “complete” tort with respect to certain categories of plaintiffs. The discussion leads to a critique of Anglo-American and Israeli case law, which is not prepared to properly recognize the need for compensation in some of the categories.*

*Hence, this Article proposes an innovative approach based on different categories of healthy plaintiffs, examined against the two alternative theoretical rationales and focuses on the need to compensate the healthy exposed people that are in a state of “latency” or incubation, whose lives have been changed as an outcome of this continuous risk. The Article offers various qualifications and parameters for the suggested acknowledgment of risk as harm.*

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## INTRODUCTION

This Article addresses the fundamental and age-old question of defining harm in tort law<sup>1</sup> and challenges the common notion that, in general, no compensation will be awarded for tortious conduct that produces no actual loss or damages,<sup>2</sup> since pure risks that have not yet materialized are not considered a harm.<sup>3</sup>

On August 5, 2010, the San Esteban gold and copper mine in Chile collapsed and thirty-three miners went missing.<sup>4</sup> For seventeen days there was no news of them and they were thought to be dead, until a drill searching for air pockets punched a hole through to the underground room the men were in.<sup>5</sup> They were trapped 2,300 feet underground.<sup>6</sup> Until then, they were cut off from the surface.<sup>7</sup> It was estimated that it would take four months to rescue them.<sup>8</sup> A communications connection was established, and each miner was able to speak.<sup>9</sup> All reported feeling hungry but well, with the exception of one man with a stomach problem.<sup>10</sup> Even so, doctors and psychological experts tried to safeguard the sanity of the miners by implementing a plan that included keeping them informed and busy.<sup>11</sup> “The shelter, a living-room-sized chamber big enough to hold all thirty-three men, [was] far enough from the landslide to remain intact, and the miners [could] also walk around [below the tunnel] where the rocks fell.”<sup>12</sup> Kathleen Kowalski Trakofler, a research psychologist at the National Institute for Occupational Safety and Health, says that while

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<sup>1</sup> See JOEL FEINBERG, HARM TO OTHERS 34–38 (1984); Claire Finkelstein, *Is Risk a Harm?*, 151 U. PA. L. REV. 963 (2003) (discussing different definitions of “harm”).

<sup>2</sup> See, e.g., Heidi M. Hurd, *The Deontology of Negligence*, 76 B.U. L. REV. 249, 263 (1996) (defending the position that tort law requires wrongdoing that has materialized and that a defendant cannot be held liable in tort for a risk of harm); W. PAGE KEETON ET AL., PROSSER & KEETON ON TORTS § 30 (5th ed. 1984) (enumerating the elements of a negligence cause of action, among them “[a]ctual loss or damage resulting to the interests of another”).

<sup>3</sup> See, e.g., Finkelstein, *supra* note 1, at 976.

<sup>4</sup> *Chile Mining Accident (2010)*, N.Y. TIMES TOPICS (Oct. 12, 2011), [http://topics.nytimes.com/top/reference/timestopics/subjects/c/chile\\_mining\\_accident\\_2010/index.html](http://topics.nytimes.com/top/reference/timestopics/subjects/c/chile_mining_accident_2010/index.html).

<sup>5</sup> *Id.*

<sup>6</sup> *Id.*

<sup>7</sup> *Id.*

<sup>8</sup> Mauricio Cuevas, *Joy in Chile: 33 Miners Trapped 17 Days are Alive*, ASSOCIATED PRESS, Aug. 23, 2010, available at [http://www.huffingtonpost.com/2010/08/22/chile-miners-rescued-alive\\_n\\_690511.html](http://www.huffingtonpost.com/2010/08/22/chile-miners-rescued-alive_n_690511.html).

<sup>9</sup> *Id.*

<sup>10</sup> *Id.*

<sup>11</sup> *Id.*

<sup>12</sup> *Id.*

research on this topic is limited, there may be some general behavioral responses:

Over time, individuals are likely to feel crowded, sleep-deprived, irritable, bored, and restless . . . [O]ther noxious stimuli include loss of privacy while toileting, odors . . . as well as [the] absence or presence of noise by any operating machinery or life support systems. Low levels or lack of lighting provides no normal cycling of light to trigger the body's natural circadian rhythms. . . . Common symptoms . . . include anxiety, withdrawal, aggression, hostility, depression and irrational and impulsive behavior.<sup>13</sup>

The men, ages nineteen to sixty-three, survived underground for more than two months.<sup>14</sup> Some of them revealed in interviews that the hardest time was the seventeen days before the rescuers discovered them because they were actually waiting for their deaths.<sup>15</sup> One of the miners said the ordeal had taken him "to the limit" and that now he just wanted to be alone.<sup>16</sup> He also said, "[t]he confinement was terrible . . . The first 17 days were a nightmare. Then everything changed. But the hardest thing was to be down there. Buried for two months."<sup>17</sup>

Medical experts say that "[r]espiratory conditions are at the top of the list of problems the miners are likely to face . . . [due to] the poor air quality said to exist in the mine," alongside "[f]ungal infections, including athlete's foot . . . jock itch," dental problems, and eye problems.<sup>18</sup> Also, dehydration coupled with a lack of sunlight could cause problems with muscles, bones, and other

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<sup>13</sup> *Time, Heat Could Take Toll on Trapped Miners: But It's 'Amazing What Your Body Can Do,' Says Miner Saver in 2006*, MSNBC, [http://www.today.com/id/38816833/ns/today-today\\_news/t/time-heat-could-take-toll-trapped-miners/#.UIRjexYrGiK](http://www.today.com/id/38816833/ns/today-today_news/t/time-heat-could-take-toll-trapped-miners/#.UIRjexYrGiK) (internal quotation marks omitted) (last visited Nov. 15, 2013).

<sup>14</sup> David W. Freeman, *Chile Miners: After Rescue, What Medical Dangers Lie Ahead?*, CBS NEWS (Oct. 13, 2010, 10:26 AM), [http://www.cbsnews.com/8301-504763\\_162-20019445-10391704.html](http://www.cbsnews.com/8301-504763_162-20019445-10391704.html).

<sup>15</sup> Liz Robbins, *Miners Begin to Speak, Though Sparingly, of Ordeal*, N.Y. TIMES: LEDE BLOG (Oct. 15, 2010, 12:54 PM), [http://thelede.blogs.nytimes.com/2010/10/15/miners-begin-to-speak-though-sparingly-of-ordeal/?\\_r=0](http://thelede.blogs.nytimes.com/2010/10/15/miners-begin-to-speak-though-sparingly-of-ordeal/?_r=0).

<sup>16</sup> *Id.*

<sup>17</sup> *Id.*; Catharine Paddock, *Chilean Miners Start a New Journey: Recovery*, MED. NEWS TODAY (Oct. 13, 2010), <http://www.medicalnewstoday.com/articles/204509.php#> ("American astronaut Jerry Linenger, who spent five months isolated and confined in space aboard the Russian space station Mir, told CNN that until that point, the miners were in 'survival mode', which is 'tough psychologically because you are in a life and death situation.'").

<sup>18</sup> See Freeman, *supra* note 14. The long exposure to darkness could result in eye damage, or exposure to sunlight again after months in darkness could result in retinal damage. *Id.* The men were given sunglasses to wear upon returning to the surface. *Id.*

organs.<sup>19</sup> In the days after rescue, it is common to experience sleep disturbances, anxiety attacks, and nightmares.<sup>20</sup> Symptoms of post-traumatic stress disorder (“PTSD”) and anxiety may appear shortly after the rescue: for example, entering a dark room or a mine could spark anxiety and phobic reactions, even in a miner who is seen as physically fit and psychologically strong.<sup>21</sup> These symptoms are hard to treat.<sup>22</sup> The miners may also experience feelings of guilt and depression that stem from interactions between individuals down in the mine during what was one of the most stressful times in their lives.<sup>23</sup>

Some thought that the media frenzy would cause unnecessary stress to the miners and their families upon their rescue.<sup>24</sup> Others have suggested that the rescue process may have been more anxiety inducing than the time spent in the mine.<sup>25</sup> The rescue process was intense. It involved traveling out of the mine in a “tight, spinning tube” of only twenty-one inches in diameter.<sup>26</sup> The trip took up to twenty-five minutes.<sup>27</sup> Finally, the miners may face trouble reinserting themselves back into their family units, and that may result in depression in many cases.<sup>28</sup>

A short time after the rescue, the miners seemed to be doing quite well.<sup>29</sup> This is the first time that miners have been rescued after spending so many days underground; therefore, not all potential harms and effects are known or

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<sup>19</sup> Caroline Alphonso, *As the Rescue Unfolds in Chile, the Hard Work Begins Above Ground*, GLOBE & MAIL (Oct. 13, 2010, 6:21 PM), <http://www.theglobeandmail.com/news/world/americas/as-the-rescue-unfolds-in-chile-the-hard-work-begins-above-ground/article1755863/>.

<sup>20</sup> *Id.*

<sup>21</sup> *Id.*

<sup>22</sup> Alexei Barrionuevo, *A Year out of the Dark in Chile, but Still Trapped*, N.Y. TIMES, Oct. 12, 2011, at A1.

<sup>23</sup> *Id.*

<sup>24</sup> Karen Merzenich, *Mental Health Issues Facing the Chilean Miners: Before, During, and After the Rescue*, POSITSCIENCE (Oct. 12, 2010), <http://blog.positscience.com/2010/10/12/mental-health-issues-facing-the-chilean-miners-before-during-and-after-the-rescue/>; see also Priscilla Dass-Brailsford, *Chilean Miners: Psychological Effects of Being Trapped*, WASH. POST (Oct. 13, 2010, 2:00 PM), <http://www.washingtonpost.com/wp-dyn/content/discussion/2010/10/13/DI2010101303813.html> (answering questions from viewers about the mental damage the miners will suffer).

<sup>25</sup> See Merzenich, *supra* note 24.

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> See Alphonso, *supra* note 19. Even though almost every illness can be treated with physical therapy, medicine, and time, the most harmful effects of illness are usually the aforementioned anticipated psychological effects. See Barrionuevo, *supra* note 22.

<sup>29</sup> See Freeman, *supra* note 14.

anticipated.<sup>30</sup> Nick Kanas, a University of California professor studying the psychology of astronauts and other persons under stress, believes that the miners should be critically evaluated over long periods of time.<sup>31</sup> He said: “They should be evaluated carefully for [PTSD] because it can appear immediately or even weeks or months after that.”<sup>32</sup>

Can the miners sue after the rescue, even if they cannot point to any proven bodily or substantial psychological or psychiatric emotional harm at the moment—only fear there may be such in the unknown future? Is exposure to the risks of possible mental and bodily harms alone, especially given knowledge of harm inflicted on miners in previous cases, enough to justify compensation? Moving from the specific to the general, can damages be awarded to a plaintiff who was exposed to medical risk, radiation, or toxins, and whose risk of becoming ill or suffering tortious harm has thus been increased, even though he cannot demonstrate present harm but only a risk of future potential harm? Or, at most, can damages be awarded to a plaintiff with some fear of the unknown and anxiety that he will become ill like some other members of the group he belongs to who have since become sick or died?

The question of what tort law defines as “harm” is not trivial, and the answer has undergone many changes in the last several decades.<sup>33</sup> In a generation that evidently does not shy away from expanding the concept of harm, where do we draw the line? Can damages be given absent any harm? Compensation without harm for torts that traditionally require a showing of harm, such as negligence, seems contradictory. Specifically, the question is whether an individual may receive damages following tortious exposure to a risk when there appears to be no present harm, but only the possibility that the individual may suffer harm in the future. If the answer to this question is yes, is this not a breach of traditional tort rules since there is compensation for merely potential and even only speculative harm?

These are cases of uncertain causation, that is, cases of increased risk, in which a party being sued for tortious conduct merely increased the chances

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<sup>30</sup> *Id.*

<sup>31</sup> See Alphonso, *supra* note 19.

<sup>32</sup> *Id.*

<sup>33</sup> Benjamin Shmueli, *Civil Actions for Acts that Are Valid According to Religious Family Law but Harm Women's Rights: Legal Pluralism in Cases of Collision Between Two Sets of Laws*, 46 VAND. J. TRANSNAT'L L. 823, 826 (2013).

that the plaintiff would be harmed or become ill.<sup>34</sup> With the doctrine of increased risk, typically discussed in connection with cases involving plaintiffs who are not healthy and who have suffered harm or illness, there is difficulty proving factual causation based on the preponderance of the evidence. A survey of typical cases in which the doctrine of increased risk is applied when harm is caused to the plaintiff, along with some original and independent thinking, allows us to present a picture in which there are two possible theoretical rationales for this doctrine. The first rationale sees this recovery as partial and proportional compensation based on the fraction of harm attributable to the defendant, judged on the basis of the probability that the defendant, rather than another risk factor, was responsible for the harm caused to the plaintiff. This is an evidentiary leniency, which can also be called an “incomplete tort,” since the law reduces the requirement of strict causal linkage. The other rationale sees the increased risk as an independent instance of damage and a complete tort that requires full compensation. Each rationale will be examined within the theoretical framework of the law of tort perspective. On either rationale, the doctrine of increased risk is preferable to the traditional “all or nothing” system of recovery,<sup>35</sup> and to granting full compensation to victims of torts even if the victim is unable to show, by a preponderance of the evidence, that the activity is unquestionably tortious, thus mitigating the causation demand.<sup>36</sup>

Examination of these rationales will serve as a practical and theoretical basis for dealing with the central and harder question of compensation for healthy plaintiffs in cases of potential future harm. This question continues to

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<sup>34</sup> See Richard W. Wright, *Causation in Tort Law*, 73 CAL. L. REV. 1735, 1775, 1790 (1985), for a discussion on factual causation. See DAN B. DOBBS, *THE LAW OF TORTS* 841 (2001); JOHN W. STRONG, *MCCORMICK ON EVIDENCE* 422 (5th ed. 1999), for information on the preponderance of evidence test and its efficacy. See Guido Calabresi, *Concerning Cause and the Law of Torts: An Essay for Harry Kalven, Jr.*, 43 U. CHI. L. REV. 69 (1975–76); William M. Landes & Richard A. Posner, *Causation in Tort Law: An Economic Approach*, 12 J. LEG. STUD. 109 (1983), for a discussion of causality in line with law and economics.

<sup>35</sup> See, e.g., Ariel Porat & Alex Stein, *Indeterminate Causation and Apportionment of Damages: An Essay on Holtby, Allen, and Fairchild*, 23 OXFORD J. LEGAL STUD. 667, 680, 700 (2003) [hereinafter *Indeterminate Causation and Apportionment of Damages*].

<sup>36</sup> See David A. Fischer, *Proportional Liability: Statistical Evidence and the Probability Paradox*, 46 VAND. L. REV. 1201, 1217, 1226 (1993); David A. Fischer, *Tort Recovery for Loss of a Chance*, 36 WAKE FOREST L. REV. 605, 627 (2001); Nils Jansen, *The Idea of a Lost Chance*, 19 OXFORD J. LEGAL STUD. 271, 296 (1999); Andrew R. Klein, *Causation and Uncertainty: Making Connections in a Time of Change*, 49 JURIMETRICS J. 5, 14–22 (2008); Boaz Shnoor, *Loss of Chance: A Behavioral Analysis of the Difference between Medical Negligence and Toxic Torts*, 33 AM. J. TRIAL ADVOC. 71, 111–12 (2009), regarding the preferability of the increased risk and lost chance doctrines over the “all-or-nothing” solution, and for a survey of the range of cases.

gain relevance as a result of the increasing awareness of possible harm from exposure to certain activities and materials, exposure over which many more actions are being brought. This development in tort law is crucial, since usually the people exposed to a risk that has not yet materialized generally outnumber those who are harmed and become sick by several orders of magnitude.<sup>37</sup> There is a real and serious concern that the courts may be flooded with such lawsuits and the damager's purse may be emptied, compromising his ability to eventually compensate those who were harmed and actually became ill.<sup>38</sup> A complementary consideration is that if healthy plaintiffs exposed to risk cannot sue now, the tortfeasor may be insolvent by the time their harm materializes.<sup>39</sup>

Do note that the increased risk doctrine is being raised to this day, especially in cases in which *bodily damage*—which is characteristic of increased risk—*occurred*. This Part of the Article deals with a case in which no bodily damage of the type characteristic of increased risk occurred and addresses the question of the applicability of the doctrine in *other* areas of damage, some of which are considered to be trivial (anxiety or expenses resulting from the increased risk). The law does not always recognize these areas, and some of the areas are rather innovative requiring a discussion of their possible recognition.

Who are these “healthy plaintiffs” who are interested in suing for increased risk? There are four different categories. The first group includes those who, although exposed to a risk, remain healthy.<sup>40</sup> For this group, there is no longer any chance that damage will occur either now or in the future as a result of the tortious activities that exposed them to risk. What the other three groups share in common is that they are currently considered “healthy,” but only in regard to the physical harm typically developed from the exposure to the risk. However, these groups are not healthy from other perspectives. The second group includes plaintiffs who suffer no physical harm but experience emotional distress as a result of the fear that they will later experience the physical harm typically associated with exposure to the risk.<sup>41</sup> The third group includes individuals who incur medical expenses as a result of the need for increased screening or preventative measures in order to prevent or detect the

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<sup>37</sup> See Sheila B. Scheuerman, *Against Liability for Private Risk-Exposure*, 35 HARV. J.L. & PUB. POL'Y 681, 723 (2012).

<sup>38</sup> See *id.* at 731.

<sup>39</sup> *Id.*

<sup>40</sup> See *infra* Part II.B.

<sup>41</sup> See *infra* Part II.C.

future harm.<sup>42</sup> This group may or may not ultimately experience the harm that these medical expenses are designed to detect or prevent. The fourth group includes the latent sufferers in whom the disease might be incubating, and who may eventually suffer harm as a result of the exposure.<sup>43</sup> They do not suffer substantial psychiatric or psychological emotional distress or have preventative medical expenses prior to the actual realization of the harm.

These four categories of “healthy” plaintiffs raise a number of key questions. One is whether they should be compensated at all, either under the theory of partial and proportional damages, that is, as an incomplete tort, or as a separate and independent harm, that is, a complete tort. If the answer is yes, we must go on to ask what the appropriate scope of compensation is.

The theoretical discussion will show that the only practical difference between the rationale of proportional, partial compensation and incomplete tort, and independent harm and complete tort, is in the fourth category of healthy plaintiffs—the latent sufferers. In the other categories, no such difference is evident. This recognition leads to a critique of Anglo-American and Israeli case law.

Although there is some writing on tort actions by healthy plaintiffs, the literature generally has not separated the plaintiffs into different categories based on their relationship to the future harm they will suffer, nor has it examined these categories in light of the different theoretical rationales for recovery.<sup>44</sup> The case of healthy plaintiffs has also never been addressed fully by the courts,<sup>45</sup> and only partially by scholars.<sup>46</sup> Hence, this Article proposes

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<sup>42</sup> See *infra* Part II.D.

<sup>43</sup> See *infra* Part III.E.

<sup>44</sup> Scheuerman, *supra* note 37; Ariel Porat & Alex Stein, *Liability for Future Harm*, in PERSPECTIVES ON CAUSATION 221, 229–30 (Richard S. Goldberg ed., 2010) [hereinafter *Liability for Future Harm*].

<sup>45</sup> See, e.g., *Ayers v. Twp. of Jackson*, 525 A.2d 287, 307 (N.J. 1987) (allowing recovery of costs for medical testing and water control but not for a future harm without a past harm); Finkelstein, *supra* note 1, at 983.

<sup>46</sup> See generally, e.g., Finkelstein, *supra* note 1, at 965–66, 983. Finkelstein supports the notion that the imposition of a risk should be considered harm, but does not deal with the question of whether defendants who expose others to unjustified risks should be held liable. *Id.* She also discusses whether the law ought to compensate for the imposition of nonconsensual risks, and focuses on the argument that agents have a legitimate interest in avoiding unwanted risks and also not supporting her thesis on deterrence. *Id.* Finkelstein distinguishes between risk-based harm, which she calls “risk harm,” and ordinary, tangible harm, which she calls “outcome harm,” claiming that risk harm is a form of harm that is independent of outcome harm, on the grounds that minimizing one’s risk exposure is an element of an agent’s basic welfare. *Id.* at 966. She finds support for the general approach to risk and chance to be available from either the harm or the benefit side. *Id.* at 966. See also Matthew D. Adler, *Risk, Death and Harm: The Normative Foundations of Risk Regulation*, 87

for the first time a presentation based on the patterns of cases of different categories of healthy plaintiffs, examined against the two alternative theoretical rationales. It also suggests the appropriate legal outcome for each category of plaintiff according to each rationale. Importantly, this Article calls for the innovation of acknowledging risk as harm even if it has not yet materialized, based on a pluralistic point of view that takes into account the entirety of tort law's goals. This Article will discuss different parameters for the qualification of this suggested acknowledgment. This Article also supports the notion that defendants who expose others to unjustified risks should be held liable in cases involving fear of risk of morbidity and not only fear of death. All of these issues will contribute to producing a novel point of view that complements one side of the literature but differs from the other.<sup>47</sup>

Part I analyzes the two rationales for understanding the increased risk doctrine—incomplete and complete tort. These rationales will be discussed individually, compared to one another, and examined vis-à-vis the tort law's goals. Part II deals with a test case to distinguish between the rationales, namely, awarding damages to “healthy risk-injured” plaintiffs. The possibility of awarding compensation and the extent of that compensation to each of the various categories of healthy plaintiffs is examined against the rationales for the doctrines. The primary proposal is to acknowledge the need to compensate according to the complete tort rationale in the fourth category of the latent as well, but only based on parameters and barriers. This Article also addresses the intermediate cases in Israeli law. The conclusion draws out some of the policy implications of this novel approach to the risk of harm.

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MINN. L. REV. 1293 (2003) [hereinafter *Risk, Death and Harm*] (arguing that risk can itself be considered a harm in torts if the plaintiff proves fear of death, focusing only on risks of death and according only to law and economics); Christopher H. Schroeder, *Corrective Justice and Liability for Increasing Risks*, 37 UCLA L. REV. 439 (1990) [hereinafter *Increasing Risks*] (arguing that expected harm should be considered a harm in itself); see John C.P. Goldberg & Benjamin Zipursky, *Unrealized Torts*, 88 VA L. REV. 1625, 1651 (2002) (assuming that exposure to increased risk can be regarded as a loss of welfare in and of itself to persons placed at heightened risk, stating that “this assumption strikes many as intuitive.”). Goldberg and Zipursky do not defend this approach in detail, but argue compellingly that the law should not compensate for “unrealized torts.” *Id.* at 1634. They do allow, however, “a heightened risk of physical injury” to “constitute a loss of welfare.” *Id.* As Finkelstein explains, they actually suggest that exposure to risk is a “non-cognizable harm,” but do not seek to defend the claim that it is a harm the law will countenance. Finkelstein, *supra* note 1, at 965–66. See *id.* at 965 n.10, for other scholars who argue that there should be compensation for exposure to risk, but do not fully embrace the position that a risk of harm is itself a harm.

<sup>47</sup> Thus, this Article completes the views addressed in the articles mentioned in the previous footnote, and presents a different point of view in several aspects.

## I. COMPLETE OR INCOMPLETE TORT? TWO ALTERNATIVE RATIONALES FOR THE THEORETICAL BASIS OF THE INCREASED RISK DOCTRINE

### A. *The Increased Risk Doctrine: General Overview and Examples*

The question of whether to award damages for increased risk based on probabilistic causation has been percolating for decades.<sup>48</sup> The law generally discusses this issue in the context of medical malpractice, but also in cases of environmental pollution and exposure to toxics and hazards such as radiation or asbestos, and even in non-tort contexts.<sup>49</sup> The issue, which belongs to the larger topic of uncertain causation, presents several questions.

First, and for the sake of the comparison, consider the loss of chances to recover from an illness, which is in fact a mirror image of the increased risk doctrine.<sup>50</sup> In these situations, the plaintiff claims that a certain percentage of his chances of recovery were lost due to the negligent omissions of the defendant.<sup>51</sup> For example, a person makes several trips to the doctor after experiencing aches and pains. The doctor acts negligently in failing to send the patient for imaging exams and thus fails to find a cancerous growth in time, thereby reducing the plaintiff's chances of survival. Had the doctor found the tumor in time, the patient would have had 40% chance of survival. By the time the tumor was found, the patient only had a 25% chance of survival. The patient did not survive. His chances had been reduced by fifteen out of forty percentage points (about 37%). The lost chance doctrine has been more widely adopted by the law in different jurisdictions than the increased risk doctrine,<sup>52</sup> which has only been adopted in a few.<sup>53</sup> There are also some signs of the lost

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<sup>48</sup> See, e.g., *Herskovits v. Group Health Coop. of Puget Sound*, 664 P.2d 474, 476–77 (Wash. 1983).

<sup>49</sup> See, e.g., Andrew R. Klein, *Causation and Uncertainty: Making Connection in a Time of Change*, 49 JURIMETRICS J. 5, 14–22 (2008) (discussing a variety of cases that are affected by increased risk).

<sup>50</sup> These two doctrines can be seen as reflections of one another. Increased risk can be seen as lost chances not to be harmed or become ill, while lost chances can be seen as increased risk to lose the chances of recovery. See David P. T. Price, *Causation—The Lords' Lost Chance?*, 38 INT'L & COMP. L.Q. 735, 760 (1989); *Tort Recovery for Loss of a Chance*, *supra* note 38, at 612–13; Glen O. Robinson, *Probabilistic Causation and Compensation for Tortious Risk*, 14 J. LEGAL STUD. 779, 792–93 (1985); Keith W. Lapeze, Comment, *Recovery for Increased Risk of Disease in Louisiana*, 58 LA. L. REV. 249, 267 (1997). However, Nils Jansen does not agree that the two cases may be equated in practice. See Jansen, *supra* note 38, at 278–79, 287, 295.

<sup>51</sup> See, e.g., *Herskovits*, 664 P.2d at 474–75.

<sup>52</sup> See *Roberts v. Ohio Permanente Med. Grp.*, 668 N.E.2d 480, 484 (Ohio 1996). See John D. Hodson, Annotation, *Medical Malpractice: "Loss of Chance" Causality*, 54 A.L.R. 4th. 10 (1987), for an extensive survey of the situation in the United States in legislation and case law.

<sup>53</sup> See Robert J. Rhee, *The Application of Finance Theory to Increased Risk Harms in Toxic Law Litigation*, 23 VA. ENVTL. L.J. 111, 140–42; Amanda Leiter, *Substance or Illusion? The Dangers of Imposing*

chance doctrine in British court rulings.<sup>54</sup> The lost chance doctrine has been expressly recognized by the Israeli courts,<sup>55</sup> whereas the increased risk doctrine was first recognized by the Israeli Supreme Court in 2005, but was partially overruled in that court in 2010, with the majority holding that it can only be acknowledged in certain circumstances, and only in mass or serial cases.<sup>56</sup> Some scholars have suggested recognizing the doctrines only in cases of medical malpractice.<sup>57</sup> The lost chance doctrine has been rejected by the Canadian Supreme Court in Quebecois civil law.<sup>58</sup>

The increased risk doctrine will be presented in classic cases in which harm was eventually caused and the victim wishes to sue the party who increased the risk. Consider a mass tort in which both the damager and the extent of damage are known, but where it is not clear who among the group of victims suffered harm as a result of the actions of the damager and who was harmed due to some other factor. Here, the causal link between the tortious actions of the damager and the harm to the victim is uncertain and the victim is unknown. This category can be illustrated by the example of the factory.

**The factory example:** A factory negligently releases radiation, thus increasing the risks to the residents of a local town. All other risk factors for the town's residents (such as state of health, working near risk factors, etc.) remain constant over the years. The town has around 100,000 residents. If it is known

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a *Standing Threshold*, 97 GEO. L.J. 391, 392–93 (2009) (stating that the increased risk doctrine is unique to the D.C. Circuit).

<sup>54</sup> See *Gregg v. Scott*, [2005] UKHL 2, [2005] 2 WLR 268 (H.L.) paras. 1–4 (appeal taken from Eng.) (Lord Nicholls, dissenting); *Barker v. Corus* [2006] UKHL 20 (H.L.) para. 37 (appeal taken from Eng.); MARC STAUCH, *THE LAW OF MEDICAL NEGLIGENCE IN ENGLAND AND GERMANY: A COMPARATIVE ANALYSIS* 93–94 (2008) (assuming that recognition of the doctrine in the United Kingdom is only a matter of time). It seems, however, that the doctrine was applied only when it was proved that part of the harm was caused by at least one of the defendants, though it was not clear which. See *Fairchild v. Glenhaven Funeral Services, Ltd.* [2002] UKHL 22, para. 74 (appeal taken from Eng.); *Indeterminate Causation and Apportionment of Damages*, *supra* note 35, at 695. See *THE LAW OF TORT* para. 14.16 (Ken Oliphant et al., eds., 2nd ed. 2007), for a discussion on the situation in the United Kingdom after *Gregg*.

<sup>55</sup> See, e.g., CA 231/84, *Histadrut Health Fund v. Fatah*, 42(3) IsrSC 312 [1988] (Isr.).

<sup>56</sup> See generally CA 4693/05 *Carmel Hosp. Haifa v. Malul* [2010] (Isr.) (unpublished).

<sup>57</sup> Saul Levmore, *Probabilistic Recoveries, Restitution, and Recurring Wrongs*, 19 J. LEGAL STUD. 691, 720 (1990). Regarding lost chance, it seems that this is the case in the United States. See *Hardy v. Sw. Bell Tele. Co.*, 910 P.2d. 1024, 1030 (Okla. 1996). *But see* David Rosenberg, *The Causal Connection in Mass Exposure Cases: A "Public Law" Vision of the Tort System*, 97 HARV. L. REV. 849, 928 (1984) (arguing that the doctrine should not be limited to cases of medical malpractice); Steven Shavell, *Uncertainty Over Causation and the Determination of Civil Liability*, 28 J.L. & ECON. 587, 606 (1985) (arguing that the doctrine should also be recognized in cases of toxins and environmental risks).

<sup>58</sup> See, e.g., *Laférière v. Lawson*, [1991] 1 S.C.R. 541, 559 (Can.). The Supreme Court also noted hesitation by Belgian and French courts to apply the lost chance doctrine. *Id.*

that, in the years prior to the commencement of the tortious activity, there were 100 new cases of cancer each year, and in each year since the commencement of the tortious activity there have been 125 new cases recorded, then we know that the owner of the factory is solely responsible for twenty-five new cases each year, or 20% of the total cases of cancer in the town each year. Let us assume that the average loss to each plaintiff is  $x$ . Here we have uncertain causation tied to increased risk—the tortfeasor is known, and the extent to which he caused harm is also known, but which of the twenty-five cases was “caused” by the factory is unknown, and likely unknowable. This case presents a quandary since while we are relatively certain that the factory is responsible for twenty-five cases of cancer per year, the odds that the factory is responsible for *any one particular* case of cancer is only 20% (25 out of 125) since the overwhelming majority of cancer cases would have occurred even absent the intervention of the factory.<sup>59</sup>

Another category of cases is that where there is a known victim and a provable harm with a tortfeasor of uncertain identity.<sup>60</sup> In such cases it is not clear which of a number of risk factors caused the harm that occurred, creating uncertainty as to the factual causal link between the tortious actions of the defendant and the harm caused to the victim-plaintiff.<sup>61</sup> In the case of increased risk, there are several risk factors that could have caused the harm of the type finally experienced. Some of them are non-tortious (for instance, *force majeure*), but at least one is a tortious agent—the defendant.<sup>62</sup> The defendant acknowledges that he acted inappropriately, but argues that the harm may have been caused by some other factor, tortious or non-tortious, or by some combination of such factors.<sup>63</sup> The plaintiff, for his part, indeed cannot prove by a preponderance of the evidence that it was specifically this defendant who caused the harm and not some other factor or combination of factors.<sup>64</sup> Consider a case of medical malpractice in premature birth.

**The birth example:** A baby born in the hospital suffered from cerebral palsy and mental retardation that resulted in 10% disability. When her mother

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<sup>59</sup> See ARIEL PORAT & ALEX STEIN, TORT LIABILITY UNDER UNCERTAINTY 70–72 (2002) (discussing a similar hypothetical). In a New York case, American soldiers exposed to chemicals that the Army used increased risks of becoming seriously ill with a series of diseases. *Cf. In re “Agent Orange” Prod. Liab. Litig.*, 597 F. Supp. 740, 833, 837 (E.D.N.Y. 1984).

<sup>60</sup> See PORAT & STEIN, *supra* note 59, at 58–59.

<sup>61</sup> *Id.*

<sup>62</sup> *Id.*

<sup>63</sup> *Id.*

<sup>64</sup> *Id.*

was in the thirtieth week of her pregnancy, the fetus's weight was low, indicating that she would be born prematurely. The mother's water broke early. She was rushed to hospital, where vaginal bleeding began as a result of placental separation. Under the circumstances and due to the bleeding, it was decided, forty-five minutes after the bleeding began, to perform a Caesarean section. Based on expert advice, the jury subsequently determined that the decision to carry out the operation at such a late stage constituted negligence on the part of the medical staff. In essence, it was found that there were three possible factors that may have led to the baby's disability, two of which (the premature birth and the bleeding) are non-tortious and one of which (the delay in performing the C-section) is tortious. Of course, only the tortious factor is actionable.<sup>65</sup>

There are two different rationales underlying the doctrine. This Article examines them and compares them to the goals of tort law, and also examines a practical difference between them—the question of compensation for healthy plaintiffs whose risk has been increased, the central concern of this article.

*B. Incomplete Tort and Some Compromise on Factual Causation: Partial Compensation Proportional to the Attributable Fraction*

The first rationale for understanding the model is within a context of partial and proportional compensation based on the probability that the risk-creating party being sued is the one that caused the harm.<sup>66</sup> The partial compensation is determined by multiplying the probability that this defendant caused the risk by the amount of estimated damages.<sup>67</sup> In this option, there is some compromise on factual causation, based on the fact that the defendant acted wrongfully. It is on account of this compromise this Article calls this solution an “incomplete tort”—there is at least a beginning of a tort, since the defendant did act tortiously. This can be compared, in some sense, to conspiracy or attempt in criminal law,<sup>68</sup> or to “victimless crimes.” According to some opinions, however, this is not sufficient to impose tort liability as long as no emotional or economic damage with which the increased risk is associated can be proven.<sup>69</sup> But this rationale is sufficient to achieve at least partial and proportional compensation, and therefore the evidentiary lenience is not far-reaching.

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<sup>65</sup> See generally CA 4693/05 Carmel Hosp. Haifa v. Malul [2010] (Isr.) (unpublished).

<sup>66</sup> Shnoor, *supra* note 36, at 79, 82.

<sup>67</sup> *Id.* at 78.

<sup>68</sup> Goldberg & Zipursky, *supra* note 46, at 1629, 1637–42; Scheuerman, *supra* note 37, at 739.

<sup>69</sup> Goldberg & Zipursky, *supra* note 46, at 1650.

In individual (not mass) torts, as in the birth example, if it were possible to assess the harm fraction attributable to the defendant's actions that increased the risk to the plaintiff, this would be the rate of compensation.<sup>70</sup> The percentage represents the probability that the defendant's actions caused the harm. In this example, if one could point to data that showed that the probability that the medical malpractice led to brain damage is 20%, while the probability that it was the result of non-tortious factors is 80%, then the defendant would have to pay 20% of the proven damages as a proportional, partial compensation on the grounds of increased risk.<sup>71</sup>

This outcome fits the goals of tort law better than the all-or-nothing solution, which constitutes under-deterrence because the tortfeasor continues to act tortiously, that is, to behave in a manner that is at least 20% likely to lead to harm.<sup>72</sup> It is also preferable to the full compensation solution, in which there is clear over-deterrence, redundant compensation, and distributional distortion.<sup>73</sup> Although the compensation to the plaintiff under this option is only partial compared to the full harm caused, this is certainly better than not awarding any compensation at all, because it should be kept in mind that there is a problem in proving the causal link to the full harm, so the recourse to an evidentiary compromise—partial compensation—as a solution seems proper. For example, in the factory case, it is known that the tortfeasor caused harm to 20% of those exposed to the risk. If the tortfeasor pays full compensation to all those whose risk of becoming ill has increased, it ends up paying five times the amount of damage it caused, and even people who suffered no damage as a result of the activities of the factory will receive full compensation. Payment to all those whose risk increased and became ill at a rate of 20% of the damage is the best result, considering the alternatives.

Full satisfaction of corrective justice may not be possible if causation is truly uncertain. The defendant indeed increased the risk by 20%, as in the birth example, but in this example there is a greater likelihood (80%) that factors other than the hospital caused the injury. Hence, the correlativity, i.e., the traditionally conceived connection between a specific damager who has to rectify the harm to a specific victim,<sup>74</sup> is absent. Thus, one could say that the

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<sup>70</sup> See Shnoor, *supra* note 36, at 78–79.

<sup>71</sup> See *id.*

<sup>72</sup> See *id.* at 79–80.

<sup>73</sup> See *Tort Recovery for Loss of a Chance*, *supra* note 38, at 619; Rosenberg, *supra* note 59, at 880.

<sup>74</sup> See John Borgo, *Causal Paradigms in Tort Law*, 8 J. LEGAL STUD. 419, 419–21 (1979); see also Charles Nesson, *The Evidence or the Event? On Judicial Pro*

defendant, in this case, should not be called a “tortfeasor,” even though it has been proven that he acted tortiously and is culpable.<sup>75</sup> However, there are approaches that relax the demand for corrective justice.<sup>76</sup> Some scholars explain that the defendant should be liable in cases where the risk was not materialized, as long as the risk that was increased was not negligible, since there is a chance that he caused the harm.<sup>77</sup> Consequently, they see these situations as a form of corrective justice.<sup>78</sup> According to this rationale, if it is proven that the defendant acted tortiously and is culpable, he must be inferior in comparison to the plaintiff. Therefore, partial compensation provides sufficient balance under corrective justice and preserves, to some extent, the correlativity principle, despite not being classic corrective justice either.<sup>79</sup> In mass or serial tort cases, there is a greater chance that the defendant did cause some harm than in single tort cases, so holding him liable seems more justified, although this is not classic corrective justice<sup>80</sup> because liability will distribute a possible mistake through the judicial decision-making process.<sup>81</sup> Others think that corrective justice is no less relevant in single cases.<sup>82</sup>

Distributive justice provides a better framework than the all-or-nothing solution, particularly when the defendant is a powerful entity, such as a

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*of and the Acceptability of Verdicts*, 98 HARV. L. REV. 1357, 1362 (1985) (arguing that verdicts based on the probability of harm convey a skewed message).

<sup>75</sup> See ERNEST J. WEINRIB, *THE IDEA OF PRIVATE LAW* 155 (Oxford Univ. Press, revised ed., 2012) (“Tort law is not interested in the defendant’s culpability aside from the plaintiff’s entitlement to redress.”); Ernest J. Weinrib, *Causation and Wrongdoing*, 63 CHI.-KENT L. REV. 407, 409 (1987) (insisting on correlativity, that is, the “immediate normative connection between what the defendant has done and what the plaintiff has suffered,” in negligence law).

<sup>76</sup> See Rosenberg, *supra* note 57, at 859 (arguing for employment of “public law” adjudication to establish causal connection); *Increasing Risks*, *supra* note 46, at 473 (arguing for “relaxing two assumptions . . . (1) that administrative costs and other contingent circumstances affecting implementation are not considered; and (2) that expected harm calculations are possible for the actions under consideration by the agent.”).

<sup>77</sup> See Deidre A. McDonnell, *Increased Risk of Disease Damages: Proportional Recovery as an Alternative to the All or Nothing System Exemplified by Asbestos Cases*, 24 B.C. ENVTL. AFF. L. REV., 623, 646–47 (1997); Michael Abramowicz, *A Compromise Approach to Compromise Verdicts*, 89 CAL. L. REV. 231, 266 (2001); Rhee, *supra* note 53, at 151–53.

<sup>78</sup> PORAT & STEIN, *supra* note 59, at 106; Rosenberg, *supra* note 57, at 887. *But see* Weinrib, *supra* note 75, at 153–54.

<sup>79</sup> PORAT & STEIN, *supra* note 59, at 126–27.

<sup>80</sup> See Richard Delgado, *Beyond Sindell: Relaxation of Cause-In-Fact Rules for Indeterminate Plaintiffs*, 70 CAL. L. REV. 881, 899–902 (1982).

<sup>81</sup> David H. Kaye, *The Limits of the Preponderance of the Evidence Standard: Justifiably Naked Statistical Evidence and Multiple Causation*, 1982 AM. B. FOUND. RES. J. 487, 507–08 (1982).

<sup>82</sup> Christopher H. Schroeder, *Causation, Compensation, and Moral Responsibility*, in *PHILOSOPHICAL FOUNDATIONS OF TORT LAW* 347, 354–60 (David G. Owen ed., 1997).

hospital, or a profit-making body, such as a company that releases pollution or radiation, that is a repeat player in the risk-making market because it is these types of actors for which tort law's redistributive function is best suited. These entities may easily become serial and/or mass tortfeasors, and thus justify the use of tort law against them from a distributional aspect, as I will show below. However, there is still a certain distortion in the internal division of the aggregate welfare pie, since victims who do not deserve anything will also receive compensation for whatever fraction of risk can be attributed to the tortfeasor.<sup>83</sup> However, this distortion is smaller than in the solution of full compensation, since significantly less money is distributed here to each plaintiff—only one-fifth of full compensation.<sup>84</sup> On the other hand, it should be taken into account that the case is nevertheless about a defendant who acted improperly against an innocent plaintiff. Hence, distributional concerns also imply that the latter should be preferred over the former.

The primary goal of tort law that is served here is optimal deterrence, the efficient solution.<sup>85</sup> Deterrence that does not seek correlativity seems optimal because, unlike corrective justice, what matters is not who the real injured “partner” of the tortfeasor is in every case, but only that the tortfeasor is forced to pay an amount commensurate with the value of the damage he has inflicted.<sup>86</sup> This is neither over-deterrence nor under-deterrence—the tortfeasor is liable for the exact amount by which his actions increased the risk, so he can evaluate the increased risk in advance and act in the most economically efficient way.<sup>87</sup> This is a true case of directing behavior.<sup>88</sup> Nevertheless, note that the argument for deterrence is particularly compelling if we assume a systematic negative bias (less than 50%). Otherwise, if the physician does not know in advance that 20% is at issue, the tortfeasor paying the full amount of the damage is not necessarily over-deterred.<sup>89</sup>

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<sup>83</sup> John Makdisi, *Proportional Liability: A Comprehensive Rule to Apportion Tort Damages Based on Probability*, 67 N.C. L. REV. 1063, 1074 (1989).

<sup>84</sup> *See id.*

<sup>85</sup> Abramowicz, *supra* note 79, at 266.

<sup>86</sup> *See id.* at 264, 271; Rosenberg, *supra* note 59, at 881.

<sup>87</sup> Delgado, *supra* note 82, at 893–94; Makdisi, *supra* note 85, at 1067–69; Rosenberg, *supra* note 59, at 866; Shavell, *supra* note 59, at 597–98.

<sup>88</sup> *Liability for Future Harm*, *supra* note 46, at 229–30.

<sup>89</sup> Ariel Porat, *Misalignments in Tort Law*, 121 YALE L.J. 82, 110 (2011). If the tortfeasor knows that there is a negative bias he has no incentive to act to prevent the damage because, according to the usual rules, he is not supposed to pay anything. *See id.* Therefore, partial and proportional compensation will prevent under-deterrence. *See id.* In the case of positive bias—above 50%—there will be no over-deterrence because, according to the usual rules, the full amount of the damage should have been paid. *See id.*

This solution is also effective in mass torts. In the factory example, the owner of the factory is only responsible for 20%. The increased risk to each of the 125 was only 20%. Since the average loss was  $x$ , the factory owner is responsible for only  $25x$ , or 20% of  $125x$ . Each year an additional (on average) 125 new potential plaintiffs are added, and none of them can prove factual causation by a preponderance of the evidence; that is, no one can prove that his harm was caused specifically by the factory and that he belongs to the group of 25 and not the group of 100 who would have become ill in any event. Hence, instead of non-compensation ( $0x$ ) in line with the all-or-nothing model, or excessive compensation ( $125x$ ) as in the full compensation model, the  $25x$  is divided among all of the 125 potential plaintiffs in each year, such that each receives compensation for 0.2 of his proven loss. Thus, both those who deserve full compensation and those who deserve no compensation will be compensated for 0.2 of their loss.

In this example, those who deserve full compensation will be under-compensated, while those who deserve nothing will be given excessive compensation. Thus, the goal of compensation is only partially fulfilled. Stated otherwise, corrective justice will have only been partially fulfilled towards the group of twenty-five patients each year, while improper restitution will have been made to the other hundred. While the defendant did increase the risk to each of the members of that group, it is possible, and even likely, that the damage actually suffered by any individual plaintiff selected at random was in reality due to another factor. Distributive justice is better fulfilled here than under the previous solutions. Finally, there is also optimal deterrence at precisely the level of aggregate harm caused by the factory owner. Although in some instances compensation will be paid to some who do not actually deserve it, overall efficiency is unchanged.<sup>90</sup> This is especially true in mass torts, in which the chances of a mistaken judicial ruling are lower since liability is determined based on the entire activity of the tortfeasor, and he is also able to calculate the feasibility of his activities in advance.

Therefore, there is some reduction of the plaintiff's evidentiary burden (without change in tort rules), in that the law allows him to sue and receive partial and proportional compensation. The evidentiary standard has not been entirely dispensed with, however, because the *attributable fraction* itself must be proven in a reliable way, i.e., by a preponderance of the evidence.

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<sup>90</sup> See Rosenberg, *supra* note 57, at 883.

Nevertheless, it should be noted that some believe that even reaching a portion attributable to the defendant in a general and estimated manner is sufficient.<sup>91</sup>

*C. Complete Tort: Increased Risk as a Form of Harm in and of Itself*

The other rationale sees the increased risk doctrine as an independent harm that should be compensated in full according to the actuarial value of the estimated loss.<sup>92</sup> The compensation is calculated as the percentage of increased risk from the concrete harm, had it actually occurred.<sup>93</sup> For example, if the damage would be 100 and it was proved by a preponderance of the evidence that the defendant increased the risk by 20%, the compensation, as in the birth example, at the rate of the fraction attributable to the defendant, should be 20. The remaining 80% is attributed to other factors. However, under this view, there is no change to the evidentiary rules and no relaxation of the requirement for factual causation, since the 20%, which is considered full compensation, must be proved by a preponderance of the evidence. Under this theory, it is the rules of liability in tort themselves that have changed, since a new form of harm has been recognized.<sup>94</sup> This is, therefore, a real and complete tort without evidentiary leniencies, since all the bases of the tort, including the factual proximate cause, have been proven according to the traditional criteria.

An examination of the goals of tort law shows that this theory is better than the alternative, and even near-optimal. The loss is not defined as the bodily harm that actually occurred, and the compensation is not partial and proportional to that harm, but rather, the increased risk is a completely independent instance of damage. If the harm is the increased risk itself, then the tort is a “complete tort,” which leads to full liability and full, not partial, compensation (even though the result—20% in the factory and the birth examples—is identical in both alternatives, as will be discussed below).

Although according to traditional corrective justice, the tortfeasor’s duty to compensate the victim is triggered by a harm that the former has inflicted on the latter,<sup>95</sup> corrective justice can also be served here, at least according to some flexible perceptions of this goal,<sup>96</sup> because the harm is defined as the

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<sup>91</sup> Ariel Porat, *Pytsky Bgyn Ytsyrt Sykvn Vpgy'eh Bsykvy* [Compensation for Lost Chances: Exact Science or Law?], 27 AVNYBRSYTT TL ABYB'EYVNY MSHPT [TEL AVIV U. L. REV.] 357, 365 (2003) (Isr.).

<sup>92</sup> See Goldberg & Zipursky, *supra* note 46, at 1629; Jansen, *supra* note 36, *passim*.

<sup>93</sup> See McDonnell, *supra* note 77, at 647.

<sup>94</sup> See Jansen, *supra* note 36, at 281–82.

<sup>95</sup> JULES L. COLEMAN, RISKS AND WRONGS 361–85 (1992).

<sup>96</sup> See generally Finkelstein, *supra* note 1, at 975 (presenting a few of these approaches).

actual increased risk, and the defendant pays compensation at that level to each of those exposed to the risk that he created, even if it is not a case of classic correlativity as described by Ernest J. Weinrib.<sup>97</sup> Thus, each plaintiff will receive compensation in exactly the amount of his loss. Thus, in the birth example, if the doctors increased the risk of harm to the newborn by 20%, liability at the level of 20% of the final loss realized is considered full liability and full restitution for the amount of increased risk. If, as in the factory example, the risk to each resident is increased 20% compared to the risk without the factory, each will receive 20% of his loss. Restitution is aimed at returning the situation to what it was prior to the increased risk, where the chance of each resident developing cancer was 20% lower than following exposure. Obviously, if it were possible to prove by a preponderance of the evidence that the harm that was actually caused—all of it—occurred as a result of the defendant's actions, it would be possible to obtain compensation for the whole loss. In that case, the loss, from the outset, would not be defined as increased risk, but rather, as the physical harm itself.

Regarding distributive justice and deterrence, the situation is more complicated. At first glance, these goals seem to be completely fulfilled. But if we view increased risk as an independent form of harm, then there seems to be an asymmetry—partial compensation would not be awarded to plaintiffs whose probability of having been injured by the tortfeasor is in the range of 50% to 100% because these plaintiffs would be entitled to full compensation under the existing tort rules, under which they would be able to prove their harm by a preponderance of the evidence.<sup>98</sup> Thus, this class of victims would profit systematically and there would be a distributive injustice in their favor, which might also imply over-deterrence with respect to the class of damagers. But it seems that, so as not to unsettle the law of evidentiary burdens too much, and so as not to bring the preponderance of evidence test to a complete end, this asymmetry may be necessary: if the plaintiff proves by a preponderance of the evidence he should receive compensation for his full loss. Beyond that, this asymmetry is not a practical problem (rather than a theoretical one), primarily because these cases generally involve large tortfeasors responsible for mass or serial torts, like hospitals that keep repeating acts of medical malpractice, or polluters that endanger hundreds or thousands in the very same action. In such cases, the victims do not always sue, so a structural under-deterrence is built in—and overall, the damagers pay compensation equal to, if not less than, the

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<sup>97</sup> Weinrib, *supra* note 75, at 425–31.

<sup>98</sup> See Rosenberg, *supra* note 57, at 894.

harm they caused, even if in the specific cases in which they are sued they will be forced to pay more.<sup>99</sup> It is more justified, since it is quite clear statistically that these mass or serial tortfeasors did indeed cause the harms; this is less clear in single torts, in which the defendant, even if he acted improperly, quite possibly did not actually harm the plaintiff or other injured parties.<sup>100</sup> Finally, in this alternative the harm is distributed and not left where it falls. Thus, it seems that all the goals of tort law are fulfilled under this alternative. Nevertheless, the literature has pointed out that, in practice, compensation based on this rationale has particularly high enforcement costs at times.<sup>101</sup>

Theoretically, there is a significant difference between the two rationales. In practice, the two different understandings indicate solutions that seem similar. The second rationale, treating the harm as a complete tort, is less revolutionary from the perspective of evidentiary law because it does not interfere with evidentiary rules at all; nevertheless, it is revolutionary from the

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<sup>99</sup> As in one of the law and economics rationales for punitive damages, according to which this is still optimal deterrence of serial tortfeasors, not over-deterrence. See A. Mitchell Polinsky & Steven Shavell, *Punitive Damages: An Economic Analysis*, 111 HARV. L. REV. 869, 889–90 (1998) (presenting the multiplier approach). A full internalization of the expectancy of the harm according to this approach means multiplying the damage with the contradictory *ex ante* probability, that is the *a priori* probability that if the risk materializes, a tort lawsuit would be brought. For example, if a tortfeasor causes with sufficient certainty a harm of 10 to 6 persons, but due to some non-substantial reasons, only two of them are anticipated to bring actions against him, he is expected to internalize a cost of 20 only, even though the cost of the negative externalities of his acts is 60 (10x6). In this case, the tortfeasor will continue to do harm. In order to reach optimal deterrence according to the multiplier approach, every plaintiff should be awarded three times his damage (10x3), which is actually his damage (10) multiplied by the contradictory *ex ante* probability of the expected number of plaintiff (the contradictory of 2/6, which is 3). It means that the damages awarded for each plaintiff are 10, and the punitive damages are 20. In total, the defendant will pay 60 (30x2), which is exactly the harm he caused. Hence, one might think that punitive damages would lead to over-deterrence. However, the multiplier approach, which is the common economic analysis of law, suggests otherwise. Since many injured parties, for a variety of reasons, do not actually sue, and many tortfeasors end up not paying, merely requiring tortfeasors to pay for the damage they cause would result in under-deterrence. *Id.* at 889. Consequently, enforcement of punitive damages increases the level of deterrence afforded to potential (mostly serial and mass) tortfeasors, ultimately results in optimal deterrence—provided the correct amount of punitive damages is awarded. *Id.* at 873–74, 888–90. The multiplier approach seems to be very relevant to the case at hand as well, for serial and mass tortfeasors as to the question of asymmetry. Levmore, in fact, believes that for a serial tortfeasor, as opposed to a one-time tortfeasor, partial and proportional compensation should be awarded. See Levmore, *supra* note 57, at 697–98. But, the question of whether there is a quantifiable tool to check this arises. See also Kaye, *supra* note 81, at 488.

<sup>100</sup> See Delgado, *supra* note 80, at 882–83 (mentioning this rationale in relation to market-share liability).

<sup>101</sup> PORAT & STEIN, *supra* note 61, at 109. There are signs of this approach in criminal law, too. Scholars argue that “blameworthiness is a function of what an actor takes himself to be doing when he acts, rather than of the resulting state of affairs produced by his actions.” Finkelstein, *supra* note 1, at 963; see Sanford H. Kadish, Foreword, *The Criminal Law and the Luck of the Draw*, 84 J. CRIM. L. & CRIMINOLOGY 679, 692 (1994); Michael S. Moore, *Causing, Aiding, and the Superfluity of Accomplice Liability*, 156 U. PA. L. REV. 395, 436–37 (2008).

perspective of tort law because it creates a new and independent category of damage. Apparently, the argument is strictly theoretical, as the practical result of the two rationales is identical: 20% compensation in the birth and the factory examples.

What is the actual and practical difference between the rationales? Is it possible that under one of them courts will award damages in certain cases, but not under the other? I will deal with that question now by comparing the cases of “healthy” plaintiffs.

## II. “HEALTHY RISK-INJURED PLAINTIFFS” AS A TEST CASE BETWEEN THE RATIONALES

### A. *General Overview*

The case of healthy plaintiffs whose risk was increased illustrates a fundamental difference between the two rationales: the rationale of an incomplete tort—that is, the alternative of relaxing evidentiary standards of proof to allow for partial, probabilistic compensation—and the rationale of a complete tort and complete compensation. “Healthy” plaintiffs are those whose risk of being harmed or becoming sick has been increased, but who have not yet become sick with the disease typically associated with that risk. It would seem that under the alternative of partial and proportional compensation and an incomplete tort, no damage has actually been caused, and partial compensation is irrelevant and thus impossible, since there is no damage for which the party needs compensation. But from the standpoint of the complete tort of increased risk, the question of whether bodily harm was actually caused is unimportant, since the “harm” is defined as the increased risk itself and not as material damage to the person or property.<sup>102</sup> That is, if the increased risk is considered an independent instance of damage, it seems that even “healthy” plaintiffs should be compensated for it, since their risk of becoming sick has been increased, even if they have not actually become ill.

The matter is, however, more complex. There are, in fact, various kinds of healthy plaintiffs. The academic and judicial literature generally focuses on only one kind at a time, and no overview has yet been made distinguishing between the various categories of such plaintiffs and examining the appropriate law for each category. Therefore, this Part now presents the various categories

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<sup>102</sup> Goldberg & Zipurksy, *supra* note 46, at 1629.

of healthy plaintiffs and analyze their cases in light of the rationales for recovery: the complete and incomplete tort. This Part then surveys the practical differences between them, the desirable law, and intermediate cases.

## B. “Healthy but Fearful”

### 1. In Theory

The “healthy but fearful” are those who claim that although they have not yet become sick and do not suffer from the bodily harm generally associated with those who have been tortiously exposed to a risk of the type attributed to the actions of the defendant, but nevertheless live in fear that they will become sick in the future, since their risk of becoming sick has been increased compared to that of others. For example, out of 100,000 residents who live near a factory and have not become sick, or out of all the divers who dove in a tortiously polluted stream and were not injured, a certain proportion that are fearful can be identified. These, then, are people who are “healthy” in the sense that they do not have damage of the type typical of exposure to the risk, but nonetheless fear that the disease is latent inside them, i.e., that the risk that was increased will materialize; in any event, the psychological harm is substantial and proven.<sup>103</sup>

In essence, this is a psychological harm in and of itself,<sup>104</sup> which can be recognized and litigable,<sup>105</sup> even though limitations are sometimes set on this recognition<sup>106</sup> stemming, *inter alia*, from problems in evaluating or quantifying the harm, along with a fear of fraud and/or flooding of the courts.<sup>107</sup> There is, as well, recognition that damage of this kind is in a sense “Class B damage,” or, in other words, that compensation should rightfully be paid first and foremost to everyone who was *physically* injured, which may mean limiting

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<sup>103</sup> See PORAT & STEIN, *supra* note 59, at 113.

<sup>104</sup> See, e.g., Mark Geistfeld, *The Analytics of Duty: Medical Monitoring and Related Forms of Economic Loss*, 88 VA. L. REV. 1921, 1930 (2002); Goldberg & Zipursky, *supra* note 46, at 1630 (linking increased risk with emotional harm).

<sup>105</sup> See, e.g., Finkelstein, *supra* note 1, at 977.

<sup>106</sup> One example of a limitation is the need to prove that a psychologically harmed plaintiff was within the “zone of danger.” See *Metro-North Commuter R.R. Co. v. Buckley*, 521 U.S. 424, 430–32 (1997). Another example is the need for real physical symptoms attesting to the psychological harm. Goldberg & Zipursky, *supra* note 48, at 1665. Finally, another limitation involves the need to prove that it is more likely than not that the disease will develop in the future as a result of the exposure. See *Potter v. Firestone Tire & Rubber, Co.*, 863 P.2d 795, 816 (Cal. 1993).

<sup>107</sup> Geistfeld, *supra* note 104, at 1930–31; Goldberg & Zipursky, *supra* note 46, at 1678–82.

compensation to those who were merely psychologically injured.<sup>108</sup> While these plaintiffs have not suffered the bodily harm of the type characteristic of the increased risk, if they can prove their psychological damages and that these damages are proximately caused by the increased risk, then complete compensation for their psychological damage is the natural result.

This result accords with optimal deterrence, since increasing the aggregate welfare requires that compensation be paid to those who are psychologically harmed by fear, not only to aid their recovery or to ease psychological distress, but to delay or prevent the outbreak of the physical harm anticipated from exposure. If the exposed-and-fearful receive treatment to ease stress and anxiety, this will increase the aggregate welfare, not only by returning these individuals to work and having a positive influence on their daily lives in various ways, but also by the possible prevention, if only in some cases, of physical harm being realized as a result of the mental strain experienced. This will, at least in some cases, save greater future expenses. If the physical harm does materialize in the future, he will be better prepared for this eventuality as a result of the psychological treatment he has undergone. Taking care of the sector of the “fearful” exposed to a risk at the expense of the sector of those who exposed them to that risk also serves a distributive interest since, generally, those who increase the risk (certainly in mass torts) are large and financially powerful bodies, while those exposed to the risk tend to be relatively less powerful entities such as employees and patients.

This outcome also promotes the goals of restitution and restoring the status quo *ex ante*: that is, corrective justice.

## 2. *The Extent of Damages*

Under both rationales—the incomplete tort rationale of partial and proportional compensation and the complete tort rationale of independent damages—the plaintiffs belonging to the group of “healthy but fearful” should be given compensation for their proven substantial psychological harm.<sup>109</sup> As discussed above, compensation in these cases can also be supported by optimal deterrence and other goals of tort law. But in terms of calculating the damages, in this case we do not calculate a proportional-probabilistic portion of the bodily harm. In other words, the plaintiff must receive full compensation for

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<sup>108</sup> See Geistfeld, *supra* note 105, at 1933.

<sup>109</sup> See PORAT & STEIN, *supra* note 59, at 121, for a discussion of the proper compensation for psychological harms to the fearful.

proven substantial-psychological harm, and any calculation of partial and proportional compensation for bodily harm that did not occur is unnecessary and irrelevant. For the increased risk itself, there seems to be no reason to award compensation, since we are discussing only the case of psychological harm and not partial and proportional compensation correlating to the bodily harm that occurred—because such harm has not occurred. In other words, for the “healthy but fearful,” there is an independent complete tort, so that if factual causation between the negligent action and the proven substantial psychological harm of fear can be proven by a preponderance of evidence, full compensation for these damages should be awarded. In effect, this has no connection to the bodily harm that did not occur; this is a harm on a completely psychological plane and therefore there should be no difference with respect to compensation, regardless of whether one considers the tort to be “complete” or “incomplete.”

But another approach can be taken, under which those injured psychologically do not receive full compensation even for their proven psychological damage, but only for the fraction that is attributable to the defendant out of the total psychological harm. That is, if the psychological harm that requires compensation of a certain sum is proven, the fraction attributable to the defendant should be calculated to determine partial and proportional compensation for that psychological harm. This is only logical because assuming that there are three tortious risk factors, it is illogical for only one tortfeasor to bear all the expenses for prevention and detection or for the psychological harm. From this angle, it seems that the efficiency criterion is not met unless each tortfeasor bears his relative portion of the psychological harm according to his relative share in increasing the risks of such.

The defendant should bear the entire sum and not only a proportional part of it because it is his tortious act that triggered the psychological harm in these cases and not other factors that may have increased the risk.

### *3. In Practice: Criticizing Anglo-American Law*

In terms of existing law, there is a debate in the literature and Anglo-American case law regarding the “fearful.” In the United States, such actions, which have mostly not been accepted, have generally relied on the psychological harm caused by the fear of developing a disease of the type that

can be caused by exposure to tortious activities under negligent infliction of emotional distress (NIED).<sup>110</sup>

In 2003, the possibility of compensation for the “fearful” was recognized by a five justice majority in the U.S. Supreme Court in *Norfolk & Western Railway Company v. Ayers*.<sup>111</sup> In that case, railroad employees who had been exposed to asbestos claimed psychological harm based on data that 10% of those exposed to asbestos develop fatal mesothelioma cancer—cancer of the pleura (lung lining).<sup>112</sup> The majority ruled that compensation can be given to plaintiffs that prove by a preponderance of evidence that their psychological harm is substantial, “genuine[,] and serious,” in the words of the Court,<sup>113</sup> and who prove by a preponderance of the evidence a factual causation between the fear and the disease for which the defendant, according to their claim, is liable.<sup>114</sup> The Court emphasized that compensation in these cases was *not* being given for the increased risk itself.<sup>115</sup> The dissenting opinion held that compensation in such cases would reduce the availability of compensation to individuals who suffer concrete bodily harm from exposure to asbestos because this harm is both more serious and likely to occur later in time, i.e., after payouts to the fearful plaintiffs have been made.<sup>116</sup> Regarding the case itself, the dissent contended that the fears of the plaintiffs cannot be considered a direct harm resulting from their disease, and are instead are speculative harms.<sup>117</sup> According to the majority position, an action should be recognized when the fear of future disease is real, serious, and concerns a disease proven to be caused by said exposure.<sup>118</sup> But, such an action should not generally be recognized, if the following three conditions are met:

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<sup>110</sup> See, e.g., *Plummer v. Abbott Labs et al.*, 568 F. Supp. 920, 925 (D.R.I. 1983); *Ayers v. Twp. of Jackson*, 525 A.2d 287, 307 (N.J. 1987) (denying compensation for an increased risk of cancer and liver and kidney disease from toxic waste that seeped into the plaintiffs’ groundwater); *Payton v. Abbott Labs*, 437 N.E.2d 171, 174, 176 (Mass. 1982) (denying damages for emotional distress to daughters whose mothers took diethylstilbestrol (DES) while pregnant, and had an increased risk of contracting cervical cancer). One of the reasons for not accepting such cases is the traditional recognition of only those psychological harms accompanied by physical harms that have already materialized. See *Goldberg & Zipursky, supra* note 46, at 1660, 1662.

<sup>111</sup> *Norfolk & W. Ry. v. Ayers*, 538 U.S. 135 (2003). Before that, the guiding case was *Buckley. Buckley*, 521 U.S. at 424.

<sup>112</sup> *Norfolk*, 538 U.S. at 178 (Kennedy, J., concurring in part and dissenting in part).

<sup>113</sup> *Id.* at 157 (majority opinion).

<sup>114</sup> See *id.* at 172–73 (Kennedy, J., concurring in part and dissenting in part).

<sup>115</sup> See *id.* at 153 (majority opinion).

<sup>116</sup> *Id.* at 168–69 (Kennedy, J., concurring in part and dissenting in part).

<sup>117</sup> *Id.* at 179.

<sup>118</sup> *Id.* at 157–58 (majority opinion).

(1) [A]ctual development of the disease can neither be expected nor ruled out for many years; (2) fear of the disease is separately compensable if the disease occurs; and (3) fear of the disease is based upon risks not significantly different in kind from the background risks that all individuals face.<sup>119</sup>

But if, for example, the risk of developing the disease is so serious that it significantly affects the plaintiff's daily routine, it should be compensated.<sup>120</sup>

The British House of Lords discussed a similar issue in 2007 in *Johnston v. NEI Int'l Combustion Ltd.*<sup>121</sup> In that case, plaintiffs developed certain lung diseases, not dangerous in themselves, that were nevertheless indicative of an accumulation of asbestos fibers in the lungs.<sup>122</sup> Such fibers could eventually cause another serious disease, and the plaintiffs were fearful of becoming sick and sued based on this fear.<sup>123</sup> One of the plaintiffs manifested symptoms of actual depression.<sup>124</sup> The House of Lords rejected the action, even for the individual who had developed depression, and ruled that compensation for fear can only be given when the risk has materialized.<sup>125</sup> That is, only individuals who have verifiable bodily damages or pain and suffering can raise "fear" as a basis for compensation.<sup>126</sup> Some do not interpret this decision as eliminating the possibility of a situation in which a risk of a future harm can in the future become litigable as an independent harm—that is, that while there is no compensation for the harm of fear now, when the risk of bodily harm is realized, the suit may include the fear as well;<sup>127</sup> while *Ayers* makes no such explicit declaration, an American court might also award compensation in such a case.

Some scholars support awarding compensation in cases where there is psychological harm and anxiety, even if only under clear criteria for recognition of increased risk,<sup>128</sup> though evidently there are technical problems

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<sup>119</sup> *Id.* at 187 (Breyer, J., concurring in part and dissenting in part).

<sup>120</sup> *Id.*

<sup>121</sup> *Johnston v. NEI Int'l Combustion Ltd.*, [2008] I A.C. 281 (H.L.) (appeal taken from Eng.).

<sup>122</sup> *Id.* para. 1.

<sup>123</sup> *Id.*

<sup>124</sup> *Id.* para. 23.

<sup>125</sup> *Id.* paras. 2, 59, 87, 103.

<sup>126</sup> *Id.* para. 2.

<sup>127</sup> *Liability for Future Harm*, *supra* note 44, at 234 (citing *Johnston v. NEI Int'l Combustion Ltd.*, [2008] I A.C. 281 (H.L.) (appeal taken from Eng.)).

<sup>128</sup> Matthew D. Hamrick, *Theories of Injury and Recovery for Post-Exposure, Pre-Symptom Plaintiffs: The Supreme Court Takes a Critical Look*, 29 CUMB. L. REV. 461, 473 (1999).

with implementing this approach. There are those who suggest that tortfeasors in such cases pay into a fund that will provide full compensation when the risk materializes,<sup>129</sup> while others criticize this suggestion.<sup>130</sup>

According to the analysis conducted in this Part, there is no doubt that the courts in both cases should have awarded damages for the proven psychological harm according to both the complete and incomplete torts rationales.

### C. “Healthy—but with Expenses”

#### 1. *In Theory*

This category includes those who have not become sick, but whose risk was increased and who therefore must undergo frequent and expensive periodical medical examinations or medical treatments for the purposes of detection and prevention. These individuals may sue for compensation for these medical monitoring expenses, in the past and in the future,<sup>131</sup> including reimbursement for their expenses and time, the purchase of medical or life insurance (or payment for the increased cost of existing insurance due to the new risk), and for medicines and treatments.<sup>132</sup>

Expenses are obviously a type of damage that is compensable in principle, even if the bodily harm will never materialize.<sup>133</sup> If these expenses are proximately caused by tortious behavior that leads to the increased risk, then there is no reason not to award compensation for them.

An examination of the goals of tort law indicates the need for compensation for expenses. Payment of expenses to those exposed to risk by those who exposed them to the risk not only obviously accords with the goals of compensation and corrective justice, and with the restoration of status quo *ex ante*, but is justified for reasons of optimal deterrence as well.<sup>134</sup> The aggregate

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<sup>129</sup> See *Increasing Risks*, *supra* note 57, at 468.

<sup>130</sup> See Makdisi, *supra* note 83, at 1093.

<sup>131</sup> See Kenneth S. Abraham, *Liability for Medical Monitoring and the Problem of Limits*, 88 VA. L. REV. 1975, 1976 (2002); Geistfeld, *supra* note 105, at 1941; Goldberg & Zipursky, *supra* note 46, at 1630.

<sup>132</sup> See, e.g., R. Hugh Lumpkin & Michael F. Huber, ‘Damages’ Means . . . Damages: *Insurer Liability for Medical Monitoring Costs in Mass Tort Claims*, COVERAGE (Jan.–Feb. 2005), available at <http://www.vpl-law.com/Articles/Damages-Means-Damages-Insurer-Liability-for-Medical-Monitoring-Costs-in-Mass-Tort-Claims.pdf>.

<sup>133</sup> See Abraham, *supra* note 131, at 1977.

<sup>134</sup> *Potter v. Firestone Tire & Rubber, Co.*, 863 P.2d 795, 824 (Cal. 1993).

welfare will generally be increased by such a move because investment in prevention and diagnosis will forestall larger expenses in the future; the rationale here is that the principle of mitigating future damage is, in essence, that prevention is included in optimal deterrence, and that medical supervision will help diagnose diseases and thus prevent future harm and the accompanying costs.<sup>135</sup> In any event, as a result of the examinations for diagnosis and prevention, the bodily harm will never manifest in some cases, and in others it will manifest in a more moderate form and the exposed parties will also be more ready for it.

In such a case, there will be utility to the tortfeasor who exposed the victims to the risk as well, since the compensatory damages which he will be required to pay will be lower than what he would have had to pay absent preparation, prevention, or diagnosis. Some tortfeasors might prefer to delay the date of payment as much as possible, and prefer to pay more as long as the payment takes place in the future when the harm is realized; this is, in fact, simply human nature for some people, but it is also economically rational when one considers the time value of money. But consideration of the aggregate welfare and prevention leads to a different result. Society as a whole will profit if instead of paying higher compensation in the future to those who have become ill, payments are used to diagnose and prevent the potential harm anticipated for the many people exposed. Here, too, the interests of distributive justice are served, since the group exposed to risk, which is disproportionately likely to be a weak group, will enjoy an improved quality of life and the prevention or lessening of future harms at the expense of the tortfeasors who exposed them to that risk against their will, while eventually helping even the latter.

There will presumably be “fearful” patients who conduct increased medical examinations and thus incur expenses, or are endangered by the examinations themselves. If these are reasonable expenses that a doctor advised and do not stem from oversensitivity, these two categories—the fearful and those who have incurred expenses—can be combined and suit can be brought both for the psychological harm of the fear as well as the increased expenses for prevention or diagnosis.

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<sup>135</sup> *But cf.* Abraham, *supra* note 131, at 1977–78 (indicating that when one has exposed others to a risk, a positive duty to take remedial action is occasionally created, but asking whether this is its own remedy, or part of some effort to rescue.) Abraham explains that some see this simply as a form of mitigation of damages – early detection will reduce the eventual injury. *Id.* If this is the conception, then we have to ask questions of when we can try to mitigate and who should pay for what mitigation.

## 2. *The Extent of Damages*

As in the category of the fearful, here also under both rationales—the incomplete tort rationale of partial and proportional compensation and the complete tort rationale of independent damages—the plaintiffs belonging to the group of “healthy, but with expenses” should be given compensation for their expenses.

There are various ways to calculate and estimate these expenses. Should future expenses be calculated at a uniform rate—that is, looking at what tests are required for this person each year and multiplying their cost by the number of years she will live according to her life expectancy—or does the graph of expenses rise or fall after a certain point in time, and the compensation for future expenses for those years should therefore be raised or lowered accordingly? Assume that a person was exposed to risk but did not become ill. Over the years, as he matures and becomes older and still does not become sick, does the chance increase (due to age and other factors) that the disease will nevertheless manifest, or does it actually fall as the years pass and she remains healthy?

It would seem, then, that the calculation of expenses in these cases has to derive from the relevant time of risk of illness. The first and more common risk is the cumulative risk of suffering, e.g., cancer. As years pass, this cumulative risk increases, since over the course of life, one is exposed to more and more carcinogens,<sup>136</sup> or lives for a longer period of time with, say, an intestinal polyp that may grow and become cancerous. In this context, the “two hit” theory is also relevant—the idea that a certain gene may create a predisposition carrying the risk of cancer, but an additional event (such as an assault or a fall) or an additional exposure is required for that dormant cancer to develop; here, too, the danger increases as people age. Similarly, over time there is a decline in the immune system and an increase in general illness that weakens the body and can lead to the outbreak of disease, though there are additional factors.<sup>137</sup> However, this does not mean that there is increasing risk from every factor. The other risk is of contracting cancer immediately after a certain instance of exposure remains. Here, there is a certain risk period after which, if the risk has not materialized and the exposed party has not become ill, chances of not

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<sup>136</sup> See Donna Kerrigan & Jeanne Kelly, *Understanding Cancer and the Environment*, NAT'L CANCER INST. (2005), <http://www.cancer.gov/cancertopics/understandingcancer/cancer/undercan.pdf>.

<sup>137</sup> Deborah B. Whitman, *The Immunology of Aging*, PROQUEST (Mar. 1999), <http://www.csa.com/discoveryguides/archives/immune-aging.php>.

becoming ill as a result of the exposure increase. However, cumulative risk (the first risk above), compared to the risk of someone in his circumstances who had not been exposed to that dangerous activity, will always be higher. The chance of becoming ill is dependent on a number of factors, some connected specifically to the exposure incident (such as the type of carcinogen, the length of time the exposure lasted, the concentration, etc.), and others of a general nature that pertain to every person (such as heredity, lifestyle, and other risk factors encountered).<sup>138</sup> Therefore, each case should be examined on its merits.

To these expenses, compensation for any increased risk from the examinations or preventative treatments if they are themselves dangerous and increase risk (e.g., radiation treatment or inherently dangerous invasive procedures) should be added if it is not negligible, as what can be described as “secondary/indirect increased risk.”<sup>139</sup>

Here also, in terms of calculation of damages, no proportional-probabilistic portion of the bodily harm is to be calculated, and the plaintiff must receive full compensation for his expenses. In other words, for the “healthy, but with expenses,” there is an independent complete tort, so that if factual causation between the negligent action and the harm of expenses can be proven by a preponderance of the evidence, full compensation should be awarded. However, here too it is possible to take another approach under which those injured economically do not receive full compensation even for their expenses, but rather, only the fraction that is attributable to the defendant out of the total expenses. Nevertheless, the defendant should bear all the expenses and not only a proportional part of them since it is his tortious act that triggered the expenses, and not other factors that may have increased the risk.

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<sup>138</sup> Kerrigan & Kelley, *supra* note 136.

<sup>139</sup> For example, some recently published studies have revealed that 15,000 people die every year in the United States from various types of cancer caused, so they claim, by X-rays and CT scans. See Rita F. Redberg, *Cancer Risks and Radiation Exposure from Computed Tomographic Scans: How Can We Be Sure that the Benefits Outweigh the Risks?* 169 ARCHIVES INTERNAL MED. 2049, 2049 (2009); Amy Berrington de González et al., *Projected Cancer Risks from Computed Tomographic Scans Performed in the United States in 2007*, 169 ARCHIVES INTERNAL MED. 2071, 2071 (2009); Rebecca Smith-Bindman et al., *Radiation Dose Associated with Common Computed Tomography Examinations and the Associated Lifetime Attributable Risk of Cancer*, 169 ARCHIVES INTERNAL MED. 2078, 2078 (2009). The reason for this, according to these studies, is hospitals’ overuse of imaging exams and the large variation in the amount of radiation emitted during these procedures in general and particularly in scans of the heart and the surrounding blood vessels. *Id.*

### 3. *In Practice*

Some U.S. courts have been ready to award compensation in cases where the defendant placed the plaintiff at risk and the risk was latent, but only for reimbursement of expenses.<sup>140</sup> For example, in *Ayers v. Township of Jackson*, the court denied compensation for an increased risk of cancer and liver and kidney disease from toxic waste that seeped into the plaintiffs' groundwater, but nevertheless awarded reimbursement for the costs of medical testing and monitoring to identify early onset of the relevant diseases.<sup>141</sup>

Other U.S. courts have based compensation in such cases on an analogy to the duty to rescue, positing that a duty rests specifically upon a tortfeasor to correct and heal possible damage from tortious activities for which he is responsible.<sup>142</sup> There are those who believe that this is the proper path, even though most tort duties generally involve refraining from an action, rather than imposing a positive duty to act.<sup>143</sup> In effect, the courts have ruled that in instances such as these, there is not merely a negative duty to avoid causing harm, but also a positive duty to aid or protect.<sup>144</sup> When the original duty includes positive components such as protection or aid, it is logical to treat the loss of chance as harm. For instance, doctor-patient relations are properly characterized as including a positive duty on the part of the doctor to take steps to afford the patient the best chance of recovery and not merely a negative duty to avoid causing him harm.<sup>145</sup> This is a relatively weak basis for such a claim, particularly under the common law, which greatly limits the recognition of positive duties such as the duty to rescue. Alternatively, here one can find liability of the type that mitigates the damage, under the rationale that medical supervision will help diagnose diseases and thus prevent future harm and accompanying costs.<sup>146</sup> As mentioned above, an examination of the goals of tort law indicates the need for compensation for expenses. Alternatively, liability of the type that mitigates the damage should be assigned, thus preventing future harm and the accompanying costs.

Indeed, expenses as a result of increased risk should be considered as compensable harm under the principles of tort law. However, courts have

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<sup>140</sup> *Ayers v. Twp. of Jackson*, 525 A.2d 287, 312 (N.J. 1987).

<sup>141</sup> *Id.* at 308, 312.

<sup>142</sup> See Abraham, *supra* note 131, at 1976–77.

<sup>143</sup> Goldberg & Zipursky, *supra* note 46, at 1710.

<sup>144</sup> See *id.* at 1710–11.

<sup>145</sup> *Id.* at 1659.

<sup>146</sup> *But cf.* Abraham, *supra* note 131, at 1977–78; see text accompanying *supra* note 134.

generally either rejected these actions<sup>147</sup> or, if they wanted to find liability for prevention and detection expenses, have tried to justify this in various roundabout ways.<sup>148</sup> In other cases, the courts have not explained why they awarded compensation for expenses, despite expressly stating that pure risk is not a harm.<sup>149</sup> In cases where these actions have been recognized, the courts have generally placed various restrictions and conditions on finding such liability, including primarily the need for a significant and non-negligible increase in risk<sup>150</sup> and the need to prove that the medical tracking required was reasonable.<sup>151</sup> There is logic to the establishment of these criteria.

Rejecting these actions out of concern that there will not be enough money left to compensate the “real” victims in the future misses the primary point of the goal of optimal deterrence. As mentioned above, investment in prevention and diagnosis is important in increasing the aggregate welfare and more helpful than waiting for the disease to manifest in some of those exposed and then compensating them. Investing in preventing and minimizing the harms and side effects, where possible, is important. It prepares some of the potential victims for the possible manifestation of the disease, helps prevent others from suffering the harm at all, and helps minimize future costs. The deterrent and distributive importance of compensation for expenses should not be ignored.

*D. Healthy Plaintiffs Whose Risk Was Increased on a One-Time Basis (“Truly Healthy”)*

This category includes those who are completely healthy despite the increased risk and have no psychological or other expenses. Here, the risk was a one-time affair and is over; it is a risk that has entirely passed, did not materialize, and can no longer materialize as a result of the tortious activity in question.

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<sup>147</sup> See, e.g., Goldberg & Zipursky, *supra* note 46, at 1632.

<sup>148</sup> See Abraham, *supra* note 131, at 1976–77.

<sup>149</sup> See Ayers v. Twp. of Jackson, 565 A.2d 287, 308, 312 (N.J. 1987).

<sup>150</sup> Abraham, *supra* note 135, at 1981 n.15. *But cf.* Geistfeld, *supra* note 104, at 1948–49 (“[C]ourts that have recognized claims for reasonable monitoring or repair costs have appropriately exercised their common law authority. But even these courts have inappropriately limited recovery. Courts have required plaintiffs to show that they were in fact exposed to the hazard or defect. Monitoring or repair costs can be reasonable, though, even if the plaintiff is unsure whether she has been exposed. Even a small possibility of exposure can make monitoring or repair reasonable. After all, if there were a one-in-one-hundred chance that someone had been exposed to anthrax, it would be reasonable to test. This conclusion follows directly from the standard of reasonable care . . . . Given a high probability of severe injury in the event of exposure, as with anthrax, the probability of exposure need not be very high to make some testing or repair costs reasonable.”).

<sup>151</sup> Goldberg & Zipursky, *supra* note 46, at 1703.

Thus for instance, if in the birth example the story ended happily and no harm was caused, that infant would be “truly healthy.” In that example, there are three risk factors: the bleeding, and the prematurity (non-tortious factors), and the delay in performing the C-section (a tortious factor). However, a healthy child was born and there is no chance that he will later become ill as a result of these risk factors, making the risk a one-time affair. It is a risk that has passed, is not ongoing, and can never manifest again.

Consider a few other examples within this category. The Public Works Department has tortiously placed a sign incorrectly. An arrow directs vehicles to merge into the left lane when it ought to direct them to merge into the right lane; alternatively, a normal wind has flipped a sign that was not properly fastened. If a right to sue is allowed for everyone who passed the sign without any ill consequence, there would be a significant risk of flooding the courts with actions by those who do not deserve, and should not receive, any compensation.

If a sign was placed in a wrong position of negligently or by the wind moving it and a driver does not stop or give the right of way which almost causes an accident, then no injury occurs, although there were drivers who did not stop or slow down before entering the intersection. Although the risk was increased, no harm in fact took place, nor will any harm take place in the future.

Another example involves cleaning a restaurant. A worker in a restaurant mops the floor with a slippery substance while diners are present, does not place a warning sign, and thereby violates the duty of care. Customers slip or almost slip but suffer no injury—neither bodily harm, nor embarrassment, nor any other kind. The worker stops using the substance when diners are present.

Since traditional law does not compensate for pure risk, but only for risk that materializes into harm, then only bodily, property, and psychological injuries, or injuries in the form of expenses, can be compensated.<sup>152</sup> Injuries in the form of increased risk that did not materialize into anything will not be awarded compensation, not only for reasons of proper legal policy, but out of the simple application of tort law.<sup>153</sup> In all the preceding categories a certain

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<sup>152</sup> Abraham, *supra* note 131, at 1976.

<sup>153</sup> Cf. *Risk, Death and Harm*, *supra* note 46, at 1440–41 (arguing that risk cannot be considered a harm in itself if the victim cannot prove concrete fear); Finkelstein, *supra* note 1, at 990–98 (presenting a few difficulties in acknowledging risk as a harm and trying to answer them); *Liability for Future Harm*, *supra* note 44, at 222–24 (presenting the approach that risk in itself cannot be considered a harm).

kind of harm can be identified (psychological harm or financial expenses). But in this category, there is no injury and therefore no reason to grant any compensation under any rationale.<sup>154</sup> Compensation will not return the situation to its prior state.

Although compensation can be considered in these cases for reasons of deterrence, since the tortfeasor (and other potential tortfeasors) may continue to endanger time after time, this is the point where we must draw the line. People endanger others constantly in daily life, through both actions and omissions—when driving or leaving a banana peel on the sidewalk. “Risk is a pervasive element of modern life . . .”<sup>155</sup> As long as someone’s risk was increased, but nothing happened or could happen in the future, there is no reason to make anyone pay damages.<sup>156</sup> There is no reason in such cases to take money from those who exposed others to risk and give it to those whose risk was increased. There will be no increase in aggregate welfare as a result of this action. The money will not be used to heal anyone, or to mitigate their damages and treat them. Therefore, corrective justice also does not enter the picture, since it looks at both parties to a tort—the victim and his need to be compensated, specifically by the tortfeasor.<sup>157</sup> If the party exposed to risk is not harmed at all and can never be harmed, then it is impossible to identify any “harm,” even under the rationale of an independent damage of “risk,” and we are left at most with the need to have someone exposing others to risk pay for the exposure itself, without correlativity or proven harm.

Therefore, there is no reason to grant the claims of customers who have purchased various products, from Toyotas to heart valves, who were not exposed to a risk that changed their lives for the worse (or, at least, were not able to prove it) but tried to follow on the coattails of others and receive compensation for the loss of value of the product or a risk that could happen.<sup>158</sup>

Here, certainly, the risk of flooding the courts also applies. As Justice Benjamin Cardozo quotes Sir Frederick Pollock’s work on tort law in *Palsgraf*:

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<sup>154</sup> See *Increasing Risks*, *supra* note 46, at 440 (“No one has seriously proposed that a person be liable when no harm occurs and the risk of harm has entirely passed.”). But the same article argues that damages for risk should be recoverable where the administrative costs of such a system would be lower than a recovery-for-damages system, such as in mass toxic torts. See *id.* at 456–57, 474–77 (Jones and Smith example).

<sup>155</sup> *Metro. Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 775 (1983).

<sup>156</sup> *Id.* at 736.

<sup>157</sup> Scheuerman, *supra* note 37, at 735–36.

<sup>158</sup> See generally *id.* (providing a comprehensive review of those claims, based on tort law, contract law, liability for defected products, and regular or class action).

“Proof of negligence in the air, so to speak, will not do.”<sup>159</sup> This needs to be the proper interpretation of that statement: pure risks are not compensable under tort law when they have not materialized and never will materialize.<sup>160</sup> Therefore, in this category, and only in this category, compensation to healthy plaintiffs should be completely blocked, and cases should be dismissed under both rationales. This is what happened in many U.S. court rulings,<sup>161</sup> although there were also cases in which an effort was made to recognize risks as subject to compensation.<sup>162</sup>

*E. Healthy Plaintiffs for Whom the Event that Exposed Them to Risk is Ongoing and the Disease May Possibly be Incubating Inside Them (“Healthy – Latency”)*

*1. In Theory*

This category of “healthy – latency” includes those who were exposed to an event, whose risk was increased, who bear an ongoing (rather than one-time) risk, and who establish that it is medically possible that the disease is latent inside them and may manifest it in the future. There are no harms beyond the potential future physical harms, i.e., they cannot point to a substantial or proven psychiatric or psychological harm, although they are “fearful” of becoming sick. They also do not necessarily have increased medical expenses due to the exposure. The action in this case is for compensation only for the fact that the disease might manifest.

If ongoing risk due to latency is viewed within a framework of partial compensation proportional to probability of occurrence (an incomplete tort), there seems to be no room for restoring the status quo and for awarding compensation calculated proportionally to the harm, since no harm has taken place.<sup>163</sup> In other words, since applying the rationale of partial and proportional compensation requires the existence of a harm to calculate the attributable fraction, no compensation can be given.<sup>164</sup>

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<sup>159</sup> *Palsgraf v. Long Island R. Co.*, 162 N.E. 99, 99 (N.Y. 1928) (quoting FREDERICK POLLOCK, *THE LAW OF TORTS* 455 (11th ed., 1920)).

<sup>160</sup> *See id.* at 101.

<sup>161</sup> *See Scheuerman, supra* note 37, at 683, 694, 706 (presenting both a conflict with the U.S. Constitution and the inability to meet the requirements of the bases for causality or damage).

<sup>162</sup> *Id. passim.*

<sup>163</sup> *Liability for Future Harm, supra* note 44, at 232–34.

<sup>164</sup> *Id.* at 233–34.

Here, where no harm was caused, the goals of tort law also will not support compensation, restitution, and restoration of the *status quo ex ante*. Nor is there reason to change the distributive relationship in cases in which the exposure did not cause harm, or to prevent future harms where transfer of money to the pockets of those exposed to the risk will not in any event be used for prevention or detection (since in this category, there are no such expenses).

The only chance of receiving compensation in such a case is to estimate the value of the future harm and award probabilistic compensation based on the chance that the plaintiff will become sick;<sup>165</sup> that is, to award compensation for the harm that might be caused by the disease, multiplied by the probability of the disease's occurring provided the risk is non-negligible.<sup>166</sup> This approach faces challenges with respect to proper calculation and leaves itself open to an accusation of excessive speculation, but the suggestion seems generally acceptable and proper, and in any event, it meets the rules of proof for each aspect by a preponderance of the evidence. A plaintiff may use this compensation to attempt to prevent the manifestation of the disease via preventative medical treatments or purchase health or life insurance, and therefore there is complete justification for compensation for the latency itself or, alternatively, for the proper detection, prevention, and preparation in case the risk materializes. Even a defendant may have an interest here—sometimes it is better for him to compensate proportionally immediately to avoid leaving himself open to the risk that he will have to provide full compensation later if the harm does, in fact, eventually materialize and can be proven to have been caused by the defendant by a preponderance of the evidence, even though, human nature being what it is, he may prefer to “put off the inevitable” as long as possible. But it has to be said that, in principle, this solution does not fit the incomplete tort rationale, since according to that rationale no compensation at all—not even partial—should be awarded.<sup>167</sup>

If increased risk constitutes a harm in itself, then it can satisfy the harm prong of the tort.<sup>168</sup> Compensation should be given for the increased risk, even if the harm is the very latency itself with no other harms of any kind, since this

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<sup>165</sup> Porat and Stein recommend that compensation be based on criteria of efficiency and justice. *See generally id.*

<sup>166</sup> *Id.* at 222, 232, 235.

<sup>167</sup> *Id.* at 233–34.

<sup>168</sup> *See id.* at 234–35.

is where the tort of exposure to risk gains real significance.<sup>169</sup> It is here that we distinguish between this rationale and the rationale of partial compensation for an incomplete tort. Only here can separate and independent compensation be received for the increased risk, since only luck separates those whose risks were increased and became ill from those whose risks were increased and did not become ill, but in whom the disease is latent, and who still have a chance of becoming sick.

It should be emphasized that even when the plaintiff receives separate compensation for his psychological harms, as a fearful plaintiff, or for his detection, prevention, and preparation expenses, under the rationale of a complete tort, he must be separately compensated for the latency; that is, for the increased risk of bodily harm itself.<sup>170</sup> These are *different* planes, and increased risk should be compensated separately on each of them. If so, increased risk, both for the bodily harm and for the psychological harm/expenses, should be compensated, but every member of the “healthy but fearful” or “healthy-expenses” groups also necessarily belongs to the “healthy-latency” group, since the fear that the disease will manifest stems from the latency. The same holds true for expenses: their purpose is to detect the disease, to prevent its manifestation as far as possible, or prepare for it by means of medicine or treatments that strengthen the immune system.

Some U.S. courts have been ready to award compensation—again, for expenses only—in cases where the defendant placed the plaintiff at risk.<sup>171</sup> The *Ayers* court denied compensation for an increased risk of a few diseases, but nevertheless awarded reimbursement for the costs of medical testing and monitoring to identify early onset of the relevant diseases.<sup>172</sup> Note, apart from this, that the increased risk in a case of latency must be seen under this rationale as an independent instance of damage itself. This is not double compensation, and the two kinds of compensation should not be decreased, since they are awarded for distinct occurrences of damage. This seems to be a better solution than that suggested by the rationale of partial and proportional compensation.

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<sup>169</sup> Both here and in a case of latency where the plaintiff chooses not to sue, but rather to wait and see if the harm developed, one could imagine a certain period being established during which an action would be possible only if the harm does materialize. *See, e.g., Rudenauer v. Zafiropoulos*, 837 N.E.2d 278, 283 (Mass. 2005) (arguing that, at first glance, present compensation for “healthy-latency” seems to circumvent this period).

<sup>170</sup> *See Finkelstein, supra* note 1, at 967.

<sup>171</sup> *Ayers v. Twp. of Jackson*, 525 A.2d 287, 312 (N.J. 1987).

<sup>172</sup> *Id.* at 308, 312; *see Finkelstein, supra* note 1, at 977–79 (criticizing the outcome in *Ayers*).

However, it can be said that although compensation is justified by some of the goals of tort law, it is less justified than in cases where the latency is accompanied by psychological harm or expenses. Why? If the latency and incubation themselves are considered an independent instance of damage, there is justification for compensation and restitution, since there may have been exposure to bodily harm, and the ongoing risk of the disease's manifestation constitutes harm in every respect. From a distributive perspective, such compensation can be justified, since it takes wealth from the side that exposed others to risk, thus harming them, and distributes it to the side that was exposed to risk. But there is a problem from the perspective of optimal deterrence. If the compensation is not used to prevent or detect the damages, then there seems to be no increase in aggregate welfare. On the other hand, the goal of optimal deterrence may nevertheless be fulfilled, since as long as the tortfeasor pays compensation commensurate with the harm that he caused—and here, as mentioned, the increased risk constitutes “harm”—it does not really matter at what stage he pays, as long as he is optimally deterred.<sup>173</sup> Because deterrence is more concerned, in accordance with the goal of optimal deterrence, with imposing appropriate costs upon the tortfeasor than with dividing up those revenues after collection to specific plaintiffs, there is no need to address the question of whether the distribution of compensation is equitable; this is because efficiency focuses more on the precautions of the tortfeasor and less on the question who receives the damages in practice and how they are distributed.<sup>174</sup>

The next Part looks at this rationale more deeply and strengthens the theoretical basis for liability in these cases according to the rationale of complete tort within certain parameters.

2. *The Proposal: Acknowledging the Need to Compensate According to the Complete Tort Rationale, but Only According to Four Parameters and Barriers*

Compensation should be awarded according to the complete tort rationale in cases of mere latency within these parameters:

(1) Compensation is justified. It is totally unjustified to wait until all the people tortiously exposed to risk become ill and then and only then let them sue. But justice cannot be the only parameter, due to possible problems of

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<sup>173</sup> See Eric A. Posner & Cass R. Sunstein, *Dollars and Death*, 72 UNIV. CHI. L. REV. 537, 553–56 (2005).

<sup>174</sup> See *id.* at 554–55.

flooding the courts and making the tortfeasor insolvent, and not be able to compensate the exposed persons who would become ill in the future. That is the reason there is a need for more parameters.

(2) The second parameter explains when compensation is justified according to corrective justice, when can one see a situation of a tortfeasor, a victim and an actual harm. The risk-injured plaintiff will have to truly prove actual belief and experience,<sup>175</sup> that is, that his life has changed for the worse and that he has gone through a bad experience due to the exposure that increased his risk of becoming ill, even though for the meantime he cannot point to a bodily or substantive psychiatric or psychological harm. If his life has changed for the better, or he is indifferent to the incident of exposure, he should not be compensated.

I will now more thoroughly explain the basis for awarding full compensation, which is the actual parameter of damages in these cases, and why the intangible harms should be considered in torts, if other parameters are fulfilled.

Tort law would seemingly have to acknowledge that something happened by enabling those who have been exposed to toxins or radiation to prove that they have undergone some harmful experience due to the increased risk, even though they cannot point to a bodily harm or at a substantial psychological or psychiatric harm, and thus that they belong to the category of the fearful.<sup>176</sup> According to one of the Beatles' best-known songs, "Yesterday":

Yesterday, all my troubles seemed so far away. . .  
 Suddenly, I'm not half the man I used to be  
 There's a shadow hanging over me  
 Oh yesterday came suddenly.<sup>177</sup>

At times, a person's world changes dramatically for the worse by exposure to risk, even if they cannot, at the time, point to a concrete damage. Scheuerman explains that only claims where harm manifests should be

<sup>175</sup> *Risk, Death and Harm*, *supra* note 46, at 1385.

<sup>176</sup> In this sense, this proposal completes Adler's proposal. Matthew D. Adler, *Fear Assessment: Cost-Benefit Analysis and the Pricing of Fear and Anxiety*, 79 CHI.-KENT L. REV. 977, 977-78 (2004) [hereinafter *Fear Assessment*] (suggesting that fear should also be counted as a cost for the sake of cost-benefit purposes, and therefore arguing that agencies should engage in fear assessment *ex ante*). In this Part, I propose acknowledging an *ex post facto* fear, i.e., a fear that develops after the plaintiff has already been exposed to toxins, radiation, or other harmful substances, and that negatively changes his daily life.

<sup>177</sup> THE BEATLES, *Yesterday*, on HELP! (Parlophone Records 1965).

recognized.<sup>178</sup> Similarly, according to one definition, risk is “unrealized in the physical world.”<sup>179</sup> I argue that “something happened here” is a kind of harm that is both manifested and realized, as opposed to the mere possibility of future harm that does not affect life at present. Scheuerman explains that “risk is merely an estimate of whether some adverse event may happen in the future.”<sup>180</sup> Indeed, pointing to “something that happened here” refers to something that is separate from the possibility of the development of future harm.

For example, is the status of at least some of the Chilean miners who were holed up underground for two months.<sup>181</sup> Their “today” is not the same as their “yesterday.” Some suffer as a result of harm to their life routines<sup>182</sup> after being unwillingly exposed to toxins or to other risks. They suffer, either because they have had to change the routine of their daily lives or because they are afraid of the unknown. This fear—which does not constitute a substantial psychological or psychiatric harm—may be rational or irrational, but in any event it is causally related to the risk.<sup>183</sup> If the plaintiff belongs to a group of people who have been exposed to the same risk and some of them become ill, and he sees them suffer and even die, one by one, the fear is fairly rational, even if he himself is not yet sick and may never become sick. This is why such people’s today is so substantially different from their yesterday, and they are not who they used to be before the exposure to the risk: now, they are “afraid of tomorrow.”<sup>184</sup> If the plaintiff fails to prove a change for the worse, or if the defendant can show that the exposed remained indifferent to the exposure or even that his condition improved (e.g., that he suddenly understood the meaning of life and began doing things he had always dreamed of), and that he is merely trying to take advantage of claims already filed, his claim cannot succeed.

Compensation is justified, but only in situations in which the above-mentioned parameters are fulfilled. Reasons for accepting this approach may

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<sup>178</sup> See Scheuerman, *supra* note 37, at 684.

<sup>179</sup> *Metro. Edison Co., v. People Against Nuclear Energy*, 460 U.S. 766, 775 (1983).

<sup>180</sup> See Scheuerman, *supra* note 37, at 685.

<sup>181</sup> Barrionuevo, *supra* note 22, at A1.

<sup>182</sup> *Id.*

<sup>183</sup> There have been articles dealing with how emotions, such as fear, make people more risk-averse or risk-inclined, i.e., the *ex-ante* situation and the attempt to deter a potential wrongdoer. See, e.g., Cass R. Sunstein, *Probability Neglect: Emotions, Worst Cases and Law*, 112 *YALE L.J.* 61 (2002). In this Article, I intend to deal with the *ex-ante* effect of emotions on the injured plaintiff.

<sup>184</sup> GARY MOORE, *Afraid of Tomorrow*, on *DARK DAYS IN PARADISE* (Virgin 1997).

be the fear of the unknown and the tendency of people to over-evaluate the future and thus be more fearful (even if they cannot point at the moment to a substantial proven psychiatric or psychological harm) after being exposed to a risk, even though for now there are no signs of the development of the illness.<sup>185</sup> Indeed, the contemplation of future events evokes a more intense affective response than does the contemplation of past events,<sup>186</sup> and several studies show that “people value future events more than equivalent events in the equidistant past.”<sup>187</sup> When people imagined being compensated, they demanded and offered more damages for events that would take place in the future than for identical past events.<sup>188</sup> Caruso, Gilbert, and Wilson argue that contemplating future events produces a greater effect than contemplating past events and this difference mediates people’s temporal value asymmetry, since they often use their current affective states as information about the value of the events they are contemplating.<sup>189</sup> Even if this behavior is sometimes irrational,<sup>190</sup> it is how people respond, and they deserve compensation that will help them cope with their new situation after the exposure.

This is particularly true if a group of people exposed to toxins and radiation see their neighbors, friends, colleagues, or relatives—who belong to the same group and were exposed to the same risk—harmed, and they believe it is only a

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<sup>185</sup> See generally Arnaud D’Argembeau & Martial Van der Linden, *Phenomenal Characteristics Associated with Projecting Oneself Back into the Past and Forward into the Future: Influence of Valence and Temporal Distance*, 13 CONSCIOUSNESS & COGNITION 844 (2004) (examining “whether similar factors affect the subjective experience associated with remembering the past and imagining the future,” and suggesting that “the way we both remember our past and imagine our future is constrained by our current goals”).

<sup>186</sup> See generally Leaf Van Boven & Laurence Ashworth, *Looking Forward, Looking Back: Anticipation is More Evocative than Retrospection*, 136 J. EXPERIMENTAL PSYCHOL.: GEN. 289 (2007) (indicating that people report more intense emotions when anticipating emotional events that were positive, negative, routine, and hypothetical than in retrospection of them). The authors explained the aforementioned tendency by saying that people often expect future emotions to be more intense than past emotions they felt. *Id.* They also point to the finding that anticipation’s greater evocativeness than retrospection was also associated with “participants’ tendency to report mentally simulating future emotional events more extensively than they report mentally simulating past events.” *Id.* The authors conclude that “anticipation is more evocative than retrospection,” and they point at the significance of that finding for both research and practice. *Id.* A second study showed the same results. Eugene M. Caruso, *When the Future Feels Worse Than Past: A Temporal Inconsistency in Moral Judgment*, 139 J. EXPERIMENTAL PSYCHOL.: GEN. 610, 610 (2010) (finding in several studies that participants judged future bad deeds in a more negative light, and future good deeds in a more positive light, than equivalent behavior in the past). The author explained this pattern in part by the stronger emotions that were evoked by thoughts of future events than by thoughts of past events. *Id.*

<sup>187</sup> Eugene M. Caruso, Daniel T. Gilbert, & Timothy D. Wilson, *A Wrinkle in Time: Asymmetric Valuation of Past and Future Events*, 19 PSYCHOL. SCI. 796, 796 (2008).

<sup>188</sup> *Id.*

<sup>189</sup> *Id.* at 797.

<sup>190</sup> *Id.*

matter of time until they themselves become sick, too. On the one hand, if the plaintiff does not belong to a specific group of people that have been exposed to a risk at a certain time and/or place, but has merely witnessed the media harms that were caused to other people in different times and places, his fear is less rational than if he had actually seen, even on a daily basis, his neighbors or colleagues suffering from the very same risk that he was exposed to, and therefore compensation in such cases is less justified. On the other hand, the power of the media is undeniable, so the fear of a person who has been exposed to a similar risk to one that materialized for others, in other places or times, and is now being covered by the media may truly be justified.<sup>191</sup> In any event, even if the average person in such situations may act the same as before the exposure, the plaintiff can claim that he is “not the man he used to be” since he is more sensitive, and thus argue that “the eggshell skull rule” is relevant here in order to hold the wrongdoer liable for increasing his risk and causing him to change the routine of his life. The wrongdoer should have taken him in the condition he found him and thus be liable for all the consequences.<sup>192</sup>

In addition, there is a solid connection between an individual’s fear and a social panic.<sup>193</sup> Eric A. Posner explains this phenomenon in several ways, two of them relevant to our issue.<sup>194</sup> First, fear is contagious, because observing a person who is fearful is more likely to make the observer fearful as well, as this is a purely psychological or even physiological response.<sup>195</sup> Second, fear feeds on itself, because the experience of fear of another may heighten the observer’s own experience of fear.<sup>196</sup> I think that all of this is especially true, as mentioned above, if those other people belong to the very same group of people who were also exposed to the risk, and this agent has witnessed their suffering and fear and understands that he may be the next to suffer. But it may also apply when the agent has merely seen the possible destructive effects of the exposure via the media.<sup>197</sup>

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<sup>191</sup> See Sunstein, *supra* note 183, at 85–87 (explaining that media coverage sometimes triggers fear of the risk being materialized).

<sup>192</sup> See, e.g., *Vosburg v. Putney*, 50 N.W. 403, 404 (Wis. 1891); *Smith v. Leech Brain & Co.* [1962] 2 Q.B. 405 at 413 (Eng.).

<sup>193</sup> Eric A. Posner, *Law and the Emotions*, 89 GEO. L.J. 1977, 2003 (2001).

<sup>194</sup> See *id.*

<sup>195</sup> *Id.*

<sup>196</sup> *Id.*

<sup>197</sup> See Sunstein, *supra* note 183, at 85–87.

So, compensation is justified in either case—that the plaintiff belonging to a specific group or belonging to a group that he knows of via the media.

In addition, harm in two stages can be more devastating than a sudden harm, inflicted in a single stage, and thus can also justify compensation. The intermediate status of waiting for the risk to materialize is not easy, and tort law must acknowledge this stage also as a harm in itself, if proven in the right circumstances. The first stage may enable the people exposed that are not yet sick, but nonetheless have seen their neighbors or colleagues get sick, make preparations for the harm. Furthermore, two-stage harm may be more emotionally powerful anyway: in the Beatles' words, suddenly they are not who they used to be, even if they cannot point at that particular time to a solid bodily or proven emotional psychological or psychiatric harm.<sup>198</sup> They should be compensated for the very risk to which they were exposed, if only they can prove that there is a shadow over them and that something indeed has happened to them—some bad experience that has affected their daily lives since the exposure.

In saying that “something happened,” I also refer to Martha Nussbaum's list of objective welfare goods enumerating, among others, life, bodily health, senses, imagination, thoughts, emotions (including fear and anxiety), as well as control over the environment.<sup>199</sup> According to Matthew Adler, a law professor at Duke University, it appears that the absence of a minimal level of these values indicates that something happened here following the exposure.<sup>200</sup> Fear might cause someone to refrain from activities that advance his life and goals, thus making him less productive and thereby reducing aggregate welfare.<sup>201</sup> It should therefore be possible to make compensation for this situation—not only for the proven fear itself.

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<sup>198</sup> THE BEATLES, *Yesterday, on HELP!* (Parlophone Records 1965).

<sup>199</sup> MARTHA C. NUSSBAUM, *WOMEN & HUMAN DEVELOPMENT: THE CAPABILITIES APPROACH* 78–80 (2001).

<sup>200</sup> *Fear Assessment*, *supra* note 176, at 1036–37; *see also* Scheuerman, *supra*, note 49, at 719 (quoting JOEL FEINBERG, *HARM TO OTHERS* 47 (1984)) (“Does risk alone set back one's interest in physical health? Risk may be undesirable, but ‘an undesirable thing is harmful only when its presence is sufficient to impede an interest.’ What then does it take to set back or impede an interest? In common sense terms, this concept involves a detriment or decline of some kind.”). Scheuerman claims that exposure to the risk does not result in a worsening of the personal security of the exposed relative to his condition had the risk not occurred. Scheuerman, *supra* note 37, at 719. But in the case at hand, the loss exists and is manifest in the negative experience of “something happened here,” and if we compare the situation before and after, we find that there is indeed a loss.

<sup>201</sup> *Fear Assessment*, *supra* note 176, at 1036–37.

True, over time emotional states can weaken and disappear.<sup>202</sup> However, the issue at hand differs from other emotion states. Here we are talking about people who are afraid of becoming ill as an outcome of the exposure, and whose fear influences their thoughts and their daily lives.

This view may be especially suited to optimal deterrence, since it does not matter whether the tortfeasor pays an *ex-post* loss or, as argued here, an *ex-ante* loss, since from an economic perspective these two losses are equivalent and the tortfeasor is deterred.<sup>203</sup> The tort system usually awards damages only to actual victims rather than potential ones, even though the two awards are equivalent because it is more practical from the aspect of calculation and evaluation.<sup>204</sup> Posner and Sunstein explain that tort law, in theory, could either require all wrongdoers to pay all potential tort victims an *ex-ante* compensation, or (as in fact it does) require only wrongdoers who cause accidents to pay *actual* victims *ex-post* compensation.<sup>205</sup> They ask: “Why does the tort system award damages . . . to actual victims rather than damages . . . to potential victims, when the two awards are equivalent?”<sup>206</sup> Their answer:

A large part of the answer is practicality. Potential victims cannot be easily identified in advance, and many risks are difficult or even impossible to calculate. . . . [T]ort law does not, in principle, bar awards of [*ex-ante* compensation] rather than [ex post compensation]; its focus on [*ex-post* compensation] stems from the fact that [*ex-post* compensation] is a far simpler foundation for judicial decisions.<sup>207</sup>

This is of great importance if the plaintiffs can use this money to avoid risks that may materialize, e.g., by undergoing some medical or psychological examinations to avoid the harm or mitigate when it strikes. The fear itself reduces aggregate welfare and should therefore be counted as a loss.<sup>208</sup> This proves that this compensation is also justified with respect to the goals of compensation and corrective justice. As mentioned above, the compensation will be used to properly prepare for the illness, or even to be treated with medication that can prevent the morbidity, postpone it, or slow its speed and development.

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<sup>202</sup> Posner, *supra* note 193, at 2006.

<sup>203</sup> Posner & Sunstein, *supra* note 173, at 555–56.

<sup>204</sup> *Id.*

<sup>205</sup> *Id.* at 555.

<sup>206</sup> *Id.*

<sup>207</sup> *Id.* at 555–56.

<sup>208</sup> *Fear Assessment*, *supra* note 176, at 988.

Furthermore, people are often willing to pay in order not to become sick with a severe disease, even if the chances are low.<sup>209</sup> In order to advance deterrence, Posner and Sunstein suggest that tortfeasors who expose others to risks should know that they will be held liable for the risk they created and the extent of compensation should be equal to the price the victims would be willing to pay in order to avoid the risk *ex ante* and thus avoid the risk of death.<sup>210</sup> Posner and Sunstein argue that awarding damages to living victims is preferable to awarding them to their heirs.<sup>211</sup> I would add yet again that awarding damages to plaintiffs who have gone through something that changed their lives since their exposure is preferable to awarding them to the same people after they are already sick, since the opportunity to use the money for avoidance or to ease the upcoming harm has been missed.

But these parameters are not enough to avoid flooding the courts. There is still a need for two more parameters.

(3) The increased risk is not negligible.<sup>212</sup> This innovative approach that sees risk-injured persons as entitled to damages in principle should not be applied—at least not in the first stage if acknowledged—in negligible cases.

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<sup>209</sup> Posner & Sunstein, *supra* note 173, at 556–59 (albeit not deciding between different approaches as to whether risk of death should be seen as a harm, presenting this method of valuing loss of human life); *cf.* Caruso, *supra* note 186, at 610 (arguing that people are more willing to sacrifice their financial gain to be treated fairly in the future compared with the past). *But see* Finkelstein, *supra* note 1, at 968 (raising difficulties in implementing the willingness-to-pay test in each and every case).

<sup>210</sup> Posner & Sunstein, *supra* note 173, at 556–57; *see also* Cass R. Sunstein, *Illusory Losses*, 37 J. LEG. STUD. S157, S184 (2008) (raising difficulties in assessing the loss in a willingness-to-accept way and suggesting objective “civil damage guidelines”); *cf.* Finkelstein, *supra* note 1, at 965–66 (arguing that the imposition of a risk should be considered harm to the person on whom it is inflicted, but not dealing with the question whether courts should award compensation for merely putting someone at risk); *Increasing Risks*, *supra* note 46, at 439 (claiming that according to corrective justice, as a regulative ideal, one should be liable for having increased the risk of harm occurring, whether or not it eventually does). Schroeder actually argued that damages for risk should be recoverable where the administrative costs of such a system would be lower than a recovery-for-damages system, as in mass toxic torts. *See id.* at 475–77. In arguing so, Schroeder denies that the link between corrective justice and causation is in any way essential. *See, e.g., id.* at 442. He also suggests a shift in tort theory away from causation and toward liability for creating risks. *See id.* at 473; *cf. Risk, Death and Harm*, *supra* note 48, at 1440 (arguing that risk cannot itself be considered as harm in torts absent fear on the part of the victim); Matthew D. Adler, *Against “Individual Risk”: A Sympathetic Critique of Risk Assessment*, 153 U. PA. L. REV. 1121, 1142 (2005) (arguing that frequent risk is not considered an evil under substantive welfarist moral theories); Finkelstein, *supra* note 1, at 990–98 (posing several objections to seeing risk as harm, and offering solutions); PORAT & STEIN, *supra* note 59, at 101–15 (presenting the approach that risk cannot be considered damage).

<sup>211</sup> Posner & Sunstein, *supra* note 173, at 558.

<sup>212</sup> *See supra* notes 77, 119, and 166 and accompanying text.

(4) The rate of compensation is determined based on the incubation period and the severity of the risk in the exposure. It is only logical that, if the law acknowledges enduring the incubation period as harm, compensation should be lower for that interim waiting period until the results of the medical tests that might tell the exposed person whether he is ill or a carrier, compared to an ongoing and unlimited incubation period, as, e.g., after being exposed to toxins associated with contracting cancer. In the latter cases, the incubation period actually never ends, and therefore compensation should be higher. If the incubation period is relatively very short, it is assumed that most people will not file a claim, so this parameter is also a good barrier against flooding the courts. If a claim is filed and all other parameters are also fulfilled, the compensation will be relatively low.

Let us now return to the Chilean miners. Can they sue after the rescue, even if they cannot point, at the moment, to a substantial bodily or psychological harm, especially given the known instances of harm to miners in former cases? Are there sufficient grounds for awarding compensation?

The answer should be yes, as long as they prove that they went through a bad experience, that it has negatively affected their current daily lives—they have become overcautious, overly suspicious, cannot count on other people, etc.—and that the risks are not negligible. The harms in these cases are only a matter of time, and there is no need to wait for them to develop. As mentioned, from an efficiency standpoint, it is obvious that the tortfeasor is deterred even at this stage, and the plaintiff can use the money in order to better organize his life and undergo examinations that may prevent him from becoming ill and thus expand aggregate welfare.

Indeed, a tort action is being prepared against the mining company and the government mine-safety agencies.<sup>213</sup> There are some known damages so far.<sup>214</sup> According to doctors, “all but one of the thirty-three miners have experienced severe psychological harms and disorders.”<sup>215</sup> It has emerged that they considered cannibalism and killing themselves while trapped underground.<sup>216</sup>

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<sup>213</sup> Juan Moreno, *Millions for Chilean Miners? After Rescue, the Fight for Compensation Begins*, SPIEGEL ONLINE (Oct. 18, 2010, 4:00 PM), <http://www.spiegel.de/international/world/millions-for-chilean-miners-after-rescue-the-fight-for-compensation-begins-a-723648.html>.

<sup>214</sup> *Id.*

<sup>215</sup> *Chilean Miners Considered Cannibalism and Talked About Killing Themselves During Their 69 Days Trapped Below Ground*, DAILY MAIL ONLINE., <http://www.dailymail.co.uk/news/article-1355958/Chilean-miners-considered-cannibalism-suicide-69-days-trapped.html> (last updated Feb. 12, 2011, 1:11 PM).

<sup>216</sup> *Id.*

One miner constructed a wall around his house due to his inability to reconnect with friends and family.<sup>217</sup> Other miners have also experienced this inability to connect. In the four months after being brought to the surface, some miners described feeling “debilitating anxiety.”<sup>218</sup> For example, one miner must take six pills daily to converse with others, and still fears small spaces and even the slightest sound.<sup>219</sup> Others are struggling to rebuild their former relationships with friends and family members.<sup>220</sup> While some of these harms may be recoverable under existing tort law, or under the categories of “healthy-fearful” or “healthy-expenses,” other harms that have been described here and at the beginning of this article may not be. But I believe this suit can and should also include compensation for future harms, since the miners “are not the men they used to be” as long as their future harms are not negligible.

Compensation is determined based on the incubation period and on the severity of the risk as a result of the exposure. According to these “parallel forces,” the shorter the incubation period, the lower the compensation is; the longer the incubation period, the higher the compensation is, and as noted, at times the incubation period may last for the rest of the plaintiff’s life. Finally, the greater the risk to which the plaintiff has been exposed and the more severe the potential harm, the higher the compensation is, and vice versa. Of course, if they are entirely unaware of the latency and incubation, it cannot be said that “they are not the men they used to be,” since they have not gone through any mental or emotional experience after the exposure.

Under this alternative of a complete tort recognizing an independent instance of damage, there may be a concern about flooding the courts with trivial suits, if only in situations of mass torts, such as in the factory example.<sup>221</sup> Perhaps, instead of allowing 100,000 people to sue now for their increased risk, it would be preferable to wait and see who will develop

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<sup>217</sup> *Id.*

<sup>218</sup> *Id.*

<sup>219</sup> *Id.*

<sup>220</sup> *Id.*

<sup>221</sup> In the case of medical malpractice, there can also be a concern regarding defensive medicine and suppression of medical activities. See TOM BAKER, *THE MEDICAL MALPRACTICE MYTH* 118–21 (2005); David A. Hyman & Charles Silver, *The Poor State of Health Care Quality in the U.S.: Is Malpractice Part of the Problem or Part of the Solution?*, 90 *CORNELL L. REV.* 893, 909–13 (2005); Alan Feigenbaum, Note, *Special Juries: Deterring Spurious Medical Malpractice Litigation in State Courts*, 24 *CARDOZO L. REV.* 1361, 1370–71 (2003), for more information on defensive medicine.

physical or psychological injuries or incur expenses as a result of the exposure and only then compensate them instead.<sup>222</sup>

Therefore, maybe here—and only here—there is room to block and restrict compensation for the increased risk itself as an independent instance of damage in cases of latency in a situation of mass torts or serial torts—that is, individual torts that repeat themselves (such as a hospital's medical malpractice)—out of concern for flooding the courts. An alternative is to greatly limit the rate of compensation. It seems, however, that whenever there is a difficulty in proving full factual causation for bodily harm, there will also be difficulty proving full factual causation for psychological harm or financial expenses.<sup>223</sup> This is true with respect to proving substantial psychological harm and expenses, and thus in any case, compensation will be awarded at the sum of the attributable fraction and no more, so that in most cases this will not be high compensation (20% in the factory example above). Such is the case for latency that constitutes a fear that is not substantial, as in the category of the fearful. For the latency itself, one may suggest a limited *ex-ante* compensation, as will be suggested in the next section. Relatively low compensation will not provide much incentive to file such actions, but rather, to wait and see what happens, such that courts will not be flooded.

However, there may be room for an opposite viewpoint as well, since in the meantime people are exposed to the risk, and over the course of years, more and more of them will become sick and need to be compensated at that point.<sup>224</sup> It needs to be pointed out, though, that the chance of new instances of illness is very slight overall, since some people have already become ill as a result of the factory's activities (those twenty-five), and the statistical chance that over the years many more will become ill because of this factory's activities is not large: If they do become ill, it will likelier be a result of many cumulative risk factors for disease as the patient's age rises.<sup>225</sup> In any event, it seems that insistence on recognizing only non-negligible risk can solve the problem. Beyond this, there is also a concern that these potential lawsuits will provide an excessive disincentive for companies and entrepreneurs to engage in socially desirable activities out of fear of massively expanding circles of

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<sup>222</sup> See generally Benjamin Shmueli & Yuval Sinai, *Liability Under Uncertain Causation? Four Talmudic Answers to Contemporary Tort Dilemma*, 30 B.U. INT'L L.J. 449 (2012) (discussing increased risk).

<sup>223</sup> See *id.* at 453 n.11.

<sup>224</sup> See *id.* at 454–55.

<sup>225</sup> See *supra* text accompanying note 63.

potential plaintiffs.<sup>226</sup> Therefore, there are arguments in favor of either side regarding mass torts.

On the other hand, there seems to be no reason to deny compensation in cases of latency due to ongoing risk in individual cases of increased risk, as in the birth example. Here too, however, individual cases may aggregate, and the tortfeasor—e.g., a hospital—may become a serial tortfeasor that increases risk through multiple acts rather than one mass tort act, as in the factory example.

In addition, the above analysis suggests four parameters to constitute barriers, and these answer the fear of flooding the courts.

To sum up, in cases in which the harm of latency should be recognized *per se*, compensation can and should stand alone or be combined with compensation for psychological damages if the plaintiff is fearful and with various expenses for detection or prevention, if there are any such. That is to say, all three categories can, in principle, produce compensation through three different avenues of recovery.

Anyway, compensating the “healthy-latency” group whose lives have changed for the worse as an outcome of a continuous risk is justified in principle, albeit there are some problems with it; for example, the argument that people expect more harm than they actually experience, people’s surprising resilience in the face of major changes in life conditions, and people’s power of adaptation.<sup>227</sup> It is a question of objectivity versus subjectivity, as Daniel Kahneman and Richard Thaler have stated: “Nothing in life matters quite as much as you think it does while you are thinking about it.”<sup>228</sup>

Therefore, there can be a very significant practical difference between the theoretical rationales for the doctrines.

### 3. *The Extent of Damages According to the Complete Tort Rationale*

An action by healthy plaintiffs whose only claim is latency, i.e. an action for increased risk of future harm that has not yet been realized, according to the

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<sup>226</sup> Shmueli & Sinai, *supra* note 222, at 469–70.

<sup>227</sup> See Sunstein, *supra* note 183, at 63.

<sup>228</sup> Daniel Kahneman & Richard Thaler, *Utility Maximization and Experienced Utility*, 20 J. ECON. PERSP. 221, 229 (2006).

complete tort rationale, is problematic in terms of evaluating the harm.<sup>229</sup> If the action is accepted in principle, it will sometimes at most be possible to estimate the anticipated *medical* disability, but it will be hard to predict the *functional* disability, if any, since sometimes the functional disability remains low even though the medical disability is high.<sup>230</sup> In addition, for the latency itself, we have no standard for compensation for the tort of increased risk (20% in the example above), since it cannot be calculated from existing harms as in the cases of fear or expenses.

It should be remembered, however, that these are problems of evaluation: while they should not be completely dismissed, we are primarily dealing with the fundamental, substantive question of whether compensation should be awarded in these cases.

There are several solutions to this problem. This problem can be solved by setting fixed sums of damages in these cases by legislative enactment, or a ceiling for compensation for increased risk in the case of latency. Another option is to simply award relatively restrained compensation. It can be assumed that the courts will not be flooded with suits if the compensation is limited, since it should be remembered that these are cases in which no harm has (yet) occurred and therefore the action itself is only for the exposure to risk, the relatively low compensation will not provide much incentive to file such actions. As mentioned above, these solutions are especially proper in cases of mass or serial torts, in which there is a greater possibility of flooding the courts.<sup>231</sup>

Another option is to use the formula suggested by Porat and Stein,<sup>232</sup> even though they presented it as an application of the first rationale of partial compensation and an incomplete tort and did not mention the other rationale of the complete tort discussed here. As mentioned above, Porat and Stein suggest estimating the value of the future harm and awarding probabilistic compensation based on the chance that the plaintiff will become sick, that is, awarding compensation for the harm that might be caused by that disease multiplied by the probability of the disease occurring, provided that the risk is non-negligible.<sup>233</sup>

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<sup>229</sup> Walter Y. Oi, *Tort Law as A Regulatory Regime: A Comment on Landes and Posner*, 13 J. LEGAL STUD. 435, 438 (1984).

<sup>230</sup> *See id.* (discussing latency injuries to plaintiffs).

<sup>231</sup> *But see id.* at 438–39 (proposing different methods for the calculation of latency injuries).

<sup>232</sup> *Liability for Future Harm*, *supra* note 44, at 222, 232–35.

<sup>233</sup> *Id.*; *see also supra* text accompanying note 166.

A third option is to embrace Posner and Sunstein's proposal of evaluating the payment by what people are willing to pay *ex ante* (WTP) in order not to become sick,<sup>234</sup> as long as this proposal is practical and WTP can be estimated and measured in all cases.

#### 4. *In Practice*

Has this approach of awarding compensation in merely latent cases, with or without the proposed parameters and barriers, been adopted in practice? Generally speaking, the answer is negative.<sup>235</sup> A few judgments have been delivered lately, however, that may be closest to the approach I suggest here. I describe them now.

#### F. *Intermediate Cases in Israeli Law*

Despite the attempt to position the healthy people at risk into circumscribed categories, at times it is difficult to draw the line between (a) cases of entirely healthy people with an ongoing increased risk that does not amount to "something happened here," where the risk is negligible, and (b) all the other cases. At times some of these parameters are subjective and depend on the plaintiff, as in the following examples.

A nurse gave the wrong baby to a mother, and the mother suddenly saw her baby in the hands of another woman who was nursing it. This is a one-time risk of an exchange of infants, which can be very serious and not negligible. It is possible to imagine that the mother experienced great anxiety, but the

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<sup>234</sup> Posner & Sunstein, *supra* note 173, at 556–59; *see also supra* text accompanying note 219.

<sup>235</sup> *See, e.g.*, *Ayers v. Twp. of Jackson*, 525 A.2d 287, 307 (N.J. 1987). This is true even for cases in which the plaintiff was not healthy but suffered bodily or emotional harm and also sued for the increased risk of developing other symptoms or diseases in the future. *See, e.g.*, *CA 9670/07 Plonit v. Ploni PD [2009] (Isr.)* (unpublished). But here and there one can identify judgments in which courts have acknowledged compensation for increased risk in such cases. *See, e.g.*, *Lindsay v. Appleby*, 414 N.E.2d 885, 891 (Ill. App. Ct. 1980) ("[I]ncrease in the risk of injury traceable to the conduct of a defendant is compensable. . . ."); *Schwegel v. Goldberg*, 228 A.2d 405 (Pa. Super. Ct. 1967). In *Schwegel*, the defendant struck a four-year-old boy with his car and caused him a severe head injury. *Id.* at 407. The plaintiff proved that he suffered a contusion or bruising of the brain and a traumatic subarachnoid hemorrhage. *Id.* The brain surgeon reported reasonably well available statistics from large numbers of similar accidents indicating that the plaintiff has a 5% chance of contracting seizures at some time up to fifteen or twenty years in the future. *Id.* at 408. The court awarded damages for the increased risk of epileptic seizures arising from his head injury. *Id.* at 409. Another scholar argues that it is plausible to interpret cases in which market-share liability is acknowledged as "requiring a defendant to compensate a plaintiff for the likelihood that the defendant's actions were the cause of the plaintiff's injury," and therefore it is actually compensation for increased risk. Finkelstein, *supra* note 1, at 979–80.

exposure will be short. There may be a fear that if these cases are recognized as torts, they will flood the courts. Can the mother be considered to be suffering from anxiety, or is she at a one-time risk not subject to compensation? Is the fact that the event occurred immediately after birth significant because the mother is more sensitive, or is the test entirely objective?

In many cases, the incubation is ongoing and unlimited, which means that the disease may appear at any given moment in the exposed person's life. But in the category of "healthy – latency" one may also place a *limited* time of possible incubation, since there are cases in which after proper medical examinations, the person exposed will know whether he is ill, or a virus carrier, or completely healthy.

Where appropriate, if the person tortiously exposed to the risk may have contracted or become a disease carrier, compensation should be granted for the intermediate period (irrespective of the expenses incurred for conducting the tests or significant emotional distress and psychiatric harm). This period is similar to the incubation period, in that the damage is caused by lack of information. Compensation should be granted if the parameters presented above are present. The longer the period and the more severe the possible risk, the higher the compensation is until answers to the tests are obtained. The compensation is small compared with that in the case of a possibly endless period of incubation. If the case is one of possible severe morbidity, such as hepatitis or HIV, the "parallelogram" tends toward an increased rate of compensation because of the severity of the risk, compared with less serious illnesses such as curable skin diseases. In other words, it is a case of "something happened here" for a limited period of time.

Similarly, in the example of the exchanged infants, the issue is not only the mother's anxiety as a result of the exchange, but also that of a risk of the infant contracting infectious diseases in the course of the breastfeeding, including HIV, and of various sensitivities that may pass. Does the infant, who naturally did not experience anxiety because it did not sense anything, have a claim for a possible incubation of the infection during the intermediate period until the test results are obtained? Apparently, according to the "something happened here" parameter, the answer is negative.

An example of this category includes the general population living adjacent to a factory and people who have not (so far) become ill, cannot point to a substantial psychiatric or psychological proven harm, and are not spending

money for prevention or detection either. If a case of latency due to ongoing risk is considered an independent instance of damage and a complete tort, it would seem that these individuals can sue for the increased risk of contracting cancer, per se, in spite of the fact that they have not become sick in fact and cannot show any damage (psychological or economic and, of course, not bodily either) beyond the increased risk itself.

Individuals in this category might include those who received a blood transfusion that was contaminated with HIV before 1985. No examination was made to detect the virus before approving the blood for transfusion, there is a long latency associated with the disease before it becomes evident whether an individual was infected, and during this period, which can last up to ten years, there is, in effect, possible latency.<sup>236</sup>

In some cases the plaintiff can prove that his life routine has changed for the worse from that point onward, even if eventually he turns out to be healthy. One such example is from *Hazut v. Princess Hotel Haifa – Lexon (Israel) Ltd.*<sup>237</sup> In that case, a guest staying at a hotel claimed that an employee of the hotel entered his room in his absence and used his electric razor.<sup>238</sup> The guest discovered this only after he had shaved with the razor later.<sup>239</sup>

The court awarded damages for the guest's anxiety that he might have contracted some contagious disease, pointing to the fears the plaintiff described feeling in light of the event: the fact that he hastened to purchase a new razor, his seeking of a medical consultation, and even a referral to the Regional Health Office to perform tests.<sup>240</sup> Since the plaintiff had his medical consultation only after a number of days had passed, he did not perform the recommended tests to see if he had caught a contagious disease.<sup>241</sup> The court nevertheless determined that in light of the danger of this possibility, the plaintiff suffered anxiety for about two months, worrying that he had contracted some sort of disease.<sup>242</sup> There was no evidence of a substantial psychiatric or psychological emotional harm.<sup>243</sup> Therefore, the court said there

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<sup>236</sup> See, e.g., *In re Rhone-Poulenc Rorer, Inc.* 51 F.3d 1293, 1295–96 (7th Cir. 1995) (discussing an example of hemophilia class actions suits filed in the United States).

<sup>237</sup> Civ.F. (Jer. Magist. Ct.) 5079/08 *Hazut v. Princess Hotel Haifa – Lexon (Israel) Ltd.* [2010] (Isr.). (unpublished).

<sup>238</sup> *Id.*

<sup>239</sup> *Id.*

<sup>240</sup> *Id.*

<sup>241</sup> *Id.*

<sup>242</sup> *Id.*

<sup>243</sup> *Id.*

is no doubt that harm was caused to the plaintiff by the unauthorized use of his personal property by strangers, and this use could have had health-related consequences for the plaintiff.<sup>244</sup>

The court awarded damages for the purchase of a new razor and one-third of the cost of the vacation, but also found the plaintiff entitled to compensation for the mental anguish resulting from the incident at the sum of \$450.<sup>245</sup> This is a rare award of compensation for latency only (not medical expenses or a substantial psychiatric or psychological emotional harm), as in the HIV example. If it is not anxiety or disgust that are at issue, it is possible incubation and outbreak of the disease are, even though it turned out eventually that the plaintiff was healthy. Compensation is justified if the risk is at least serious and not negligible and the plaintiff proves that during those two months, he was “not the person he used to be.” Hence the compensation, which was relatively low, seems justified and balanced according to the fourth parameter suggested above—that is, the need to award less compensation for the interim waiting period until the results of the medical tests (here, a relatively short time) that will inform the exposed person for sure whether he is ill, a carrier, or neither, compared to an ongoing incubation period. As to the requirement of proof that the plaintiff is “not the man he used to be,” here the plaintiff succeeded in persuading the court that such was his condition for two months.<sup>246</sup> It does not seem negligible to fear a contagious disease.

In another case in which no current harm was cited but a significant potential for future harm was (an incubation case), the Israeli Supreme Court missed an important opportunity to recognize increased risk as damage, although it did not completely rule out the possibility of recognizing it in the future.<sup>247</sup> The case involved a little girl who was sexually assaulted by an acquaintance.<sup>248</sup> He was tried and convicted for a criminal offense. The question of increased risk was also raised as part of the compensation claim.<sup>249</sup> But the girl, who was assaulted more than once and threatened by the acquaintance not to disclose his deeds lest he would hurt her, did not show signs of harm at the time of the trial, so her claim for compensation for a non-negligible risk of future psychological and medical harm owing to the perverse

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<sup>244</sup> *Id.*

<sup>245</sup> *Id.*

<sup>246</sup> *Id.*

<sup>247</sup> See generally CA 9670/07 Doe v. Roe [2009] (Isr.).

<sup>248</sup> *Id.* para. 2.

<sup>249</sup> *Id.* para. 3.

deeds was rejected by the Court.<sup>250</sup> The possibility of a future ruling to recognize such harm was not rejected in principle.<sup>251</sup> A relatively low compensation was awarded (approximately \$25,000) for current non-monetary harm (not future harm).<sup>252</sup> The compensation was for the indecent acts themselves and for the child's need to move to another residence and be regularly questioned by a youth investigator.<sup>253</sup> The dissenting opinion argued that the amount of the compensation should have been three times higher.<sup>254</sup>

In my opinion, separate compensation should have been awarded for the increased risk because of possible incubation. It is possible to wait and see if the harm develops, especially in the case of minors for whom the statute of limitations is long. But the case exemplifies the problem caused by non-recognition of compensation for incubation. Preventive treatments and intensive medical oversight, which can also be expressed monetarily, can act to prevent the outbreak of future harm, or at least to reduce the chance of its outbreak and to reduce the symptoms in case of an outbreak. More is at issue than just the risk of emotional damage. In her initial opinion, the expert determined that "there is no conclusive evidence of mental disability, but we know that the chances of future problems . . . are substantially higher than would be expected in the case of normal fortuity."<sup>255</sup> The Supreme Court added that studies have shown that those who suffered sexual abuse in childhood are at higher risk for mental disorders than those who have not.<sup>256</sup> The parents claimed that "there are imperceptible undercurrents that may grow into a major storm."<sup>257</sup> The child's rebellious behavior may be early evidence of such future problems.<sup>258</sup> Real damage occurred—even if it did not amount to immediate psychological damage and anxiety, and even if there would only be ups and downs over the entire future life of the child, who was at a very delicate age when assaulted.<sup>259</sup> Such a risk does not appear to be negligible,

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<sup>250</sup> *Id.* para. 3, 21 (citing CA 4086, 07/08 (Center) Doe v. J Doe [2007] (Isr.) (unpublished)).

<sup>251</sup> *Id.* para. 20.

<sup>252</sup> *Id.* para. 3.

<sup>253</sup> *Id.*

<sup>254</sup> *Id.* (Rivlin, dissenting).

<sup>255</sup> *Id.* para. 16.

<sup>256</sup> *Id.* para. 15.

<sup>257</sup> *Id.* para. 7.

<sup>258</sup> *Id.* para. 15.

<sup>259</sup> Thus, even the finding that was presented whereby there was some improvement in the condition of the girl four years after the assault is not convincing as far as rejecting compensation for incubation is concerned. Even if there will be ups and not only downs, it is still clear that something bad happened, that it takes time to manage, and that it is possible that it is still incubating.

and compensation for it seems justified. It makes no sense to wait and see what develops and only then compensate for all the damage that becomes manifest. Even if right now there is nothing to be done medically, it is important to consider that in this case the private tortfeasor is an elderly person who according to his own testimony is ill (a condition that resulted in a more lenient punishment in the criminal case), and it is not clear whether in future years he will have the economic ability to pay for such harm.<sup>260</sup>

Therefore, I am not comfortable with the ruling of the District Court, which accepted the conclusion of the Magistrate's Court—namely, that “the appellants cannot have it both ways: submit an expert opinion that the child has no disability and claim such a disability.”<sup>261</sup> This is not a case of increased risk because there is no causal or evidentiary uncertainty, and the plaintiffs will be able to prove the damage, to the extent that it occurs, if they wait a few years.<sup>262</sup> Unlike other cases of mental damage or physical disability, in this case the damage may develop down the road, and the question is allowing some compensation at this stage already based on the increased risk doctrine, under the rationale of a complete tort in a stage of incubation, rather than leave the child an option of future compensation only when the harm materializes and excluding the possibility of reducing the harm—or even preventing it—at a lower cost right now. The argument that the compensation is satisfactory even if the increased risk were known<sup>263</sup> is not acceptable, with all due respect, in so severe a case of multiple assaults, threats, and breach of the parents' trust by an acquaintance, given the real fear of severe damage. The argument that compensation for non-monetary damages is traditionally not high<sup>264</sup> does not justify yet another link in this logical chain, certainly not justified in so serious a case. The claim of having it both ways may be relevant in the case of a second action, after the harm materializes in the future. This, an important issue at the procedural and substantive level, is beyond the scope of the present paper and needs to be addressed in a separate work, but it can be resolved by various means such as offsets and reductions. In any case, the plaintiff must be allowed to choose whether to file a claim for incubation now, given the increased risk, or wait for a future development. This decision should not be taken away from the plaintiff.

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<sup>260</sup> CA 9670/07 *Doe v. Roe*, para. 7

<sup>261</sup> CA 4086-07/08 (Center) *Doe v. Doe* [2007] (Isr.) (unpublished) (citing Civ.F. (Ramla Magistrate's Court) 2559/03 *Doe v. Doe* [2006] (Isr.) (unpublished)).

<sup>262</sup> *Id.*

<sup>263</sup> As ruled by the lower courts. *See id.*

<sup>264</sup> CA 9670/07 *Doe v. Roe* (Isr.), paras 12, 32 [2009] (Isr.) (unpublished).

As noted, the majority opinion did not accept the position of the plaintiff that even if no harm was proven at present, her chances of developing mental disorders in the future have increased and she should therefore receive compensation.<sup>265</sup> According to the majority, the main reason for the rejection was that the compensation awarded was adequate and no present need was cited for concrete treatments, only monitoring.<sup>266</sup> But this opinion did not entirely reject the argument in principle, and held that in appropriate cases, the doctrine of increased risk can have practical significance even in the absence of proven current damage.<sup>267</sup>

Thus, the court did not set a precedent in the matter of the doctrine of increased risk in cases in which no present harm can be proven.<sup>268</sup> An opportunity was missed, however, to establish a precedent regarding increased risk in cases of future harm when “something happened” at the time of the exposure to risk, especially given that in very few cases do victims of crime in general, and children in particular, sue for damages against their assailants.

In my opinion, it makes sense to apply the increased risk in the case at hand, where clearly “something happened” and where the increased risk is not negligible, and it is possibly still incubating. In that case, all courts (the magistrate, the district and the Supreme) accepted the rationale of an *incomplete tort* but were not sufficiently aware of the rationale of a *complete tort* to recognize the possibility of harm of an incubating type.

The following case illustrates the difficulty of demarcating the boundary between anxiety and incubation, although in my opinion, compensation should have been awarded at least under one of the two categories in this case. In *Reinitz v. Maccabi Health Services*, the Israeli Supreme Court determined that the Health Services were negligent because they failed to refer Reinitz, a pregnant woman, to take a certain test, causing her not receive a vaccination on time to spur the development of antibodies against a certain disease.<sup>269</sup> As a result, the risk for a hemolytic illness for the fetus for all future pregnancies was created.<sup>270</sup> Reinitz filed suit against Health Services, claiming damages for emotional harm, monetary expenses, and any harm that might be caused to

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<sup>265</sup> *Id.*

<sup>266</sup> *Id.* para. 20.

<sup>267</sup> *Id.* para. 17.

<sup>268</sup> *Id.*

<sup>269</sup> CA 5233/08 *Reinitz v. Maccabi Health Serv.* para. 7 [2008] (IsrSC) (unpublished).

<sup>270</sup> *Id.* at para 1.

children that she would subsequently bear.<sup>271</sup> Reinitz had already given birth to three children, all of them healthy.<sup>272</sup> However, in light of the fact that she was a relatively young woman from the ultra-Orthodox Jewish sector, among whom the reproductive rate is much higher than the national average, she was expected to have several more.<sup>273</sup> The District Court examined the contradictory versions regarding her failure to take the test, and ruled—as an evidentiary finding—that she had been neither referred to nor informed of its importance.<sup>274</sup> Health Services argued that the claim for anticipated harm to the fetuses should be rejected because the children born to Reinitz to date suffered from no illness, and there was therefore no current harm.<sup>275</sup> The Court rejected this argument and ordered the award of compensation to Reinitz, for the knowledge of the expected risks to her in future childbirths and the attendant awareness of the antibodies in her body, with the deduction of 30% contributory negligence because she did not perform tests and monitoring on time.<sup>276</sup> The total award for pain and suffering was about \$32,000 after deduction of the contributory negligence, plus compensation of about \$8,000 for expenses.<sup>277</sup> The Court also approved two remedies regarding the claim for anticipated future damages.<sup>278</sup> One was the authorization to split up the remedies so that Reinitz would be able to sue in the future if indeed she should give birth to children who contract the hemolytic disease.<sup>279</sup> The other remedy declares Health Services responsible for 70% of any such harm caused to children she may give birth to in the future (due to the 30% contributory negligence of the plaintiff).<sup>280</sup>

The appeal turned on the question of redundancy between the authorization to split up the remedies and the declarative remedy in any future claim of harm to unborn children.<sup>281</sup> Satisfied with the authorization to split up remedies, the Court decided there was no need for both remedies: the essential question of future harm to unborn children would be heard when applicable.<sup>282</sup>

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<sup>271</sup> Civ.F. (Jer.) 7250/05 Reinitz v. Maccabi Health Serv. para. 1 [2008] (Isr.).

<sup>272</sup> CA 5233/08 Reinitz v. Maccabi Health Serv. para. 5 [2008] (IsrSC) (unpublished).

<sup>273</sup> *Id.*

<sup>274</sup> *Id.*

<sup>275</sup> *Id.* para. 5.

<sup>276</sup> *Id.*

<sup>277</sup> *Id.*

<sup>278</sup> *Id.* para. 6.

<sup>279</sup> *Id.*

<sup>280</sup> *Id.*

<sup>281</sup> *Id.* para. 7.

<sup>282</sup> *Id.* paras. 7–8.

In the matter at hand, what is especially important is the compensation awarded to Reinitz. In the appeal, there was no dispute regarding the responsibility of the defendant.<sup>283</sup> Reinitz argued that she did not contribute, whereas Health Services argued that her contribution was much higher than had been set—even approaching 100%—since by her own negligent behavior Reinitz prevented the doctors from correcting their mistake and breaking the causal connection between the mistake and the harm.<sup>284</sup> The Supreme Court rejected both arguments affirming the decision and award.<sup>285</sup>

It is possible that this is a case of anxiety, and if the emotional harm is not significant, this is some type of incubation for a limited period of time—that of the pregnancies. If it is incubation, we have a case of a healthy person, who was not able to prove any fear amounting to real psychiatric or psychological harm, but feared for anticipated future consequences and nothing more, and was ordered to be awarded compensation by the Supreme Court for the incubation period. If the case is examined *ex ante* according to the proposed parameters based on the complete tort rationale, the compensation is justified: the plaintiff has proved that “something has happened to her” since the event, and the risk factor—it may be assumed—is not negligible, although there was room for determining its magnitude more precisely. The compensation rate here was set by estimation.<sup>286</sup>

However, the judgment from a more recent case on increased risk<sup>287</sup> limited the doctrine to cases involving mass or serial tortfeasors.<sup>288</sup> This case was not a mass tort case, even though Health Services can certainly be considered a serial tortfeasor in light of the number of actions brought against it each year for medical negligence.<sup>289</sup> Therefore, the ruling may be valid, even today.

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<sup>283</sup> *Id.* para. 8.

<sup>284</sup> *Id.*

<sup>285</sup> *Id.* para. 7.

<sup>286</sup> Regarding future compensation, the situation is ostensibly much more complicated. There is evidentiary vagueness on the past and uncertainty on future developments of harm. Furthermore, these future harms are not only speculative, but refer to individuals that have yet to come into the world. In this matter of future harms, however, the Court did well by permitting the remedies to be split up, i.e., allowing a suit to be filed in the future if the harm should materialize in the children that will be born. In that case the suit, if filed, will no longer concern anticipated future harms, but deal with real harms that have occurred, and it will not face any of the problems at issue in this Article.

<sup>287</sup> *See generally* CA 4693/05 Carmel Hosp. Haifa v. Malul [2010] (Isr.) (unpublished).

<sup>288</sup> *Id.*

<sup>289</sup> *Id.*

We can use the harm of the ability to marry to illustrate the boundary between the fearful on one hand and incubation and “something happened here” on the other to prove that these are two separate categories. A reduction in the chance to marry due to exposure to risk and incubation should be considered an independent damage. If it became known to one’s partner that he dived in a polluted river for a long time during his military service or was exposed to some other risk repeatedly and at length, this may affect the partner’s decision to marry him. In certain cases, courts recognize non-monetary damage as a loss of a chance to marry.<sup>290</sup> This is actually a type of harm to one’s opportunities. The case of harm to the ability to marry due to an increased risk is very similar to these cases of loss of opportunities, but the difference is that in the case of increased risk, the harm is not the result of damage that has materialized, but of increased risk that has not materialized yet. This is an entirely independent damage that should be subject to compensation, regardless of whether the person exposed to risk suffers from anxiety. This is merely a matter of information transferred to the partner. Note that concealing information related to the health of a person about to be married can be considered a tort, and the spouse concealing the information may be liable to pay compensation; in some cases, information concealed by the spouse’s family, if it was party to the negotiations leading to the marriage confers liability as well.<sup>291</sup> Thus the obligation to make such disclosure, according to tort law, at least sometimes reduces the chances of marrying.<sup>292</sup> As noted, this is a harm in itself, unrelated in any way to the matter of anxiety. It means that if the person exposed to the risk proves that he suffered from anxiety from fear of the materialization of the physical damage, he is entitled to compensation under both categories: anxiety, which is damage due to his feelings and fears caused by the exposure, as well as harm to his chances to marry, damage due to the concerns of others about him. These are two distinct and separate non-monetary damages.

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<sup>290</sup> These damages can include those caused by refusal to obtain a *get*, a Jewish divorce bill. See, e.g., Shmueli, *supra* note 33, at 826–27 (2013); Benjamin Shmueli, *What Have Calabresi & Melamed Got to Do with Family Affairs? Women Using Tort Law in Order to Defeat Jewish and Shari’a Law*, 25 BERKELEY J. GENDER L. & JUST. 125, 137–38 (2010). Harm to the ability to marry applies also to harm to the ability of Muslim women who were divorced against their will to remarry as well as to the compensation owed to the widow for harm to her ability to remarry. *Id.* In these cases as well the law recognizes harm to the ability to marry as damage, but these topics are beyond the scope of this Article.

<sup>291</sup> EMANUEL RACKMAN, MODERN HALAKHIC FOR OUR TIME 71 (1993).

<sup>292</sup> *Id.*

Finally, we can imagine additional scenarios. For example, there is the case of a person whose chance of becoming ill increased from anxiety after ingesting a medication or a product containing a component deemed to be dangerous, which the manufacturer did not disclose prior to its consumption, but it was subsequently discovered that the component was not dangerous after all. The person's negative experience when he discovered the ostensible danger was real, even if it was eventually clarified that the risk could not materialize. Would it be possible to claim compensation for the negative experience if the risk, which at the time was considered real and material, changed his life for the worse? Does the factual reality according to which it turned out that there was no real danger make such a claim impossible, even if the negative experience in itself was real? I believe that the first alternative is the correct one, although the matter bears further discussion.

Therefore, the answers to some of the intermediate cases are positive, whereas to others they are not absolutely clear. But this does not detract from the generality of the proposed analysis and the division into categories, nor from the proposal to apply the desirable law in each case based on the proposed parameters.

#### *G. Summary*

The differentiation between the two rationales appears to be most evident in the cases of latency and ongoing risk, since a substantial difference exists there. Under the rationale of an incomplete tort and partial and proportional compensation, compensation cannot be awarded according to the attributable fraction unless there is bodily harm of the kind typical of exposure to the risk. Other harms or types of expenses or fear should be compensated without regard for proportional compensation. But when we look at the complete tort rationale—which assumes an independent instance of damage—compensation should be awarded in cases of latency, since the damage is the increased risk itself, which has occurred even in the absence of bodily harm, and there is still a chance that the risk will materialize and become a harm, unlike in cases of the truly healthy. This is true only if based on the analysis and parameters suggested above, and first and foremost on the requirement that the plaintiff must prove that some bad experience happened to him and “he is not the man he used to be,” and that the risk is not negligible. Most of the goals of tort law support this result.

In the other categories there is no difference between the rationales: when there is an ongoing risk that has resulted in some harmful event—whether psychological harm or financial expenses—separate compensation should be awarded for that harm under both rationales, and this is very clear from the application of the goals of tort law.

When there is exposure following which no risk materializes or can materialize, here too it is clear that under both rationales and in accordance with the goals of tort law, there should be no compensation, for the reasons stated above.

### CONCLUSION

The doctrine of increased risk has two alternative theoretical rationales. The incomplete tort rationale of partial and proportional compensation means that the law is, to some degree, doing the plaintiff a favor and granting him an evidentiary leniency. A pluralistic analysis of the goals of tort law indicates that under that rationale, this is the lesser evil compared to the other options. By contrast, under the complete tort rationale, which sees the increased risk as an independent instance of damage, this is full compensation, and therefore an analysis of the goals of tort law paints an almost ideal picture that demands implementation of the doctrine.

At first glance, there seems to be no practical difference between the two rationales, since under the first rationale, the proportional part is calculated according to the probability attributed to the defendant, and under the second rationale of a complete tort exactly the same amount (though considered “full” compensation) is made available. However, the case of compensation for healthy plaintiffs whose risk was increased but who have not become sick makes evident the distinction between the rationales. For this purpose, we must distinguish between the various categories of healthy plaintiffs. The proper law is that in the case of the completely healthy who were exposed to a risk that did not and cannot materialize, no compensation should be given under either rationale, and this result fits all the goals of tort law. Healthy plaintiffs who have not become ill with the bodily harm typical of exposure to the risk but have suffered another type of damage, psychological harm or financial expenses, should be compensated for that other harm under either rationale. This includes both the verifiably fearful who worry that the harm may develop for them in the future and those who have and will continue to have heightened medical expenses for detecting or preventing possible development of the

disease. Here, too, compensation for the psychological harm or expenses matches all the goals of tort law.

Specifically, in the case of a risk that is still ongoing and may be latent in the plaintiff when no other substantial harm—psychological harm or financial expenses—has been proven, there is a difference between the two rationales. The rationale that sees increased risk as an independent damage and a complete tort that can give compensation, as arising from an analysis of most the goals of tort law, seems to be more fitting and proper than the rationale of partial and proportional compensation, which cannot award compensation in this case unless the attributable fraction is calculated from speculative future harm. In recognizing compensation in cases of healthy plaintiffs in whom the disease may be latent (even if we adopt the rationale of the independent instance of damages), procedural concerns of possibly flooding the courts and the slippery slope of negligible cases must be addressed, particularly in mass torts. But on a fundamental level, in terms of substantive tort reasoning, these actions should be accepted and compensation should be given according to some evaluation, certainly in the case of individual torts. This seems to be the proper solution.

Thus, it is only justified that those who belong to the category of “healthy-latency” should be able to sue and receive full compensation for the increased risk if they are able to prove that they are “not the men they used to be.” I have suggested that compensation should be awarded only if: (1) the compensation is justified; (2) they truly prove that the exposure has negatively affected them—that they are “not the men they used to be”; (3) the risk is not negligible; and (4) compensation will be lower for an interim waiting period until the results of the medical tests that tell the exposed person for sure whether she is ill or a carrier or not, compared to an ongoing and unlimited incubation period. These four parameters serve as barriers against a flooding of the courts. I call upon Anglo-American and Israeli law to embrace this category with the barriers herein proposed.

Note that if courts and legislatures follow the parameters, flooding the courts can be avoided. Recall that the probability must be non-negligible: the burden would be on the plaintiff to show actual fear and that “something happened here,” as well as to quantify the amount of the increased risk. And, perhaps above all, one has to remember that it is both unjustified and inefficient to wait until all the people tortiously exposed to risk become ill and

only then let them sue. With the proper parameters and barriers, making the tortfeasor pay in order to avoid overdeterrence is also justified.

This Article has dealt with the substantive question of whether compensation should be given to healthy people who were exposed to a one-time or ongoing risk. Complementary questions beyond the scope of this Article may include: (1) If such compensation is awarded, should the plaintiff be allowed a second round of claims if the harm manifests? Will he be able to bypass limitation rules? Should he request splitting up the damages in the first round? (2) Should the compensation in the first round be deducted in such cases? There is also the matter of the procedural path of the claim, that is, the question of whether the path for such an action in cases that should be recognized is via a “regular” tort action for negligence or product liability, etc., a shift to strict liability, or a class action.<sup>293</sup> In any event, this solution of class-action cases depends on the earlier decision that risk itself can be a harm in torts, if only in certain conditions, such as those presented in this Article. And, of course, class actions have their own limits and barriers, and courts do not approve them easily—another barrier that may keep courts from being flooded. Finally, there is the possibility of intervention by the legislature, e.g., by setting up a special insurance arrangement for those harmed by risk (insurance under the auspices of the state or mandated insurance on the plaintiff or the injured party) or a special compensation fund, or enacting a special statute (as in asbestos cases in some states),<sup>294</sup> if only for activities that are socially desirable but typically increase the risk to the users or the neighbors.

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<sup>293</sup> This Article deals with the question of “whether” and not “how.” If the answer to the “whether” question—substantively and procedurally, circumventing the questions of time limitation and *res judicata*—is yes, then we must turn to the question of “how” to realize this right, which is beyond the scope of this article. Cf. Rosenberg, *supra* note 57, at 881–82 (stating that the tool of the class action can also influence substantive law on the topic of exposure to risks); Geoffrey C. Hazard, Jr., *The Futures Problem*, 148 U. PA. L. REV. 1901, 1912 (2000) (raising substantive and procedural considerations not to include healthy plaintiffs exposed to risk in whom the disease is latent). In dealing with the solution of class actions, one should examine, among other questions, whether there is a flooding of the courts with individual claims. See, e.g., John A. Siliciano, *Mass Torts and the Rhetoric of Crisis*, 80 CORNELL L. REV. 990, 1006 (1995) (arguing that the growing number of individual actions in the United States has plunged the legal system into a real crisis). The tort actions began to develop after the development of the mass-tort mechanism as a solution to the system’s helplessness in coping with individual actions. *Id.*; *Amchem Prods. v. Windsor*, 521 U.S. 591, 597–98 (1997) (citing a report of a committee on that crisis). It is also worthwhile examining, when dealing with class actions, whether in the particular State it is possible to bring a class action on tort grounds. For example, it is possible in the United States, but not in Israel. Scheuerman, *supra* note 47, *passim* (discussing various types of U.S. class-action tort claims, including contractual claims and claims based on defected products).

<sup>294</sup> Dealing with an *ex-ante* solution in the form of a policy of regulation through environmental or administrative law, which does not focus on the individual as in individual tort actions, is also beyond the scope of this Article. See MARIAN R. CHERTOW & DANIEL C. ESTY, THINKING ECOLOGICALLY: THE NEXT

In an industrial world saturated with risks, tort law must adjust to developments. Part of this adjustment must be the recognition of one's liability toward those who were exposed to risk, even if they did not suffer the bodily harm typically associated with the exposure but cite anxiety, expenses, or a change for the worse in their life routines. Posner and Sunstein argue that it is preferable to compensate a live victim than his heirs.<sup>295</sup> To paraphrase this statement, it is preferable to pay the plaintiff who was exposed to a risk that had a negative effect on his life to improve his condition now and help him prepare for the possibility of becoming ill than to pay him when the risk materializes and he is already ill, when it will no longer be possible to use the funds for preparation—only, at best, for putting out the fires.

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GENERATION OF ENVIRONMENTAL POLICY 1–2 (1997); Clean Air Act of 1970, 42 U.S.C. § 7401 (2012), for more information on environmental or administrative law. See Posner & Sunstein, *supra* note 177, at 561–63, 584–96 (suggesting some reforms in regulation as to risks in order to reach more uniformity and arbitrariness in tort compensation compared to the current situation and explaining the differences between the regulations, which are made *ex ante* and have regard beyond the individual injured person, but do not order compensation for dependents, and the use of tort law in individual actions, which is done *ex post* and has regard mainly for the individual injured person, and orders the compensation of dependents), for information on new regulation through tort law.

<sup>295</sup> Posner & Sunstein, *supra* note 173, at 555–56.