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Comments

A Suggested Proposal to Apportion Liability in Lead Pigment Cases

I. INTRODUCTION

A Case in Point

Three years ago, Monica and her one-year-old daughter, Julie,¹ moved into a rented three bedroom brick house constructed in the 1940's. At the time they moved in, Julie was a bright, cheerful, active, and playful child. Approximately six months later, however, Monica began to notice that her daughter was often cranky and irritable. Over the next six months, Julie's irritability increased so much that she no longer desired to go outside to play.

When Monica mentioned these symptoms to Julie's pediatrician, he performed a physical examination. Although the physician concluded that Julie was merely suffering from "the terrible twos," the child's crankiness and irritability persisted. In addition, she began to suffer gastrointestinal problems and lethargy. Repeated trips to Julie's pediatrician revealed nothing further. Finally, more than two years after Julie and Monica moved into the house, Julie's pediatrician tested her blood. The test revealed that her blood contained highly elevated lead levels. Julie had become one of approximately 930,000 American children diagnosed with lead poisoning, a disease that can result in serious childhood developmental problems.²

1. While the introductory story is based in part on an actual case, the names used are fictional.

2. MOVING TOWARDS A LEAD SAFE AMERICA, A REPORT TO THE CONGRESS OF THE UNITED STATES, U.S. Department of Housing and Urban Development, Office of Lead Hazard Control (1997) ("HUD REPORT TO CONGRESS"). The report summarized steps taken by the Department of Housing and Urban Development ("HUD"), the Centers for Disease Control and Prevention

Following Julie's diagnosis, Monica immediately informed her landlord of the lead problem. The local health department tested the house for the presence of lead-based paint, finding high levels of lead in its painted surfaces. Julie subsequently underwent treatment at a local hospital, resulting in a slight decrease in her lead levels. X-rays revealed the presence of lead in Julie's bones; and neurological tests revealed significant developmental delays.

Eventually, Julie and Monica retained a lawyer who offered two options: institute proceedings against the landlord or attempt to sue the manufacturers of the lead pigment used in the paint. Each option, however, was imperfect. The primary obstacle for Julie and Monica proved to be that the landlord's liability insurance might not cover their claim.³ In addition, Monica neither knew which brand of paint was used in the house, nor could she identify the manufacturers of the lead pigment. Her lawyer explained that if they were unable to identify the proper defendant, it was unlikely an action could proceed. Monica was understandably upset. Her daughter had suffered permanent damage due to exposure to a defective product, and she had no viable cause of action to recover damages for the special schooling, training, and medication Julie would require throughout her life.

("CDC"), and Environmental Protection Agency ("EPA") to help reduce the occurrence of childhood lead poisoning. *Id.* The report discusses lead paint hazard reduction, lead exposure reduction, research and development efforts, and environmental studies on childhood lead poisoning. *Id.*

3. Insurance companies have also recognized the problem with childhood lead poisoning. ROBERT K. RAINER & CHRIS A. MILNE, *LEAD POISONING LITIGATION: CONCEPTS, STRATEGIES, AND PRACTICE*, 119-20 (1995). In many cases, they have responded by adding an exclusion for injuries caused by lead-based paint to their Comprehensive General Liability ("CGL") policies. *Id.* In other cases, insurers rely on the so-called "absolute pollution exclusion" to deny coverage. *Id.* at 120. A standard absolute pollution exclusion clause states:

This insurance does not apply to: (1) 'Bodily injury' or 'property damage' arising out of the actual, alleged or threatened discharge, dispersal, seepage, migration, release or escape of pollutants: (a) At or from any premises you own, rent or occupy; (2) Pollutants means any solid, liquid, gaseous or smoke, vapor, soot, fumes, acids, alkalis, chemicals and waste. Waste includes materials to be recycled, reconditioned or reclaimed.

Id. at 120.

The appearance of lead exclusions is relatively recent, possibly in response to a split among courts in deciding whether the absolute pollution exclusion applies to claims for lead poisoning arising from ingestion of lead-based paint. Some cases hold that lead is not a "pollutant" within the meaning of the exclusion. See *Atlantic Mutual Ins. Co. v. McFadden*, 595 N.E.2d 762 (Mass. 1992); *Sullins v. Allstate Ins. Co.*, 667 A.2d 617 (Md. 1995). Other courts have held that lead is a "pollutant" within the meaning of the policy. See *St. Leger v. American Fire & Casualty Ins. Co.*, 870 F. Supp. 641 (E.D. Pa. 1994), *aff'd*, 61 F.3d 896 (3d Cir. 1995).

Unfortunately, Monica and Julie's case is not unique. The number of similar cases in the United States probably numbers in the thousands.⁴ Under current law, it is virtually impossible for plaintiffs to recover damages from manufacturers of dangerous lead pigment used in residential paint manufactured before 1978. This inequity is extreme and should not continue. Victimized children, innocent of any wrongdoing, are prevented from recovering damages due to the difficulty of identifying a specific defendant or defendants. Lead poisoning is a very real and widespread problem, calling for the legal system's attention to devising a workable solution. Just as medicine responds to a unique problem by developing new treatments and preventive measures, the law must respond to the problem of residential lead poisoning by developing fair and innovative theories of collective liability. This article examines collective liability theories, focusing on market share liability, and proposes a solution to the problem encountered by victims such as Julie and Monica.

The Problem with Lead Poisoning

The Center for Disease Control and Prevention ("CDC"), located in Atlanta, Georgia, considers childhood lead poisoning one of today's most serious societal childhood diseases.⁵ Lead poisoning is particularly detrimental to children under the age of six because lead impedes development of a young child's central nervous system.⁶ Approximately 930,000 children in the United States under the age of six have elevated levels of lead in their blood.⁷

Elevated blood lead levels can lead to a variety of health

4. HUD REPORT TO CONGRESS, *supra* note 2, at 5.

5. CENTERS FOR DISEASE CONTROL AND PREVENTION, PREVENTING LEAD POISONING IN YOUNG CHILDREN, A STATEMENT BY THE CENTERS FOR DISEASE CONTROL 1 (1991) ("CDC STATEMENT"). The CDC STATEMENT sets blood lead levels above which medical intervention is required. CDC STATEMENT at 1. Blood lead levels are measured in micrograms per whole deciliter of blood (" $\mu\text{g}/\text{dl}$ "). *Id.* The intervention level was lowered in 1991 from 25 $\mu\text{g}/\text{dl}$ to 10 $\mu\text{g}/\text{dl}$. *Id.*

6. CDC STATEMENT, *supra* note 5, at 7.

7. HUD REPORT TO CONGRESS, *supra* note 2, at 5. The number of identified lead-poisoned children has decreased over the past three to five years. *Id.* Data taken from the years 1988-1991 indicates that 1.7 million children, aged one to five years, had blood lead levels greater than 10 $\mu\text{g}/\text{dl}$. *Id.* Lead poisoning is a particular problem in the African-American community and in urban areas. *Id.* For example, data collected in 1988-1991 indicates that approximately 36.7% of African-American children, aged one to five, living in large cities had elevated blood lead levels. *Id.* The most recent data, collected during the years 1991-1994, reveals that 22% of these children had elevated blood lead levels. *Id.* This figure compares to an overall rate of lead poisoning of 8.9% for the years 1988-1991, and an overall rate of approximately 5% for the years 1991-1994. *Id.*

problems, many of which are permanent. Lead primarily affects the neurological system, often resulting in decreased intelligence and ability to learn.⁸ Lead poisoning can also damage an individual's reproductive, cardiovascular, gastrointestinal, and renal systems, as well as the bones.⁹ At extreme levels (in excess of 100 $\mu\text{g}/\text{dl}$), death may result.¹⁰

The Scope of the Problem

The federal government banned the use of residential lead-based paint in 1978.¹¹ Approximately seventy-seven million homes were constructed before 1980, fourteen million of which housed at least one child under the age of seven.¹² Among these homes, approximately 12.5 million contained some lead-based paint.¹³

These statistics clearly indicate that although the reported incidence of lead poisoning among young children is decreasing, the problem remains immense. With nearly one million known cases of childhood lead poisoning in the United States today, coupled with seventy-seven million homes containing some form of lead paint, it is evident that the problem of childhood lead poisoning will persist as a major social problem.

Under traditional tort liability theories, many of these children and their parents will have no legal recourse due to their inability to determine which manufacturer caused the harm. As a result, they may be forced to rely on a collective liability theory for recovery.

8. David E. Jacobs, CIH, *The Health Effects of Lead on the Human Body*, LEAD PERSPECTIVES, Nov./Dec. 1996, at 10. There appears to be a close correlation between elevated blood lead levels and I.Q. test results. *Id.* For every increase in blood lead level of 10 $\mu\text{g}/\text{dl}$, there is a corresponding drop of two to four I.Q. points. *Id.* At levels in excess of 30 $\mu\text{g}/\text{dl}$, further neurologic problems, such as retardation, seizures, and behavioral changes are often present. *Id.* at 10-11.

9. *Id.* at 11-12.

10. *Id.* at 12. Deaths from residential lead poisoning are extremely rare, with only three deaths reported between the years 1979 and 1988. *Id.*

11. 16 C.F.R. §§ 1303.1-4 (1997).

12. REPORT ON THE NATIONAL SURVEY OF LEAD BASED PAINT IN HOUSING, WESTAT, INC., (1995) ("NATIONAL HOUSING REPORT") at 2-3. The report shows that residential lead-based paint is particularly a problem in lower income/lower-priced housing. *Id.* In 60% of the homes surveyed, the annual household income was less than \$30,000. *Id.* Further, the market value of 62% of these homes was less than \$80,000. *Id.*

13. *Id.* at 2-3.

II. COLLECTIVE LIABILITY THEORIES

Alternate Liability

The first collective liability theory, "alternate liability," was adopted in the famous case of *Summers v. Tice*.¹⁴ In *Summers*, two members of a hunting party fired their guns simultaneously in the same direction, causing injury to the plaintiff's eye and lip.¹⁵ Because it was nearly impossible to determine which of the two hunters had shot the plaintiff, the court shifted the burden of proving the identity of the actual tortfeasor to the defendants. Accordingly, the court held that as long as the defendants were unable to exculpate themselves individually, they would be held jointly and severally liable.¹⁶

Enterprise Liability

"Enterprise liability," another form of collective liability, is based on an entire industry's wrongdoing viewed as a single enterprise. In *Hall v. E.I. du Pont de Nemours*,¹⁷ this theory was applied to explosives. In *Hall*, numerous children were injured in eighteen separate accidents involving blasting caps. The explosions destroyed most of the evidence that could have identified the manufacturer of the caps.¹⁸ The plaintiffs sued every national manufacturer of blasting caps, as well as the industry trade

14. 199 P.2d 1 (Cal. 1948).

15. *Summers*, 199 P.2d at 2.

16. *Id.* at 4-5. The court examined the relative positions of the parties in reaching its decision, holding that in a case in which a plaintiff is innocent and the defendants are negligent, equity requires the defendants to prove that they did not commit the tort. *Id.* at 4. The court recognized that the defendants are most often in a better position to determine who committed the act, and that failure to shift the burden of proof would often leave the plaintiff without a remedy. *Id.*

Joint and several liability refers to the liability of "copromisors of the same performance when each of them, individually, has the duty of fully performing the obligation, and the obligee can sue all or any of them upon breach of performance." BLACK'S LAW DICTIONARY 837 (6th ed. 1990).

The drafters of the Restatement (Second) of Torts adopted the *Summers* holding. Section 433B(3) of the Restatement provides, in part:

(3) Where the conduct of two or more actors is tortious, and it is proved that harm has been caused to the plaintiff by one of them, but there is uncertainty as to which one has caused it, the burden is upon each such actor to prove that he has not caused the harm.

RESTATEMENT (SECOND) OF TORTS, § 433B(3) (1965). The facts of *Summers* illustrate the application of the above section. *Id.* § 433B, illus. 9.

17. 345 F. Supp. 353 (E.D.N.Y. 1972).

18. *Hall*, 345 F. Supp. at 358.

association, alleging that the defendants were jointly responsible for failing to place warning labels on the explosives.¹⁹

The *Hall* court held that the plaintiffs could maintain a cause of action against the industry if:

(1) the defendants breached a duty of care owed to the plaintiffs;²⁰

(2) the plaintiffs proved a causal link between the group-created harm and the injuries;²¹

(3) the plaintiffs proved by a preponderance of the evidence that it was the caps of at least one of the defendants that caused the injuries;²² and

(4) that the breach of duty was similar in nature and similar in time.²³

Concert of Action

A third form of collective liability, "concert of action," permits a plaintiff to recover if that plaintiff can prove that a defendant engaged in a common plan or scheme to commit a tort.²⁴ Courts have accepted concert of action theories in both diethylstilbestrol ("DES")²⁵ litigation²⁶ and in lead pigment litigation.²⁷

19. *Id.*

20. *Id.* at 379. The duty that the industry breached was its alleged failure to adequately warn of the dangers of the explosives. *Id.* at 374. Plaintiffs can prove an industry-wide breach of that duty by demonstrating one of the following:

- 1) an explicit agreement among the parties regarding warnings,
- 2) evidence of parallel conduct to support an inference of cooperation, or,
- 3) industry-wide compliance regarding the safety of the explosives.

Id. at 374-75.

21. *Id.*

22. *Id.* The plaintiffs in *Hall* admitted that the blasting caps may have been imported from Canada or produced by defunct American corporations. *Id.*

23. *Hall*, 345 F. Supp. at 380.

24. W. PAGE KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS, § 46 (5th ed. 1984). The authors further state that:

All those who, in pursuance of a common plan of design to commit a tortious act, or actively take part in it, or further it by cooperation or request, or who lend aid or encouragement to the wrongdoer, or ratify and adopt the wrongdoer's acts done for their benefit, are equally liable.

Id.

25. "DES" was a drug developed to prevent miscarriages in pregnant women that was prescribed between the 1940's and the 1970's. *Sindell v. Abbott Laboratories*, 607 P.2d 924, 925 (Cal. 1980), *cert. denied*, 449 U.S. 912 (1980). A side effect of the drug was a rare type of cancer, adenocarcinoma. *Id.* An "adenocarcinoma" is a malignant adenoma arising from a glandular organ. *TABER'S CYCLOPEDIA MEDICAL DICTIONARY* 39 (17th ed. 1993). An "adenoma" is a new and unusual formation of glandular tissue. *Id.* at 40.

26. *Bichler v. Eli Lilly*, 436 N.E.2d 182 (N.Y. 1982).

In *Bichler*, the plaintiff sued only one manufacturer of DES, Eli Lilly, even though the pharmacy dispensing DES to the plaintiff was supplied by 147 separate manufacturers.²⁸ In upholding a jury award of \$500,000, the court discussed two discrete theories of concert of action: concerted action by agreement; and concerted action by substantial assistance.²⁹ After reviewing the record, the court found sufficient evidence to support either of these theories.³⁰

In *Lead Industries*, plaintiffs brought suit against five manufacturers of lead pigment, alleging that the manufacturers sold and manufactured lead-based paint for residential use despite their knowledge of its harmful effects.³¹ The court held that a manufacturer who "substantially contributes" to an injury due to agreement or cooperation with other manufacturers to conceal the dangers of lead pigment may be found jointly and severally liable.³²

Market Share Liability

The final form of collective liability is commonly referred to as "market share liability." Market share theories apportion liability according to a particular defendant's share of the market. Applying this theory primarily in the context of DES litigation, courts have promulgated various market share theories to apportion liability among industry defendants.

III. MARKET SHARE LIABILITY — A SIMPLE SOLUTION?

In General

When a court endeavors to formulate a collective liability theory

27. *The City of New York v. Lead Indus. Ass'n*, 597 N.Y.S.2d 698 (N.Y. App. Div. 1993).

28. *Bichler*, 436 N.E.2d at 184.

29. *Id.* at 188. In *Bichler*, "concerted action by agreement" referred to Eli Lilly's and other drug companies' consciously parallel conduct in marketing DES for human consumption without first testing the drug on mice. *Id.* "Concerted action by substantial assistance" required a finding that Eli Lilly's failure to test the drug on mice substantially assisted or encouraged other drug companies to follow Lilly's lead in not initially testing the drug on mice. *Id.*

30. *Id.* at 188-89. Specifically, the court pointed to the fact that between 1947 and 1948 there were eight companies who filed New Drug Applications with the Food and Drug Administration ("FDA") to market DES. Each of these applications relied on the same scientific evidence and requested approval to market DES tablets of the same dosage. *Id.* The court held that a reasonable fact finder could conclude, on the basis of this evidence, that an implied agreement among the companies existed, or that these filings encouraged other drug companies to market and manufacture DES. *Id.* at 189.

31. *Lead Indus. Ass'n*, 597 N.Y.S.2d at 699.

32. *Id.* In this case, cooperation was evidenced by the lead pigment manufacturers' trade association's promulgation of a plan to mislead both the public and the government. *Id.*

based, at least in part, on market share, it must address several key issues before determining whether the plaintiff will be able to sustain a cause of action. First, the court must determine whether a plaintiff can recover against a particular defendant or set of defendants. Second, the court must determine the geographic scope of the market, in terms of its national, regional, or local character. Finally, the court must determine whether and under what conditions it will allow a defendant to exculpate itself. Various state courts have developed a range of theories apportioning liability when plaintiffs fail to identify the manufacturer of a harmful or dangerous product.

Various Market Share Theories

California

A market share theory of collective liability was first articulated by the California Supreme Court in *Sindell v. Abbott Labs.*³³ In *Sindell*, the plaintiff brought a class action against ten DES manufacturers.³⁴ The trial court granted the defendants' demurrer³⁵ to the complaint, dismissing the action because the plaintiff failed to identify which manufacturer produced the DES she ingested.³⁶ On appeal, the California Supreme Court reversed, adopting what it characterized as an expansion of the theory of alternate liability first adopted in *Summers*.³⁷

In *Sindell*, the court reasoned that although *Summers* was not

33. 607 P.2d 924 (Cal. 1980).

34. *Sindell*, 607 P.2d at 925. The *Sindell* Plaintiff class consisted of "girls and women who are residents of California and who have been exposed to DES before birth and who may or may not know that fact or the dangers to which they were exposed." *Id.* at 925 n.1. The action was brought against a group of defendant drug companies who manufactured DES after 1941. *Id.*

35. A "demurrer" is "an allegation of a defendant, which, admitting the matters of fact alleged by complaint of bill (equity action) to be true, shows that . . . they are insufficient for the plaintiff to proceed upon or to oblige upon the defendant to answer. . . ." BLACK'S LAW DICTIONARY 432-33 (6th ed. 1990).

36. *Sindell*, 607 P.2d at 926. The trial court dismissed the complaint with prejudice because the plaintiff could not identify the specific manufacturer of the DES she ingested. *Id.*

37. *Id.* at 931. The court distinguished between the factual situations in *Summers* and *Sindell*. *Id.* at 930-31. In *Summers*, both potential wrongdoers were before the court. *Id.* at 930. Conversely, in *Sindell*, not all of the 200 potential wrongdoers were named as defendants. *Id.* at 931. The *Sindell* defendants argued that a direct application of the *Summers* rule placed an unfair burden on them because there was a substantial likelihood that none of them committed the tort. *Id.* The California court agreed with this argument, and adopted what it called an "adaptation" of the *Summers* rule. *Id.*

directly applicable to the facts of *Sindell*, courts may craft theories to resolve product identification problems caused by the creation of fungible goods³⁸ such as DES.³⁹ The court stated that defendants who were negligent in the production and marketing of DES should bear the cost of the injury, rather than imposing the cost on innocent plaintiffs.⁴⁰ The court held that a plaintiff may proceed under a market share theory if:

- (1) all defendants produced a drug from an identical formula;
- (2) the manufacturer of the drug which caused the injury cannot be identified through no fault of the plaintiff; and
- (3) the named defendants in the action comprise a "substantial share" of the relevant market.⁴¹

If the plaintiff meets these requirements, liability will be apportioned among the named defendants according to each defendant's market share.⁴² Any named defendants, may, in turn, join other DES manufacturers.⁴³ Further, a particular manufacturer can exculpate itself completely if it can prove that its product could not have caused the plaintiff's injuries.⁴⁴

The *Sindell* court failed to specifically address the issue of the scope of the relevant market. Although the court acknowledged the difficulties in defining "the market" and determining market share, it declined to establish any fixed standards because the issue was not yet ripe, the case being still at the pleading stage.⁴⁵

38. "Fungible goods" are goods that are interchangeable or "of such a kind or nature that one specimen or part may be used in place of another specimen or equal part. . . ." WEBSTER'S NINTH NEW COLLEGIATE DICTIONARY 499 (9th ed. 1989).

39. *Sindell*, 607 P.2d at 936.

40. *Id.* The court noted that, although the evidence may be insufficient to prove causation, the defendants' actions in producing and selling DES, a drug causing latent injuries, provided a substantial reason for the unavailability of that evidence at trial. *Id.*

41. *Id.* at 936-37. The court did not define a "substantial share" of the market, and specifically declined to adopt the suggestion appearing in a law review article that the percentage of total market joined should be 75%-80%. *Id.* at 937 (referencing Comment, *DES and a Proposed Theory of Enterprise Liability*, 46 FORDHAM L. REV. 963, 966 (1978)).

42. *Sindell*, 607 P.2d at 937.

43. *Id.*

44. *Id.* For example, a defendant could show that it began producing the drug after the injury occurred, or stopped producing the drug prior to the prospective mother's ingestion. *Id.*

45. *Id.* at 938. The court recognized that it would probably be impossible for a jury to determine the exact relationship between market share and liability, but reasoned that the liability of each manufacturer was approximately equivalent to its culpability. *Id.* at 937. The court likened this situation to one in which a jury apportions fault, concluding that minor discrepancies do not "seriously militate against the rule" adopted. *Id.* at 938.

Wisconsin

In *Collins v. Eli Lilly Co.*, the Wisconsin Supreme Court faced the same issue confronted by the *Sindell* court in California.⁴⁶ Although the *Collins* court ultimately allowed the plaintiffs to proceed under market share theory, the court rejected the *Sindell* approach, because of the difficulty in determining the actual market share of each defendant.⁴⁷ The court found that an accurate market share determination would be nearly impossible and wasteful of judicial resources.⁴⁸

In response to these problems, the *Collins* court formulated what one commentator referred to as a "risk contribution theory."⁴⁹ While the decision concerned DES, the court clearly stated that it could be applied to other situations as well.⁵⁰ Risk contribution theory requires the plaintiff to prove the following elements against a single defendant:

- (1) the plaintiff-mother ingested DES;
- (2) the DES caused her subsequent injuries;
- (3) the defendant produced or marketed the type of DES ingested by plaintiff-mother; and
- (4) the defendant's conduct in producing or marketing DES constituted a breach of a legally recognized duty.⁵¹

The court emphasized that plaintiffs need not prove any facts related to the temporal or geographic market of DES.⁵² If the plaintiff proves the above elements, she is entitled to recover all damages. Moreover, if the plaintiff names only one defendant, that

46. 342 N.W.2d 37 (Wis. 1984).

47. *Collins*, 342 N.W.2d at 48. The court pointed to several factors supporting its contention that individual market share is difficult to determine accurately. *Id.* at 48. The court indicated that: (1) many of the drug companies have gone out of business; (2) the still-existing companies do not always maintain records; (3) if records do exist, they may not be accurate; and (4) there are no accurate national statistics pertaining to DES market share. *Id.*

48. *Id.* If market share is determinable, however, it must be one of the factors considered in determining liability. *Id.*

49. Shirley H. Fang, Comment, *Santiago v. Sherwin-Williams Co.: Rejection of Market Share Liability in Lead-Based Paint Litigation*, 43 BUFF. L. REV. 725, 735 (1995).

50. *Collins*, 342 N.W.2d at 49.

51. *Id.* at 50. While an identification of the "type" of DES produced might seem contradictory if a plaintiff cannot identify the manufacturer, use of this term by the Wisconsin court refers to "color, shape, markings, size, or other identifiable characteristics." *Id.* The court further clarified the identification requirement by holding that if a plaintiff cannot identify the "type" of DES ingested, the plaintiff must only prove that the defendant manufactured and produced DES for use in preventing miscarriages. *Id.*

52. *Id.*

defendant is deemed responsible for all damages suffered.⁵³ If, however, the plaintiff names more than one defendant, the plaintiff may recover a share of the damages from each defendant proportionate to the percentage of liability assigned by the jury.⁵⁴ The court provided a non-exhaustive list of factors to be considered in determining liability shares:

- (1) whether the drug company conducted pre-distribution safety tests;
- (2) the defendant's role in obtaining FDA approval of the product;
- (3) the defendant's market share in the relevant geographic area;
- (4) the defendant's role in marketing DES;
- (5) whether the defendant issued warnings regarding DES;
- (6) whether DES was produced after the defendant knew, or should have known, of the dangers of DES; and
- (7) whether the company took affirmative steps to reduce the danger to consumers.⁵⁵

Once all defendants are named or impleaded,⁵⁶ the case can then proceed to trial under either negligence⁵⁷ or strict liability theory.⁵⁸

53. *Id.* at 51. The court, while holding that it is only necessary to proceed against a single defendant, recognized the practical reality that plaintiffs will almost certainly join as many defendants as possible. *Id.* If a plaintiff proceeded against only one defendant and could not prove her case, the plaintiff would be barred from bringing a case against additional defendants later because of the statute of limitations. *Id.* In addition, the ruling allows named defendants to implead other defendants to ensure that liability is distributed as fairly as possible. *Id.*

54. *Id.* at 50-51.

55. *Collins*, 342 N.W.2d at 53.

56. To "implead" is to "[t]o sue; to prosecute. To bring a new party into [an] action on [the] ground that new party is, or may be, liable to party who brings him in, for all or part or part of the subject matter claim." BLACK'S LAW DICTIONARY 764 (6th ed. 1990).

57. *Collins*, 342 N.W.2d at 51. When proceeding under negligence theory, the plaintiff must prove the standard elements of negligence: that the defendant owed the plaintiff a duty of care, and that the defendant breached that duty and that the plaintiff suffered damage. *Id.* "Risk contribution" theory replaces the traditional fourth element of proximate legal causation. *Id.*

58. *Id.* To proceed under strict liability theory, the court requires the plaintiff to prove:

- (1) that the DES was defective when it left the possession or control of the drug company;
- (2) that it was unreasonably dangerous to the user or consumer;
- (3) that the defect was the cause of the plaintiff's injuries or damages;
- (4) that the drug company engaged in the business of producing or marketing DES . . . ; and
- (5) that the product was one which the company expected to reach the consumer without substantial change in the condition it was when sold.

Id. at 51.

In concluding that plaintiffs can proceed under strict liability, the Wisconsin court rejected Restatement (Second) of Torts section 402A, comment k. *Id.* at 52. Section 402A imposes a strict liability standard upon producers or manufacturers who sell unreasonably dangerous products. RESTATEMENT (SECOND) OF TORTS, § 402A, cmt k. Comment k provides in pertinent

The *Collins* court acknowledged that allocation of liability is a difficult task for juries, but held that the risk contribution method constitutes the best approach to ensure proportionate liability according to relative fault.⁵⁹

The *Collins* court rejected the plaintiff's claim for punitive damages.⁶⁰ The court concluded that because the application of risk contribution theory (or any other market share theory, for that matter) fails to assess damages with the requisite degree of certainty, courts cannot award punitive damages to plaintiffs under this approach.⁶¹

Washington/Florida

In 1984, the Washington Supreme Court modified the *Sindell* approach to market share theory in *Martin v. Abbott Labs.*⁶² Characterizing *Sindell* as "conceptually attractive," the court nevertheless rejected *Sindell's* holding because it failed to define "substantial share of the market."⁶³ In addition, the *Martin* court found that the *Sindell* approach distorted market share theory by holding a substantial share of the market liable for *one hundred percent* of the plaintiff's injuries.⁶⁴ Instead, the court adopted the *Collins* risk contribution theory,⁶⁵ by requiring plaintiffs to name only one defendant.⁶⁶

part:

k. Unavoidably unsafe products. There are some products, which, in the present state of human knowledge are quite incapable of being made safe for their intended and ordinary use. These are especially common in the field of drugs. . . . The seller of such products, again with the qualification that they are properly prepared and marketed, is not to be held to strict liability for the unfortunate consequences attending to their use. . . .

Id.

59. *Collins*, 342 N.W.2d at 53.

60. *Id.* at 54.

61. *Id.*

62. 689 P.2d 368 (Wash. 1984).

63. *Martin*, 689 P.2d at 380.

64. *Id.* at 381 (emphasis added). The Washington Court opined that under its reading of *Sindell*, a legitimate argument could be made that the California court intended liability to be joint and several. *Id.* at 380-81. Joint and several liability, however, was later rejected in favor of only several liability by the California Supreme Court. *Brown v. Superior Court*, 751 P.2d 470 (Ca. 1988).

65. See *supra* note 55 and accompanying text.

66. *Martin*, 689 P.2d at 382. See *supra* note 55 and accompanying text. Despite the presence of factors identical to those in *Collins*, the *Martin* court's holding does not appear to lessen the requirement that the plaintiff identify the "type" of DES manufactured by the defendant. *Martin*, 689 P.2d at 382. The court reasoned that the "type" of DES ingested should be known to the plaintiff. *Id.*

The court also determined that named defendants are presumed to have equal shares of the market; however, they may implead other manufacturers to reduce their presumptive market share.⁶⁷ A defendant may then exculpate itself by proving that: (1) it did not produce the type of DES ingested by the mother, (2) it did not market DES in the particular geographic market, or (3) it did not market DES during the time period in question.⁶⁸ A defendant who cannot exculpate itself becomes part of the plaintiff's presumptive market and is presumed to have an equal market share.⁶⁹ A defendant remaining in the presumptive market pool may then introduce evidence to reduce its presumptive market share. If a defendant successfully proves a lower share, the remaining defendants' shares are adjusted upward so that the total market still equals one hundred percent. If all defendants can demonstrate a market share less than the presumptive market share assigned, the plaintiff may not recover one hundred percent of any damages awarded.⁷⁰ Finally, the court held that "the market" should be defined as narrowly as possible.⁷¹

Florida, with minor variations, adopted the *Martin* approach in *Conley v. Boyle Drug Co.*⁷² In *Conley*, the court held that prior to applying this approach, a plaintiff must show a genuine attempt to locate the actual manufacturer. Additionally, the court limited the use of market share theory to only those cases alleging negligence, specifically holding that the theory is not applicable to strict

67. *Id.* at 382-83.

68. *Id.* at 382.

69. *Id.* at 383. At this stage, defendants are liable for the portion of the damages representing their shares of the presumptive market. *Id.*

70. *Id.* The court used the following examples to illustrate the theory. In each of the examples there are two defendants, X and Y, and the plaintiff's damages are \$100,000.

Example 1: X and Y have presumptive market shares of 50% each. Neither X nor Y can prove a lower share. *Result:* X and Y are liable for \$50,000 each.

Example 2: X and Y have presumptive market shares of 50% each. X proves that its market is actually 20%. Y's presumptive share is adjusted to 80%. Y cannot prove a lower share. *Result:* X is liable for \$20,000 and Y is liable for \$80,000.

Example 3: X and Y have presumptive market shares of 50% each. X proves that its market is actually 20%. Y's presumptive share is adjusted to 80%. Y proves that its market share is actually 60%. *Result:* X is liable for \$20,000; Y is liable for \$60,000. Plaintiff's total recovery is less than the total damages awarded.

Id. at 383.

71. *Martin*, 689 P.2d at 383. The "relevant market" is defined according to the "specificity of the evidence" focusing on the geographic area in which the plaintiff lived, the type of DES marketed in that area, when the DES was ingested, and the types of DES marketed during the period of time the plaintiff ingested DES. *Id.*

72. 570 So. 2d 275 (Fla. 1990).

liability actions.⁷³

New York

New York adopted a broad and liberal market share theory in *Hymowitz v. Eli Lilly, Co.*⁷⁴ After evaluating all collective liability theories, the *Hymowitz* court adopted a national market share theory that requires the plaintiff to prove only that she ingested DES, and as a result, sustained injuries.⁷⁵ The plaintiff need not prove that the defendant marketed the type of DES ingested by the plaintiff.⁷⁶

Under a national market share theory, a defendant's ability to exculpate itself is extremely limited.⁷⁷ In a national market, liability is apportioned according to the overall risk rather causation in a single case.⁷⁸ Thus, the court held, defendants can only exculpate themselves if they can prove that they did not manufacture or market DES for pregnancy use.⁷⁹ As a result, these defendants cannot exculpate themselves, even if it appears that the defendants did not cause the plaintiff's injuries.⁸⁰

73. *Conley*, 570 So. 2d at 286.

74. 539 N.E.2d 1069 (N.Y. 1989).

75. *Hymowitz*, 539 N.E.2d at 1077-78. In adopting national market theory, the *Hymowitz* court in New York noted the same problems that California courts confronted in pinpointing a DES market narrower than national in scope. *Id.* at 1076. The court rejected the *Sindell* approach, disagreeing with the California court's conclusion that, over the long run, degree of liability will approximate degree of causation. *Id.* at 1078. *See also* KEETON ET AL., *supra* note 24. The court also rejected the *Martin* approach, finding that the *Martin* requirement that "the market" be defined as narrowly as possible was too constricting. *Hymowitz*, 539 N.E.2d at 1078.

Further, the court rejected the *Collins* approach, deciding that although application of this theory on a limited basis may be possible, it was not applicable in New York. *Id.* at 1077. At the time of the *Hymowitz* decision, New York had hundreds of DES cases pending. The court reasoned that the individual assessment of liability required by *Collins* was both impractical (from the standpoint of judicial resources) and that application of that theory would almost certainly create inconsistent results. *Id.* at 1077-78.

76. *Id.* at 1078. The court reasoned that a windfall would result if a large DES producer escaped liability merely because a smaller producer manufactured a pill with a unique color or shape. *Id.* Rather, the court concluded that the broad national market theory more accurately reflected the culpability of each defendant. *Id.*

77. *Id.*

78. *Id.* For example, because of the national market, if a manufacturer made DES for use during pregnancy, but did not market it in a particular geographic area, the manufacturer might still be found liable even if the plaintiff only purchased DES in that particular geographic market. *Id.*

79. *Id.*

80. *Hymowitz*, 539 N.E.2d at 1078. It was under this standard, even if a defendant can show that it did not market DES during the time ingested by the plaintiff-mother, it cannot exculpate itself. *Id.*

The *Hymowitz* court also held that liability is several under national market theory.⁸¹ Although a plaintiff may collect less than one hundred percent of the damages awarded by the jury, the court determined that the equitable trade-off between limited exculpability (favoring plaintiffs) and several liability (favoring defendants) was fair.⁸²

Analyzing the Theories

A fair and equitable application of market share theory should not favor either plaintiffs or defendants. When considering applicability of a market share theory, a court must first examine at least four separate criteria common to all theories before rendering a decision. The decisions a court makes on each criterion will generally favor either the plaintiff or the defendant. Thus, it is critical that the court balance these decisions to ensure fair and equitable treatment of the litigants.

How Many Defendants Must be Sued?

The first factor a court must consider when developing a market share theory is the number of defendants a plaintiff must sue. Several options are available. For example, a court can direct a plaintiff to sue the entire market, a "substantial share" of the market,⁸³ or a single defendant.⁸⁴

With respect to market share theory, a court, in all fairness, cannot require a plaintiff to name every manufacturer in the market. In fact, no court has held this to be a prerequisite. Although the "substantial share" requirement seems to be a fair compromise, adopting this standard could lead to uncertainty regarding what constitutes a "substantial share," and lead to inconsistent judicial interpretation. A court in State A, for example, might decide that fifty-one percent constitutes a substantial share,

81. *Id.*

82. *Id.* at 1078. The *Hymowitz* court made no reference to the number of defendants that must be named by a plaintiff to maintain an action. However, in light of the fact that liability is several only, it clearly behooves plaintiffs to sue as great a percentage of the national market as possible.

83. *Sindell*, 607 P.2d at 937. The *Sindell* court reasoned that this somewhat arbitrary requirement greatly lessens the "injustice of shifting the burden of proof to the defendants." *Id.*

84. See *Collins*, 342 N.W.2d at 50; *Martin*, 689 P.2d at 368; *Hymowitz*, 539 N.E.2d at 1069. Although the *Hymowitz* decision does not state explicitly that only one defendant need be named, the fact that the decision allows recoveries of less than 100% clearly implies that conclusion. *Hymowitz*, 539 N.E.2d at 1069.

while a court in State B might determine that eighty percent represents a substantial share. *Sindell* offers no clear guidance to practitioners on this issue.⁸⁵

The best option available to avoid potentially inconsistent interpretations is to allow the plaintiff to name a single defendant. While this option is plaintiff-oriented, it can be offset by other criteria. Further, from a practical point of view, plaintiffs will almost certainly "find it preferable to sue as many defendants as can be identified as having possible liability."⁸⁶

Liability/Damages

The type of liability alleged and the question of whether a plaintiff can necessarily recover one hundred percent of the damages awarded are also critical factors for a court's consideration. Due to the close relationship between these factors, they cannot be analyzed separately. Three separate types of liability are available under market share theory: (1) joint and several liability; (2) strict several liability; and (3) modified several liability.

If liability is joint and several, the plaintiff can seek the entire amount of the damages from any one defendant. That defendant, in turn, will generally institute a contribution action against its other co-defendants.⁸⁷ Further, if liability is joint and several, the plaintiff will be able to collect one hundred percent of the damages awarded.

On the other hand, if the liability theory pursued is strict several liability, each defendant is only liable for damages assigned to it by the finder of fact.⁸⁸ This is particularly important in a market share context in which damages paid are apportioned according to the defendant's market share. Because a plaintiff is unlikely to succeed in proving causation by one hundred percent of the market, or even name one hundred percent of the market, a plaintiff is unlikely to collect one hundred percent of the damages.⁸⁹

85. *Sindell*, 607 P.2d at 937 ("While 75% to 80% of the market is suggested . . . we hold only that a substantial percentage is required.")

86. *Collins*, 342 N.W.2d at 51. If the plaintiff chooses to name only one defendant, the named defendant will almost certainly implead other manufacturers. *Id.*

87. KEETON, *supra* note 24, § 50.

88. *Id.* § 47, at 327-28.

89. For example, suppose a plaintiff sues defendants A through E, and discovery reveals that each of these defendants' market share is 15%. Each defendant is, therefore, only liable for 15% of the damages under market share theories utilizing strict several liability. The plaintiff will recover (assuming that none of the defendants is able to exculpate itself) 75% of the damages awarded by the jury.

The third option is modified several liability. The *Collins* and *Martin* courts adopted modified versions of several liability. The *Martin* court's "presumptive market share"⁹⁰ creates a plaintiff-friendly liability system. Under a presumptive share system, the plaintiff may be able to collect one hundred percent of damages, unless each and every defendant in the presumptive market can prove that its actual market share is less than its presumptive share. Liability based on presumptive share clearly favors plaintiffs. Presumptive share liability, however, particularly disadvantages small-market defendants.⁹¹

The *Collins* risk apportionment system is perhaps the most plaintiff-friendly method yet proposed.⁹² This type of liability system does not use market share as a determinative factor, therefore, this system guarantees a plaintiff the opportunity to recover one hundred percent of the damages awarded.⁹³

When considering liability and damages under a market share theory, courts must answer a fundamental question: Which party should bear the burden of proving market share? Although the plaintiff usually bears the burden of proof, defendants are almost certainly in a better position to determine actual market share. Corporate defendants have access to sales data and possess the resources to collect, compile, and analyze that data. Conversely,

90. See *supra* notes 63-66 and accompanying text.

91. Under the *Martin* modified several liability system, the following situation could result. Assume four defendants, A through D, in the presumptive market. Each defendant is initially presumed to have 25% of the market. In reality, the market is apportioned as follows: A = 1% — B = 14% — C = 30% — D = 55%.

Initially neither C nor D have any incentive to prove their actual market share. If A can prove its actual market share is 1 percent, the presumptive market is now: A = 1% — B = 33% — C = 33% — D = 33%.

Now B and C have incentive to prove their actual market share, but D still has no incentive because its actual market share is less than its presumptive share. If both B and C can prove their actual market shares are 14% and 30%, respectively, the presumptive market now matches the actual market: A = 1% — B = 14% — C = 30% — D = 55%.

This system allows the most responsible defendant (D) to ride on the coattails of A, B, and C. Under this liability system, the largest defendant (D) is never required to affirmatively prove its market share. Conversely, the smaller a defendant's actual market share, the more imperative for that defendant to prove its actual market share. Because it is likely that a larger defendant has the most information available, it profits from withholding that information.

92. See *supra* notes 47-61 and accompanying text.

93. The *Hymowitz* court correctly rejected this system, pointing to the morass of litigation that large-scale market share cases would present. *Hymowitz*, 539 N.E.2d at 1077-78. The court implied that the great expenditures of time and money required to determine relevant market shares made it unlikely that plaintiffs could afford to bring small scale market share cases. *Id.*

plaintiffs are not usually in the position to know the particulars of market share, nor do they generally have the ability to assimilate the necessary data. In light of the fact that the plaintiffs in lead-based paint cases are primarily innocent children and the defendants are large corporations that have probably profited from the sale of a dangerous product, public policy also favors shifting the burden of proving market share to the defendants.

Scope of Market

Courts must next consider the geographic scope of the market. Courts can adopt a definition of "market" that is as broad as possible (the national market concept of *Hymowitz*⁹⁴), or as narrow as possible (as suggested by *Martin*⁹⁵). From a practical standpoint, in many cases, there is little difference between the two approaches. If a court adopts the *Martin* approach, evidence of market share may not be available for any market except a national market.⁹⁶ It makes little sense, therefore, to choose an extremely narrow market and conduct months or years of discovery on determining market share, only to discover that an accurate assessment is impossible. Although in some instances reliable data may exist to precisely identify a narrow market, utilization of a national market analysis is more sensible because it is more likely that accurate national market data is available for review.

Exculpation

Finally, a court must consider whether a particular defendant can avoid liability. Again, a range of options is available. A court can adopt a broad view of exculpation as demonstrated by both the *Sindell* and *Martin* decisions.⁹⁷ Conversely, a court can limit

94. *Id.* at 1077.

95. *Martin*, 689 P.2d at 605. Specifically, *Martin* requires the market to be defined as narrowly as possible according to the "specificity of the evidence." *Id.*

96. The *Hymowitz* court noted that California courts had extreme difficulty in determining market share when a narrow market was used. *Hymowitz*, 539 N.E.2d at 1070. After years of litigation, it was finally determined that the most practical market to use (at least in DES cases) was a national market. *Id.*

97. See *Sindell*, 607 P.2d at 937 (holding that "[e]ach defendant will be held liable for the proportion of the judgment represented by its share of the market unless it demonstrates that it could not have made the product that caused plaintiff's injuries."); *Martin*, 689 P.2d at 382 (holding that "[i]ndividual defendants are entitled to exculpate themselves . . . by establishing . . . that they did not produce or market the particular type DES . . . ; that they did not market the in the geographic market area where the plaintiff mother obtained the drug; or that it did not distribute DES in the time period of plaintiff mother's ingestion of the

exculpation to an extremely narrow set of circumstances, as demonstrated by *Hymowitz*.⁹⁸

While the *Hymowitz* court equated limited exculpation with a national market,⁹⁹ limited exculpation was adopted primarily to offset the court's decision to adopt strict several liability as part of its theory.¹⁰⁰ A court could adopt a national market theory, and still allow a defendant to exculpate itself if it can prove its product could not have caused the damage. A court could also reach a middle ground by requiring a defendant to produce clear and convincing evidence that it could not have caused the injuries in question.

IV. APPLICATION OF MARKET SHARE IN LEAD PIGMENT CASES

Cases to Date

Most courts that are asked to apply market share liability in lead pigment cases have declined to do so. For example, the United States District Court for the District of Massachusetts addressed this issue in *Santiago v. Sherwin-Williams Co.*,¹⁰¹ and refused to apply market share liability in lead pigment cases because there was no "signature injury"¹⁰² in these cases; the scope of the lead pigment market was too broad; and the defendants were bulk suppliers of raw material, not the actual manufacturers of the hazardous product.¹⁰³

The court reasoned that because the purpose of market share

drug.”).

It appears that each of the situations set forth in *Martin* meet the rather general *Sindell* requirement. One of the *Martin* factors allows exculpation if a defendant can prove that it did not market the product in the geographic area in which the plaintiff lived. If a national market were chosen, it would be impossible for a defendant to satisfy this factor because the geographic area would be national.

98. See *Hymowitz*, 539 N.E.2d at 1078. *Hymowitz* limited exculpation in DES litigation solely to defendants not marketing DES for use during pregnancy. *Id.*

99. *Id.*

100. *Id.*

101. 782 F. Supp. at 186 (D.Mass. 1992).

102. *Santiago*, 782 F. Supp. at 192. The court contrasted lead pigment cases with DES cases, pointing to the fact that adenocarcinoma is “directly attributable to exposure to DES,” whereas problems associated with residential lead-based paint exposure are also attributable to heredity as well as other environmental factors. *Id.*

103. *Id.* at 192-95. The district court focused on the *Sindell* theory in analyzing market share liability. *Id.* at 189-90. The court mentioned other theories only in a footnote. *Id.* at 190 n.4. In the note, however, the court misinterpreted *Sindell* by stating that all defendants will be responsible for 100% of the injuries suffered, even if 100% of the possible defendants are not parties to the suit. *Id.* This analysis was examined and rejected by the California Supreme Court four years earlier in *Broun*.

theory is to eliminate the proof of causation requirement, and there is no signature injury related to lead ingestion, the question of causation remains, rendering market share theories inappropriate in lead pigment cases.¹⁰⁴ The court described differences in defining market scope when comparing DES and lead pigment cases. In DES litigation, it is only necessary to determine the applicable market for a period of approximately nine months (the length of a woman's pregnancy). Conversely, in lead pigment litigation, it is often necessary to determine market shares in a temporal market spanning decades.¹⁰⁵ Because some defendants entered and exited the market during this time span, the court reasoned that juries would be unable to make an accurate determination of market shares beyond a preponderance of the evidence.¹⁰⁶ Finally, the court explained that because the defendant pigment manufacturers were only bulk suppliers, they could not control the ultimate use of their product.¹⁰⁷

Federal courts applying Pennsylvania law considered and rejected market share theories in lead pigment litigation in 1992 and 1993.¹⁰⁸ The *Hurt* and *City of Philadelphia* courts surveyed Pennsylvania law on the subject of market share liability, and discovered only one trial court decision utilizing this theory. Due to the apparent reluctance of Pennsylvania courts to adopt a market share theory, the *Hurt* and *City of Philadelphia* courts concluded that the plaintiffs could not proceed under that theory of liability.¹⁰⁹

In 1997, the Supreme Court of Pennsylvania considered market

104. *Santiago*, 782 F. Supp. at 193. The court does not elaborate on this factor, stating only that "[d]efendants have produced evidence to show that factors other than lead pigment in paint were adequate producing causes of Santiago's injuries." *Id.*

105. *Id.* at 194. The Santiago home was built in 1917. Thus, the market spanned a period of over five decades. *Id.* An analysis of the paint in the Santiago home revealed it was repainted at least five times after construction, the last time between the years 1955 and 1969. *Id.* Three of the five defendants named in *Santiago* had ceased producing lead pigment by 1954; one additional defendant had stopped producing pigment by the late 1950's. *Id.* Another defendant presented evidence that the lead pigment it produced was primarily used in commercial applications beginning in the mid-1930's. *Id.*

106. *Id.*

107. *Id.* at 195. In reaching this conclusion, the court relied on the plaintiff's admissions that the paint manufacturers: (1) controlled the amount of lead pigment in their paint; (2) knew the dangers of lead; and (3) controlled the warnings placed on paint containers. *Id.* at 195.

108. *Hurt v. Philadelphia Housing Authority*, 806 F. Supp. 515 (E.D. Pa. 1992); *City of Philadelphia v. Lead Indus. Ass'n*, 994 F.2d 112 (3d Cir. 1993).

109. *Hurt*, 806 F. Supp. at 534-36; *Lead Indus. Ass'n*, 994 F.2d at 124-26. The Court of Common Pleas of Philadelphia County allowed the plaintiffs in a DES case to proceed under *Sindell's* market share liability theory. *Erllich v. Abbott Labs*, 5 Phila. 249 (C.P. Phila. 1981).

share liability in lead pigment litigation in *Skipworth v. Lead Indus. Ass'n*.¹¹⁰ In *Skipworth*, the court rejected the *Sindell* market share approach, finding that the lead pigment market was far too expansive during the time period at issue, and lead pigments are not fungible.¹¹¹

Following the *Santiago* court's reasoning,¹¹² the *Skipworth* court determined that the lengthy time frame would virtually guarantee that certain pigment manufacturers would be held liable even though they could not have possibly committed the harm.¹¹³ Accordingly, the court held that the first prong of the *Sindell* test could not be met because not all of the named defendants were potential tortfeasors.¹¹⁴

The court also concluded that lead pigments are not fungible. The court based this conclusion on evidence tending to prove that differing formulae of lead paint resulted in various levels of lead internalization in the body.¹¹⁵ The court concluded that if it adopted *Sindell*, two manufacturers with equal market shares would pay equal damages. This result fails to consider the differing degrees of harm each product may have caused.¹¹⁶ The court concluded that it

110. 690 A.2d 169 (Pa. 1997).

111. *Skipworth*, 690 A.2d at 172-73.

112. See *supra* notes 102-07 and accompanying text.

113. *Skipworth*, 690 A.2d at 173. The residence in which the minor plaintiff allegedly suffered lead poisoning was built around 1870, making the relevant time period approximately 100 years. *Id.*

114. *Id.* at 172. The *Skipworth* court added a fourth factor to the elements in *Sindell*, requiring that all defendants be potential tortfeasors. *Id.* Considering the exculpatory provisions of *Sindell*, this factor does not appear to be necessary for accrual of liability. The Pennsylvania court's conclusion that the *Sindell* test was not met because some of the named defendants could not have caused the harm appears to be flawed. Causation problems were the primary reason for the development of market share theories. Discovery in such cases determines if a particular defendant is a potential tortfeasor. If discovery reveals that a particular defendant is not a potential tortfeasor, the claims must be dismissed against that defendant. The plaintiff could then proceed against the remaining defendants. *Sindell* does not contemplate dismissal of the plaintiff's case because some of the defendants could not have committed the wrong; rather, the burden is on the defendants to prove non-liability. *Sindell*, 607 P.2d at 937.

115. *Skipworth*, 690 A.2d at 173. The *Skipworth* court focused on the different formulae of lead paint. *Id.* The court considered the "bioavailability" of the lead in each brand of paint. *Id.* "Bioavailability" refers to the degree to which lead pigment affects the body. *Id.* at 173 n.5. Uncontested evidence revealed that different paint formulae caused differing degrees of lead bioavailability. Therefore, if a child were to ingest two different brands of lead paint in equal amounts, the increase in the child's lead levels would differ. *Id.* The court concluded that even if market share data were available, the differing levels of bioavailability in different brands of paint precludes an accurate apportionment of liability. *Skipworth*, 690 A.2d at 173.

116. *Id.*

could not adopt a market share theory because to do so "would grossly distort [apportionment of] liability."¹¹⁷

The only judicial decision to date allowing a plaintiff in a lead pigment case to proceed under market share theory is *Jackson v. Glidden Co.*¹¹⁸ Specifically, the Ohio Court of Appeals held that plaintiffs may proceed under the *Sindell* approach if they can prove that the accused lead pigment is completely fungible, and if a substantial share of manufacturers are named in the suit.¹¹⁹ The *Jackson* opinion offers only a cursory analysis of market share theories, basing its holding on a prior Ohio case, *Goldman v. Johns-Manville*.¹²⁰ Ultimately, the *Jackson* court ruled that the plaintiff's allegations were sufficient to satisfy the *Sindell* and *Goldman* requirements, and denied the defendants' motion to dismiss.¹²¹

Comparing and Contrasting DES and Lead Pigment Cases

Market share theories have been utilized primarily in the context of DES litigation. Courts have generally refused to apply market share or other collective liability theories in lead pigment litigation because of the supposed differences between lead pigment and DES. Courts have highlighted three main differences between DES and lead pigment.

No Signature Injury

Courts dispute the assertion that ingestion of lead pigment produces a "signature injury."¹²² Although science closely links development of the rare cancer, adenocarcinoma, to the ingestion of DES,¹²³ a variety of possible causes exist for the symptoms of

117. *Id.* at 173.

118. 647 N.E.2d 879 (Ohio Ct. App. 1995).

119. *Jackson*, 647 N.E.2d at 884. The case was before the Court of Appeals on a motion to dismiss. The court's analysis focused only on whether the complaint was sufficiently pled to withstand the motion, and did not analyze in any detail the requirements of *Sindell*. *Id.* at 881.

120. 514 N.E.2d 691 (Ohio 1987). The *Goldman* court held that the *Sindell* theory of market share liability was a viable alternative to assess liability where the product in question was fungible. *Goldman*, 514 N.E.2d at 702.

121. *Jackson*, 647 N.E.2d at 884.

122. *See Santiago*, 782 F. Supp. at 192-93.

123. Nancy Lee Firak, *The Developing Policy Characteristics of Cause-in-Fact: Alternative Forms of Liability, Epidemiological Proof and Trans-Scientific Issues*, 63 TEMP. L. REV. 311, 334 (1990). The author noted that the issue of causation has never been raised in DES cases, due to the proven scientific link between DES and adenocarcinoma. *Id.* A similar situation exists in asbestos cases in which mesothelioma, a rare form of lung cancer, is

lead poisoning, such as the mother's substance abuse during pregnancy and genetic defects.¹²⁴

Indirect Suppliers

Next, courts distinguish lead pigment and DES because the manufacturer of lead pigment is not the direct supplier of the harmful product.¹²⁵ Courts tend to conclude that because lead pigment manufacturers are merely bulk suppliers of lead, they have no control over, or responsibility for, the end use of their product.¹²⁶

Broad Temporal Markets

Finally, and perhaps most significantly, courts emphasize the temporal scope of the market.¹²⁷ In a DES case, plaintiffs need only determine the relevant market for a period of approximately nine months. In a lead pigment case, the scope of the market will often span decades.¹²⁸ Over time, companies enter and exit the lead pigment market. Courts have held that this uncertainty in the marketplace precludes application of the *Sindell* market share theory.¹²⁹

V. BRIDGING THE GAP: A SUGGESTED PROPOSAL TO APPORTION LIABILITY IN LEAD PIGMENT LITIGATION

The problems identified by courts criticizing market share liability in lead pigment litigation are not insurmountable. There are fair and equitable solutions to each problem presented. The "already-existing market share theories" employed in DES cases provide some solutions, while other legal principles furnish alternative solutions. Once plaintiffs overcome these obstacles,

scientifically linked to asbestos exposure. *Id.* at 334 n.148.

124. See RAINER & MILNE, *supra* note 3, § 9.4.

125. See *Santiago*, 782 F. Supp. at 194-95; *Skipworth*, 690 A.2d at 173.

126. *Santiago*, 782 F. Supp. at 195.

127. See *id.* at 194; *Skipworth*, 690 A.2d at 172-73.

128. *Skipworth*, 690 A.2d at 172. See *supra* note 113.

129. *Santiago*, 782 F. Supp. at 194. The court concluded, "there is insufficient evidence that would warrant a jury in finding that all defendants, or any of them, actively participated in the lead pigment market for lead-based paint during the fifty-four year period involved here." *Id.*

"The difficulty in applying market share liability where such an expansive relevant time period as one hundred years is at issue is that entities who could not have been producers of the lead based paint which injured *Skipworth* would almost assuredly be held liable." *Skipworth*, 690 A.2d at 173.

bridging the gap between DES cases and lead pigment cases is feasible.

Problem: No signature injury.

Solution: Proof of injury causation.

Although a lead pigment plaintiff pursuing a market share theory of liability need not specifically identify the pigment manufacturer that caused the injury, the plaintiff, nevertheless, must prove the causative role of lead, and that the source of the lead was lead-based paint.¹³⁰

Problem: Defendants are bulk suppliers, therefore, they lack control over the ultimate use of lead pigment.

Solution: Allow actions to proceed under negligence theory only.

Defendants have argued that because they do not control the ultimate use of lead pigment, they cannot control the risks of the dangerous product.¹³¹ Although that argument may be acceptable in a products liability action, it is not acceptable in a negligence action.¹³²

Market share theories relax the direct causation requirement.¹³³ Lead pigment plaintiffs need not strictly prove this element. Knowledge of the risk of the conduct and foreseeability of the harm both play an integral part in a negligence action. For liability to accrue, a defendant must know (or should have known) that its actions presented a risk;¹³⁴ and the consequences of its acts or omissions must have been foreseeable.¹³⁵

Therefore, to proceed under market share theory and overcome causation problems, a lead pigment plaintiff must demonstrate: (1)

130. This requirement is common to all negligence claims. For example, suppose X had a pre-existing back condition. His car was struck from behind due to the negligent driving of Y. To recover against Y for damages to his back, X is required to show that his injuries were caused by the accident, and not attributable to his pre-existing condition.

131. *Santiago*, 782 F. Supp. at 195.

132. The elements of a negligence cause of action are well-known:

- (1) a duty on the part of the defendant;
- (2) a breach of that duty;
- (3) breach of the duty must have caused the plaintiffs injury; and
- (4) the plaintiff must have sustained damage.

KEETON, *supra* note 24, at § 30.

133. See generally *Sindell*, 607 P.2d at 936; *Collins*, 342 N.W.2d at 49.

134. KEETON, *supra* note 24, at § 184.

135. *Id.* at 285. See also *Palsgraf v. Long Island Ry. Co.*, 162 N.E. 99 (N.Y. 1928), in which Justice Cardozo stated: "If no hazard was apparent to the eye of ordinary vigilance, an act innocent and harmless, at least to outward seeming, with reference to her, did not take to itself the quality of a tort because it happened to be a wrong. . . ." *Id.* at 99.

the existence of a duty; (2) a breach of that duty; (3) knowledge of the risk by the defendant pigment manufacturer; and (4) that the harm suffered by the plaintiff was a foreseeable consequence of the manufacturer's negligent acts or omissions.¹³⁶

Problem: Broad temporal market.

Solution: A standard for expert testimony.

Perhaps the most vexing problem facing a lead pigment plaintiff proceeding under market share theory is the breadth of the temporal market. If a court fails to adopt either presumptive share or risk contribution theory, potential lead pigment plaintiffs are placed at a distinct disadvantage compared to DES plaintiffs.

As discussed earlier, the temporal market for DES is necessarily limited to nine months, whereas the temporal market in lead pigment cases may span decades or a century or more. Nonetheless, it is likely that sufficient data exists regarding the lead pigment marketplace from which experts can draw valid conclusions concerning market shares over this broad period of time.¹³⁷

In *Daubert v. Merrill Dow Pharmaceutical*,¹³⁸ the Supreme Court of the United States formulated a four-part test to ensure the relevance and reliability of scientific expert testimony:

- (1) whether the scientific theory has been tested or is testable;
- (2) whether the theory has been subjected to peer review;
- (3) the known (or possible) rate of error associated with the theory; and
- (4) whether the theory is generally accepted in the scientific community.¹³⁹

These factors were not intended to be exclusive, but rather

136. The dual questions of knowledge and foreseeability will likely be the subject of much litigation. Several interesting facts are worth noting concerning the industry's knowledge of the dangers of lead-based paint for residential use. In 1927, the United States Department of Labor analyzed lead poisoning deaths during the 10-year period 1914-1924. *Deaths From Lead Poisoning*, Department of Labor, Bureau of Labor Statistics, 1 (1927). This report specifically analyzed mortality statistics on painters, paint mixers, and children under age 18. *Id.* at 18, 23, 30-31.

It is undisputed that the pigment manufacturers' trade association (the Lead Industries Association) advertised the virtues of lead pigment for residential use. For example, a 1941 advertisement depicts a house painter, stating, "[p]aints made of pure white lead resist weather better - and the more white lead, the better the paint." *Advertisement*, THE SATURDAY EVENING POST, April 12, 1941, at 91.

137. The *Santiago* court noted that the United States Federal Trade Commission conducted an investigation into the market shares held by lead pigment manufacturers. *Santiago*, 782 F. Supp. at 194 n.13. While this investigation dealt with only a four-year time span, the report exemplifies relevant market share information.

138. 509 U.S. 579 (1993).

139. *Daubert*, 509 U.S. at 589, 593-94.

intended to guide lower courts in determining the admissibility of expert scientific testimony.¹⁴⁰ Although the *Daubert* test dealt specifically with scientific testimony, the court did not limit its application to scientific evidence alone.¹⁴¹

Market share evidence in lead pigment cases is fundamentally economic data that can certainly be classified as technical. Courts have revisited the *Daubert* test, revising it to include technical economic testimony.¹⁴² Reformulations utilizing the *Daubert* factors, if applicable, require that technical economic testimony be based on valid statistical or economic methods.¹⁴³ Furthermore, courts must consider the reliability of the data used by the experts in reaching their conclusions. As one commentator stated, "experts must always be able to point to specific data on which their testimony is based."¹⁴⁴

If an expert's methods meet the requirements of this modified test, the expert's testimony is admissible; any ultimate computation of market share is left to the finder of fact. Although the parties may dispute the expert's conclusions, the methods (not the conclusions) are the focus of any inquiry into the validity of the expert testimony.¹⁴⁵ Application of the modified *Daubert* test to lead pigment cases eliminates the perceived problem of temporal market breadth, ensuring that an expert's testimony is not "junk economics."¹⁴⁶

140. *Id.* at 593.

141. *Id.* at 589-90. The court stated that Federal Rule of Evidence 702 should be the primary focus in determining admissibility of expert testimony. This rule permits an expert to testify if he has "scientific, technical, or other specialized knowledge." *Id.* at 589 (quoting FED. R. EVID. 702).

142. *See In re Aluminum Phosphate Litig.*, 893 F. Supp. 1497 (D. Kan. 1995); *State of Ohio, ex rel. Montgomery v. Louis Trauth Dairy, Inc.*, 925 F. Supp. 1247 (S.D. Ohio 1996).

143. *Aluminum Phosphate*, 893 F. Supp. at 1506; *Louis Trauth Dairy*, 925 F. Supp. at 1251 n.3.

144. Jennifer Laser, *Inconsistent Gatekeeping in Federal Courts: Application of Daubert v. Merrell Dow Pharmaceuticals, Inc. to Nonscientific Expert Testimony*, 30 LOY. L.A. L. REV. 1379, 1414 (1997). The author stresses that a court's fundamental task is to determine whether the data used by the expert is reliable. *Id.* This data can come from a wide variety of sources, including the expert's personal experiences. *Id.*

145. *Daubert*, 509 U.S. at 595. The court also emphasized that the inquiry into expert testimony should be flexible. *Id.* at 594.

146. Cases analyzing *Daubert* often refer to "junk science." "Junk science" is generally defined as "scientific evidence" not based on legitimate principles of science. *Joiner v. General Electric*, 78 F.3d 524, 530 (11th Cir. 1996), *rev'd on other grounds*, 118 S. Ct. 512 (1997). "Junk economics" is generally defined as economic evidence not based on legitimate economic principles. *See LITIGATION ECONOMICS 5-9* (Patrick A. Gaughan and Robert J. Thornton eds., 1993).

Bridging the Gap: A Suggested Proposal to Apportion Liability in Lead Pigment Litigation

Courts should allow plaintiffs to proceed against manufacturers of lead pigment under market share theory. Plaintiffs, however, must be restricted to negligence theory. The plaintiff initially bears the burden of proving that exposure to lead-based paint caused the injuries. He or she must then demonstrate that the defendant owed a duty to the plaintiff that the defendant breached. It is only when the plaintiff satisfies these threshold requirements that market share theory can be substituted for the element of causation.

Under this proposed market share theory, plaintiffs are required to name only one defendant, although they may name more. In addition, the named defendant (or defendants) has the option to implead other defendants. An impleaded defendant must be available to present a defense to the court. If it is unavailable, the impleader defendant must stand in place of the absent defendant and present a defense on its behalf.¹⁴⁷

The relevant geographic market must be national. Defendants must be given the opportunity to exculpate themselves if they can show by clear and convincing evidence that their product could not have caused the plaintiff's injuries. Liability must be several, rather than joint. Any damages awarded must be apportioned according to the ultimate market share attributable to the defendants. By adopting these requirements, courts can adequately balance the interests of plaintiffs and defendants alike. Plaintiffs benefit from the standard of the national market, due to the high probability that market share data will be available. Defendants benefit because they may be able to exculpate themselves. Even if they are unable, several liability limits liability to a percentage equal to their ultimately determined market share.

The last element of the lead pigment market share test presents the most difficult question: who bears the burden of proving the defendant's market shares? Should a plaintiff be required to prove the defendant's market share, or should the burden shift to the defendant? Ultimately, comparing an innocent plaintiff with a negligent defendant requires application of the Martin approach of

147. This requirement limits the practice of named defendants impleading unavailable defendants. This problem occurred in Washington when named defendants impleaded unavailable defendants in an attempt to reduce their presumptive market share. *Hymowitz*, 539 N.E.2d at 1077 n.1. The Supreme Court of Washington remedied this problem by requiring the available defendants to prove the market share of the unavailable defendants. *Id.*

presumptive market share.¹⁴⁸ Regardless of whether a court ultimately charges the plaintiff or the defendant with the burden of proving market share, a modified Daubert test will filter out statistics based on "junk economics."

CONCLUSION

Although no perfect solution to the problem of market share liability in lead pigment litigation exists, courts should realize the scope and nature of this very serious problem. The theory proposed in Part V attempts to do justice to plaintiffs and defendants alike by taking the strongest elements of "already-existing DES market share" theories and molding them to fit lead pigment litigation. Although not advocated as the ultimate solution, perhaps the proposed theory will provide a starting point on the path towards remedying the existing inequities. Without a legal remedy for the problem of lead poisoning, innocent children like Julie will continue to suffer damages with no opportunity to seek justice.

Robert F. Daley

148. See *supra* notes 63 -71 and accompanying text.