

The Any Exposure Theory Round III: An Update on the State of the Case Law 2012-2016

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IN 2006 a Pennsylvania state court judge unleashed, probably unwittingly, a dramatic change in the course of U.S. asbestos litigation by excluding the testimony of an asbestos plaintiff causation expert.¹ The expert intended to testify that “each and every exposure” in a workplace or other environment was a cause of asbestos disease, specifically mesothelioma, and that the actual extent of exposure or “dose” did not matter.² The trial judge

dissected that testimony, exposing its logical fallacies and scientific unreliability.³ Since that ruling, later upheld by the Pennsylvania Supreme Court in *Betz v. PneumoAbex, LLC*,⁴ dozens of courts nationwide have excluded or rejected various versions of the *any exposure* theory.⁵ In some states, such as Texas, those rulings have significantly reduced

¹ *In re Toxic Substance Cases*, No. A.D. 03-319, 2006 WL 2404008 (Pa. Ct. Com. Pl. Aug. 17, 2006), *aff'd sub nom.* *Betz v. Pneumo Abex, LLC*, 44 A.3d 27 (Pa. 2012).

² The court addressed the issue in a set of test cases involving career brake mechanics, but the experts and counsel all stipulated that the exact amount of exposure was irrelevant because these

experts believed and would testify that only a few such jobs would be equally causative. *See In re Toxic Substance Cases*, 2006 WL 2404008 at *8; *Betz*, 44 A.3d at 28.

³ *In re Toxic Substance Cases*, 2006 WL 2404008 at *13.

⁴ *Betz*, 44 A.3d at 27.

⁵ *See infra* n. 9 (listing cases in two articles); *infra* Section III (discussing more recent cases).

dockets or even turned the course of the litigation.⁶

Plaintiffs have responded to these setbacks in two ways. First, over the last few years plaintiffs have had their own success in obtaining a series of rulings admitting *any exposure* opinions, in the face of defense motions and in contradiction to the many courts that have excluded this testimony. Second, in part to avoid exclusion, many testifying experts for plaintiffs have stopped describing their theory as *each and every exposure*, and now call it the *cumulative exposure* theory.⁷ Some courts have treated this as more than a change in name and denied defense motions based on *any exposure* testimony as moot. The battle thus remains joined, but the science is unchanged and still fully supports defendants – the *cumulative exposure* theory is every bit as unscientific and illogical as the *any exposure* theory.⁸ Expert or sufficiency of evidence challenges to *any* or *cumulative exposure* testimony

still remains a critical aspect of the current trend toward low exposure cases.

In two prior articles, we have described the fallacies in the *any exposure* approach and the state of the case law.⁹ This article will not retrace that ground but instead provides an update since 2012 on the course of these decisions, shifts in plaintiffs' theory, and court rulings that defendants will need to confront. Defendants continue to win more of these motions than not, but they need to address the new rulings favoring plaintiffs and changes in the approach these experts have adopted.

I. The Flawed Approach of the Any Exposure Theory

The causation theory originally known as the *single fiber* theory and later as the *any exposure* theory is based on the assumption that no amount of workplace asbestos exposure is too small to be excluded from causation. Plaintiffs' experts who embrace their theory typically testify that "each and every exposure to asbestos other than background exposures is cumulative and thus a substantial factor in causing mesothelioma."¹⁰ The theory would thus

⁶ See Written Testimony to Texas House of Representatives Committee on Judiciary and Civil Jurisprudence – Subcommittee on Asbestos, Submitted by David Slayton, Administrative Director, Office of Court Administration, at 2, available at <http://docplayer.net/5198582-Written-testimony-to-texas-house-of-representatives-committee-on-judiciary-and-civil-jurisprudence-subcommittee-on-asbestos.html> (The Texas asbestos MDL had 2,619 new case filings in 2005. In 2008, the year after Borg-Warner Corp. v. Flores, 232 S.W.3d 765 (Tex. 2007), there were only 268 new filings).

⁷ See, e.g., Yates v. Ford Motor Co., 113 F. Supp.3d 841 (E.D.N.C. 2015), reconsideration denied, 2015 WL 6758983 (E.D.N.C. Nov. 5, 2015).

⁸ See, e.g., Matter of New York City Asbestos Litig. (Juni v. A.O. Smith Water Prod.), 48 Misc.3d 460, 11 N.Y.S.3d 415 (N.Y. Sup. Ct. 2015) (on appeal to the New York First Dep't Court of Appeals).

⁹ Mark Behrens and William Anderson, *The "Any Exposure" Theory: An Unsound Basis for Asbestos Causation and Expert Testimony*, 37 SW. U. L. REV. 479 (2008); William Anderson, Lynn Levitan and Kieran Tuckley, *The "Any Exposure" Theory Round II – Court Review of Minimal Exposure Expert Testimony in Asbestos and Toxic Tort Litigation Since 2008*, 22 KAN. J. L. & PUB. POL'Y 1 (2012).

¹⁰ Mesothelioma, a typically fatal cancer of the outer lining of the lung, is closely associated with certain types of asbestos exposure and has become the dominant disease in today's asbestos litigation. Some cases involve lung or other cancers, and the *any exposure* theorists apply the theory to those cases as well.

capture, at its broadest use, virtually any contact with asbestos in a workplace or para-occupational activity (*e.g.*, hobbies, home brake jobs, or home remodeling), regardless of how limited or small the exposure was. Some experts have no qualms in so applying the theory to causation opinions in cases involving a handful of gasket removals, a few backyard brake jobs, or walking by someone performing joint compound sanding, among other scenarios.¹¹ Cases involving tearing dental tape and stripping asbestos insulation off electric wires – trivial exposures if ever there were any – can easily go to trial. One such case produced a \$3 million verdict in New Jersey.¹²

These experts – and the stable includes virtually every plaintiff-side causation and risk expert – argue that no work or product related asbestos exposure can be excluded because it is the cumulative dose of asbestos that causes the ultimate disease and all such exposures contribute to the cumulative dose. A commonly used analogy notes that every drop of water contributes to filling the glass. To the contrary, the human body actually discharges many asbestos fibers, especially the much easier to manage chrysotile form of fiber. It is not true that all fibers accumulate.

Nor is it accurate to contend that all exposures contribute because they add to the

overall burden of fiber. The human lung can marginalize background exposures in the many millions of fibers – even the *any exposure* experts agree that background exposures are not a known cause of asbestos disease – and protect against disease at that and presumably higher levels. The theory that every exposure to a toxin causes disease is also nonsensical in real life – the human body is exposed every day to dozens of carcinogens and other toxins with no real risk of harm. The concept that describes this process is *threshold* – toxins need to exceed a threshold to cause harm. Plaintiffs' experts who offer *any exposure* or similar testimony refuse to acknowledge the existence of a threshold for asbestos – even though they admit that such a threshold exists for background exposures that can exceed minor exposures.

Plaintiffs' *any exposure* experts cannot point to any credible epidemiology or other scientific studies documenting that low exposures to asbestos actually produce disease.¹³ Instead, they rely on governmental publications that often state there is no safe (or no known safe) level of asbestos, and that risk still exists even at current federal Occupational Safety & Health Administration (OSHA) exposure standards.¹⁴ The *any exposure* approach

¹¹ See, *e.g.*, *Smith v. Ford Motor Co.*, No. 2:08-cv-630, 2013 WL 214378 (D. Utah Jan. 18, 2013) (plaintiff's expert Dr. Hammar testified that seven brake jobs is causative of disease); *Butler v. Union Carbide Corp.*, 712 S.E.2d 537 (Ga. Ct. App. 2011) (plaintiff's expert Dr. Maddox opined that just 8 days of work with defendant's product could cause disease).

¹² *Buttitta v. Allied Signal, Inc.*, No. L-9592-02, 2010 WL 1427273, at *10 (N.J. Super. Ct. App. Div. Apr. 5, 2010).

¹³ See, *e.g.*, *Krik v. Crane Co.*, 76 F. Supp.3d 747, 754 (N.D. Ill. 2014) (noting that plaintiff experts could not cite any peer reviewed literature supporting the *any exposure* theory).

¹⁴ See, *e.g.*, Occupational Safety & Health Admin. Safety & Health Topics: Asbestos, available at <https://www.osha.gov/SLTC/asbestos/#8>. Governmental and health assessment entities do not rely on the same standard of causation as courts of law, and many opinions have noted the irrelevance of governmental statements such as “no known safe dose” in the courtroom.

shifts the burden of proof to defendants, who then have to demonstrate that there is a safe level of asbestos exposure. At bottom, the theory heavily favors plaintiffs because it requires no dose assessment of any kind – mere “dust” or exposure is sufficient to get to a jury, if a court accepts this testimony.

The *any exposure* theory has many logical and scientific holes. Those flaws are summarized here in short form since they are described in considerable more detail in the many opinions rejecting the theory and summarized in the prior two articles and below. The key flaws include:

- The theory completely ignores the most important principle of toxicology, that the dose makes the poison – all substances can be either safe or not depending on the dose.¹⁵
- The theory is logically inconsistent, because these same *any exposure* experts *exclude* ubiquitous background exposures that all persons in an industrial society experience, even

though those exposures are certainly cumulative and can over a lifetime exceed the workplace exposures the experts blame for disease.¹⁶

- The theory is not published and critiqued in the peer-reviewed scientific literature – it is a litigation construct that even these experts have never set forth before their peers.¹⁷
- The asbestos literature does not support the *any exposure* theory, because many low-dose asbestos-exposed populations, particularly those involving the much less harmful form of asbestos known as chrysotile, have not experienced increased incidence of mesothelioma.¹⁸
- The theory makes a mockery of a substantial factor causation standard by converting even trivial exposures to the status of “substantial.” In effect, the theory essentially shifts the burden of proof, inappropriately, to defendants to prove a non-causative dose.¹⁹

¹⁵ David L. Eaton, *Scientific Judgment and Toxic Torts—A Primer in Toxicology for Judges and Lawyers*, 12 J.L. & POL’Y 5, 11, 39 (2003). The Eaton article has been cited repeatedly in the last five years by courts that have taken a critical view of the any exposure theory. *See, e.g.*, McClain v. Metabolife Int’l, Inc., 401 F.3d 1233, 1242-1243 (11th Cir. 2005) (plaintiff expert’s testimony that “any amount of [the drug at issue] is too much . . . clearly contradicts the principles of reliable methodology delineated by Eaton”); Wintz v. Northrop Corp., 110 F.3d 508, 513 (7th Cir. 1997) (citing FEDERAL JUDICIAL CENTER, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 1 (1994)) (illustrating that courts routinely require plaintiffs to demonstrate not just some exposure, but “evidence from which the trier of fact could conclude that the plaintiff was exposed to levels of toxins sufficient to cause the harm complained of).

¹⁶ *See, e.g.*, Georgia-Pacific Corp. v. Bostic, 439 S.W.3d 332, 341 (Tex. 2014); *In re Toxic Substances Cases*, 2006 WL 2404008 at *13.

¹⁷ *See, e.g.* Sclafani v. Air & Liquid Sys. Corp., 14 F. Supp. 3d 1351, 1356 (C.D. Cal. 2014) (By Dr. Brody’s own admission, his ‘every exposure’ theory could not be tested and had not been published in any peer-reviewed literature.).

¹⁸ *Butler*, 712 S.E.2d at 542 (literature relied on by plaintiff “does not support a minimum threshold dose for chrysotile only exposure that would increase one’s risk of developing mesothelioma.”).

¹⁹ *See, e.g.*, *Bostic*, 439 S.W.3d at 340; Davidson v. Georgia Pacific LLC, 2014 WL 3510268 at *6 (W.D. La. July 14, 2014); Howard *ex rel.* Estate of Ravert v. A.W. Chesterton, Inc., 78 A.3d 605, 608 (Pa. 2013); *Betz*, 44 A.3d at 56-57.

The cases set forth in the previous two articles and below fully discuss these flaws and are recommended reading for any defense counsel confronting the *any exposure* theory. The impact of the *any exposure* theory also is no longer limited to just asbestos litigation, although it got its start there and continues to dominate plaintiff testimony in asbestos cases. Versions of causation testimony with no attempt to assess the dose have appeared in PCB, benzene, fluoride, and diacetyl litigation in recent years.²⁰ Plaintiffs have had a more difficult time gaining traction for the *any exposure* approach in non-asbestos cases, but some jurisdictions have allowed such testimony to proceed.²¹

II. The Recent Switch to Cumulative Exposure Theory

The plaintiffs' bar has responded, twice now, to the exclusion of the *any exposure* theory by changing the name of the approach in an attempt to avoid further such rulings. The first attempt largely failed, but the second one – to *cumulative exposure* – has succeeded several times recently. Defense counsel today need to account for the purported change in approach or risk the judge deciding their

motion is moot because the expert is not testifying based on *any exposure* theory.

The first name change occurred after certain experts were excluded from using the original “single fiber” theory. Until about a decade ago, asbestos plaintiff experts regularly informed juries that even a single fiber of asbestos could cause mesothelioma.²² The early judges, including the *Betz* case Pennsylvania judge noted in the introduction, found this extreme approach too fanciful and had no difficulty excluding the theory.²³

After several such rulings, the experts learned not to say “single fiber” any more and began to testify that every breath of asbestos from a product, which contains millions of fibers, is causative. Thus, the theory switched from single fiber to every breath or every exposure. None of the underlying principles changed, and the new theory included all workplace exposures just like the old one did. This effort was largely unsuccessful – defendants proceeded to obtain many rulings excluding the new *any exposure* theory with or without the resort to the single fiber concept.²⁴ But defendants had to learn not to formulate their argument based on

²⁰ See, e.g., *Schultz v. Akzo Nobel Paints, LLC*, 721 F.3d 426, 429 (7th Cir. 2013); *In re Denture Cream Prod. Liab. Litig.*, 795 F. Supp. 2d 1345 (S.D. Fla. 2011); *Parker v. Mobil Oil Corp.*, 857 N.E.2d 1114 (N.Y. 2006); *Pluck v. BP Oil Pipeline Co.*, 640 F.3d 671 (6th Cir. 2011); *Newkirk v. ConAgra Foods, Inc.*, 727 F. Supp.2d 1006 (E.D. Wash. 2010); *Nelson v. Tennessee Gas Pipeline Co.*, 243 F.3d 244, 252 (6th Cir. 2001).

²¹ See, e.g., *King v. Burlington N. Santa Fe Ry. Co.*, 762 N.W.2d 24 (Neb. 2009).

²² See, e.g., *Bartel v. John Crane, Inc.*, 316 F. Supp. 2d 603, 607-08 (N.D. Ohio 2004), *aff'd sub nom. Lindstrom v. A-C Prod. Liab. Trust*, 424 F.3d 488 (6th Cir. 2005) (“[The plaintiff’s expert] opines that there is no safe level of asbestos exposure, and that every exposure to asbestos, however slight, was a substantial factor in causing Lindstrom’s disease.”).

²³ See, e.g., *In re Toxic Substances Cases*, 2006 WL 2404008 at *13; *Basile v. American Honda Motor Co., Inc.*, No. 11484 CD 2005, 2007 WL 712049 (Pa. Ct. Com. Pl. Feb. 22, 2007) (excluding “single fiber” opinion of Dr. John Maddox).

²⁴ See cases and discussion in prior articles, *supra* n. 9.

single fiber moniker to ensure that the court addressed the real issues.²⁵

Given the success defendants were achieving, not surprisingly these experts have again attempted to avoid *any exposure* rulings by changing the emphasis to the *cumulative* nature of the exposures rather than emphasizing each and every exposure. They now testify that they are not relying on *any exposure* testimony, but merely contend that the *cumulative* exposures of *this plaintiff* were sufficient to cause mesothelioma.²⁶ The import of this “change” seems transparent – under *cumulative exposure* theory, no workplace exposures for any particular plaintiff would be considered non-causative because all cumulatively contribute fibers to the lung over a lifetime. That sounds very much like the *every exposure* theory, and it has the exact same effect – no workplace exposure can escape the *cumulative exposure* net no matter how small the exposure. In fact, during the years of the *any exposure* testimony, the plaintiff experts almost always used the notion of cumulative contribution to justify the theory – nothing has changed except they have now underlined a different word in the formulation – *cumulative* instead of *every*. The new approach also shifts the emphasis

away from the general precept that every exposure contributes to the specific exposures to asbestos dust alleged in the case at issue.²⁷

Given that all of the scientific and logical flaws of the *any exposure* theory also apply to the *cumulative exposure* theory, it is surprising to see that a fair number of courts, including several federal courts, have accepted one or the other version of the theory in the face of defense *any exposure* motions. Key cases are discussed below. Both theories ignore dose, neither theory makes any attempt to prove a causative dose, and both forms of testimony shift the burden unfairly to defendants. Defendants learned not to file “single fiber” motions when the experts began to avoid that phrase, and they now need to learn to challenge directly the *cumulative theory* approach instead of relying merely on prior case law excluding *any causation* testimony. To date, two courts have directly taken on the new *cumulative* theory, and both have excluded the testimony.²⁸ Those two cases, discussed below, are terrific primers for defense counsel to oppose the *cumulative exposure* approach.

²⁵ See, e.g., *Buttita*, 2010 WL 1427273, at *15-17; *Shumacher v. Amtico*, Order at 2, No. 5:10-cv-01627-ER (E.D. Pa. (MDL) (filed Nov. 2, 2010) (defendants are “mischaracterizing” expert’s opinion because she did not testify that a single fiber will cause disease).

²⁶ See, e.g., *Juni*, 11 N.Y.S.3d at 420 (“According to [plaintiff’s expert], when a worker develops mesothelioma or lung cancer, all instances of exposure to asbestos are “viewed as a whole,” cumulatively contributing to and causing the illness, and “every part of that exposure,” he stated, acts as a contributing factor.”).

²⁷ See, e.g., *Buttita*, 2010 WL 1427273 at *5 (plaintiff expert testified to cumulative effect of fibers under *any exposure* approach).

²⁸ See *Juni*, 11 N.Y.S.3d at 437 (“Many of those courts [addressing sufficiency of the expert evidence] require specific proof of exposure and have rejected the so-called cumulative exposure theory and its variant, the “each and every” exposure theory.”) (citations omitted); *Yates*, 113 F. Supp.3d at 853-58 (rejecting multiple foundations of Dr. Mark’s “special” cumulative exposure theory).

III. The Trend of Case Law Since 2012

The trend of decisions running through the first article in 2007 was strongly in defendants' favor, with a string of decisions excluding for the first time many of the plaintiff experts who had consistently testified based on *any exposure* or *single fiber* theories in asbestos litigation previously. By 2012 that trend was even stronger, but cracks had appeared in the trend via a handful of courts, including the federal asbestos MDL judge, allowing *any exposure* testimony to proceed. In the last four years, the case law has continued to develop, in the process both strengthening defendants' position in some jurisdictions but providing plaintiffs with several avenues to present testimony in others. We survey below the key decisions in this time frame.

A. Federal Court Decisions Involving Any Exposure Testimony

I. Federal Appellate Decisions

Prior to 2012, the only federal circuit court to address *any exposure* testimony in the asbestos context was the Sixth Circuit Court of Appeals, which has rejected testimony that failed to assess the dose multiple times.²⁹ More recently, the Ninth Circuit Court of Appeals has twice reviewed *any exposure* testimony, with both decisions favorable to defendants. In the first opinion, an *en banc* panel of the

Ninth Circuit in the 2014 *Barabin* case reversed an \$11 million trial verdict because the district court had not sufficiently examined the experts' testimony, including *any exposure* testimony, under *Daubert*.³⁰ That court did not reach the merits of the theory, and the case is presently on remand.

Avery recent decision by four of the members of the *Barabin en banc* panel finished the analysis. In *McIndoe v. Huntington Ingalls, Inc.*, a Ninth Circuit panel rejected outright any use of *any exposure* or similar testimony involving no dose assessment to prove an asbestos case. The case involved the testimony of Dr. Allen Raybin regarding plaintiff's exposures in the Navy to asbestos-containing materials on a ship.³¹ Without assessing or quantifying plaintiffs' approximate dose from his limited encounters with asbestos, Dr. Raybin testified that "every exposure to asbestos above a threshold level is necessarily a substantial factor in the contraction of asbestos-related diseases."³² The Ninth Circuit ruled that the District Court properly rejected Dr. Raybin's *every exposure* theory of asbestos causation:

Dr. Raybin did not speak to the severity of McIndoe's own asbestos exposure beyond the basic assertion that such exposure was significantly above ambient asbestos level.... [W]hile Dr. Raybin concluded that the exposures described by Sappington

²⁹ See *Lindstrom*, 424 F.3d 488; *Moeller v. Garlock Sealing Tech., LLC*, 660 F.3d 950 (6th Cir. 2011); *Martin v. Cincinnati Gas & Elec. Co.*, 561 F.3d 439 (6th Cir. 2009); *Pluck*, 640 F.3d 671 (benzene).

³⁰ *Barabin v. AstenJohnson, Inc.*, 740 F.3d 457, 463-464 (9th Cir. 2014); see *Daubert v. Merrill Dow Pharms., Inc.*, 509 U.S. 579, 589 (1993).

³¹ *McIndoe v. Huntington Ingalls, Inc.*, Nos. 13-56762, 13-56764, 2016 WL 1253903 (9th Cir. Mar. 31, 2016).

³² *Id.* at *4.

and Tench would have substantially contributed to McIndoe's injuries, he explicitly and directly based such conclusion on his "each and every exposure theory of causation."³³

The court held that without any effort to identify a causative dose, Dr. Raybin's testimony was insufficient to demonstrate that plaintiff was substantially exposed to asbestos from defendant's materials.³⁴

2. District Court Opinions

With the exception of the federal MDL court, most federal courts prior to 2012 had rejected *any exposure* testimony, primarily by applying the strictures of *Daubert* to the expert's methodology. Since then, multiple federal district courts have added their opinions to that total, many of them using strong language in doing so. One of the more thorough examinations is in the North Carolina *Yates v. Ford Motor Co.* opinion.³⁵ This opinion is doubly important for defendants because it explicitly rejects the scientific basis for *cumulative exposure* testimony as opposed to *any exposure* testimony. We thus begin with *Yates* although it is not the first district court opinion chronologically.

The plaintiff in *Yates* sued numerous companies claiming that his mesothelioma was caused by exposure to asbestos during backyard automobile work, and again while he was clerking at an automobile parts warehouse.³⁶ These are not, by any stretch,

significant exposures – they represent the kind of minor "hobby" and parts handling cases that are appearing more frequently on the docket today. Plaintiff's expert Dr. Eugene Mark presented his somewhat unique version of the *any exposure* theory in which he includes "special" exposures as causative but claims to exclude exposures that are "trivial."³⁷ Dr. Mark, however, performs no dose assessment and has no principled means of distinguishing a special exposure from a trivial one. In past testimony Dr. Mark has rarely excluded any workplace exposure from his opinion, so the effect of his "special" exposure approach is the same as *any exposure* testimony. He also cannot point to any peer-reviewed literature documenting his "special" versus "trivial" approach as a scientific or generally accepted methodology, and he cannot explain how workplace exposures consistent with background levels of exposure could be "special" when background exposures themselves are not.³⁸

To avoid the trend in court treatment of *any exposure* testimony, Plaintiffs argued that Dr. Mark's "special exposure" approach was not the same thing as "each and every exposure" testimony because he emphasized the cumulative nature of the plaintiff's exposures and he was willing, at least theoretically, to exclude trivial exposures.

³⁷ *Id.* at 846-847, 849. Dr. Mark defines "special exposures" as exposures "for which there is scientific evidence that the exposure increases the risk of developing diffuse malignant mesothelioma." *Id.*

³⁸ *Id.* at 846. Dr. Mark's "special exposure" testimony had previously been excluded several times as unscientific. *In re Asbestos Litig.* No. 0001, Control #084682, 2008 Phila. Ct. Com. Pl. LEXIS 229 at *39 (Pa. Ct. Com. Pl. Sept. 24, 2008); *Mannahan v. Caterpillar, Inc.*, No. 12-CI-02070, 2014 WL 699090 (Ky. Jefferson County Cir. Ct. Feb. 17, 2014).

³³ *Id.*

³⁴ *Id.* (citing *Lindstrom*, 424 F.3d at 492-493).

³⁵ *Yates*, 113 F. Supp.3d 841.

³⁶ *Id.* at 845.

The court accepted this explanation.³⁹ This part of the ruling is troubling, because Dr. Mark included every brake job and every handling of an automotive part on the “causation” side of his equation without any assessment of the dose involved or any showing that such an exposure could cause mesothelioma. Given the remainder of the court’s ruling, it is surprising the judge did not pierce the sophistry of Dr. Mark’s “special exposure” approach and hold that it is nothing but *any exposure* testimony by another name.

Despite the court’s ruling on Dr. Mark’s approach, plaintiffs will not likely cite to *Yates* anytime soon. The court did not stop with that ruling but engaged in an extensive review of the flaws and errors in the expert testimony based on the cumulative “special” exposures identified by Dr. Mark. First, the court held that Dr. Mark’s opinion that “visible dust increases the risk of diffuse malignant mesothelioma” fails for “multiple reasons.”⁴⁰ This is a critical ruling because plaintiffs’ experts rely heavily on plaintiff testimony regarding the presence of “dust” to support their causation opinions. The court also criticized Dr. Mark’s testimony that the exposures plaintiff encountered increased his “risk” for disease as an erroneous conflation of the theoretical hazard or risk of a substance with the type of testimony required to establish causation.⁴¹ Additionally, Dr. Mark failed to account for the differences in potency or

propensity to cause disease by different fiber types, an important concept for brake cases because brakes contain only chrysotile, the less potent form.⁴² The court also undertook a thorough examination of the literature cited by Dr. Mark and found that the studies did not support Dr. Mark’s opinion that low levels of chrysotile exposure can cause disease.⁴³

Yates is one of the most thorough and well-supported opinions to issue since the original *Betz* decision in 2005. Every court that has undertaken this kind of focused analysis of the *any exposure* theory or its cousins has rejected the theory. The courts that have not done so typically just cite to statements by the experts as sufficient with no closer examination. Thus, defendants should be citing *Yates* not only as a basis to push back on theories that plaintiffs try to distinguish from *any exposure* testimony, but also as a paradigm of the approach required under any federal or state court review of an expert opinion’s foundation and reliability (e.g., *Daubert*) or under substantial evidence review. *Yates* is also a strong opinion to reject the motion that visible dust is a sufficient surrogate for a dose assessment.

Several other federal courts since 2007 have weighed in on the side of defendants. Joining several earlier federal opinions in Utah, the district court in *Smith v. Ford Motor Co.*⁴⁴ excluded the *any exposure* testimony of plaintiff’s pathologist Dr. Samuel Hammar. Dr. Hammar had opined that just *seven* instances of exposure during brake service

³⁹ *Id.* at 849. This holding is unfortunate, because the “trivial” exposures Dr. Mark would exclude are exposures that are equivalent to or below background exposures. Dr. Mark’s approach is not materially different from that of the *any exposure* experts.

⁴⁰ *Id.* at 853.

⁴¹ *Id.*

⁴² *Id.* at 854.

⁴³ *Id.* at 858.

⁴⁴ *Smith*, 2013 WL 214378. The Utah District Court also excluded testimony of this nature in *Anderson v. Ford Motor Co.*, 950 F. Supp.2d 1217 (D. Utah 2013).

were sufficient to cause mesothelioma, and that one cannot rule out any single exposure to asbestos as a cause of disease.⁴⁵ The court ruled that this opinion was “unsupported by sufficient or reliable scientific research, data, investigations and studies.”⁴⁶ The court also held Dr. Hammar’s opinion was inadmissible because the danger of unfair prejudice and its inconsistency with the substantial contributing factor test.⁴⁷

Three consecutive federal courts in Louisiana considering *any exposure* testimony under Louisiana law have rejected that testimony since 2012.⁴⁸ These courts were not persuaded by the “one-size-fits-all” approach taken by the experts in these cases. The courts have been particularly critical of expert testimony that fails to consider “any differences or nuances of duration, concentration, exposure and the properties of the fibers to which [plaintiffs] may have been exposed.”⁴⁹ The language and discussion in these cases is persuasive and will prove helpful in supporting defense motions in other jurisdictions. The New York state court in *Juni* (discussed below), quoted at length from one of the Louisiana district court opinions.⁵⁰ Federal courts in Louisiana today

will almost certainly reject *any exposure* testimony, greatly enhancing the value of removal in that state given that Louisiana’s state appellate courts appear more willing to permit such testimony.⁵¹

Federal district courts have rejected *any exposure* testimony several times since 2012. In *Krik v. Crane Co.*,⁵² an Illinois federal court excluded any reference to each and every exposure as a cause of disease because of (1) the inconsistency of the experts’ admissions that lung cancer was a dose-dependent disease with their failure to assess plaintiff’s dose at all; (2) and the experts’ refusal to assess the actual facts of the case. The court noted the lack of any peer reviewed literature supporting the theory.⁵³ In *Sclafani v. Air & Liquid Systems Corp.*, the federal court applied California’s *Rutherford* causation standard to exclude testimony by two experts (Dr. Horn and Dr. Brody) who relied on *any exposure* testimony in lieu of specifically addressing the alleged exposures and explaining their causation opinions.⁵⁴ Finally, the federal court for the District of Columbia approved the exclusion of expert testimony under Virginia law.⁵⁵ That case is discussed below under the Virginia section because of its close connection to a Virginia Supreme Court case.

⁴⁵ *Smith*, 2013 WL 214378, at *3.

⁴⁶ *Id.* at *2.

⁴⁷ *Id.* at *3, 4 (“Just because we cannot rule anything out does not mean we can rule everything in.”).

⁴⁸ See *Davidson*, 2014 WL 3510268 at *3-6 ; *Comardelle v. Pennsylvania Gen. Ins. Co.*, 76 F. Supp. 3d 628 (E.D. La. 2015); *Vedros v. Northrop Grumman Shipbuilding, Inc.*, 119 F. Supp. 3d 556 (E.D. La. 2015).

⁴⁹ *Comardelle*, 76 F. Supp.3d at 634.

⁵⁰ *Juni*, 11 N.Y.S.3d at 437 n.1 (citing *Comardelle*).

⁵¹ See, e.g., *Robertson v. Doug Ashby Bldg. Materials*, No. 2014 CA 0141, 2014 WL 7277688 (La. App. Dec. 23, 2014).

⁵² 76 F. Supp.3d 747 (N.D. Ill. 2014)..

⁵³ *Id.* at 754.

⁵⁴ 2014 WL 1613912, at *4-5 (C.D. Cal. Apr. 17, 2014).

⁵⁵ *Wannall v. Honeywell Int’l, Inc.*, 292 F.R.D. 26 (D.D.C. 2013), *aff’d*, 775 F.3d 425 (D.C. Cir. 2014).

Federal courts remain a fairly strong bulwark against the *any exposure* theory given the stringency of *Daubert* review and the inclination of many federal judges to look closely at expert testimony. The only two federal circuits to address *any exposure* testimony in asbestos litigation have rejected it, and federal courts in North Carolina, Louisiana, California, Illinois, Ohio,⁵⁶ Delaware,⁵⁷ Utah, and the District of Columbia have all likewise excluded asbestos-related *any exposure* testimony or ruled it insufficient for substantial factor causation. Nevertheless, those rulings are not universal, and defendants need to prosecute federal court motions with vigor to ensure the courts understand the fallacies of the theory.

B. Key State Court Decisions Addressing Any Exposure or Cumulative Exposure Testimony

I. Texas

The Texas Supreme Court remains the benchmark for thoughtful application of toxic tort causation principles in asbestos cases. Between the 2007 Texas Supreme Court ruling in *Borg-Warner v. Flores*⁵⁸ and 2014, Texas appellate courts had reviewed several attempts to circumvent the *Borg-Warner* standards, yet those courts consistently applied the *Borg-Warner* reasoning to reject *any exposure* testimony.⁵⁹ One of those rulings, *Georgia-Pacific*

Corp. v. Bostic,⁶⁰ eventually made its way to the Texas Supreme Court in 2014, which yet again rejected the *any exposure* testimony of a plaintiff expert.⁶¹

Bostic, unlike *Borg-Warner*, involved mesothelioma as opposed to asbestosis – a potentially important distinction given that plaintiff experts claim mesothelioma can be caused by very low exposures.⁶² Based on that contention, plaintiffs urged that the *Borg-Warner* ruling be limited to asbestosis and that the court not require plaintiffs to assess the dose in a mesothelioma case.

The court instead held that the *Borg-Warner* requirement of a dose assessment applied to all asbestos diseases, including mesothelioma.⁶³ The court paid close attention to the scientific underpinnings of the plaintiff's expert testimony, and in particular highlighted the illogical nature of *any exposure* testimony and the effect on the tort principles should the testimony be accepted:

The any exposure theory effectively accepts that a failure of science to determine the maximum safe dose of a toxin necessarily means that every exposure, regardless of amount, is a substantial factor in causing the plaintiff's illness. This approach negates the plaintiff's burden to prove causation by a preponderance of the evidence.⁶⁴

⁵⁶ *Bartel*, 316 F. Supp.2d 603.

⁵⁷ *In re W.R. Grace & Co.*, 355 B.R. 462 (Bankr. D. Del. 2006).

⁵⁸ *Borg Warner v. Flores*, 232 S.W.3d 765 (Tex. 2007).

⁵⁹ For a discussion of the Texas Appellate court rulings, see Anderson et al., *supra* n. 9 at 28.

⁶⁰ *Georgia-Pacific Corp. v. Bostic*, 320 S.W.3d 588 (Tex. App. 2007), *aff'd*, 439 S.W.3d 332 (Tex. 2014).

⁶¹ *Bostic*, 439 S.W.3d 332.

⁶² *Id.* at 338-339.

⁶³ *Id.* at 339.

⁶⁴ *Id.* at 340.

The any exposure theory is also illogical in mesothelioma cases, where a small exposure can result in disease, because it posits that any exposure from a defendant above background levels should impose liability, while the background level of asbestos should be ignored. . . . We fail to see how the theory can, as a matter of logic, exclude higher than normal background levels as the cause of the plaintiff's disease, but accept that any exposure from an individual defendant, no matter how small, should be accepted as a cause in fact of the disease.⁶⁵

The court held that even in mesothelioma cases, "liability cannot be imposed on every conceivable defendant whose product exposed the plaintiff to some unquantified amount of asbestos, without proof of something more."⁶⁶ The court then described the line of cases from other states whereby liability was imposed with *de minimis* exposure as "not just."⁶⁷

The Texas Supreme Court has not wavered in its willingness to examine the methodology used by experts in Texas courts. That court's insistence that methodologies be properly analyzed remains the gold standard for application of logic and sense to the use of expert testimony in the courtroom.

2. Virginia

In 2013 the Virginia Supreme Court strengthened the Commonwealth's causation requirements in asbestos litigation in

Ford Motor Co. v. Boomer.⁶⁸ *Boomer* concerned an appeal arising out of a case involving a mechanic whose death was allegedly caused by mesothelioma allegedly resulting from his exposure to asbestos in brake dust.⁶⁹ Plaintiff's experts Dr. John Maddox and Dr. Laura Welch both testified that chrysotile asbestos in brake dust can cause mesothelioma, and that there is no safe level of chrysotile asbestos exposure above background levels in the ambient air. They further opined that the decedent's exposure to defendant's products was a "substantial contributing factor" in the development of plaintiff's disease.⁷⁰

The court resolved the case by determining that the trial court had improperly applied a substantial factor causation standard, and that Virginia instead would apply its traditional but-for causation test even in asbestos cases. The court remanded the case to apply that test to each defendant's product or exposure. With this holding, the court did not reach the *any exposure* theory of the experts. Nevertheless, in its instructions to the trial court regarding expert testimony, the court in effect rejected any form of causation testimony that did not assess and prove a causative dose: "The experts must opine as to what level of exposure is sufficient to cause *mesothelioma*, and whether the levels of exposure at issue in this case were sufficient."⁷¹ Thus, in Virginia post-*Boomer*, the *any exposure* experts arguably must be barred from testifying and/or their

⁶⁸ 736 S.E.2d 724 (Va. 2013).

⁶⁹ *Id.* at 726.

⁷⁰ *Id.* at 727.

⁷¹ *Id.* (emphasis in original).

⁶⁵ *Id.* at 341.

⁶⁶ *Id.* at 341.

⁶⁷ *Id.*

testimony is inherently insufficient evidence of causation.

In the wake of *Boomer*, the United States District Court for the District of Columbia rejected the attempt by plaintiffs' expert to reconfigure his any exposure standard into testimony that satisfies the *Boomer* standard. *Wannall v. Honeywell Int'l. Inc.*⁷² involved a mesothelioma decedent who was exposed to asbestos from his time in the navy, and claimed exposure to brake dust when performing automobile repairs at home.⁷³ Plaintiff's expert Dr. Markowitz that there was "no safe level" of exposure to asbestos and that the minimal exposures during the decedent's brake work would also be sufficient to cause his disease.⁷⁴ Applying *Boomer*, the court rejected the plaintiff's position that an expert is only required to opine that "any exposure above what is in the background air" is an exposure sufficient to cause disease.⁷⁵ The court went onto criticize the illogical nature of Dr. Markowitz's opinion:

Dr. Markowitz's opinion about 'no safe level' addresses risk, not cause, and there is a significant distinction between those two concepts. Many substances that we encounter every day raise our risk of developing serious diseases. For example, studies have indicated that consuming alcohol raises one's risk of developing various cancers—particularly cancers of the mouth and throat... Other studies suggest that eating "added

sugars" increases one's risk of developing heart disease... Even skipping breakfast has been shown to increase men's risk of developing diabetes by 21%.... This is not the same thing as saying that alcohol causes cancer or eating too much sugar causes heart disease or skipping breakfast causes diabetes.⁷⁶

3. Pennsylvania

In our prior article, we reported that in May 2012, Pennsylvania's law related to the *any exposure* theory had been settled by the state's Supreme Court ruling in *Betz v. Pneumo-Abex*.⁷⁷ This declaration was firmly underlined by the same court's ruling in *Howard ex rel. Estate of Ravert v. A.W. Chesterton, Inc.*,⁷⁸ a decision that resoundingly reaffirmed the holding of *Betz*. The trial court in *Howard* granted summary judgment in favor of the defendant finding that plaintiff's expert failed to provide an opinion that would support a finding of causation. The court restated:

The theory that each and every exposure, no matter how small, is substantially causative of disease may not be relied upon as a basis to establish substantial-factor causation for diseases that are dose-responsive.

⁷² *Wannall*, 292 F.R.D. 26.

⁷³ *Id.* at 28.

⁷⁴ *Id.* at 27.

⁷⁵ *Id.*

⁷⁶ *Id.* at 41-42.

⁷⁷ Anderson et al., *supra* n. 9 at 26, *see also* William L. Anderson and Kieran Tuckley, *Pennsylvania Supreme Court Excludes Any Exposure Theory in Asbestos and Toxic-Tort Litigation*, FEDERALIST SOC'Y STATE COURT DOCKET WATCH (2012).

⁷⁸ *Howard*, 78 A.3d 605.

This court dealt with lower court reluctance to apply *Betz* by confirming that summary judgment was appropriate in any case where the experts failed to conduct a dose assessment.⁷⁹

The rulings in *Betz* and *Howard* are not equivocal, but unfortunately some Pennsylvania lower courts have resisted applying those rulings. The Pennsylvania Superior Court has issued wildly different rulings that leave the application of the *Betz* and *Howard* decisions in a state of flux. *Nelson v. Airco Welders Supply*⁸⁰ and *Campbell v. A.W. Chesterton, Inc.*⁸¹ both involved the testimony of Dr. Daniel DuPont, who testified that all exposures contribute to the development diseases and that “there are no innocent respirable asbestos fibers.”⁸² Two separate panels of the Superior Court considered this testimony and issued opposite rulings on the same day. The *Nelson* panel held that Dr. DuPont’s testimony was similar to that of Dr. Maddox in *Betz* and excluded Dr. DuPont’s testimony, and in doing so reversed a jury verdict in favor of the plaintiff.⁸³ The *Campbell* panel, in contrast, allowed the testimony of Dr. DuPont held that *Betz* was limited to situations where the expert renders his opinion “without being prepared to discuss the circumstances of any individual’s exposure.”⁸⁴ Because Dr. DuPont was

prepared to testify vaguely that decedent had “decades of work in an asbestos laden workplace,” the panel believed this was enough to show that Dr. Dupont was not providing a broad *any exposure* theory of causation.⁸⁵

The Superior Court again declined to follow *Betz* in its 2014 ruling in *Rost v. Ford Motor Co.*⁸⁶ This case concerned a plaintiff who worked for a ford dealership for several months.⁸⁷ He alleged exposure to asbestos as a bystander to those working on brakes, and from cleaning dust in the garage.⁸⁸ Plaintiff’s expert Dr. Frank testified that this exposure was sufficient to cause mesothelioma, and that “there are case studies which indicate that individuals who were exposed to asbestos for a single day have developed mesothelioma.”⁸⁹ A jury found for the plaintiff. Ford filed a post-trial motion claiming that Dr. Frank’s testimony did not satisfy the requirements.⁹⁰

On appeal, the Superior Court held that *Betz* and *Gregg*⁹¹ were not dispositive in *Rost* because *Betz* concerned a challenge to the exclusion of expert testimony, and *Gregg* dealt with the review of a summary judgment standard. This case involved a post-trial motion which was to be reviewed in the light most favorable to the verdict

⁷⁹ *Id.* at *7.

⁸⁰ *Rost v. Ford Motor Co.*, Nos. 404 EDA 2012, 642 EDA 2012, 2014 WL 2178528 (Pa. Super. Ct. May 19, 2014), *appeal granted*, 102 A.3d 1251 (Pa. 2014).

⁸¹ *Id.* at *1.

⁸² *Id.*

⁸³ *Id.* at *2.

⁸⁴ *Id.* at *6.

⁸⁵ *Gregg v. V-J Auto Parts Co.*, 943 A.2d 216 (2007).

⁷⁹ *Id.* at 608.

⁸⁰ No. 856 EDA 2011 et seq. (Pa. Super. Ct. Sept. 5, 2013).

⁸¹ *Campbell v. A.W. Chesterton, Inc.*, No. 2005 EDA 2012 (Pa. Super. Ct. Sept. 5, 2013).

⁸² *Nelson*, No. 856 EDA 2011 at *21; see also *Campbell*, No. 2005 EDA 2012 at *6.

⁸³ *Nelson*, No. 856 EDA 2011 at *23.

⁸⁴ *Campbell*, No. 2005 EDA 2012 at *6.

winner to determine if the evidence was sufficient to support the verdict.⁹² The court then stated that despite the record in *Rost* as being a near “mirror image” to the record in *Betz*, the plaintiff’s experts provided sufficient testimony to support the verdict:

Accordingly, while it is true that the “every exposure” theory does not, by itself, meet the standard for establishing substantial causation in a legal sense, this record is more than sufficient to establish its general scientific legitimacy. As we have already determined that the rest of the certified record is sufficient to establish a triable issue on whether [plaintiff’s] exposure at the garage was a substantial cause of his mesothelioma, this defect in the “every exposure” theory is not sufficient to warrant reversal in this case.⁹³

The Superior Court seemed to disregard the logic of the rulings in *Betz* and *Howard*. Dr. Frank provided little more than Dr. Maddox provided in *Betz*, yet the Superior Court accepted the testimony as credible. Unsurprisingly, this resulted in yet another appeal to the Supreme Court.⁹⁴

The future of *any exposure* theory in Pennsylvania, despite the dispositive rul-

ings in *Betz* and *Howard*, is somewhat uncertain given the appellate status of *Rost*. The case was briefed and argued in 2015 but no decision ensued before elections this year placed three new justices on the Supreme Court. The court ordered re-argument, which took place in April, and it remains to be seen whether the current court will honor the *stare decisis* effect of *Betz* and *Howard* or attempt to undo those opinions in some way.

4. The New York *Juni* Opinion

One of the best and most thorough recent eviscerations of the *any exposure* theory came from a judge in the NYCAL (New York City Asbestos Litigation) docket in New York. (This court has made the “judicial hellhole” list many times and came under scrutiny as a result of charges against former New York Speaker of the House Sheldon Silver.) It was quite a positive development for defendants when one of the NYCAL trial judges issued the opinion in *Juni*. The opinion excluded *any exposure* and *cumulative exposure* testimony in a case involving mesothelioma in a mechanic.⁹⁵ In rejecting this testimony, the court confirmed that in New York, expert opinions on causation must establish (1) a plaintiff’s exposure to a toxin, (2) that the toxin is capable of causing the plaintiff’s illness, and (3) that the plaintiff was exposed to sufficient levels of the toxin to cause the illness.⁹⁶

In addressing the *any exposure* testimony offered by Drs. Jacqueline Moline and Steven Markowitz, the court stated: “That

⁹² *Rost*, 2014 WL 2178528 at *6-7.

⁹³ *Id.* at *10.

⁹⁴ *Rost v. Ford Motor Co.*, 102 A.3d 1251 (Pa. 2014) (The question on appeal is: “Whether—contrary to *Howard*, *Betz*, and *Gregg*—a plaintiff in an asbestos action may satisfy the burden of establishing substantial-factor causation by an expert’s “cumulative-exposure” theory that the expert concedes is simply an “any-exposure” theory by a different name”).

⁹⁵ *Juni*, 11 N.Y.S.3d 416.

⁹⁶ *Id.* at 425 (citing *Parker*, 7 N.Y.3d 434).

mesothelioma is caused only by exposures to asbestos does not dispose of the issue of whether a defendant's product caused the mesothelioma ... which depends on the sufficiency of the exposure, if any, to asbestos in the defendant's product and whether that exposure is capable of causing mesothelioma."⁹⁷ The court found that evidence of "regular" work with asbestos-containing products, without any quantification is insufficient to establish specific causation.⁹⁸

The *Juni* opinion is significant for two other reasons. First, the court rejected the notion that the presence of "visible dust" is by itself a sufficient surrogate for a dose assessment.⁹⁹ The presence of dust is a common allegation in litigation today, and this ruling demonstrates that "dust"-based testimony has no foundation and is unscientific. Second, the court rejected the *cumulative exposure* approach as well as *any exposure* and found no logical or scientific foundation for either.¹⁰⁰ The *Juni* opinion's

longer term impact is uncertain – one NYCAL judge has already refused to apply it, and the case is on appeal to the Appellate Division, First Department.

5. California

California continues to be a difficult state for asbestos defendants, and its recent handling of *any exposure* theory is no exception. California courts were somewhat divided on the issue, and several California courts, typically in unpublished opinions, have adopted *any exposure* testimony or something close to it in recent years.¹⁰¹ These rulings are in sharp contrast to the California causation standard under *Rutherford*,¹⁰² which requires plaintiffs to prove substantial factor causation, and under the rulings discussed above in *Barabin*, *McIndoe*, and *Sclafani*.

But the game changed considerably this year with the Second Appellate District's

and have rejected the so-called cumulative exposure theory and its variant, the "each and every" exposure theory.") (citations omitted).

¹⁰¹ See, e.g., *Izell v. Union Carbide Corp.*, 231 Cal. App. 4th 962, 976 (Cal. App. 2d Dist. Div. 3 2014); *Norris v. Crane Co.*, 2008 WL 638361 (Cal. App. 2d Dist. Div. 5 Mar. 11, 2008).

¹⁰² *Rutherford v. Owens-Illinois, Inc.*, 941 P.2d 1203, 1219-1220 (Cal. 1997) (Under this test, a plaintiff can prove causation by demonstrating (1) exposure to a defendant's asbestos-containing product with reasonable medical probability exposure and (2) exposure was a substantial factor in increasing the risk of the asbestos-related injury. Plaintiff does not have to demonstrate that fibers from a defendant's product were the ones that actually caused the asbestos-related disease. The only limitation applied by the *Rutherford* court was that contribution of the defendant's product to the asbestos-related injury must be more than negligible or theoretical).

⁹⁷ *Id.* at 432.

⁹⁸ *Id.* at 435.

⁹⁹ *Id.* at 435-436; see also *Sterling v. P&H Mining Equip.*, No. 1006 EDA, 2015 WL 1743156, at *4 (Pa. Super. Ct. Apr. 17, 2015) (plaintiff testimony that he "saw dust" insufficient with no proof that dust contained asbestos, multiple potential other sources of dust in industrial facility, no testimony as to distance from dust, etc.); *Yates*, 113 F. Supp.3d at 853-858 (critiquing and rejecting expert's reliance on "visible dust" as a basis for causation finding); *Borg-Warner*, 232 S.W.3d at 774 (testimony re "clouds" of dust insufficient because "we do not know the contents of that dust, including the approximate quantum of fibers to which [plaintiff] was exposed").

¹⁰⁰ *Juni*, 11 N.Y.S.3d at 437 ("Many of those courts [addressing sufficiency of the expert evidence] require specific proof of exposure

issuance of its published opinion in *Davis v. Honeywell International, Inc.*¹⁰³ The *Davis* opinion accepted the testimony of plaintiff's experts finding a link between a brake repair plaintiff and mesothelioma, in the process fully and extensively adopting *any exposure* testimony under *Rutherford* apparently without limitation or reservation.¹⁰⁴ If *Davis* is interpreted generously, a California state court plaintiff only has to allege any contact with an asbestos part, on only one or more occasions, to go to a jury. The defendant is seeking Supreme Court review of the decision. Other California districts are not bound by *Davis* but at this point the state's trial courts will undoubtedly be presented with *Davis* as a contrast to the strong federal and other state court rulings rejecting *any exposure* testimony.

6. Other State Courts

The record in other state courts over the last four years is somewhat mixed. The Georgia intermediate appellate court issued an opinion in *Scapa Dryer Fabrics, Inc. v. Knight*¹⁰⁵ that seems to be completely at odds with that court's prior rejection of *any exposure* testimony in *Butler*. The Georgia Supreme Court has accepted review.¹⁰⁶ Other state courts have

admitted *any exposure* testimony although potentially in distinguishable circumstances. The Tennessee Supreme Court in *Payne v. CSX Transportation, Inc.* ruled that *any exposure* testimony offered by plaintiffs' experts was properly admitted at trial.¹⁰⁷ But the *Payne* case was under the Federal Employee's Liability Act governing railroads, which has a unique causation standard, and thus it remains to be seen whether *Payne* will apply to an asbestos case under a substantial factor test. In the convoluted series of appeals involving the *Robertson v. Doug Ashby Building Materials* case in Louisiana, an appellate court issued a ruling reversing repeated trial court efforts to exclude *special exposure* testimony by Dr. Mark.¹⁰⁸

A state trial court in Kentucky, to the contrary, found expert testimony that any and all asbestos exposure contributed to plaintiff's mesothelioma does not establish that exposure to Defendants' products was a substantial factor in causing Plaintiff's disease.¹⁰⁹

Some state courts have opted for a third approach by resorting back to the old *Lohrmann* standard requiring "frequent, regular, and proximate" exposure in lieu of a dose assessment. In 2012, the Nevada Supreme Court in *Holcomb v. Georgia*

¹⁰³ *Davis v. Honeywell Int'l, Inc.*, 245 Cal.App.4th 477 (2d Dist. Div. 4 2016), *pet. for review filed* (Apr. 13, 2016).

¹⁰⁴ *Id.* at *10.

¹⁰⁵ 770 S.E.2d 334 (Ga. App. 2015), *cert. granted* (Ga. Sept. 8, 2015).

¹⁰⁶ See Katheryn Hayes Tucker, *Georgia Supreme Court Weighs a \$5M Question About Expert Testimony*, LAW.COM (Jan. 11, 2016), available at <http://www.law.com/sites/articles/2016/01/11/georgia-supreme-courtweighs-a-5m-question-about-expert-testimony/#ixzz45clFzSph>.

¹⁰⁷ 467 S.W.3d 413, 420 (Tenn. 2015).

¹⁰⁸ 168 So. 3d 556 (La. App. 2014), *writ denied*, 169 So. 3d 364 (La. 2015). Whether *any exposure* testimony would survive in a Louisiana state court is theoretically an open question, but the *Robertson* court's language would imply that it would. Thus, defendants in Louisiana cases need to remove it at all possible, given the strong anti-*any exposure* rulings in Louisiana federal courts.

¹⁰⁹ *Manahan v. Caterpillar, Inc.*, No. 12-CI-02070, 2014 WL 699090 (Ky. Jefferson County Cir. Ct. Feb. 17, 2014).

*Pacific, LLC*¹¹⁰ declined to adopt the near *any exposure* test plaintiff asserted applied under California's *Rutherford* test, and the court also declined to adopt the more rigorous Texas' *Borg-Warner* test. The court instead picked a middle road, using the *Lohrmann* standard.¹¹¹ Some of the language in *Holcomb* could support *any exposure* testimony, but the court also stated that the plaintiffs' expert medical testimony was "undisputed." In a case with a full and vigorous defense presentation, it will be difficult for a subsequent Nevada court to make that same determination. Likewise, in 2013, Maryland's highest court reverted to its historical *Lohrmann* standard in allowing experts to testify based on the frequency and regulatory of alleged exposure (but not based on *any exposure* testimony).¹¹²

These third track decisions are not particularly helpful to defendants – in today's low-dose asbestos litigation, it is not difficult for plaintiffs to allege a number of exposure incidents (*e.g.*, a spouse washing clothes) that will satisfy the *Lohrmann* frequent, regular, and proximate standard, but those exposures in no way approach the kinds of doses required to cause asbestos disease. And the choice to resort to *Lohrmann* is in reality a not-well-thought-out avoidance of the real issue. These courts call their approach a "balanced" one, but in reality they are

requiring the state's *trial judges* to figure out how much exposure is enough rather than insisting that the plaintiff experts do that work in the first instance. The result is a "know it when we see it" set of determinations that has no scientific foundation.

IV. The State of the Any Exposure Theory Today and Likely Future Direction

A. Assessing the Map – Where Motions Are Likely to Succeed or Fail

Given the state of the case law since 2012, the map of where *any* or *cumulative exposure* theory is unwelcome has become more jumbled and less predictable than before. The defense position is strongest in Texas, where *Borg-Warner* and *Bostic* have effectively eliminated any such testimony and forced plaintiffs to present actual dose assessments and proof of epidemiology studies showing disease at those levels.¹¹³ The Texas appellate courts have not yet ruled specifically on the "new" *cumulative exposure* approach, and it is possible plaintiffs may make a run at pushing that theory through. Given *Bostic*, however, it is highly doubtful the Texas Supreme Court would be taken in by the change in terminology.

¹¹⁰ 289 P.3d 188 (Nev. 2012).

¹¹¹ *Id.* at 195 (citing *Lohrmann v. Pittsburgh Corning Corp.*, 782, F.2d 1156 (4th Cir. 1986)).

¹¹² See *Dixon v. Ford Motor Co.*, 70 A.3d 328 (Md. 2013); see also *Sweredoski v. Alfa Laval, Inc.*, No. PC 2011-1544, 2013 WL 3142893 (R.I. Super. June 13, 2013) (adopting *Lohrmann* in lieu of *any exposure* testimony).

¹¹³ *Borg-Warner*, 232 S.W.3d at 773; *Bostic*, 439 S.W.3d at 341. For chrysotile cases, plaintiffs will have much difficulty doing so in today's asbestos case environment. Chrysotile requires very large doses to cause mesothelioma (if it does at all). Two Texas courts have relied on the distinction in fiber type to reject plaintiff reliance on two key studies, Rodelsperger and Iwatsubo, that claim to show very low, causative cumulative fiber exposure levels because neither study focused on chrysotile.

Defendants should also have a strong likelihood of success in other states using a but-for or substantial factor causation standard, and where the judges are likely to look closely at the experts' causation approach. Virginia's courts, for example, use the but-for approach, and that state's Supreme Court has also declared that plaintiff experts must prove a causative dose no matter what theory they testify under.¹¹⁴ Certain federal courts are also strong candidates for *any/cumulative exposure* motions. The Sixth Circuit has rejected several versions of such testimony at least *six* times,¹¹⁵ and the Ninth Circuit has now joined in as well.¹¹⁶ As the discussion above notes, some federal courts in California, Illinois, Utah, and Louisiana have also issued good rulings. In Louisiana, proceeding in federal court is virtually case-dispositive – three federal courts have rejected *any exposure* testimony, but the state courts allow it.

Plaintiffs, on the other hand, would likely succeed in defeating exclusion or sufficiency of the evidence motions in certain states or jurisdictions with reputations of refusing to dismiss asbestos cases on summary judgment. For example, New Jersey and some Illinois courts would likely reject motions based on prior appellate rulings or specific causation standards. California courts have gone both directions, but the recent *Davis* case explicitly accept-

ing *any exposure* testimony is a blow to defense hopes in that state. If the California Supreme Court will accept review in *Davis*, that appeal will give defendants the chance to demonstrate that the *any exposure* theory is entirely incompatible with the requirements of California's *Rutherford* causation standard in asbestos litigation.

The more interesting *any exposure* map coordinates are in the states where the *any exposure* viability is at play. For instance, certain courts previously firmly in the defense camp are now potentially in play again given recent appellate activity. Pennsylvania's status is awaiting the appeal of *Rost* with a new makeup of that state's supreme court.¹¹⁷ Georgia's status awaits that state's supreme court review of the *Scapa* case and its clear inconsistency with the prior rejection of *any exposure* testimony in *Butler*.¹¹⁸ *Scapa* is on appeal, fully briefed and argued, and awaiting a decision of the Georgia Supreme Court. Until that decision issues, trial judges in Georgia are forced to choose between the *Butler* and *Scapa*. Federal courts remain mostly on the side of rejecting *any exposure* testimony, particularly in Ohio, Louisiana, and Utah, but some federal courts have recently shown a disturbing willingness to allow *any exposure* testimony in¹¹⁹ – it is very hard to square these decisions with the rigor required under federal *Daubert* review.

¹¹⁴ *Ford Motor Co. v. Boomer*, 736 S.E.2d 724 (Va. 2013).

¹¹⁵ *Moeller*, 660 F.3d 950; *Pluck*, 640 F.3d 671; *Baker v. Chevron USA, Inc.*, 680 F. Supp.2d 865 (S.D. Ohio 2010), *aff'd*, 533 F. App'x 509 (6th Cir. 2013); *Martin*, 561 F.3d 439. *Lindstrom*, 424 F.3d 488; *Nelson*, 243 F.3d 244.

¹¹⁶ *McIndoe*, 2016 WL 1253903 (9th Cir. Mar. 31, 2016); *Barabin*, 740 F.3d at 463-464.

¹¹⁷ See Matt Fair, *Pa. Justices To Rehear More Than 25 Cases From 2015*, LAW 360 (Jan. 22 2016), available at <http://www.law360.com/articles/749897/pa-justices-to-rehear-more-than-25-cases-from-2015>.

¹¹⁸ *Butler*, 712 S.E.2d at 544; *Knight*, 770 S.E.2d at 341.

¹¹⁹ See, e.g., *Neureuther v. Atlan Copco Compressors*, 2015 WL 4978448 (S.D. Ill. Aug. 20, 2015).

Other states that were formerly unfavorable locations for *any exposure* motions, however, are now also up in the air and may produce significant changes in favor of defendants. That is exactly what happened in the *Juni* case. On the other hand, since the New York Court of Appeals has rejected dose-less causation testimony now three times,¹²⁰ one would think the asbestos judges would get the message and change the practice in the asbestos courts. The *Juni* judge understood this, but whether the *Juni* opinion changes New York asbestos law may well depend on the appellate route that case takes. California likewise may see significant changes in that state's docket if the California Supreme Court takes the *Davis* case on appeal and correctly applies *Rutherford* to reject *any exposure* testimony.

The handful of federal courts allowing *any exposure* testimony in recent years is very surprising – a careful *Daubert* inquiry usually results in rejection of *any exposure* testimony, but a growing number of federal courts have rejected defense motions instead. These opinions have one overriding characteristic in common – the opinions rarely look behind the expert's self-justifying pronouncements and instead merely parrot his or her testimony and declare the methodology sufficient.¹²¹ The

court's approach in the *Yates* decision discussed above represents a far more meaningful, and legitimate, application of the *Daubert* approach.¹²²

Equally unfortunate is the adoption of the *Lohrmann* hybrid approach by certain states.¹²³ At one point in the litigation, the *Lohrmann* standard prevented lawsuits from proceeding on speculative testimony of exposure to insulating products. Today, however, the low-dose environment, *Lohrmann* does not protect defendants against non-causative exposures that are nevertheless frequent and regular. As noted above, these decisions are not solving the problem but are only forcing the difficult “how much is enough decision” onto the state trial judges. Plaintiffs' experts are studiously avoiding making these determinations and abdicating their expert responsibility to the jury in doing so. Hopefully, in the next few years an appellate court will recognize this problem and reject the superficially attractive but unscientific “balanced” approach a few courts have adopted.

The most surprising and disturbing trend is the series of opinions in several state appellate courts in recent months accepting *any exposure* testimony. The earliest one was in the Nebraska *King* case, allowing Dr. Arthur Frank to testify in a benzene case without any dose assessment.¹²⁴ More recently, the courts of Georgia, Nevada, and Tennessee have rejected defense motions as well.¹²⁵ The Georgia opinion may yet be overturned in

¹²⁰ *Parker*, 857 N.E.2d 1114; *Cornell v. 360 W. 51st St. Realty, LLC*, 9 N.E.3d 884 (N.Y. App. 2014); *Sean R. v. BMW of N. America, LLC*, ___ N.E.3d ___, 2016 N.Y. Slip Op. 01000, 2016 WL 527107 (N.Y. 2016).

¹²¹ *See, e.g. Kochera v. General Elec. Co.*, 2015 WL 5582341 at *3 (S.D. Ill. Sept. 21, 2015); *Larson v. Bondex Int'l*, No. 09-69123, 2010 WL 4676563 (E.D. Pa. Nov. 15, 2010); *In re Asbestos Prod. Liab. Litig.*, No. 10-CV-61118, 2011 WL 605801, at *1 (E.D. Pa. Feb. 16, 2011).

¹²² *Yates*, 113 F. Supp.3d 841.

¹²³ *Dixon*, 70 A.3d 328; *see also Holcomb*, 289 P.3d 188.

¹²⁴ *King*, 762 N.W.2d at 31-32.

¹²⁵ *Knight*, 770 S.E.2d 334; *Payne*, 467 S.W.3d at 457; *Holcomb*, 289 P.3d 188.

the pending appeal, and the Tennessee case arose in the context of the Federal Employees Liability Act governing railroads, which has a more generous causation standard and thus it may be distinguishable.

B. Where Any/Cumulative Exposure Litigation Is Headed

Defense counsel need to sharpen their game to keep up with the moving chess board in the world of *any/cumulative exposure* testimony. Plaintiffs' switch to *cumulative exposure* testimony has met with some success, and defendants can no longer afford simply to tee up the string of *any exposure* opinions and argue *cumulative exposure* is the same thing. The critical task today is to take on the *cumulative* approach directly and demonstrate how each of its underpinnings is every bit as illogical and unscientific as the former *any exposure* approach. The *Juni* case includes a good analysis for use as a roadmap. Plaintiffs' attorneys and their experts today are unlikely to rely on *any exposure* for their causation opinion, even though they may espouse support for that theory in their depositions. Either the testimony or the briefing will resort to the new *cumulative* approach in an attempt to avoid the scientific attack altogether.

In some jurisdictions defendants can expect to see more rigorous attempts by plaintiffs to present industrial hygienists who claim to have measured or assessed the dose. These opinions need to be critiqued and included in the *Daubert/Frye* briefing. The model for this approach is Texas, where a dose assessment is now mandatory. A thorough *Daubert* review of this testimony usually demonstrates that the experts are cherry-picking the highest available exposure

estimates for the work activity; ignoring strongly contrary studies; or making unjustified assumptions. Some of these experts, for instance, contend merely that any visible "dust" associated with an asbestos-producing activity is in excess of the old, pre-1970 5 million particle per cubic foot standard and is thus very high and in violation of all modern OSHA standards.¹²⁶ Two courts have rejected that approach but this type of "dust" opinion remains a danger to defendants.¹²⁷

On the causation side, plaintiff-friendly experts and government agencies continue to generate published literature or website statements that plaintiffs' experts claim supports their attempted assertion of *any/cumulative exposure* testimony. For example, a series of articles has issued in the last few years attempting to support low-dose chrysotile exposure causation.¹²⁸ The flaws in this body of literature are significant (and more than this article can address), but defense counsel and their experts need to be prepared to explain those flaws to the judge or jury. The Helsinki panel recently reconvened to "reissue" an updated criteria document that continues to have the same overbroad and unsupported mesothelioma causation lan-

¹²⁶ See, e.g., *Yates*, 113 F. Supp.3d at 845.

¹²⁷ *Id.*; see also *Juni*, 11 N.Y.S.3d at 436.

¹²⁸ See, e.g., Laura Welch, *Asbestos Exposure Causes Mesothelioma, But Not This Asbestos Exposure: An Amicus Brief to the Michigan Supreme Court*, 13 INT'L J. OCCUP. ENVTL. HEALTH 318 (2007); Joint Policy Committee of the Societies of Epidemiology, *Position Statement on Asbestos*, available at https://www.ijpc-se.org/documents/01.JPC-SE-Position_Statement_on_Asbestos-June_4_2012-Summary_and_Appendix_A_English.pdf (2012); Dana Loomis et al., *Asbestos Fibre Dimension and Lung Cancer Mortality Among Workers Exposed to Chrysotile*, 67 OCCUP. ENVTL. MED. 580 (2010).

guage in it.¹²⁹ OSHA in 2014 published a webpage that, for the first time for any public agency, stated the plaintiffs' any exposure theory exactly as they testify to it in court.¹³⁰ Plaintiffs also continue to generate amicus briefs joined by a long list of plaintiff-friendly experts claiming to support causation in low-dose cases.¹³¹ Some of the plaintiffs' experts have created long affidavits compiling all of this material, creating the impression of a scientific basis when in fact none of the cited literature credibly supports the notion that every exposure no matter how small is causative.¹³²

Any or all of these materials can and will appear in oppositions to defendants' motions. Counsel need the tools and responses at hand to help courts understand the need for

rigorous review of these cited sources and why they represent a sleight of hand. Very little has changed in the underlying science in the last ten years, or in the basic flaws of the *any/cumulative exposure* theory. Yet the struggle to get this theory out of the courtroom has moved from a strong wave of judicial support to a considerably more mixed picture. Defendants need to be more strategic in their approach, in particular in taking focused depositions of these experts to obtain the critical admissions necessary to attack the new *cumulative* approach. And defense practitioners who work in toxic tort and other causation-based litigation, but not asbestos, need to prepare for increasing attempts to inject the *any/cumulative theory* into those litigations as well.

¹²⁹ See Hendrick Wolff et al, *Asbestos, Asbestosis, and Cancer, the Helsinki Criteria Diagnosis and Attribution 2014: Recommendations*, 41 SCAND. J. WORK, ENV'T & HEALTH 5 (2014).

¹³⁰ See Occupational Safety & Health Admin. *Safety & Health Topics: Asbestos*, available at <https://www.osha.gov/SLTC/asbestos/#8>.

¹³¹ See Brief of *Amici Curiae* [58 individual physicians and scientists] in Support of Appellees, *Rost v. Ford Motor Co.*, No. 56 EAP 2014 (Pa., filed Apr. 7, 2015). The most recent example is in the *Scapa Dryer Fabrics* appeal to the Georgia Supreme Court, in which 67 scientists joined. See *Amici Curiae Brief of Sixty-Seven (67) Concerned Physicians, Scientists, and Scholars Regarding Causation, Scapa Dryer Fabrics v. Knight*, No. S15C1278 (Ga. filed Dec. 29, 2015) (appeal of *Scapa Dryer Fabrics, Inc. v. Knight*, 770 S.E.2d 334(Ga. Ct. App. 2015)).

¹³² See, e.g., Affidavit of Arthur L. Frank, Dec. 10, 2013, available at <http://www.masstortstateoftheheart.com/files/2014/06/Frank-Arthur-2013-12-10-Affidavit-PA-2.pdf>.