

[J-12-2016]
IN THE SUPREME COURT OF PENNSYLVANIA
EASTERN DISTRICT

SAYLOR, C.J., BAER, TODD, DONOHUE, DOUGHERTY, WECHT, JJ.

RICHARD M. ROST, EXECUTOR OF THE ESTATE OF RICHARD J. ROST & ERIN SIPLEY, EXECUTRIX OF THE ESTATE OF JOYCE ROST,	:	No. 56 EAP 2014
	:	
Appellees	:	Appeal from the Judgment of Superior Court entered on May 19, 2014 at No. 404 EDA 2012 affirming the Judgment entered on December 28, 2011 in the Court of Common Pleas, Civil Division, Philadelphia County at No. 1978 September Term, 2010
v.	:	
	:	ARGUED: May 6, 2015
FORD MOTOR COMPANY,	:	REARGUED: April 6, 2016
	:	
Appellant	:	

OPINION

JUSTICE DONOHUE

DECIDED: November 22, 2016

We address again the proper application of the “frequency, regularity, and proximity” criteria in asbestos product liability litigation, seeking to provide further illumination on the principles set forth in our decisions in this area, Gregg v. V-J Auto Parts, Co., 943 A.2d 216 (Pa. 2007), and Betz v. Pneumo Abex. LLC, 44 A.3d 27 (Pa. 2012). For the reasons that follow, we conclude that the trial court and the Superior Court properly applied those principles in this case, and thus affirm the judgment entered in favor of Appellees.

In October 2009, Appellees Richard and Joyce Rost¹ filed suit against multiple manufacturers of asbestos, averring that exposure to the defendants' asbestos-containing products caused Richard Rost ("Rost") to contract mesothelioma. Before trial, the Rosts settled their claims against all defendants except for Appellant Ford Motor Company ("Ford"). Over Ford's objections, the trial court consolidated the case for trial with two other mesothelioma cases. Trial commenced in September 2011, at which time the trial court reminded the parties of a pre-trial ruling, in accordance with Gregg, precluding any expert from offering testimony that "each and every breath" of asbestos may constitute an evidentiary basis for the jury to find that the defendant's product was a substantial cause of mesothelioma.² N.T., 9/12/2011 (AM), at 37.

At trial, Rost testified that upon graduation from high school in 1950, he took a job at Smith Motors in Washington, New Jersey, for three to four months, working full time Monday through Friday and half a day on Saturday. N.T., 9/14/2011 (AM), at 101, 114. While Smith Motors was a full service garage, it serviced approximately eighty-five to ninety percent Ford vehicles. Id. at 151. The parties stipulated that all model year Ford vehicles, from 1945 until 1950, used asbestos brakes and asbestos clutches, and that Ford's brakes and clutches were forty to sixty percent chrysotile asbestos by

¹ Richard and Joyce Rost both passed away during the pendency of this action, and his executor and her executrix have been substituted as parties. For ease of identification, herein Appellees will be referred to as the "Rosts."

² In a products liability action, Pennsylvania law requires that a plaintiff prove two elements: "that the product was defective, and that the defect was the substantial factor in causing the injury." Spino v. John S. Tilley Ladder Co., 696 A.2d 1169, 1172 (Pa. 1997). In a pre-trial ruling, the trial court concluded that the Rosts were not required to prove that asbestos brakes manufactured by Ford were a defective product. Trial Court Opinion, 12/28/2011, at 6-7. The Superior Court affirmed. Rost v. Ford Motor Company, 2014 WL 2178528, at *11-12 (Pa. Super. May 19, 2014). Despite Ford's request, this Court declined to grant allocatur on the issue.

weight. Stipulation, Rost Exhibit 5. Rost described his job as being a “gofer,” which involved basic maintenance tasks (changing oil, lubrication, and undercoating). Id. at 103. It was also his job to keep the garage area clean. Id. Approximately three to five times per week, when the mechanics removed brake shoes before performing a brake job, Rost had to pop off the asbestos lining from each shoe and throw it away. Id. at 103-05. There were two linings on each brake shoe, so this necessitated that he remove eight linings in connection with each brake job. Id. Asbestos dust was released as each lining was popped off, and Rost testified that he would breathe this dust in on every occasion. Id. at 105. Once a day, the mechanics would use an air compressor to blow out the dirt and debris inside the brake drums, and this would result in a significant amount of asbestos dust circulating throughout the garage. Id. at 106. Rost was typically within thirty to forty feet of these blowouts. Id. at 149-50.

Rost was also exposed to asbestos based upon his proximity to mechanics sanding brakes, replacing clutches, and performing engine work (head gaskets containing asbestos). Id. at 105, 129-31. At the end of each day, Rost testified that he cleaned up all of the asbestos dust and debris generated from the brake jobs, blow outs, and clutch and engine work. Id. at 113-14. He used a push broom to gather the waste from the mechanics’ work areas, and typically deposited three coal shovelfuls of waste into the garbage at the end of each day. Id. at 114. Smith Motors did not have an exhaust system, with only a single fan in the window for ventilation, and Rost testified that “there was a smell in the garage from the dust in the air the whole time we were working in there.” Id. at 111. Smith Motors also had no shower facilities, and so Rost wore his dirty dust-covered clothes home at the end of each day on the job. Id. at 131.

Rost also testified regarding his subsequent occupational history and exposures to asbestos in connection therewith. After Smith Motors, he worked for Washington Woodcraft and Griffith & Williams (a construction company), but was not exposed to asbestos in those jobs. Id. at 159-61. He then went to work for Tung-Sol, a manufacturer of television vacuum tubes, from 1952-53 and, after a term in the Army, from 1955-60. Id. at 115, 166. Rost did not believe that he was exposed to asbestos at Tung-Sol, although he did perform maintenance work on the boiler once a week and worked on the turbines “twice a year for a couple of hours” during seasonal annual maintenance. Id. at 115-16, 165-67. In 1960, he went to work for Metropolitan Edison at its power plant near Portland, Pennsylvania, where he remained until his retirement in 1994. Id. at 116. He began as a janitor and served as a coal handler, boiler attendant, pump operator, instrument operator, and finally as the chief of instrumentation and controls. Id. at 118. During his time with Metropolitan Edison, he was exposed to asbestos in its boilers, turbines and generators. Id. at 131. Rost agreed that his asbestos exposure, especially in connection with his proximity to the turbines, was at “pretty high levels.” N.T., 9/14/2011 (PM), at 62. He also testified, however, that Metropolitan Edison became aware of the dangers of asbestos in or around 1970, and that by 1972 or 1973 he wore a face mask over his nose and mouth in high asbestos areas. N.T., 9/14/2011 (AM), at 122-23; N.T., 9/14/2011 (PM), at 62. Over a ten-year period, the company also incrementally replaced its asbestos-containing equipment. Id.

The Rosts called expert witnesses on medical and causation issues, including Dr. Arnold Brody, Ph.D., and Dr. Arthur Frank, M.D. Dr. Brody is an experimental pathologist and a professor at North Carolina State University. N.T., 9/20/2011 (AM), at 7-8. Dr. Frank is a physician and a professor at Drexel University School of Public Health and the Drexel University College of Medicine. N.T., 9/19/2011 (AM), at 8.

Dr. Brody did not testify regarding the specific cause of Rost's medical condition, and instead offered more general testimony about how asbestos causes mesothelioma. He explained that there are two types or "families" of asbestos fibers, amphibole and chrysotile. N.T., 9/20/2016 (AM), at 82. About ninety-five percent of the asbestos-containing products used in the United States contained chrysotile fibers, including all of the Ford products at issue in this case. Id. at 86. Dr. Brody testified that on a fiber-per-fiber basis, amphibole fibers are more potent than chrysotile fibers, but that both types cause mesothelioma. Id. at 83-119. Given their smaller size, chrysotile fibers are more likely to get into the lymphatic flow and reach the pleura (the membrane on the outside lining of the lungs), and when investigators examine the target site of mesothelioma on the lung, they typically find a predominance of chrysotile fibers. Id. at 117.

Dr. Brody described for the jury precisely how asbestos causes mesothelioma. Mesothelioma is a cancer of the mesothelial cells of the pleura. Id. at 27, 52. When asbestos fibers reach the mesothelial cells of the pleura, either through the blood stream or the lymphatic system, they act as a "complete carcinogen," as they can lead to cancer without any other contributing agent. Id. at 50, 56. Asbestos fibers damage the DNA in the mesothelial cells that control cell reproduction. Id. Some damaged cells die and tumor suppressor genes stop others from reproducing. Id. at 64-65. Where suppressor genes do not stop the reproduction process, however, the damaged cells divide, replicating the damage in the sister cells. Id. at 68. As the division continues over decades, a tumor is formed. Id. This explains why mesothelioma has an extremely long latency period,³ as mesothelial cells have a very slow growth rate. Id. at 55.

³ Dr. Frank testified that the average latency period for mesothelioma, from exposure to diagnosis, is approximately thirty-five years. N.T., 9/19/2011 (AM), at 85-87.

The Rosts called Dr. Frank as an expert in “asbestos-related diseases and their causes, the ability of asbestos, including chrysotile asbestos, to cause mesothelioma in humans, the risk imposed from inhalation of chrysotile asbestos from brakes, the epidemiology of asbestos disease, asbestos industrial hygiene, asbestos toxicology and public health.” N.T., 9/19/2011 (AM), at 40. In his testimony, Dr. Frank referenced epidemiological studies, animal studies, and case reports, and indicated that he had himself performed epidemiological, animal, and cell and organ culture studies on individuals exposed to asbestos; he also participated in a study on the development of asbestos-related disease in brake mechanics, and has published many peer reviewed articles and book chapters on asbestos-related disease. Id. at 15-40. He stated that in his practice and research studies, he has seen “hundreds, if not thousands” of people exposed to asbestos. Id. at 25.

Dr. Frank testified that mesothelioma is a dose-response disease, by which “as the dose increases, the likelihood of developing the disease increases”: “small amounts carry small risks; larger amounts cause larger risks.” Id. at 82-83. According to Dr. Frank, it is not scientifically possible to identify the particular exposure or exposures that caused a patient’s mesothelioma, and instead the causative agent is “the series of exposures.” Id. at 71. All exposures to asbestos contribute to the cumulative dose of asbestos, and the cumulative dose causes mesothelioma. Accordingly, Dr. Frank testified that “[a]ll of the exposures that can be documented should all be considered as contributory to [Rost’s] developing his disease.”⁴ Id. at 122. It is also not scientifically

⁴ Dr. Brody concurred with this opinion, testifying as follows:

[I]t is the series of exposures. You can’t just pick out one and say, “This exposure caused this set of errors.” You can’t do that. It’s just not possible. So the answer is that all of the exposures that are in the history of that individual have contributed to the development of the disease.

(continued...)

possible to quantify how much asbestos is required to initiate the disease process, id. at 83, and varying individual susceptibility also plays a role. Id. at 72 (“Asbestos will cause disease in people who work, in people who don’t work.”); see also N.T., 9/19/2011 (PM), at 13 (“It creates a risk. ... They don’t all develop [disease].”).

Moreover, Dr. Frank testified that while precise exposure threshold levels for the contraction of mesothelioma cannot be quantified, different asbestos-related diseases require different exposure levels. Contraction of asbestosis, the non-cancerous scarring of lung tissue, requires a “significant amount” of asbestos exposure before the condition will appear. N.T., 9/19/2011 (AM), at 83. Mesothelioma, in significant contrast, requires far less exposure. Dr. Frank testified that both case reports and animal studies reflect that there is evidence that both animals and humans may contract mesothelioma after a single day of exposure to asbestos. Id. at 84-85 (“very low levels will still produce the disease mesothelioma”). Even more, there is evidence that a single month of exposure to asbestos may double an individual’s risk of contracting mesothelioma. Id. In this case, Rost was exposed to asbestos at Smith Motors for more than three months, in potentially high amounts on a daily basis. Based upon studies by a mineralogist, Dr. Frank testified that when a mechanic used an air compressor to blow out the inside of a brake drum, the resulting dust contained approximately seventeen fibers of chrysotile asbestos per cubic centimeter of air, and that even if Rost was as far as sixty feet away (he testified was typically within thirty to forty feet), the dust in the air would have been at elevated levels. Id. at 100. Dr. Frank also found it significant that Rost wore his dust-covered clothes home each day after work, as it brought asbestos fibers into the home,

(...continued)
N.T., 9/20/2011 (AM), at 71.

which extended his exposure well beyond the three months he worked at Smith Motors.
Id. at 118-19.

In response to a hypothetical question that detailed Rost's exposure to asbestos while at Smith Motors, Dr. Frank testified that it was his opinion, within a reasonable degree of medical certainty, that Rost's exposure to Ford products was a "significant contributing cause to developing mesothelioma." Id. at 111-17. He then offered the following testimony:

Q. Now, Dr. Frank, I've asked you to assume that these exposures in 1950 for the three months approximately were at the Ford dealership. Now, if those were -- now, you know in this case, that there are other exposures after 1950, correct?

A. Yes, sir.

Q. Now, if the only exposures that Mr. Rost had were those in 1950, would those have been enough alone without any of the ones he had later for you to say that was a significant contributing factor to his mesothelioma?

A. Yes.

* * *

Q. Okay. Now, we do know that in this case that there are other asbestos exposures. Given the fact that there were other asbestos exposures in this case, Doctor, is there any way for you to say that the early 1950s exposures didn't contribute and the ones afterwards did?

A. There's no scientifically plausible way to do that. They all contributed, his early exposures and his later exposures.

Q. Now, Doctor, is there any doubt in your mind that chrysotile asbestos from brakes contributed to Mr. Rost's mesothelioma?

* * *

A. None whatsoever. No doubt.

Q. Is there any doubt in your mind that his exposures to insulation contributed to his mesothelioma?

A. No doubt whatsoever.

Q. Are all the exposures that he experienced to asbestos that can be demonstrated the causes of his mesothelioma?

A. All of the exposures that can be documented should all be considered as contributing to his developing the disease.

Q. Is there any doubt in your mind, Dr. Frank, that just working with those brakes or around those brakes in 1950 at the Ford dealership could have caused his mesothelioma?

* * *

A. If that would have been his only exposure, I would be sitting here saying that that was the cause of his disease. Given that he had other exposures, it was all contributory.

Id. at 120-23.

When the Rosts rested their case-in-chief, Ford moved for a nonsuit, contending that Dr. Frank had offered “each and every breath” opinion testimony prohibited as evidence of substantial causation by this Court in Gregg. N.T., 9/26/2011 (AM), at 98-99. Concluding that Dr. Frank had not done so and that the Rosts had presented sufficient evidence to send the case to the jury, the trial court denied the motion. Id. at 99. At the close of the evidence, the jury awarded the Rosts \$994,800 (\$844,800 to Rost and \$150,000 to Joyce Rost). N.T., 10/7/2011, at 8-11. The jury also found that the products of three companies with asbestos-containing equipment at Metropolitan Edison (General Electric, Ingersoll-Rand, and Westinghouse) were also substantial causes of Rost’s mesothelioma. Id. The trial court molded the verdict by dividing it into four equal parts, thus entering judgment against Ford in the amount of \$248,700. Id. at

17. Ford filed post-trial motions for judgment notwithstanding the verdict and/or a new trial, arguing, inter alia, that the trial court had erred in (1) failing to rule that Dr. Frank's alleged "each and every breath" testimony was legally insufficient to establish substantial causation as a matter of law, and (2) failing to grant Ford's motion in opposition to consolidation of its case with two other mesothelioma cases. By order dated December 28, 2011, the trial court denied Ford's post-trial motions and entered judgment in favor of the Rosts.

Ford raised these same two issues on appeal to the Superior Court. In an unpublished memorandum decision, the court affirmed. On the first issue, the Superior Court concluded that Drs. Brody and Frank "provided detailed testimony about the nature of mesothelioma and its causes, backed up by published research on the subject. Their testimony was internally consistent and by the admission of Ford's own experts, supported by at least 50 asbestos scientists around the world." Rost v. Ford Motor Company, 2014 WL 2178528, at *10 (Pa. Super. May 19, 2014) (unpublished memorandum). The Superior Court further indicated that "while it is true that the 'every exposure' theory does not, by itself, meet the standard for substantial causation in a legal sense, this record is more than sufficient to establish its general scientific legitimacy." Id. With respect to consolidation, the Superior Court noted that this Court had previously instructed the Philadelphia courts of common pleas to implement procedural measures to handle the volume of mesothelioma litigation, Pittsburgh Corning Corp. v. Bradley, 453 A.2d 314, 317 (Pa. 1982), and that, as such, it did not have any authority to address procedural issues in this instance "absent a claim of violation of constitutional rights." Rost, 2014 WL 2178528, at *12.

This Court granted Ford's petition for allowance of appeal to consider the following two issues, as stated by Ford:

1. 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[?]
2. Whether the Philadelphia Court of Common Pleas' mandatory practice of consolidating unrelated asbestos cases--even where the defendants suffer severe prejudice as a result--is consistent with the Pennsylvania Rules of Civil Procedure and Due Process; whether consolidation in this case was proper; and whether the Superior Court has the authority to review a trial court's case-consolidation decisions in asbestos cases[?]

Allocatur Order, 11/6/2014, at 1.

With respect to the first issue, Ford presents two arguments. For its first argument, Ford contends that this Court has established a bright line rule in mesothelioma products liability cases: namely, that a causation expert may not, when opining on substantial causation, rely on the theory that every exposure to asbestos is substantially causative of the disease. Ford's Brief at 17. Ford argues that Dr. Frank's testimony⁵ regarding cumulative exposures, including that all of Rost's exposures to asbestos contributed to his disease and that "any exposure ... would ... be causative in the development of Mr. Rost's disease," N.T., 9/19/2011 (AM), at 82-83, 120, was "each and every breath" testimony even if he did not use those precise words or place the word "substantial" before the word "causative." Ford's Reply Brief at 5. According to

⁵ In its post-trial motions, Ford argued that the trial court erred in permitting Dr. Brody to offer "each and every breath" testimony, although it did so on competency grounds (i.e., that Dr. Brody is a cell biologist and not a medical doctor). Post-trial Motions, 10/17/2011, ¶¶ 78-79. Ford has not raised this issue on appeal.

Ford, the context surrounding Dr. Frank's statements shows that his intention was to convey to the jury that every exposure to asbestos was a substantial cause of Rost's mesothelioma. Id. at 6.

The Rosts argue, conversely, that Pennsylvania law requires that a plaintiff in a mesothelioma products liability action demonstrate that his or her exposure to asbestos was frequent, proximate and regular, and that a causation expert cannot rely merely on the proposition that every exposure to asbestos is a substantial cause of the disease. Rosts' Brief at 26-27. The Rosts posit that Dr. Frank testified in accordance with these basic principles. According to the Rosts, Ford is simply confusing, or intentionally conflating, the basic scientific axiom that "every exposure contributes" into the impermissible "every exposure is a substantial cause." Id.

Ford asks this Court to enter judgment notwithstanding the verdict in its favor or, alternatively, grant it a new trial. We will reverse a trial court's grant or denial of a request for judgment notwithstanding the verdict only when we find an abuse of discretion or an error of law. Reott v. Asia Trend, Inc., 55 A.3d 1088, 1093 (Pa. 2012); Dooner v. DiDonato, 971 A.2d 1187, 1193 (Pa. 2009). An award of judgment notwithstanding the verdict is appropriate only if, reading the record in the light most favorable to the appellees as the verdict winners, and affording them the benefit of all reasonable inferences, we would conclude that there is insufficient competent evidence to sustain the verdict. Pennsylvania Dep't of Gen. Servs. v. U.S. Mineral Products Co., 898 A.2d 590, 604 (Pa. 2006). The appellate court must reject all evidence which does not support the verdict. Fitzpatrick v. Natter, 961 A.2d 1229, 1244 (Pa. 2008). Regarding Ford's contention that the prejudice resulting from Dr. Frank's "any exposure"

testimony entitles it to a new trial, our standard of review is one of abuse of discretion. Bruckshaw v. Frankford Hosp. of City of Philadelphia, 58 A.3d 102, 106 (Pa. 2012); Harman v. Borah, 756 A.2d 1116, 1122 (Pa. 2000).

We begin with a review of our decisions in Gregg and Betz. In Gregg, the estate of John Gregg, Jr. (“Gregg”), a mesothelioma victim, sought to recover against a manufacturer and a supplier of brake products, contending that Gregg had installed and removed brake linings during his lifetime. Gregg, 943 A.2d at 219. The trial court, relying on the Superior Court’s decision in Eckenrod v. GAF Corp., 544 A.2d 50 (Pa. Super. 1988), granted summary judgment, concluding that the record at most supported Gregg’s use of asbestos-containing products sold by the defendants on two or three occasions. Id. at 52 (“Whether a plaintiff could successfully get to the jury or defeat a motion for summary judgment by showing circumstantial evidence depends upon the frequency of the use of the product and the regularity of plaintiff’s employment in proximity thereto.”). A panel of the Superior Court reversed, holding that Eckenrod did not apply when a plaintiff could offer direct testimony concerning exposure to a defendant’s products. Gregg, 943 A.2d at 220-21.

This Court granted review to consider whether the trial court erred in its application of the Eckenrod “frequency, regularity, and proximity” test on motions for summary judgment in mesothelioma cases. Id. at 221. In so doing, we recognized “the difficulties facing plaintiffs in this and similar settings, where they have unquestionably suffered harm on account of a disease having a long latency period and must prove specific causation under prevailing Pennsylvania law which may be insurmountable.” Id. at 226. Nevertheless, we concluded that these difficulties did not warrant the

indulgence “in a fiction that each and every exposure to asbestos, no matter how minimal in relation to other exposures, implicates a fact issue concerning substantial-factor causation in every ‘direct evidence’ case.” Id. at 226-27. As such, we held that an “every exposure” generalized opinion does “not suffice to create a jury question in a case where exposure to the defendant’s product is *de minimis*... .” Id. at 226.

Instead, to permit trial courts to make a reasoned determination at the summary judgment stage as to whether the plaintiff has proffered sufficient evidence to permit a jury to make the “necessary inference of a sufficient causal connection between the defendant’s product and the asserted injury,” id. at 227, we adopted the “frequency, regularity, and proximity” test, as refined and applied by the United States Court of Appeals for the Seventh Circuit in Tragarz v. Keene Corp., 980 F.2d 411 (7th Cir. 1992):

Tragarz explains that these criteria do not establish a rigid standard with an absolute threshold necessary to support liability. Rather, they are to be applied in an evaluative fashion as an aid in distinguishing cases in which the plaintiff can adduce evidence that there is a sufficiently significant likelihood that the defendant's product caused his harm, from those in which such likelihood is absent on account of only casual or minimal exposure to the defendant's product. Further, Tragarz suggests that the application of the test should be tailored to the facts and circumstances of the case, such that, for example, its application should become “somewhat less critical” where the plaintiff puts forth specific evidence of exposure to a defendant's product. Similarly, under Tragarz, the frequency and regularity prongs become “somewhat less cumbersome” in cases involving diseases that the plaintiff's competent medical evidence indicates can develop after only minor exposures to asbestos fibers.

Gregg, 943 A.2d at 225 (citing Tragarz, 980 F.2d at 421) (citations omitted).

In Betz, this Court addressed a trial court’s decision to exclude “each and every breath” expert testimony under principles derived from Frye v. United States, 293 F.

1013 (D.C. Cir. 1923). The expert witness in Betz (Dr. John C. Maddox, M.D.) testified at the Frye hearing that he did not need to know the exposure histories of mesothelioma plaintiffs to offer an opinion on causation “so long as they could establish exposure to a single fiber from each defendant’s product.” Betz, 44 A.3d at 55. We held that the trial court did not abuse its discretion in excluding this expert testimony, as it was “right to be circumspect about the scientific methodology underlying the any-exposure opinion” because it presented no “coherent methodology supporting the notion that every single fiber from among, potentially, millions is substantially causative of disease.” Id. at 53. “Simply put, one cannot simultaneously maintain that a single fiber among millions is substantially causative, while also conceding that a disease is dose responsive.”⁶ Id.

Together, Gregg and Betz establish two basic precepts important to resolution of the issues presented here. First, expert testimony based upon the notion that “each

⁶ Ford also relies upon this Court’s decision in Howard v. A.W. Chesterton Co., 78 A.3d 605 (Pa. 2013). We do not, for the reasons set forth in Justice Todd’s concurring statement in that case. In Howard, the appeal before this Court was decided by mutual consent among the parties, as the plaintiffs conceded that they could not satisfy the “frequency, regularity, and proximity” test as adopted in Gregg. Howard, 78 A.3d at 607. In a per curiam decision, however, a majority of the members of this Court nevertheless decided to summarize the “governing principles” in Gregg and Betz.

As Justice Todd properly concluded, the evidentiary concession and subsequent agreement between the parties regarding the entry of a final order in accordance therewith ended the matter. Howard, 78 A.3d at 609-10 (Todd, J., concurring). No issues remained for determination and thus the entirety of the per curiam opinion is non-precedential obiter dicta. Id. (Todd, J., concurring). Justice Todd further indicated that the majority’s decision violated “the axiom that judicial decisions are to be read against their facts, so as to prevent “the wooden application of abstract principles to circumstances in which different considerations may pertain.” Id. (Todd, J., concurring) (citing Maloney v. Valley Med. Facilities, Inc., 984 A.2d 478, 485–86 (Pa. 2009)).

Finally, we note that the majority itself recognized that its decision lacked any precedential value. Howard, 78 A.3d at 609 (“[W]e do not suggest that a per curiam order has any effect beyond that represented in Justice Todd’s responsive opinion.”).

and every breath” of asbestos is substantially causative of mesothelioma will not suffice to create a jury question on the issue of substantial factor causation. Second, to create a jury question, a plaintiff must adduce evidence that exposure to defendant’s asbestos-containing product was sufficiently “frequent, regular, and proximate” to support a jury’s finding that defendant’s product was substantially causative of the disease.⁷

Ford contends that Dr. Frank’s testimony regarding the cause of Rost’s mesothelioma violates the first precept because it rested upon an “each and every breath” theory of causation. Ford argues that Dr. Frank revealed the true nature of his testimony when he told the jury that “[w]hatever exposures you can show [Rost] had would have been contributory” and that “[t]he cumulative exposures contributed to his disease.” N.T., 9/19/2011 (PM), at 22. Ford further relies upon Dr. Frank’s indication

⁷ It is important to recognize that this Court settled on these principles based on a policy concern: that it is fundamentally unfair to hold a defendant jointly and severally liable for a mesothelioma plaintiff’s injuries for a de minimis contribution to the plaintiff’s overall exposure. Gregg, 943 A.2d at 227 (“The result, in our view, is to subject defendants to full joint and several liability for injuries and fatalities in the absence of any reasonably developed scientific reasoning that would support the conclusion that the product sold by the defendant was a substantial factor in causing the harm.”); Betz, 44 A.3d at 57 (same). Pennsylvania has now eliminated joint and several liability in most cases through amendment of the Fair Share Act, 42 Pa.C.S.A. § 7102. The Rosts’ claims accrued prior to the effective date of the amendment to the Fair Share Act (June 28, 2011).

When the Rosts’ claims accrued, joint tortfeasors in Pennsylvania, including those in products liability actions, remained jointly and severally liable for the plaintiff’s damages. Baker v. ACandS, 755 A.2d 664, 669 (Pa. 2000). Accordingly, this Court did not consider any potential countervailing policy implications to adoption of the “frequency, regularity, and proximity” test. See Gregg, 943 A.2d at 226 (citing Comment, The Threshold Level of Proof of Asbestos Causation: The “Frequency, Regularity and Proximity Test” and a Modified Summers v. Tice Theory of Burden-Shifting, 24 Capital U. L. Rev. 735, 750 (1995) (explaining that the “‘frequency, regularity and proximity’ test imposes an inappropriately high burden of proof upon many asbestos victims,” as it “distort[s] the medically proven fact that significant injury can result without ‘frequent’ or ‘regular’ exposure”)).

that he could not separate the causative effects of Rost's exposure to Ford products from those associated with other asbestos products. N.T., 9/19/2011 (AM), at 82-83.

In offering this testimony, however, Dr. Frank never indicated that a single exposure was a substantial cause of Rost's mesothelioma. Dr. Frank explained to the jury, in some detail, about the dose response relationship between exposure to asbestos and the possibility of contracting mesothelioma. Id. at 82 ("As the amount of asbestos, as the dose increases, the likelihood of developing a disease increases."). Dr. Brody offered the same opinion. N.T., 9/20/2011 (AM), at 71. In an amicus brief, fifty-eight physicians and scientists describe the fundamental notion that each exposure to asbestos contributes to the total dose and increases the person's probability of developing mesothelioma or other cancers as an "irrefutable scientific fact." Amicus Brief of Fifty-Eight Physicians/Scientists at 2. According to these physicians and scientists, cumulative exposure is "merely an extension of the ancient concept of dose-response, which is the "oldest maxim in the field." Id. at 12 (citing Bernard D. Goldstein, Toxic Torts: The Devil is in the Dose, 16(2) J.L. & Pol'y. 551 (2008)). At the same time, while the threshold level of asbestos exposure for developing mesothelioma is unknown (and unquestionably varies by individual susceptibility), it is well-established that mesothelioma can occur in cases with relatively low exposure levels. N.T., 9/19/2011, at 83.

Similarly, Dr. Frank's testimony regarding the inability to separate the causative effects of different exposures to asbestos was an effort to convey certain scientific limitations to the jury. Dr. Brody concurred, testifying, "You can't just pick out one and

say, 'This exposure caused this set of errors.' You can't do that. It's just not possible." N.T., 9/20/2011 (AM), at 71.

We must agree with the Rosts that Ford has confused or conflated the "irrefutable scientific fact" that every exposure cumulatively contributes to the total dose (which in turn increases the likelihood of disease), with the legal question under Pennsylvania law as to whether particular exposures to asbestos are "substantial factors" in causing the disease. It was certainly not this Court's intention, in either Gregg or Betz, to preclude expert witnesses from informing juries about certain fundamental scientific facts necessary to a clear understanding of the causation process for mesothelioma, even if those facts do not themselves establish legal (substantial factor) causation. In this case, while Dr. Frank clearly testified that every exposure to asbestos cumulatively contributed to Rost's development of mesothelioma, he never testified that every exposure to asbestos was a "substantial factor" in contracting the disease.

Instead, by way of, inter alia, the lengthy hypothetical that detailed the entirety of Rost's exposure to asbestos-containing Ford products while at Smith Motors, Dr. Frank testified that Rost's **actual exposures** to asbestos at Smith Motors over three months was substantially causative of his mesothelioma. N.T., 9/19/2011 (AM), at 121. In other words, Dr. Frank did not testify that a single breath of asbestos while at Smith Motors caused Rost's mesothelioma, but rather that the entirety of his exposures during the three months he worked there caused his disease. In this regard, Dr. Frank stressed that, unlike with some other asbestos-related diseases (e.g., asbestosis), mesothelioma may develop after only relatively small exposures. Id. at 83. Moreover, in offering his

testimony on the issue of legal (substantial factor) causation, Dr. Frank testified strictly in accordance with this Court's dictates in Gregg and Betz -- namely, that Rost's exposures to asbestos at Smith Motors were sufficiently **frequent, regular, and proximate** to permit the inference that these exposures were substantially causative. Id. at 111-17. Dr. Frank reviewed the nature of the multiple exposures to asbestos at Smith Motors (e.g., removing brake shoe linings, his proximity to mechanics blowing out brake drums, sanding brakes, replacing clutches, replacing head gaskets, and sweeping up the dust and debris at the end of each day⁸), id., and the length of time the exposure continued (in excess of three months, while noting studies showing that a single month of regular exposure to asbestos can double one's likelihood of developing mesothelioma). Id. at 84. He also reviewed Rost's exposure history elsewhere, acknowledging that his exposures at Metropolitan Edison were also causative of his disease. Id. at 122. Given all of this information, Dr. Frank testified that the totality of Rost's exposure to asbestos at Smith Motors, standing alone, was sufficient to have caused his mesothelioma, even if there had been no other exposures (at Metropolitan Edison or elsewhere).

⁸ As previously indicated, Dr. Frank also found it significant that Rost wore his dust covered clothes home each day, which may have resulted in the deposit of asbestos fibers in the Rost home, thus extending the length of his exposure. N.T., 9/19/2011 (AM), at 118-19. In one case, Dixon v. Ford Motor Company, 70 A.3d 328 (Md. 2013), the Court of Appeals of Maryland found no abuse of discretion in a trial court's finding that a wife's exposure to, inter alia, asbestos fibers on her husband's work clothes was sufficiently "frequent, regular, and proximate" to submit the issue of causation to the jury. Id. at 355 (holding that "because the asbestos fibers brought in on each occasion remained in the home for a considerable period of time, the exposure was continuous and cumulative in effect").

Unlike the expert witness in Betz, who unabashedly offered “each and every breath” testimony, in this case Dr. Frank relied upon a generally accepted methodology, taking into consideration exposure history, individual susceptibility, biological plausibility, and relevant scientific evidence (including epidemiological studies).⁹ Brief of Fifty-Eight Physicians/Scientists at 6. Moreover, per Gregg, his testimony regarding the frequency, regularity and proximity of Rost’s exposures to asbestos while at Smith Motors provided a sufficient basis to create a jury question regarding the existence of a causal connection between his exposure to asbestos-containing Ford products and the subsequent development of mesothelioma. In Gregg, this Court adopted the “frequency, regularity, and proximity” test as a refinement to the substantial factor requirement for proving causation in mesothelioma cases. In the context of expert testimony on substantial factor causation, Gregg provides **the** legal test, not an additional legal test, for proving substantial factor causation in cases involving disease resulting from asbestos exposure.

For its second argument in support of its first issue on appeal, Ford contends that this Court in Betz established another test, in addition to “frequency, regularity, and

⁹ Indeed, we agree with the Superior Court’s observation that

this record is nearly the mirror image of that described in Betz. The Rosts’[] experts provided detailed testimony about the nature of mesothelioma and its causes, backed up by published research on the subject. Their testimony was internally consistent, and by the admission of Ford’s own experts, supported by at least 50 asbestos scientists around the world. In contrast, Ford’s expert’s critiques were at times internally inconsistent and generally consisted of subjective beliefs that had not been subjected to peer-review by the appropriate scientific community.

Rost, 2014 WL 2178528, at *10.

proximity,” that plaintiffs in mesothelioma cases must meet to establish substantial factor causation. In Betz, this Court noted that the expert in that case (Dr. Maddox) indicated that individual exposures differ “in the potency of the fiber to which an individual is exposed, to the concentration or intensity of the fibers to which one is exposed, and to the duration of the exposure to that particular material.” Betz, 44 A.3d at 56. These considerations, according to Dr. Maddox, go into “trying to estimate the relative effects of different exposures” and are “required for causal attrition as a matter of science.” Id. at 56, 58. Based upon this language in Betz, Ford argues that a causation expert in a mesothelioma case must compare all of the plaintiff’s exposures to asbestos over his or her lifetime to “determine which among a plaintiff’s exposures substantially caused mesothelioma.” Ford’s Reply Brief at 11-12. According to Ford, the “question for an expert is not whether plaintiff’s exposure to a given product is ‘substantial’ standing alone, but whether exposure to that product is a substantial cause in light of other exposures.” Id. at 12. Because Dr. Frank did not compare Rost’s exposures at Smith Motors with his exposures at Metropolitan Edison (including fiber type, intensity and duration), Ford insists that his testimony failed to satisfy this second test. Id. at 12.

Ford misconstrues our decision in Betz for several reasons. First, Betz did not involve any consideration of multiple asbestos exposures or any attempts to parse causally significant exposures from de minimis exposures. Instead, in Betz we addressed a trial court’s exclusion of “each and every breath” expert testimony after a Frye hearing. In so doing, we expressly disregarded the appellant’s contention that we should take into consideration that his four-decade history as an auto mechanic was

“not a case of a de minimis occupational exposure.” Betz, 44 A.3d at 55. We indicated that because the expert (Dr. Maddox) testified that his opinion on causation did not depend upon any knowledge of a plaintiff’s exposure history, our consideration of the issue presented would proceed without regard to the appellant’s actual exposure to asbestos. Id. Since no issues associated with multiple exposures were before the Court, Betz could not and did not add a significant new requirement for plaintiffs to establish substantial factor causation in cases involving multiple asbestos exposures. Because the issue was not presented, any attempt to create such an additional legal hurdle would have been mere obiter dicta. *See generally* Rendell v. Pennsylvania State Ethics Comm'n, 983 A.2d 708, 714 (Pa. 2009) (holding that statements which were “unnecessary to the resolution of the controversy” were non-binding dicta).

Second, Ford takes the relevant language in Betz, specifically that a “comparative assessment of impact among differing exposures ... is required for causal attrition ... under Pennsylvania law,” Betz, 44 A.3d at 58, out of context. This language in Betz was intended to disabuse the Superior Court from any further reliance upon a statement in Tragarz that where “there is competent evidence that one or a *de minimis* number of asbestos fibers can cause injury, a jury may conclude the fibers were a substantial factor in causing a plaintiff’s injury.” Id. (quoting Tragarz, 980 F.2d at 421). Of course, in Betz we merely reaffirmed our holding in Gregg that, contrary to the quoted statement in Tragarz, causation experts may not testify that a single exposure (i.e., “one or a de minimis number of asbestos fibers”) is substantially causative. Id. at 56-57; Gregg, 943 A.2d at 226-27. Rather than offering “each and every breath” theoretical constructs, causation experts must provide concrete testimony of causal

attribution by assessing the frequency, regularity, and proximity of the plaintiff's exposure to the defendant's product. Gregg, 943 A.2d at 226-27. This assessment, in turn, requires a focus on the precise nature of the plaintiff's exposure **to the defendant's product**, not on other asbestos-containing products. As we advised in Gregg, the Tragarz "frequency, regularity, and proximity" factors should be applied "in an evaluative fashion as an aid in distinguishing cases in which the plaintiff can adduce evidence that there is a sufficiently significant likelihood that the defendant's product caused his harm." Id. at 225; see also Lindstrom v. A-C Prod. Liab. Trust, 424 F.3d 488, 493 (6th Cir. 2005) ("The requirement ... is that the plaintiff make a showing with respect to each defendant that the defendant's product was a substantial factor in plaintiff's injury."). Moreover, we indicated that, consistent with Tragarz, application of the factors becomes "somewhat less critical" where the plaintiff puts forth specific evidence of exposure to a defendant's product, and that the frequency and regularity prongs become "somewhat less cumbersome" in cases involving diseases that the plaintiff's competent medical evidence establishes can develop after only minor exposures to asbestos fibers. Gregg, 943 A.2d at 225.¹⁰

In this case, Rost's testimony confirmed his frequent, regular and proximate exposures to asbestos from Ford products while at Smith Motors, and Dr. Frank, in part through the hypothetical question incorporating this exposure history, opined within a reasonable degree of medical certainty that the exposures at Smith Motors were

¹⁰ As applied to this case, all three factors are "somewhat less critical" because Rost put forth specific evidence of direct exposure to Ford's product, and the frequency and regularity prongs become "somewhat less cumbersome" because Rost's competent medical evidence established that mesothelioma can develop after only minor exposure to asbestos fibers.

sufficient, in and of themselves, to cause Rost's mesothelioma.¹¹ Comparison of Rost's other occupational exposures to asbestos was unnecessary. We are unaware of any state or federal court that requires such a comparison. While some states continue to permit "each and every breath" testimony, e.g., Morin v. AutoZone Ne., Inc., 943 N.E.2d 495, 500 (Mass. App. 2011); Weakley v. Burnham Corp., 871 A.2d 1167, 1177 (D.C. Ct. App. 2005); Purcell v. Asbestos Corp. Ltd., 959 P.2d 89, 94 (Or. App. 1998); Sheffield v. Owens-Corning Fiberglass Corp., 595 So.2d 443, 456 (Ala. 1992), the majority of state and federal courts have adopted the "frequency, regularity, and proximity" test.¹² See Holcombe v. Georgia Pacific, LLC, 289 P.3d 188, 195 (Nev. 2012) ("The majority of the federal circuits and state courts addressing this question have chosen to apply" the "frequency, regularity, and proximity" test to "determine whether the plaintiff has satisfied his burden of showing that a specific defendant's products caused his disease.") (citing Charles T. Greene, Determining Liability in Asbestos Cases: The

¹¹ While not required to do so, Dr. Frank included in his assessment the three factors that Dr. Maddox referenced in Betz. See Betz, 44 A.3d at 56, and discussion supra at 21. He considered the potency of chrysotile asbestos fibers, testifying that while amphibole fibers are more potent, "there really should be no question that chrysotile fibers can cause mesothelioma," in part based upon their superior ability to reach the pleura more quickly and in greater quantities. N.T., 9/19/2011, at 90-95. He considered the intensity of Rost's exposures, including the potential for blowouts of brake drums to generate seventeen chrysotile asbestos fibers per cubic centimeter of air, with elevated levels up to sixty feet away (well within the range where Rost was typically situated). Id. at 100. And he testified regarding the duration of Rost's exposure while at Smith Motors (in excess of three months), referencing case reports revealing that consistent exposure to asbestos for even one month could double a person's risk of developing mesothelioma. Id. at 82-84.

¹² Virginia appears to have developed its own test, requiring proof that the illness would not have occurred without exposure to the defendant's asbestos or that exposure to the defendant's asbestos was independently sufficient to cause the illness." Ford Motor Co. v. Boomer, 736 S.E.2d 724, 732 (Va. 2013).

Battle to Assign Liability Decades After Exposure, 31 Am. J. Trial Advoc. 571, 572 (2008)). Not even Texas, which employs the most stringent test of any state, requiring detailed expert testimony to establish the precise extent and intensity of the plaintiff's exposure to the defendant's product (including the approximate quantum of fibers actually inhaled), insists upon a similarly detailed analysis of the plaintiff's lifetime exposure to **other** asbestos-containing products. See Bostic v. Georgia-Pacific Corp., 439 S.W.3d 332, 338 (Tex. 2014). Our decisions in Gregg and Betz aligned Pennsylvania with the majority of other courts adopting the "frequency, regularity, and proximity" test.

The focus on Rost's exposures to Ford's products at Smith Motors, rather than on other lifetime exposures, is also consistent with Pennsylvania law on substantial factor causation. To establish proximate causation, a plaintiff must adduce evidence to show that the defendant's act was a substantial factor in bringing about the plaintiff's harm. Jones v. Montefiore Hospital, 431 A.2d 920, 923 (Pa. 1981); Ford v. Jeffries, 379 A.2d 111, 114 (Pa. 1977) ("[T]he issue is whether the defendant's conduct was, on the one hand, a 'substantial factor' or a 'substantial cause' or, on the other hand, whether the defendant's conduct was an 'insignificant cause' or a 'negligible cause.'"). This Court has consistently and without exception held that issues of causation are matters of fact for the jury to decide:

Whether in a particular case that standard [plaintiff's burden of proof with the preponderance of the evidence] has been met with respect to the element of causation is normally a question of fact for the jury; the question is to be removed from the jury's consideration only where it is clear that reasonable minds could not differ on the issue. ... [I]t is enough that reasonable minds are able to conclude that the preponderance of the evidence shows defendant's conduct

to have been a substantial cause of the harm to plaintiff.

Hamil v. Bashline, 392 A.2d 1280, 1284–85 (Pa. 1978); see also Vattimo v. Lower Bucks Hosp., Inc., 465 A.2d 1231, 1234 (Pa. 1983) (holding that where reasonable minds may differ, questions of causation are for the jury); Topelski v. Universal South Side Autos, Inc., 180 A.2d 414, 419 (Pa. 1962) (holding that where “reasonable difference of opinion as to whether the defendant's act was the, or a proximate cause of, the injury, the matter is for the jury to decide”).

Indeed, in Summers v. Certaineed Corp., 997 A.2d 1152 (Pa. 2010), this Court held that if a plaintiff presents an expert opinion, within a reasonable degree of medical certainty, that his or her debilitating injuries were caused, at least in part, by occupational exposure to asbestos, the issue of substantial causation is for the jury to decide, even if the evidence also presented other causative forces of lung disease (e.g., a history of cigarette smoking). Id. at 1164-65. In ruling that our law regarding proof of substantial causation is the same for exposure to asbestos as it is in other tort contexts, we held that “under this Commonwealth’s jurisprudence, where it is clear that reasonable minds could differ on the issue of causation, precluding asbestos litigants from pursuing causes of action, supported by competent medical evidence, merely because of the existence of competing health conditions, is unsustainable.” Id. at 1165. We further noted that this Court has issued a “plethora of decisions ... that require juries to resolve competing theories of causation,” id. at 1165 n.19, and “we now instruct juries on the very idea of competing issues of factual causation.” Id. at 1165 n.19 (citing Pa.SSJI (Civ) §§ 3.15 (“The defendant’s conduct need not be the only factual cause. The fact that some other causes concur ... does not relieve the defendant of

liability”); 8.04B (instructing that, in a strict products liability action, when a defendant manufacturer proffers a different factual cause of the sustained injury, “the manufacturer has the burden of proving by a fair preponderance ... that the plaintiff’s injuries are divisible and [the defective product] did not contribute to this particular injury.”)).

In Gregg, this Court held that in asbestos products liability cases, evidence of “frequent, regular, and proximate” exposures to the defendant’s product creates a question of fact for the jury to decide.¹³ Gregg, 943 A.2d at 226-27. This Court has never insisted that a plaintiff must exclude every other possible cause for his or her

¹³ Contrary to the dissenting opinion of Justice Baer, this Court in Gregg did not promote the necessity of a comparative assessment for purposes of substantial causation, or otherwise suggest that the “frequency, regularity, and proximity” test was part of a comparative assessment of differing exposures. Dissenting Op. at 4 (Baer, J., dissenting). To the contrary, as explained hereinabove, in Gregg we adopted the three-pronged test for substantial causation as it was set forth and described in the Seventh Circuit’s decision in Tragarz. Gregg, 943 A.2d at 226-27 (“We agree with the Tragarz court’s approach and adopt it here.”). In Tragarz, the Seventh Circuit specifically rejected any notion that its test requires a comparative analysis of different exposures to asbestos, and instead made clear that the focus must be on the level of exposure to the defendant’s product:

Suppose a plaintiff shows that the amount of exposure that it received from defendant A’s asbestos product was alone sufficient to cause mesothelioma. If such a plaintiff was not exposed to any other products, the plaintiff would have sufficient evidence to support a finding that but for exposure to the defendant A’s product the plaintiff would not have gotten ill. On the other hand, under [a comparative approach], if the plaintiff was exposed to numerous other asbestos products, the plaintiff might not be able to prove cause in fact in a suit against defendant A because the same exposure to defendant A’s product might not be substantial in comparison to the exposure to the other products. **Such a result does not promote the purposes of the substantial factor test, which is aimed at alleviating the inequities that result when applying the but-for test in a multi-defendant case, not at creating such inequities.**

Tragarz, 980 F.2d at 425 (emphasis added).

injury, and in fact, we have consistently held that multiple substantial causes may combine and cooperate to produce the resulting harm to the plaintiff. See, e.g., Harsh v. Petroll, 887 A.2d 209, 218 (Pa. 2006); Powell v. Drumheller, 653 A.2d 619, 622 (Pa. 1995); Hamil, 392 A.2d at 1284–85 (“In establishing a [p]rima facie case [of substantial causation], the plaintiff need not exclude every possible explanation ...”). Rost’s expert testified unequivocally that exposures to Ford’s products were a substantial factor in causing Rost’s mesothelioma. Given the further scientifically irrefutable testimony of Drs. Frank and Brody that the threshold level of exposure to asbestos for developing mesothelioma is very low and that the disease may be caused by a series of exposures over a short period of time, N.T., 9/19/2011 (AM), at 84-85; N.T., 9/20/2011 (AM), at 71, it is hardly surprising that exposure to multiple asbestos-containing products will lead a fact-finder to decide that there were multiple substantial factors causative of a plaintiff’s mesothelioma. In this case, the jury found that Rost’s exposures to **four** asbestos-containing products were substantially causative of Rost’s disease, including Ford’s products at Smith Motors and three other products used at Metropolitan Edison.

The learned dissenting justices are of the view that our jurisprudence in asbestos-related cases has created exceptions to substantial factor causation principles beneficial to plaintiffs. Dissenting Op. at 3-4 (Saylor, C.J., dissenting). Having excluded the proffered expert scientific testimony on substantial factor causation in Gregg in favor of the “frequency, regularity and proximity” approach in Tragarz, the dissenting justices now recommend that, based upon obiter dicta in Betz, we retreat from the “frequency, regularity and proximity” standard for substantial causation and instead erect even more onerous obstacles to recovery. Minimizing “frequency, regularity and proximity” as

mere risk assessment (or, even worse, as nothing more than a guideline for establishing product identification), and contrary to the holding in Gregg that the Tragarz approach provides the jury with “the necessary inference of a sufficient causal connection between the defendant’s product and the asserted injury,” Gregg, 943 A.2d at 227, the dissenting justices now insist that the Tragarz approach is insufficient to protect defendants in asbestos cases from liability. Dissenting Op. at 14 (Saylor, C.J., dissenting) (“After all, the [Tragarz] test is undeveloped in terms of metrics or degree-based standards of any kind and, in cases involving mesothelioma, tends to devolve into the any-exposure theory.”). Rather than the “frequency, regularity and proximity” test adopted in Gregg, the dissenting justices contend that experts in all asbestos-related disease cases should be required, at a minimum, to quantify the plaintiff’s dose from the defendant’s product as well as the cumulative dose from all exposures (which would in turn require a detailed quantification of all of the plaintiff’s lifetime exposures), and the jury must then compare these quantifications when considering substantial causation. Id. at 6-15 (Saylor, C.J., dissenting); see also id. at 7 n.6 (“Dr. Frank made no attempt to even roughly quantify either the dose experienced by Mr. Rost at Smith Motors or his cumulative exposure or dose.”).

There are several overarching problems with this proposal. First, on this record, there is substantial doubt whether such quantification is possible. According to the brief of the amicus physicians and scientists, “[t]o require quantification where it is almost always impossible and unnecessary to do so, would be a public health travesty. That is, this would have the effect of creating an impossible burden of proof, and no claim would be able to meet this impossible standard” Amicus Brief of Fifty-Eight

Physicians/Scientists at 9. Moreover, Dr. Frank testified that it is not scientifically possible to quantify the precise quantity of asbestos inhalation that is required to initiate the disease process or to identify the particular exposure or exposures that caused the disease. N.T., 9/19/2011 (AM), at 83, 121-22; see also N.T., 9/20/2011 (AM), at 71 (Dr. Brody).

Second, the goal in a comparison of lifetime exposures could only be to determine **which** exposure to asbestos was the **most** causative of plaintiff's mesothelioma. At bottom, the contention of the dissenting justices is that Rost's exposure to asbestos at Metropolitan Edison, given its longer duration, was more causative than was his shorter exposure at Smith Motors, thereby precluding recovery against Ford. As explained hereinabove, however, multiple asbestos-containing products may be substantial factors causative of a plaintiff's mesothelioma. It is for the finder of fact, and not the courts, to make these determinations regarding substantial causation.

Third, given Dr. Frank's testimony in this case, such a comparison is entirely unnecessary. As reviewed hereinabove, Dr. Frank testified that the totality of Rost's exposures to asbestos at Smith Motors, **standing alone**, was sufficient to have caused his mesothelioma, **even if there had been no other exposures**. N.T., 9/19/2011 (AM), at 121. As a result, Rost's other exposures to asbestos (at Metropolitan Edison and elsewhere) were irrelevant to the jury's consideration of substantial causation in this case. The dissenting justices' concern about whether the jury could understand whether the bucket of water was placed in a bathtub or an ocean, Dissenting Op. at 10

(Saylor, C.J., dissenting), misses the mark entirely, since Dr. Frank testified that Rost's exposures at Smith Motors, without more, were sufficient to cause his cancer.

Pursuant to Gregg and Betz, for all exposures to asbestos that satisfy the "frequency, regularity, and proximity" test, when coupled with competent medical testimony establishing substantial factor causation, it is for the jury to decide the question of substantial causation. The dissenting justices implicitly concede that the Rosts satisfied these requirements, but simply cannot square Dr. Frank's expert opinion on the low quantum of asbestos exposure sufficient to cause mesothelioma with opposing views on how mesothelioma is caused. See Gregg, 943 A.2d at 228 (Cappy, C.J., dissenting). To bridge this apparent gap, the dissenting justices seek to place on plaintiffs in asbestos disease cases an evidentiary burden not borne by plaintiffs in other tort actions. Plaintiffs in other tort actions have no obligation to eliminate every other potential cause of the development of disease through a ranking of different exposures by type and duration. See, e.g., Jones, 431 A.2d at 923 ("A plaintiff need not exclude every possible explanation"). Instead, in other cases it is for a defendant challenging a plaintiff's evidence of substantial causation to bring to the jury's attention other potential causes, both through cross-examination and contrary expert testimony, and in so doing attempt to convince the jury that the defendant's product was not substantially causative of the plaintiff's disease.

The record in the present case reflects that Ford did precisely this, through its lengthy cross-examination of Dr. Frank focusing on, inter alia, Rost's other exposures to asbestos (including at Metropolitan Edison) and a detailed review of published studies regarding the incidence of asbestos-related disease related to exposure to chrysotile

asbestos in brakes. N.T., 9/19/2011 (P.M.), at 16-55. Ford also called two expert witnesses in efforts to discredit and contradict Dr. Frank's testimony, including Dr. Michael Graham, M.D., a professor of pathology at St. Louis University, and Dr. Herman Gibb, Ph.D., who worked at the United States Environmental Protection Agency for more than thirty years. Drs. Graham and Gibb both opined at length that Rost's exposure to chrysotile asbestos from Ford products was not causative of his mesothelioma and that instead his occupational exposure to asbestos while at Metropolitan Edison (which included exposure to amphibole asbestos) was responsible for his contraction of the disease. N.T., 9/20/2011 (P.M.), at 62-114); N.T., 9/27/2011, at 100-146.

As reflected by its verdict, the jury credited the testimony of Dr. Frank rather than that of Drs. Graham and Gibb. Because we conclude, based upon our review of the record, that the Rosts presented sufficient evidence to satisfy the "frequency, regularity, and proximity" test and Dr. Frank provided competent medical testimony establishing substantial factor causation, we conclude that the trial court did not err in submitting the issue of substantial causation to the jury and in denying Ford's motions for non-suit, judgment notwithstanding the verdict, and for a new trial.

With respect to its second issue on appeal, Ford objects to the trial court's decision to consolidate its case for trial with two other mesothelioma cases, Estate of Wasekanes v. Sears, in which the plaintiff alleged that exposure to asbestos while changing brakes sold by Sears caused his mesothelioma, and Graver v. Foster Wheeler Corporation, in which the plaintiff alleged that occupational exposure to a boiler built by Foster Wheeler caused his mesothelioma. Ford contends that the local practice of

mandatory consolidation of asbestos cases was contrary to statewide consolidation practices under Rule 213(a) of the Pennsylvania Rules of Civil procedure, which requires a discretionary analysis based upon, inter alia, commonality of fact or law.¹⁴ Ford's Brief at 43-45. Ford further claims that the trial court's refusal to sever its case for trial violated its constitutional rights to due process, as the introduction of evidence and argument in the other cases contrary to Ford's defense in the present case resulted in prejudice. Id. at 58-63. Finally, Ford argues that the Superior Court erred in refusing to review Ford's challenge to consolidation on appeal. Id. at 53.

At the time of trial in this case (September 2011), the Philadelphia Court of Common Pleas followed an apparently unwritten policy¹⁵ of mandatory consolidation of mass tort and asbestos cases based (apparently) solely upon the type of disease at issue. When, at the outset of trial, Ford reasserted its prior requests to sever its case,

¹⁴ Ford also claims that the mandatory consolidation policy is inconsistent with Rule 213(a) of the Pennsylvania Rules of Civil Procedure and, as such, the trial court encroached on this Court's exclusive powers under Article V, Section 10(c) of the Pennsylvania Constitution governing practice in our state courts. Ford did not raise this issue in its post-trial motions or before the Superior Court, however, and thus has not been preserved it for appeal. Pa.R.A.P. 302(a). Even if this issue had been preserved for appeal, this Court did not grant allocatur to consider it. Commonwealth v. Hacker, 15 A.3d 333, 336 n.6 (Pa. 2011).

¹⁵ As of 2011, the policy had not been promulgated into a local rule or included in the court's published regulations. The common pleas court first adopted a formal consolidation policy in 2012, with the issuance of General Court Regulation 2012-01, which was amended a year later in General Court Regulation 2013-01. Pursuant to 2013-01, asbestos cases may be consolidated for trial only after consideration of, inter alia, the law (by state) to be applied, the identical nature of the disease (mesotheliomas, lung cancers, other cancers, non-malignancy cases), counsel in the same law firm, and Fair Share Act applicability. The court may also consider "other factors as determined appropriate in weighing whether all parties to the litigation receive a prompt and just trial." The court's backlog of asbestos cases "shall not be an overriding factor in the consolidation determination."

the trial court again denied the request, stating that “[w]e have all been doing it for years.” N.T., 9/12/2011 (AM), at 21. When Ford reasserted its request to sever again on the fifth day of trial, the trial court responded, “We don’t sever cases.” N.T., 9/16/2011 (AM), at 81. In its written opinion pursuant to Rule 1925 of the Pennsylvania Rules of Appellate Procedure, the trial court defended its ruling by noting that “in Philadelphia, we have been doing so for years.” Trial Court Opinion, 12/28/2011, at 5.

We agree with Ford that this was error. Rule 213(a) provides that cases may be consolidated only if they “involve a common question of law or fact or which arise from the same transaction or occurrence.” Pa.R.C.P. 213(a). This Court has long held that Rule 213 only permits (rather than requires) the consolidation of cases, and that “the matter of consolidation rests in the sound discretion of the court” Ragano v. Socony Vacuum Oil Co., 101 A.2d 686, 687 (Pa. 1954). The record in this case does not reflect that the trial court exercised any discretion with respect to either the consolidation of the three cases at issue, or in connection with Ford’s requests to sever the Rost case from the Wasekanes and Graver cases.

We likewise agree with Ford that the Superior Court’s refusal to review the trial court’s consolidation rulings was error. The Superior Court based its decision upon Pittsburgh Corning Corp. v. Bradley, 453 A.2d 314 (Pa. 1982). In Bradley, this Court denied a request for a writ of prohibition challenging a 1982 local regulation establishing a program of non-jury trials for asbestos-related claims, with a separate right to a de novo jury trial thereafter. Id. at 315. Given the heavy backload of such cases, this Court did not reach the issue of whether the court of common pleas had the authority to promulgate the regulation, and instead permitted the policy to remain in effect, subject

to our close supervision, as it promoted “the efficient disposition of asbestos cases without unfairly depriving any litigant of an opportunity to obtain a full and fair adjudication of his rights.” Id. at 318.

Based upon our decision in Bradley, the Superior Court determined that it had no authority “to address procedural issues such as this absent a claim of violation of constitutional rights.” Rost, 2014 WL 2178528, at *12. Our decision in Bradley, however, did not preclude appellate review of abuse-of-discretion determinations relating to consolidation of cases for trial. To the contrary, it merely permitted the continuation of a particular procedure (not the one at issue here) designed to expedite the resolution of asbestos-related cases. Bradley, 453 A.2d at 318. We plainly did not hold that the trial court was free to adopt any other such procedures (even if inconsistent with statewide consolidation rules), and we neither said nor suggested that we intended to eliminate intermediate appellate court review of consolidation decisions.

Whether Ford is entitled to relief in the form of a new trial for these errors, or on its claim of a violation of its constitutional rights to due process, depends upon whether Ford was prejudiced by the consolidation. Com., Dep’t of Gen. Servs. v. U.S. Mineral Products Co., 956 A.2d 967, 970 (Pa. 2008) (“The governing review principles require the award of a new trial only where a trial court has committed an error of law or abuse of discretion which may have affected the verdict.”); Boyle v. Independent Life Truck, Inc., 6 A.3d 492, 494-95 (Pa. 2010); Harman ex rel. Harman v. Borah, 562 455, 467, 756 A.2d 1116, 1122 (Pa. 2000). Ford claims that it was prejudiced in three ways. First, consolidation “stripped away Ford’s ability to cross-examine adverse witnesses,” including in particular Dr. James Millette, a plaintiffs’ expert in the Wasekanes case who

used tests of Ford brakes to explain his research into asbestos release from brakes. Ford's Brief at 38. Second, Ford contends that the defendants in the three cases all pursued different defense theories at trial. In the Graver case, for example, Foster Wheeler attempted to prove that the plaintiff's exposure to its boiler did not cause the plaintiff's mesothelioma, which Ford argues was inconsistent with its attempt to demonstrate that Rost's exposure to the boilers at Metropolitan Edison was the cause of his mesothelioma. Id. at 40-41. Ford similarly complains that an expert witness called by Sears (Dr. Andrew Sporn) testified that epidemiological research might be different for professionals (as opposed to amateurs) who work on brakes, which the jury could have understood as an indirect reference to Rost's work at Smith Motors. Id. In addition, Ford complains that in closing arguments, counsel for Sears attempted to distinguish itself as a mere retailer of brakes, in contrast to a manufacturer of such products. Id. at 41-42. Third, Ford insists that consolidation of three cases without any significant factual overlap confused the jury. Id. at 42-43.

Based upon our review of the record, we find little support for these arguments. With respect to Dr. Millette, contrary to Ford's contentions, the trial court offered Ford the opportunity to cross-examine him, but Ford declined to do so. N.T., 9/16/2011 (AM), at 84. In addition, the trial court instructed the jury that Dr. Millette's testimony could "in no way" be "attributed to Ford in the Rost case."¹⁶ Id. at 133.

¹⁶ The dissenting justices reference a short segment of testimony from the closing argument of counsel for Sears in the Wasekanes case as the "tipping point" for prejudice against Ford. Dissenting Op. at 16 (Saylor, C.J., dissenting). Viewed in context, however, counsel's reference to a "grand conspiracy" was, if anything, more favorable to Ford than it was prejudicial. Sears' counsel referred to the alleged "grand conspiracy" sarcastically, as part of an effort to discredit Dr. Millette's credibility with (continued...)

While it is true that Foster Wheeler contended that the boiler it constructed in the 1950s was not a cause of the mesothelioma in the Graver case, its argument was based principally upon the timing of the plaintiff's exposure -- well after the asbestos in the boiler would have been replaced. N.T., 10/5/2011, at 221-23. Foster Wheeler did not argue that asbestos in boilers could not cause mesothelioma, and thus, there was no inconsistent defense prejudicial to Ford's efforts to show that asbestos-containing boilers at Metropolitan Edison were substantially causative of Rost's mesothelioma. Likewise, Dr. Sporn's testimony was not, as a whole, prejudicial to Ford, as he testified, consistently with Ford's own experts, that chrysotile asbestos fibers from brakes do not cause mesothelioma. N.T., 9/26/2011 (PM), at 32. In any event, Ford did not object to any portion of Dr. Sporn's testimony, or to the relevant portions of closing arguments by counsel for Sears.

With regard to its final claim of prejudice, that consolidation of the three cases led to jury confusion, Ford cites to academic research indicating that consolidation generally favors plaintiffs, as results suggest that where two or three cases are consolidated for trial, plaintiffs are fifteen percent more likely to prevail than in individual trials. Ford's Brief at 42. Moreover, Ford contends that the jury was clearly confused in this case, as during deliberations it asked the trial court to be advised of Rost's last annual income, even though no claim for lost wages had been asserted. Id. at 43. Based upon our

(...continued)

regard to a contention that studies showing no increase in risk of contracting asbestos-related disease from exposure to chrysotile asbestos in friction brake products had been industry financed. Counsel immediately followed his "grand conspiracy" remark (to which Ford did not object) by reminding the jury that Dr. Millette had himself performed studies (referenced in his testimony against Sears) that had been financed by plaintiffs' attorneys. N.T., 10/5/2011, at 156-58.

review of the record, however, we find no evidence of any significant jury confusion. The trial court repeatedly instructed the jury to treat each of the cases individually and to apply the evidence in each case separately to decide it on its own merits. See, e.g., N.T., 8/12/2011, at 134¹⁷; N.T., 10/6/2011 (AM), at 12. The question regarding Rost's last annual income is not any clear indication of jury confusion. During deliberations, the jury asked a number of questions in connection with each of the three cases, all reasonably related to the issues in the case at issue. Moreover, there is no indication that the jury included lost wages in its award to the Rosts. Ford did not propound jury interrogatories.

In the absence of any demonstrable prejudice to Ford resulting from consolidation, no basis exists to conclude that the trial court erred in denying Ford a new trial. As a result, no relief is due on Ford's second issue on appeal.¹⁸

¹⁷ Immediately upon the swearing of the jury, the trial court advised its members as follows:

Now, keep in mind, I'm going to be emphasizing this from the beginning, you're sitting on three separate cases. So what you do in one case doesn't follow you are going to do the same thing in the other case. You've got to analyze all three cases separately, and that's what your function will be in the trial or trials, if you want to use it that way.

N.T., 8/12/2011, at 134.

¹⁸ The Rosts filed an "Application to Supplement the Record on Appeal," seeking to supplement the original record with non-privileged documents that Ford allegedly failed to produce during discovery that are supportive of Dr. Frank's testimony. We will deny the application, as these documents were not before the trial court at the time of its decisions relating to Dr. Frank's testimony, and were not a part of the record on appeal when the Superior Court rendered its decision. Rule 1921 of the Pennsylvania Rules of Civil Procedure generally limits the contents of the original record to items before the lower courts at the time of decision. Pa.R.A.P. 1921 (describing the record on appeal as containing "original papers and exhibits filed in the lower court, ... the transcript of proceedings, if any, ... and a certified copy of the docket entries..."). Also, while (continued...)

Judgment affirmed.

Justices Todd, Dougherty and Wecht join the opinion.

Chief Justice Saylor and Justice Baer file dissenting opinions.

(...continued)

Pa.R.A.P. 1926 permits appellate courts to correct omissions in the original record, such corrections must be directed to ensuring that “the record truly discloses what occurred in the trial court.” See *generally Fotta v. Workmen’s Compensation Appeal Board*, 626 A.2d 1144, 1147 n.2 (Pa. 1993) (refusing to consider a revised medical report not considered by the tribunals below).

op. at 17 (discussing the present record as it relates to the inability to distinguish causative effects of different exposures). For example, the plaintiff's experts acknowledged the human body's substantial efficiency in removing asbestos fibers, and that the lower the exposure or dose, the more effective are these defense mechanisms. See, e.g., N.T., Sept. 20, 2011, at 99, 103 (reflecting the testimony of plaintiff expert, Arnold Brody, PhD, an expert in cell biology, that the body is ninety to ninety-nine percent efficient in removing asbestos fibers). Moreover, from what is known by scientists, rare, discrete, and idiosyncratic events occurring at the cellular level (or a series of them) are required to cause mesothelioma. See, e.g., N.T., Sept. 19, 2011 (A.M.), at 141-42 (reflecting the explanation of the plaintiff's specific causation expert, Arthur Frank, M.D., that scientists do not know how asbestos alters the DNA to yield cancer, but the process begins with a single cell).¹

In light of the great uncertainties involved in assessing actual product-specific, substantial-factor causation, the plaintiff's sole expert witness testifying on the matter of specific causation – Dr. Frank – acknowledged that his testimony was premised on an assessment of the increased risk presented by discrete exposures. See, e.g., N.T., Sept. 19, 2011 (P.M.), at 51 (reflecting Dr. Frank's acknowledgement that not every exposure *causes* the DNA alteration predicate to mesothelioma, but what can be said is

¹ One court summarized the science as follows:

If a precise series of changes takes place, one cell becomes a malignant cell. A mesothelioma tumor consists of billions of cells but started from one single cell. Attempting to find that one cell to determine which fiber caused the initial malignancy is like "looking for a needle in a haystack."

Bartel v. John Crane, Inc., 316 F. Supp. 2d 603, 609-10 (N.D. Ohio 2004) (citation omitted).

that every exposure *increases the risk*); accord *Amici Scientists' Brief* at 2 (“Scientists are concerned because it is indeed an irrefutable scientific fact that each exposure does actually contribute to a person’s total dose and to that person’s *risk or probability* of developing mesothelioma and other cancers.” (emphasis added)). The plaintiff’s general causation expert, Mr. Brody, also recognized this very clearly. See, e.g., N.T., Sept. 20, 2011 (A.M.), at 78 (“You can’t say what a given exposure does. You don’t get to see that.”); accord Majority Opinion, *slip op.* at 6 (discussing Dr. Frank’s testimony that “it is not scientifically possible to identify the particular exposure or exposures that caused a patient’s mesothelioma”). The plaintiff’s expert in *Betz* echoed such understanding also. See *Betz*, 615 Pa. at 548, 44 A.3d at 55 (“[A]s is clear from various passages of testimony [from the plaintiff’s expert witness] . . ., his opinion was plainly grounded on *risk assessment*.” (emphasis added)).

Thus, it should be plain enough, by now, that – because actual, product-specific causation generally cannot be demonstrated by those suffering from asbestos-related diseases – this Court, like many others, is accepting assessments of increased risk as surrogates for traditional substantial-factor causation. See generally Steve C. Gold, *When Certainty Dissolves Into Probability: A Legal Vision of Toxic Causation for the Post-Genomic Era*, 70 WASH. & LEE L. REV. 237, 298 (2013) (explaining that many courts “recognize[] that in light of causal indeterminacy, it is appropriate to treat proof of contribution to risk as proof of contribution to cause”). Personally, I have abided by this particular accretion in the substantive law,² but I do think that it is important that it be

² I accept the approach, because I believe that, administered subject to appropriate constraints, it advances the goal of corrective justice. Along these lines, as a member of a previous Court majority, I have recognized “the difficulties facing plaintiffs in this and similar settings, where they have unquestionably suffered harm on account of a disease having a long latency period and must bear a burden of providing specific causation under prevailing Pennsylvania law which may be insurmountable.” *Gregg v.* (continued...)

recognized for what it is, namely, a material adjustment to substantive-law proof requirements. See generally David L. Faigman, Edward K. Cheng, Jennifer L. Mnookin, Erin E. Murphy, Joseph Sanders & Christopher Slobogin, 3 MOD. SCI. EVIDENCE §26:5 (2015-2016) (discussing the causal question in asbestos litigation in terms of “the willingness of the courts to establish special ‘asbestos rules’ that ease plaintiff’s causal proofs”). Viewed as such, I believe that some balance and perspective is implicated, particularly in terms of the degree of the relaxation of the traditional burden that is involved.

Along the lines of perspective, I note that the courts were asked to take the leniency that has been extended to an extreme with the advancement of the any-breath or any-exposure theory as a means of establishing the legal requirement of substantial-factor causation. As is amply developed in this Court’s decision in *Betz* and elsewhere, such theory is fundamentally inconsistent with the legal requirement of substantial-factor causation. See, e.g., *Betz*, 615 Pa. at 552, 44 A.3d at 57; *Martin v. Cincinnati Gas & Elec. Co.*, 561 F.3d 439, 443 (6th Cir. 2009) (“[A]n expert’s opinion that ‘every exposure to asbestos, however slight, was a substantial factor’ . . . would render the substantial factor test ‘meaningless.’” (quoting *Lindstrom v. A-C Prod. Liab. Trust*, 424 F.3d 488, 493 (6th Cir. 2005))). See generally *Betz*, 615 Pa. at 539 n.25, 44 A.3d at 49 n.25 (collecting cases from jurisdictions that have rejected the any-breath or any-exposure theory).

(...continued)

V-J Auto Parts, Co., 596 Pa. 274, 291-92, 943 A.2d 216, 226 (2007). Nevertheless, and as further developed below, I maintain that it is not “a viable solution to indulge in a fiction that each and every exposure to asbestos, no matter how minimal *in relation to other exposures*, implicates a fact issue concerning substantial-factor causation[.]” *Id.* at 292, 943 A.2d at 226-27 (emphasis added).

Presently, it is the contention of Appellant and several of its *amici* that Dr. Frank's opinion in this case represents a sort of a fallback in the aftermath of this Court's rejection of the any-breath or any-exposure theory as a means of establishing legal causation. In their view, the approach of various experts in the medicolegal community is now to liberally espouse the any-breath or any-fiber theory when discussing general causation (*e.g.*, any exposure can cause mesothelioma) and specific causation (*e.g.*, every exposure contributed to Mr. Rost's mesothelioma), then, in addressing the substantial-factor aspect, to merely render conclusory pronouncements of substantiality (*e.g.*, Mr. Rost's exposure to Ford products was a substantial factor in Mr. Rost's mesothelioma).³ For these reasons, they urge this Court to undertake a critical examination of Dr. Frank's testimony to determine whether any scientific basis was offered to distinguish between these general and specific causation aspects and the essential expert opinion as it concerned substantiality.

The majority's response is to suggest that such arguments "confuse[] or conflate[] the 'irrefutable scientific fact' that every exposure cumulatively contributes to the total dose (which in turn increases the likelihood of disease), with the legal question under Pennsylvania law as to whether particular exposures are 'substantial factors' in causing the disease." Majority Opinion, *slip op.* at 18. However, I agree with Appellant

³ See, *e.g.*, Brief for Appellant at 2 (characterizing Dr. Frank's opinion as "the same [any-exposure] opinion in new garb"); Reply Brief for Appellant at 20 (stating that "Plaintiff asks the Court to endorse a rule that condemns the any-exposure rule in name only"); Brief of *Amicus* Prod. Liab. Advisory Council, Inc. ("PLAC") at 2 ("Dr. Frank's 'any-exposure' opinion was glaringly transparent to anyone who cared to look beyond semantics."); Brief for *Amici* Coal. for Litig. Justice, Inc., Nat'l Ass'n of Mfrs., Am. Tort Reform Ass'n, & Am. Ins. Ass'n at 23 (asserting that Dr. Frank "simply recited the alleged exposures and concluded they were sufficient – dose is irrelevant to his opinion and appears nowhere in [them]"); Brief for *Amicus* Honeywell Int'l Inc. at 11 (indicating that Dr. Frank's opinion "discounts, indeed ignores, the substantiality of any particular exposure").

and its *amici* that – to the degree that an expert witness fails to offer a scientific basis to distinguish his oft-repeated opinions concerning general and specific causation from his opinion about the discrete matter of specific causation – the source of the confusion lies with the expert.

Notably, the present case involves relatively low-dose exposure to asbestos from Ford products. In this regard, Mr. Rost’s attorney at trial candidly explained to the jurors that the dose experienced from Ford brakes during the approximately three-month period of exposure “was a relatively low dose compared to some other exposures.” N.T., Oct. 5, 2011, at 49.⁴ The time differential (at least ten years of largely unprotected industrial exposure versus three months of exposure as a garage worker) alone is illustrative, even without addressing the differences between exposure to friction products,⁵ versus exposure to friable insulation materials and loose powder and spray in the industrial setting. See, e.g., Majority Opinion, *slip op.* at 4 (discussing the record as it pertains to Mr. Rost’s industrial exposures).

Dr. Frank, however, did not provide the jury with any standards, or benchmarks, or other scientifically-accepted premises for assessing the substantiality of the risk

⁴ In complex toxic tort cases, many layers of abstractions tend to obscure the material issues. For example, the majority repeatedly refers to material including residue accumulated in automobile wheel wells and around brake linings as “asbestos dust.” Majority Opinion, *slip op.* at 3. At least in terms of the premises underlying Dr. Frank’s opinion, however, the expert accepted that such accumulations are generally 99.6 percent asbestos free. See N.T., Sept. 19, 2011 (P.M.), at 16.

⁵ With regard to new friction products, since most of the asbestos is encapsulated in a binder or resin material, Dr. Frank agreed that the material is not considered friable as are thermal asbestos-containing insulation products such as were used in industrial applications. See, e.g., Sept. 19, 2011 (P.M.), at 14. Moreover, Dr. Frank acknowledged that, upon exposure to heat and friction, much of the asbestos material in brake shoes is converted into a different substance, forsterite, which Dr. Frank did not claim was causative of mesothelioma. See *id.* at 14-15.

associated with Mr. Rost's "relatively low dose" exposure to Appellee's products in the context of Mr. Rost's overall exposure. Rather, in response to a hypothetical question generally presenting the circumstances of Mr. Rost's exposure to Ford products, Dr. Frank merely affirmed, in a conclusory fashion, his belief that the exposure was substantially causative. See N.T., Sept. 19, 2011 (A.M.), at 116-17.⁶ By way of explanation or otherwise, the expert then reverted to various reaffirmations of his other opinions on general and specific causation, *i.e.*, that "all [exposures] contributed[.]" *Id.* at 121-22; see also *id.* at 122 ("All of the exposures that can be documented should all be considered as contributory to [Mr. Rost's] developing his disease.").

⁶ From my point of view, the majority's assertion that Dr. Frank took into consideration "exposure history, individual susceptibility, biological plausibility, and relevant scientific evidence (including epidemiological studies)," Majority Opinion, *slip op.* at 20, represents an abstract assessment of the record in this case as it relates to the matter of substantial-factor causation. Dr. Frank made no attempt to even roughly quantify either the dose experienced by Mr. Rost at Smith Motors or his cumulative exposure or dose. See, *e.g.*, N.T., Sept. 19, 2011 (P.M.), at 22 (reflecting Dr. Frank's recognition that aspects of Mr. Rost's industrial exposure "could have been high, it could have been low" and his statement that: "I can't speak to what his level of exposure was."). I have found nothing on the record as far as Mr. Rost's individual susceptibility goes, or anything to relate such concept to Dr. Frank's opinion concerning substantial-factor causation. Biological plausibility in the abstract goes more to general causation than to establishing substantial-factor causation, particularly where the issue is presented in terms of risk. In terms of the epidemiological evidence pertaining to mesothelioma in auto workers, Dr. Frank's discussion was vague, with specific-study treatment focusing mostly on his discounting of ones that were inconsistent with his position. See N.T., Sept. 19, 2011 (A.M.), at 103-05. *Compare Yates v. Ford Motor Co.*, 113 F. Supp. 3d 841, 861 (E.D.N.C. 2015) ("Rather than engage in any specific, meaningful comparison of the scientific data with [the plaintiff's] exposures, [the expert's] opinions essentially attempt to overwhelm with statistics and studies, lacking guidance as to how a juror ought to apply them in the instant case, aside from joining [the expert's] ultimate conclusion that [the plaintiff's] mesothelioma was caused by defendants' products. This is not a reliable method, and it will not assist a jury."); *Comardelle v. Pa. Gen. Ins. Co.*, 76 F. Supp. 3d 628, 635 (E.D. La. 2015) (offering similar criticisms of an expert witness's substantial-factor causation grounded on a broad array of cases, studies, and regulatory materials to which the witness "refer[red] cursorily").

There is no dispute between the litigants concerning the essential proposition that cumulative dose matters relative to dose-dependent diseases such as mesothelioma.⁷ The dispute now concerns whether a plaintiff should be required to address this critical factor, in any sort of a meaningful fashion, as a component of the burden of proof to establish substantial-factor causation.⁸

Where the issue is simply risk – I fail to appreciate how the substantiality of relatively low-dose exposures can be fairly demonstrated in the absence of some sort of reasonably-developed comparative risk assessment accounting for higher-dose

⁷ See, e.g., Majority Opinion, *slip op.* at 6 (“All exposures to asbestos contribute to the cumulative dose of asbestos, and *the cumulative dose causes mesothelioma.*” (emphasis added)); Brief for Appellee at 28, 43 (“[T]he total cumulative exposure collectively causes a disease.”); *accord* Brief for *Amicus* Asbestos Disease Awareness Org. at 13 (“[C]umulative dose best explains the increased risk of mesothelioma in the population and is the standard metric used in epidemiological studies that evaluate dose and risk of disease.”). See generally Joseph V. Rodricks, *Reference Guide on Exposure Science*, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 507 (Fed. Judicial Center 3d ed. 2011) (“Ultimately the dose incurred by populations or individuals is the measure needed by health experts to quantify the risk of toxicity.”).

⁸ In point of fact, Appellee accepts the burden to meaningfully address exposures to Ford products in the context of his cumulative dose (including his industrial exposure) to establish substantial-factor causation. See, e.g., Brief for Appellee at 42-43 (indicating that this Court’s decisions in “*Gregg, Betz, and Howard* maintained [a] fair balance” when “they required experts to consider both the frequency, proximity, and regularity of the plaintiff’s exposure to asbestos from the defendant’s products, *and to place this exposure in context with other exposures to ensure, in the wider context of a plaintiff’s exposure history, that defendant’s contribution was a ‘substantial factor’ and not merely a factor.*” (emphasis added)).

From my perspective, the only remaining question should be whether, at trial, Mr. Rost meaningfully did so via Dr. Frank’s testimony, or whether, as Ford and its *amici* contend, the expert’s opinion concerning substantial-factor causation merely collapsed into his other general and specific causation opinions (*i.e.*, that all exposures are contributory). The majority, however, proceeds of its own accord to overturn the requirement to address substantial-factor causation in the context of cumulative dose, see Majority Opinion, *slip op.* at 22-32, thus yielding the differences concerning the prevailing legal standards that are discussed below.

industrial exposures. Surely the courts would not sanction liability on the part of an individual for an automobile accident if the plaintiff did not proffer some form of evidence that would establish a fair probability that the defendant was, in fact, one of the actual drivers. Although this is not a perfect analogy, it highlights that, to the degree that we accept amorphous possibilities or probabilities with no real effort to address the overall risk exposure, the substantive law of substantial-factor causation is being applied in a highly idiosyncratic fashion in toxic tort cases.⁹

From my point of view – again, where the plaintiff is plainly proceeding to address causation by reference to risk – a jury that is not provided with meaningful information concerning cumulative dose simply lacks sufficient information to make a rational decision concerning substantiality. Instead, the fact finder is left to conjecture and speculation, colored by the liberal reaffirmations of the opinion concerning general and specific causation (sans the substantial-factor aspect), *i.e.*, that all doses are contributory.¹⁰ Put in terms of the frequently referenced bucket-in-the-ocean analogy

⁹ In this vein, I believe that an approach that relieves the plaintiff of addressing exposure to a defendant's product in the context of the plaintiff's overall exposure is tantamount to a form of burden shifting, which this Court has otherwise refused to extend into the toxic tort arena. *See, e.g., Skipworth v. Lead Indus. Ass'n, Inc.*, 547 Pa. 224, 231-32, 690 A.2d 169, 172 (1997). As further discussed below, I would submit that any changes to the law along such lines should be attended by consideration of the full host of relevant policy matters, which are well beyond the scope of the presentations here.

¹⁰ *Cf. Stark v. Armstrong World Inds., Inc.*, 21 Fed. Appx. 371, 376 (6th Cir. 2001) (expressing the concern that “defendants not be subjected to open-ended liability based solely on a jury’s inexpert speculation on proximate cause” (citation omitted)); *Burleson v. Texas Dep’t of Criminal Justice*, 393 F.3d 577, 587 (5th Cir. 2004) (explaining that a causation opinion where the expert “fail[s] to conduct a dose assessment” produces “too great an analytical gap between the data and the opinion proffered” (citation omitted)). *See generally* Gold, *When Certainty Dissolves Into Probability*, 70 WASH. & LEE L. REV. at 320-21 (“The mechanistic model fails when proof of causation rests on evidence derived from population-based data on the association of disease and exposure[.] [i]n such cases the fact-finder must test its belief in a frequentist-probability value supported by evidence of risk contribution.”).

coined by former Judge Klein, see *Summers v. Certaineed Corp.*, 886 A.2d 240, 244 (Pa. Super. 2005) (rejecting the notion that “if one took a bucket of water and dumped it into the ocean, that was a ‘substantial contributing factor’ to the size of the ocean”), I submit that a jury cannot meaningfully assess the substantiality of the impact of a bucket of water introduced into a receptacle where the jurors have been provided with no means to assess whether such receptacle is a bathtub, or a pond, or a lake, or an ocean.

Again, I recognize the difficulties facing plaintiffs in cases involving long-latency disease. See *supra* note 2.¹¹ Given, however, that alteration of long-standing and central tort-law concepts such as the requirement of substantial-factor causation has the potential to have broad-scale social effects, I believe that such matters are most appropriately considered by the policy-making branch of government. See *generally Seebold v. Prison Health Servs., Inc.*, 618 Pa. 632, 652-54 & n.19, 57 A.3d 1232, 1245-46 & n.19 (2012) (discussing the nature of common-law adjustments to the substantive law, the necessity for a fully developed policy analysis, and the superior position of the General Assembly to undertake such assessments).¹² To the degree that the judiciary

¹¹ In this regard, I acknowledge the expense and difficulty in attempting to address dose in concrete terms. See, e.g., N.T., Sept. 20, 2011 (A.M.), at 84 (reflecting the recognition, on the part of the plaintiff’s expert, Mr. Brody, that “you would need an industrial hygienist to explain what [the] dose might be,” albeit that Mr. Rost did not present such testimony). Again, however, to the degree that these sorts of practical considerations are at work – as opposed to a conventional application of established principles of tort law – I maintain that a wider-scale policy assessment is implicated.

¹² For example, further relaxation of the governing standards of proof obviously can exacerbate what the Supreme Court of the United States has characterized as an “elephantine mass of asbestos litigation . . . [which] defies customary judicial administration and calls for national legislation.” *Ortiz v. Fibreboard Corp.*, 527 U.S. 815, 821, 119 S. Ct. 2295, 2302 (1999). On a micro scale, the docket of the present case reflects that Mr. Rost filed his claims against 66 defendants, most of which attained summary dismissals. Moreover, the consequences of the adjustments reverberate through the product chain, since strict liability for a defective product does (continued...)

should continue to reassess the core and fundamental requirements of tort law as applied in the toxic tort arena, it is my position that the policy arguments should be

(...continued)

not merely attach to manufacturers but extends through the product chain to distributors and retailers as well. See, e.g., *Gregg*, 596 Pa. 274, 943 A.3d 216 (reflecting a suit against a local automobile parts supplier).

In a footnote, the majority opinion appears to suggest an inclination to consider eliminating the requirement of substantial-factor causation in the asbestos-litigation arena altogether in favor of a *de minimis* threshold for liability, based on the fact that the Legislature has cabined joint and several liability through the enactment of the Fair Share Act. See Majority Opinion, *slip op.* at 16 n.7. For supportive policy implications, the majority references a law review comment for the proposition that the “‘frequency, regularity and proximity’ test imposes an inappropriately high burden of proof upon many asbestos victims,” as it “distort[s] the medically proven fact that significant injury can result without ‘frequent’ or ‘regular’ exposure.” Brian M. DiMasi, Comment, *The Threshold Level of Proof of Asbestos Causation: The “Frequency, Regularity and Proximity Test” and a Modified Summers v. Tice Theory of Burden-Shifting*, 24 CAP. U. L. REV. 735, 750 (1995) (for the proposition).

It should be noted, however, that the burden-shifting premises underlying the author’s proposals rest, at least in part, upon his determination of culpable conduct on the part of asbestos product manufacturers. See, e.g., *id.* at 759 (charging the suppliers, manufacturers, and distributors of asbestos products at large with “a conspiracy to cover up the harmful effects of asbestos exposure”). Notably, given the once-widespread use of asbestos in products, there are thousands upon thousands of defendants in asbestos cases. See Alan Calnan & Byron G. Stier, *Perspectives on Asbestos Litigation: Overview and Preview*, 37 SW. U. L. REV. 459, 462-63 (2008) (tallying at least 8,400 entities spanning 75 of the 83 industries classified by the United States Department of Commerce), not all of whose culpability has been assessed. For example, asbestos defendants in Pennsylvania are often sued in strict liability, which, at least under the liability regime prevailing at the time the present action was litigated, foreclosed the defendants from from presenting conduct-based defenses, such as reliance on industry and government standards. See, e.g., *Lewis v. Coffing Hoist Div., Duff-Norton Co., Inc.*, 515 Pa. 334, 343, 528 A.2d 590, 594 (1987).

I mention these points to provide one of the many layers of perspective which I believe would need to be considered before making further adjustments to substantive law in asbestos cases.

made plain by the litigants, rather than proceeding as subtexts to the position that the traditional legal requirements are being adhered to straightforwardly.

Returning to what I believe to be the issue in this case, *see supra* note 8, I find that the record does not present an adequate basis for any meaningful assessment of Mr. Rost's long-term industrial exposure to asbestos. *Accord* Brief for *Amicus* Asbestos Disease Awareness Org. at 34 nn.78 & 79 (reflecting the recognition by an *amicus* for Appellee that any assessment of Mr. Rost's industrial exposure "is wholly speculative," because "[t]he record contained very little testimony regarding the duration and intensity of the exposures at Met-Ed"). In any event, it was quite apparent, in terms of Dr. Frank's opinion, that he was not concerned with even attempting to address Mr. Rost's cumulative dose on any sort of tangible or proportionate terms. *See, e.g.,* N.T., Sept. 19, 2011 (P.M.), at 22 (reflecting Dr. Frank's recognition that aspects of Mr. Rost's industrial exposure "could have been high, it could have been low" and his statement that: "I can't speak to what his level of exposure was"). Again, another expert for Mr. Rost indicated that such an assessment would have been within a different realm of expertise. *See* N.T., Sept. 20, 2011 (A.M.), at 84 (reflecting the recognition, on the part of Mr. Brody, that "you would need an industrial hygienist to explain what [the] dose might be").

For these reasons, in the absence of any sort of a meaningful assessment of proportionality, I agree with Ford's central position that the basis for Dr. Frank's opinion concerning substantial-factor causation is not materially distinguishable from his other opinions concerning general and specific causation, *i.e.*, that every exposure counts.¹³

¹³ I am not in any way suggesting that substantial-factor causation can be proved only by eliminating "every other potential cause of the development of disease through a ranking of different exposures." Majority Opinion, *slip op.* at 31. I do believe, however, that a plaintiff must meaningfully address his long-term industrial exposure to friable asbestos-containing products in a case premised on short-term exposure to non-friable (continued...)

Reaffirmation of Betz

Consistent with the above, I would take this opportunity to reaffirm, and not cabin, the Court's opinion in *Betz*. Initially, I do not agree with the majority's position that the requirement for a plaintiff to address, in some meaningful fashion, the plaintiff's cumulative dose was unnecessary to the decision in *Betz*. See Majority Opinion, *slip op.* at 22. Rather, the *Betz* Court proceeded through essentially the above analysis, recognizing that the liability theory was risk based, and concluded that the only rational way to assess substantiality in a risk calculus (particularly in lower-dose scenarios) is to compare the risk attributable to a particular defendant with the plaintiff's overall risk exposure. See *Betz*, 615 Pa. at 549-54, 44 A.3d at 55-58; accord *Moeller*, 660 F.3d at 954 ("The question [of] whether [defendant's] acts probably caused [plaintiff's] mesothelioma must be viewed in the context of [plaintiff's] other substantial exposures to asbestos[.]" (quoting *Cardinal Indus. Insulation Co., Inc. v. Norris*, Nos. 2004-CA-000525-MR, *et al.*, *slip op.*, 2009 WL 562614, at *8 (Ky. Ct. App. Mar. 6, 2009))); *Bailey*

(...continued)

materials and their low-asbestos-content byproducts. Cf. *Moeller v. Garlock Sealing Techs., LLC*, 660 F.3d 950, 955 (6th Cir. 2011) ("Given that the [p]laintiff[-executrix] failed to quantify [her decedent's] exposure to asbestos from [a defendant's] gaskets and that the [p]laintiff concedes that [the decedent] sustained massive exposure to asbestos from [other] sources, there is simply insufficient evidence to infer that [the defendant's] gaskets probably, as opposed to possibly, were a substantial actor of [the decedent's] mesothelioma.").

I certainly would not hold plaintiffs to exactitude in this setting. Indeed, there is no question that "[l]arge swaths of tort law are, to put it charitably, highly approximate." Gold, *When Certainty Dissolves Into Probability*, 70 WASH. & LEE L. REV. at 326. From my point of view, however, courts must engage in some line drawing, and, in the present context, Mr. Rost's failure to offer even rough approximations of dose either as to the approximately three-month period of exposure to friction products at the Smith Ford garage or the long-term industrial exposure should be deemed dispositive relative to Ford's liability.

v. N. Am. Refractories Co., 95 S.W.3d 868, 873 (Ky. Ct. App. 2001); *Martin*, 561 F.3d at 443 (“[O]ne measure of whether an action is a substantial factor is the number of other factors which contribute in producing the harm and the extent of the effect which they have in producing it.”).

In *Betz*, it was precisely because the any-exposure theory fails to account for cumulative dose (which drives the overall risk of disease) that the Court rejected the theory as a means to establish substantial-factor causation. See, e.g., *Betz*, 615 Pa. at 550, 44 A.3d at 56 (“[O]ne cannot simultaneously maintain that a single fiber among millions is substantially causative, while also conceding that a disease is dose responsive.”). In this regard and otherwise, I do not view *Betz* as merely circling back to the frequency, regularity, and proximity test. See Majority Opinion, *slip op.* at 31.

Frequency, Regularity, Proximity

From my perspective, the frequency, regularity, and proximity test is best conceptualized as a rough exposure-related screening test, most useful for product identification purposes at the summary judgment stage. See generally Faigman, *et al.*, 3 MOD. SCI. EVIDENCE §25:5 (explaining that, given the volume of defendants being hailed into court by plaintiffs in individual cases, “[c]ourts have been forced to develop a set of sufficiency tests for judging which cases should be taken from the jury”). After all, the test is undeveloped in terms of metrics or degree-based standards of any kind and, in cases involving mesothelioma, tends to devolve into the any-exposure theory.

In complex toxic tort cases such as the present one, the requirement for competent expert testimony – to connect exposure with actual disease – obviously remains a central one. *Accord Hamil v. Bashline*, 481 Pa. 256, 267, 392 A.2d 1280, 1285 (1978) (“[I]t is generally acknowledged that the complexities of the human body place questions as to the cause of pain or injury beyond the knowledge of the average

layperson[;] therefore, the law requires that expert medical testimony be employed.” (citation omitted)). The *Betz* Court recognized the influential nature of the testimony of expert witnesses and the potential for distortions to mislead laypersons and, therefore, decided that courts should maintain a gatekeeping role relative to expert testimony about the critical issue of substantial-factor causation in toxic tort cases. See *Betz*, 615 Pa. at 545, 44 A.3d at 53.

To the degree that the decision in *Tragarz v. Keene Corp.*, 980 F.2d 411 (7th Cir. 1992), suggests that no comparative risk or probability assessment is required, this Court plainly departed from that approach based on developed reasoning in *Betz*. See *Betz*, 615 Pa. at 553-54, 44 A.3d at 58. Again, I respectfully differ with the majority’s decision to overturn this and other material portions of such decision.

The Structural Error in Consolidation

On the issue of consolidation, the majority recognizes that the trial court committed a blatant, structural error by consolidating unrelated complex, toxic tort cases merely on the basis that all plaintiffs suffered from the same disease. See Majority Opinion, *slip op.* at 34. In other contexts, courts have recognized the difficulty facing a litigant charged with establishing prejudice resulting from structural errors. See, e.g., *State v. Shearer*, 334 P.3d 1078, 1083 (Wash. 2014). In my view, given the breadth of the present record – subsuming the differences among the plaintiffs and defendants and all of the attendant circumstances relative to the three materially unrelated cases involved – the high potential for prejudice is evident, even if one were to discount the emerging empirical evidence referenced by Ford. See Brief for Appellant at 42 (citing, *inter alia*, Kenneth S. Bordens & Irwin A. Horowitz, *The Limits of Sampling and Consolidation in Mass Tort Trials: Justice Improved or Justice Altered?*, 22 LAW &

PSYCHOL. REV. 43, 66 (1998), for the proposition that consolidation “can alter the patterns of verdicts and awards handed down by jurors”).

If a tipping point is needed, I would find that to have been reached, *inter alia*, in the argument presented to the jury by an attorney representing Sears in another of the consolidated cases:

And, oh, the automotive companies, *the brake companies have this grand conspiracy*. Well, ladies and gentlemen, I represent Sears. We are a department store, a retailer. You didn't hear anything about Sears funding studies about brakes.

N.T., Oct. 5, 2011, at 157 (emphasis added).

For these reasons, I believe that Ford would be entitled to a new trial, but for the failure of proof relative to substantial-factor causation. In light of such failure, I would reverse and remand for entry of judgment notwithstanding the verdict.

Court concluded that, in cases involving direct as well as circumstantial evidence of asbestos exposure, it is appropriate for a court to consider at the summary judgment stage “whether, in light of the evidence concerning frequency, regularity, and proximity of a plaintiff’s/decedent’s asserted exposure, a jury would be entitled to make the necessary inference of a sufficient causal connection between the defendant’s product and the asserted injury.” Id. at 227. In so doing, the Court concluded that it was not “a viable solution to indulge in a fiction that each and every exposure to asbestos, no matter how minimal in relation to other exposures, implicates a fact issue concerning substantial-factor causation in every ‘direct-evidence’ case.” Id. at 226–27. The Court remanded to the Superior Court for application of the “frequency, regularity, and proximity” standard.

I dissented to what I viewed as that majority’s unwarranted criticism of the experts’ testimony at the summary judgment stage in a case involving direct evidence of asbestos exposure, and recommended that the proper challenge to the expert’s “each and every exposure” theory should arise through a Frye challenge or through cross-examination of the expert at trial. Id. at 229-30 (citing Frye v. United States, 293 F. 1013 (D.C. Cir. 1923) (setting forth an exclusionary rule of evidence that applies only when a party wishes to introduce novel scientific evidence obtained from the conclusions of an expert scientific witness)). Notably, the majority of the Court concluded otherwise.

Five years later, this Court considered Betz v. Pneumo Abex LLC, 44 A.3d 27 (Pa. 2012). Engaging in the procedure lacking in Gregg, the defendant challenged the “each and every exposure” theory pursuant to Frye, and the trial court held an extensive hearing and ultimately excluded the evidence. This Court unanimously concluded that the trial court properly excluded the expert’s testimony and further opined that the “each

and every exposure” theory could not serve as the basis for an expert’s conclusion that the asbestos exposure was a substantial factor in causing the asbestos-related disease, in contrast to merely a cause-in-fact. Instead, the Court required a comparative assessment of the plaintiff’s various exposures to asbestos. Id. at 56-58.

My colleagues in the Majority in the case at bar deem the discussion of comparative assessment in Betz to be *dicta*. Maj. Op. at 22. To the contrary, the comparative assessment analysis is the heart of the unanimous holding in Betz. Subsection D of the opinion addresses the “Any-Exposure Opinion,” otherwise referenced as the “each and every exposure” theory. In the first paragraph of Subsection D, the Court agreed with the trial court that the “primary conceptual concern” with the plaintiff’s theory was that if risk of mesothelioma attached to each asbestos fiber then each of the millions of asbestos fibers, to which a plaintiff had been exposed, would be a substantial factor in causing mesothelioma. Betz, 44 A.3d at 55. Each fiber cannot be a “substantial” factor in causing the disease if there are millions of similar factors. The unanimous court further relied upon the plaintiff’s expert’s testimony, in which he opined that one must consider the potency, concentration, and duration of asbestos exposure to “estimate the relative effects of different exposures.” Id. at 56.

The Court’s criticism of the each and every exposure theory of substantial causation hinged on recognition of the significance of comparative assessments:

In this regard, the analogies offered by Dr. Maddox in support of his position convey that it is fundamentally inconsistent with both science and the governing standard for legal causation. The force of his marbles-in-a-glass illustration changes materially upon the recognition that, to visualize this scenario in terms of even a rough analogy, one must accept that the marbles must be non-uniform in size (as asbestos fibers are in size and potency), microscopic, and million-fold. From this frame of reference, it is very difficult to say that a single one of the smallest of

microscopic marbles is a substantial factor in causing a glass of water to overflow.

Betz, 44 A.3d at 57. The Court continued, “Dr. Maddox’s boxer analogy is as inconsistent with human experience as it is with science, as the difference between a glancing blow to the shoulder and a knockout punch to the jaw is commonly understood.” Id. We, therefore, rejected the Superior Court’s prior reliance on contrary language in Tragarz v. Keene Corp., 980 F.2d 411, 421 (7th Cir. 1992), and concluded that a comparative assessment of the plaintiff’s exposures “is required for causal attribution” under Pennsylvania law. Betz, 44 A.3d at 58. Unlike this author’s dissent in Gregg, the unanimous decision of the Court in Betz is precedent binding the current members of this Court, absent an explanation of why the legal principle of *stare decisis* should not be followed.

While the necessity of comparative assessment for purposes of substantial factor causation had been percolating in our prior decisions, see Gregg, 943 A.2d at 226-27, Betz clarified the requirement. The parties in the current case, however, did not have the benefit of Betz’s dictates at trial. Accordingly, I would remand for new trial to allow the plaintiff the opportunity to present testimony in line with the requirements set forth in Betz.

Additionally, my colleagues dispute the role of the “frequency, regularity, and proximity” test adopted and applied in Gregg. I view the “frequency, regularity, and proximity” test as part of a comparative assessment of exposures, which is necessary to determine substantial factor causation sufficient to trigger a defendant’s legal responsibility. Unlike many tort actions, latent disease cases cannot be demonstrated through a direct causal link but, instead, involve the imposition of liability based on an assessment of the increased risk resulting from the alleged exposures. Pursuant to Gregg, contact with asbestos cannot be deemed a substantial causal factor unless it

involved frequent, regular, and proximate exposure creating more than a *de minimis* risk of developing the disease. Once an exposure to asbestos fibers is determined to be sufficiently frequent, regular, and proximate, a fact-finder should consider factors such as the potency, concentration, and duration of the exposure in light of the plaintiff's other asbestos exposures to determine if it is reasonable to deem the defendant's product legally responsible as a substantial causal factor in the development of the disease, in contrast to merely being a cause-in-fact.

Notably, a jury may conclude that several products are substantial causes of a plaintiff's development of a disease. Indeed, a jury may find that Mr. Rost's three months of exposure to Ford brakes was a substantial cause of his mesothelioma, but under Betz, the plaintiff's expert must first provide the jury a comparative assessment of Mr. Rost's exposures to allow the jury to place the exposure to Ford products in context. Although the jury heard testimony regarding Mr. Rost's later exposures, Dr. Frank did not testify during direct examination to the details of Mr. Rost's asbestos exposure at Metropolitan Edison (MetEd) and other employers. Indeed, when asked during cross-examination about Mr. Rost's experiences at MetEd, Dr. Frank repeatedly testified that he did not "know specifically what Mr. Rost did" and could not "speak to what his level of exposure was." N.T., Sept. 19, 2011 P.M. Session, at 20-22, R.R. 1406a-08a. Given that Dr. Frank was not aware of the specifics of Mr. Rost's work history, he was unable to provide the jury with the required comparative assessment of exposures. Accordingly, as discussed above, I would remand for a new trial to allow the plaintiff the opportunity to present the necessary testimony.¹

¹ As I would remand for a new trial, I need not address the potential prejudice of the consolidation of this case with other asbestos cases, a procedure which is no longer practiced in the Court of Common Pleas of Philadelphia.