

UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

MARILYN F. QUIRIN, Special Representative of the Estate of RONALD J. QUIRIN, Deceased, Plaintiff, v. LORILLARD TOBACCO COMPANY, et al., Defendants. Judge Joan B. Gottschall Case No. 13 C 2633

MEMORANDUM OPINION & ORDER

Plaintiff Marilyn F. Quirin, special representative of the estate of Ronald J. Quirin ("Quirin"), has sued defendants Lorillard Tobacco Company ("Lorillard") and Hollingsworth & Vose Company ("H&V") on a negligence theory, alleging that Mr. Quirin's mesothelioma was caused by his exposure to asbestos while smoking Kent cigarettes, which, during the 1950s, were manufactured with a "Micronite" filter that contained asbestos (hereinafter "original Kents"). Now before the court are Lorillard and H&V's motions to bar the reports and testimony of Quirin's expert Dr. James Millette and the testimony regarding Kent cigarettes of Quirin's expert Dr. Carl Brodtkin. The court concludes that the evidence in question is admissible under Federal Rule of Evidence 702 and Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579 (1993), and denies the motions.

I. LEGAL STANDARD

Under Rule 702, an expert witness, "qualified . . . by knowledge, skill, experience, training, or education," may testify if: "(a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;

(b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.” Fed. R. Evid. 702.

A trial judge has the “task of ensuring that an expert’s testimony both rests on a reliable foundation and is relevant to the task at hand.” *Daubert*, 509 U.S. at 597. “To do so, the district court must ascertain whether the expert is qualified, whether his or her methodology is scientifically reliable, and whether the testimony will ‘assist the trier of fact to understand the evidence or to determine a fact in issue.’” *Bielskis v. Louisville Ladder, Inc.*, 663 F.3d 887, 893 (7th Cir. 2011) (quoting Fed. R. Evid. 702). The court must also determine if an expert is offering legal conclusions, as “experts cannot make those.” See *United States v. Diekhoff*, 535 F.3d 611, 619 (7th Cir. 2008).

“The reliability of the expert’s principles and methods can be examined by looking at factors such as (1) whether the scientific theory or technique can be (and has been) tested; (2) whether the theory or technique has been subjected to peer review and publication; (3) whether a particular technique has a known potential rate of error; and (4) whether the theory or technique is generally accepted in the relevant scientific community.” *Schultz v. Akzo Nobel Paints, LLC*, 721 F.3d 426, 431 (7th Cir. 2013) (citing *Daubert*, 509 U.S. at 593-94). The Seventh Circuit has explained that the judge’s concern “is not the ultimate correctness of the expert’s conclusions. Instead, it is the soundness and care with which the expert arrived at her opinion: the inquiry must ‘focus . . . solely on principles and methodology, not on the conclusions they generate.’” *Id.* (quoting *Daubert*, 509 U.S. at 595). If the expert’s principles and methodology reflect reliable scientific practice, “[v]igorous cross-examination, presentation of contrary evidence, and

careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.” *Daubert*, 509 U.S. at 596.

## **II. LORILLARD & H&V’S MOTIONS TO EXCLUDE EXPERT TESTIMONY**

Quirin alleges that Mr. Quirin smoked original Kents between 1954 and 1956. In support of Quirin’s argument that the original Kents were a substantial factor causing Mr. Quirin’s mesothelioma, Quirin relies on expert reports and testimony from Dr. James Millette and Dr. Carl Brodtkin. Lorillard and H&V have moved to bar this evidence. Having reviewed the parties’ briefs and supporting materials, the court finds that a *Daubert* hearing is unnecessary, as the relevant issues have been thoroughly explained in the parties’ submissions.

### **A. Dr. James Millette**

In 2010, Quirin’s counsel hired Dr. Millette to design a test to measure asbestos fiber release from two packs of “original” Kent cigarettes. The cigarettes tested were original Kents from the 1952 to 1956 time period that had been located by Quirin’s counsel. Quirin intends to offer as evidence three reports of analyses performed by Dr. Millette: (1) “Analysis of two packages of Kent Micronite Cigarettes on August 3, 2010”; (2) “Analysis of Air Filters—Kent Micronite Cigarettes on September 30, 2010”; and (3) “Examination of the Crepe Paper in a Kent Micronite Filter on September 27, 2012”. Quirin also intends to offer Dr. Millette’s opinion, based on these reports, that Mr. Quirin would have been exposed to asbestos fibers released from original Kent cigarettes when he smoked the cigarettes.

Dr. Millette examined the Micronite filters of two original Kent cigarettes and determined that they contained crocidolite asbestos fibers, along with crepe paper, cotton, and cellulose acetate. He found different concentrations of asbestos in the different cigarettes: 20-40 percent in one, and 10-20 percent in the other. Dr. Millette tested the original Kent cigarettes to

measure the release of asbestos fibers in the cigarette smoke. Four original Kent cigarettes were machine-smoked on a smoking machine by Arista Laboratories, an independent tobacco testing laboratory. The smoke was captured on Cambridge filter pads, which are made of fiberglass and commonly used to collect smoke from machine-smoked cigarettes. Four different test protocols were used: the International Organization for Standardization (ISO) regime, the Intense (or Canadian) regime, the ISO regime using two puffs, and the Intense regime using two puffs.<sup>1</sup> It is not disputed that these are accepted regimes for machine smoking cigarettes and that these regimes are employed in tests performed for the tobacco industry and government regulators.

After receiving the samples from Arista, Dr. Millette attempted to calculate the number of asbestos fibers observed on the filters. Because the Cambridge filters are made of fiberglass, and the asbestos fibers were difficult to distinguish from the fiberglass using a scanning electron microscope, an acid-base digestion procedure was used to eliminate as many glass fibers as possible from the filter samples. The resulting residue was analyzed using transmission electron microscopy. The asbestos fibers were counted. The number of fibers observed in the samples ranged from 0 to 56. (Pl.'s SOF Ex. D (Millette Dep.) 14-25.)

Using these results, Dr. Millette extrapolated from the sample counts to estimate the number of fibers on each filter. He stated at deposition that the number of fibers found on the filter pads differed, from no fibers found to “comparably high” numbers, depending on the testing regime used. (*Id.* at 242:9-19.) He testified, “it’s my opinion that Mr. Quirin would have exposure from Kent cigarettes based on the tests that we did showing that fibers are released from Kent cigarettes during the smoking tests.” (*Id.* at 242:4-8.)

---

<sup>1</sup> The regimes differ in puff volume and frequency. The ISO and Intense regimes used eight puffs.

Beginning the *Daubert* analysis, the court first finds Dr. Millette well qualified to offer an opinion as to the type of fibers he observed in original Kent cigarettes. Dr. Millette is Executive Director of MVA Scientific Consultants, an independent analytical testing lab and consulting company. He has a Ph.D. in Environmental Science and has been a consulting scientist involved in environmental, particle, and materials studies since 1972, primarily employing microscopic techniques. He spent eleven years as a research scientist with the U.S. Environmental Protection Agency and five years with at McCrone Environmental Services, where he supervised the analysis of particulates using microscopic techniques. Dr. Millette teaches a training course on analyzing samples for asbestos fibers. He has testified in numerous court cases involving fiber release from asbestos-containing products.

The court further concludes that Dr. Millette's "scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue," as required by Rule 702. The issue of whether asbestos fibers were released from original Kent cigarettes when they were smoked is critical to Quirin's case. Lay persons will be unable to resolve this issue without scientific evidence.

The court next turns to the question of whether Dr. Millette's reports and testimony are based on reliable methodology. Lorillard and H&V raise several objections to Dr. Millette's analyses. First, they argue, the original Kent cigarettes evaluated by Dr. Millette were more than fifty years old when they were analyzed for fiber release. Neither Dr. Millette nor Quirin knows how the cigarettes were stored during the intervening period. According to the defendants, because of the age and unknown history of the cigarettes tested, there is no substantial similarity between the cigarettes that Dr. Millette examined and the freshly manufactured cigarettes that Mr. Quirin smoked in the 1950s. Lorillard and H&V argue that it is likely that the cigarettes and

filters suffered significant degradation, and that they therefore did not function as they would have in the 1950s. Relatedly, Lorillard and H&V object to Dr. Millette's examination of the cigarettes for degradation as unscientific. Dr. Millette observed that the cigarettes were not moldy or brittle. He plucked at the crepe paper filler with tweezers and observed that it did not disintegrate. Lorillard and H&V complain that these techniques have no scientific validity. They also cite testimony from Richard Orcutt, who worked as a sales representative for Lorillard in the 1950s, who viewed photographs of the cigarettes tested by Dr. Millette and opined that they did not look like freshly produced original Kent cigarettes. (Defs.' Mot. to Exclude Millette Opinions Ex. J (Orcutt Dep.) 137:14-16.)

Lorillard and H&V's objection can be summarized thusly: the materials tested by Dr. Millette—fifty-five year old cigarettes—cannot form the basis for conclusions about how the same cigarettes would have performed were they new, because their condition may have significantly changed over time. In the court's view, this is not a challenge to Dr. Millette's methodology, but rather a challenge to the information on which he relied in conducting his analysis and drawing his conclusions. The question of whether an expert's "theories are correct given the circumstances of a particular case is a factual one that is left for the jury to determine after opposing counsel has been provided the opportunity to cross-examine the expert regarding his conclusions and the facts on which they are based." *Schultz*, 721 F.3d at 432. As the Seventh Circuit has explained, whether the expert "selected the best data set to use . . . is a question for the jury, not the judge. Assuming a rational connection between the data and the opinion—as there was here—an expert's reliance on faulty information is a matter to be explored on cross-examination; it does not go to admissibility." *Manpower, Inc. v. Ins. Co. of Penn.*, 732 F.3d 796, 810 (7th Cir. 2013) (citing *Walker v. Soo Line R.R.*, 208 F.3d 581, 589 (7th Cir.

2000)). The points raised by the defendants regarding the age of the cigarettes will provide a roadmap for an effective cross-examination, when the potential problems with the data on which Dr. Millette relied can be made clear.

The court's role is to evaluate Dr. Millette's methodology, and it finds no significant problems with that methodology. Using machines to smoke cigarettes in a testing lab is an accepted way to evaluate the quantity and type of particles released from the cigarettes. Although Lorillard and H&V argue that Dr. Millette is not experienced in testing cigarettes, and that he did not design or supervise the testing protocol conducted at Arista Laboratories, Arista's reports indicate that they followed standard ISO and Intense regimes in producing the samples they provided to Dr. Millette. There is no dispute that it is standard practice in Dr. Millette's field to use an independent laboratory to prepare samples for analysis, and the court finds no flaw in his methodology that stems from his use of Arista, an accredited laboratory that specializes in this type of work, to prepare his samples. Lorillard and H&V argue that Arista's work was "unreliable," but nothing in the record supports that argument.<sup>2</sup>

Although Dr. Millette is not an expert at testing cigarettes, he is an expert at using microscopy to identify particles, and that is the work he performed for Quirin's counsel. The defendants object to Dr. Millette's use of an acid-base digestion technique to recover asbestos fibers from the smoke samples. Dr. Millette used this approach in order to employ the standard machine-smoking protocol, which used fiberglass "Cambridge" filters. It was difficult to observe asbestos fibers on the filters because of their similarity to the glass fibers. Although the defendants argue that this approach was "untested," they do not suggest that using an acid/base

---

<sup>2</sup> Lorillard and H&V have subpoenaed Arista's records of the testing of original Kents. Quirin's motion to quash that subpoena was denied by the magistrate judge. (Order Feb. 21, 2014, ECF No. 236.)

digestion procedure to isolate particles of interest is a novel procedure in microscopy, but merely that it is a novel way to identify asbestos particles in tobacco smoke. The court finds that the practice is scientifically valid, and that it was a reasonable way to overcome the problem of using a Cambridge filter—the type of filter used with smoking machines—to capture fibers that were not easily viewed on such a filter. The defendants have suggested no reason why dissolving the glass particles in the filter could have made the analysis of the asbestos particles in the samples unreliable.

Finally, the defendants argue that the results of the tests are inconsistent and varied. The four samples that were smoked using a “two-puff” method revealed no measurable asbestos fibers. The other samples, smoked using the ISO and Intense methods, yielded 56, 46, 8, and 1 fibers. Dr. Millette used those counts to calculate and estimate how many fibers would have been pulled through the filters by the smoking machine. Lorillard and H&V argue that the variability in the samples calls into question the reliability of Dr. Millette’s analysis. But, as previously stated, the evaluation of an expert’s conclusions falls to the jury. The fact that Dr. Millette’s results were inconsistent goes to the weight of the evidence, not the reliability of his methodology.

For the reasons discussed above, the court finds no reason to exclude the reports and testimony of Dr. Millette relating to his analysis of original Kent cigarettes. Lorillard and H&V’s motion to exclude this evidence is therefore denied.

#### **B. Dr. Carl Brodtkin**

Quirin retained Dr. Carl Brodtkin to provide an expert opinion as to the causes of Mr. Quirin’s mesothelioma. Lorillard and H&V move to exclude Dr. Brodtkin’s opinion that Mr.



Quirin's exposure to asbestos from smoking original Kents with a Micronite filter containing asbestos was a "significant exposure" that increased his risk of mesothelioma.

Dr. Brodtkin was retained on October 5, 2012. He reviewed Mr. Quirin's medical diagnoses and the clinical evidence supporting the diagnoses, including radiographic and imaging studies and medical records. He compiled Mr. Quirin's occupational and environmental history and assessed the latency period between his asbestos exposure and the presentation of his disease. He also conducted a differential diagnosis to rule out causes of mesothelioma other than asbestos. Finally, he reviewed existing epidemiological studies of asbestos exposure, as well as the few existing studies addressing fiber release from original Kents, including the reports of Dr. Millette and Dr. William Longo.

The court first concludes that Dr. Brodtkin is qualified to testify as to the connection between asbestos exposure and mesothelioma. He has degrees in medicine and public health and has published dozens of articles on occupational and environmental health, many dealing with asbestos exposure. He has participated in studies of asbestos-exposed workers. Dr. Brodtkin has previously served as an expert in asbestos cases. *See, e.g., Lipson v. On Marine Servs. Co.*, No. C1301747 TSZ, 2013 WL 6536923 (W.D. Wash. Dec. 13, 2013).

The court further concludes that Dr. Brodtkin's "scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue," as required by Rule 702. The causes of mesothelioma are not readily understood by a lay person; the question of causation is an exceedingly difficult one, even for the scientific community.

The court next finds that Dr. Brodtkin's opinion is the product of a reliable technique that has been generally accepted by the scientific community. As described above, Dr. Brodtkin used a multi-step procedure for diagnosing Mr. Quirin's asbestos-related disease. He examined

biological evidence, compiled an occupational and environmental exposure history, and surveyed a range of research on asbestos exposure, and he employed a differential diagnosis to rule out alternative causes of mesothelioma. This methodology is commonly known as the “Helsinki Criteria,” based on a document first produced at a 1997 International Expert Meeting on Asbestos, Asbestosis, and Cancer, and later updated. See “Asbestos, asbestosis and cancer: the Helsinki criteria for diagnosis and attribution,” SCAND. J. WORK ENVTL. HEALTH 23:311-16 (1997). The method is frequently used to attribute cases of mesothelioma to asbestos exposure.

The Seventh Circuit approved of similar expert testimony in *Schultz*, in which the plaintiff relied on an expert report to show that benzene exposure was a substantial factor in the development of his leukemia. 721 F.3d at 429. The expert opined that, based on the plaintiff’s occupational history, his benzene exposure played a substantial role in the development of the disease, although cigarette smoking might have also contributed to the disease. *Id.* After the trial court excluded the expert’s report, the Seventh Circuit reversed, explaining that:

The method of differential diagnosis on which [the expert] relied to assess the development of [the plaintiff’s acute myeloid leukemia] routinely identifies multiple causal factors. We have recognized this method of differential diagnosis and differential etiology as a generally accepted means for evaluating the cause of a plaintiff’s injury. [*Myers v. Ill. Cent. R.R.*, 629 F.3d 639, 644 (7th Cir. 2010)] (“[I]n a differential etiology, the doctor rules in all the potential causes of a patient’s ailment and then by systematically ruling out causes that would not apply to the patient, the physician arrives at what is the likely cause of the ailment. There is nothing controversial about that methodology. The question of whether it is reliable under *Daubert* is made on a case-by-case basis, focused on which potential causes should be ‘ruled in’ and which should be ‘ruled out.’”) (internal citations omitted).

*Id.* at 433. See also *Heller v. Shaw Indus., Inc.*, 167 F.3d 146, 154-55 (3d Cir. 1999) (“[D]ifferential diagnosis consists of a testable hypothesis, has been peer reviewed, contains standards for controlling its operation, is generally accepted, and is used outside of the judicial context.” (internal quotation marks omitted)).

As the Seventh Circuit's discussion of the use of differential diagnosis suggests, in examining the potential causes of Mr. Quirin's disease and attempting to rule in all potential causes and then rule out those that were inapplicable to Mr. Quirin, Dr. Brodtkin employed a method accepted in the discipline. Although Lorillard and H&V can contest whether the Helsinki Criteria are the most appropriate method for attributing causation in a mesothelioma case, that argument is more appropriately raised at trial through a battle of the experts.

Lorillard and H&V have raised several other objections to Dr. Brodtkin's testimony, but these arguments are red herrings. First, they claim that Dr. Brodtkin's conclusions are unsupported by evidence that original Kent cigarettes released sufficient asbestos fibers to cause mesothelioma. The court has already held that Dr. Millette's report, on which Dr. Brodtkin relied for evidence of asbestos exposure, is admissible. The defendants are free to argue at trial that the original Kents did not actually release asbestos fibers in significant quantities.

The defendants point out that Dr. Brodtkin cannot identify the dose of asbestos to which Mr. Quirin was exposed. But in cases of occupational or environmental exposure, "it is usually difficult, if not impossible, to quantify the amount of exposure." *Bombardiere v. Schlumberger Tech. Corp.*, 934 F. Supp. 2d 843, (N.D. W.Va. 2013) (quoting FEDERAL JUDICIAL CENTER, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 187 (1994)). Lorillard and H&V also point out, correctly, that there is no epidemiologic study of original Kent smokers that establishes an association between smoking the cigarettes and mesothelioma. *See, e.g., McMunn v. Babcock & Wilcox Power*, Nos. 10-143, 10-368, 10-650, 10-728, 10-744, 10-908, 10-1736, 11-898, 11-1381, 12-1221, 12-1459, 2013 WL 3487560, at \*15 (W.D. Pa. July 12, 2013) (explaining the "gold standard" criteria used by epidemiologists to determine "whether an alleged association is causal"). But courts have not required such studies to link a particular object to a particular

disease. See *In re Asbestos Prods. Liab. Litig.*, 714 F. Supp. 2d 535, 544 (E.D. Pa. 2010) (“Epidemiology studies are not per se required, and may not be needed, if an expert offers a reliable causation opinion through the use of some other valid scientific methodology.”) (citing *Heller*, 167 F.3d at 155-56). The argument that Quirin lacks direct evidence linking Mr. Quirin’s disease to exposure to asbestos from original Kents can be raised at trial.

Lorillard and H&V next argue that Dr. Brodtkin’s testimony is a variant of the argument, discredited in some jurisdictions, that “each and every exposure” to asbestos is a substantial factor causing mesothelioma. This testimony has been rejected by numerous federal and state courts as unscientific and unsubstantiated by evidence. See, e.g., *Lindstrom v. A-C Prods. Liab. Trust*, 424 F.3d 488, 492-93 (6th Cir. 2005); *Smith v. Ford Motor Co.*, No. 2:08-cv-630, 2013 WL 214378, at \*1-3 (D. Utah Jan. 18, 2014); *Betz v. Pneumo Abex, LLC*, 44 A.3d 27, 56-57 (Pa. 2012) (“[W]e do not believe that it is 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[.]”). Other courts, however, have deemed similar testimony scientifically valid. See, e.g., *In re Asbestos Prods. Liab. Litig.*, MDL No. 875, No. 10-cv-61118, 2011 WL 605801, at \*7 (E.D. Pa. Feb. 16, 2011) (allowing opinion that “every occupational and bystander exposure to asbestos above background was a substantial contributing factor in causing . . . mesothelioma”). Still other courts have distinguished testimony suggesting that a *de minimus* exposure to asbestos could cause mesothelioma from testimony that each *significant* exposure to asbestos could be a cause. See, e.g., *Dixon v. Ford Motor Co.*, No. 82, 70 A.3d 328 (Md. App. Ct. July 25, 2013) (explaining that expert’s “opinion was based on evidence of repeated exposures . . . to high-level doses of asbestos fibers . . . and must be viewed in that light”).

This court need not decide whether an expert may offer testimony that each and every exposure to asbestos is a significant cause of mesothelioma, because that is not Dr. Brodkin's opinion. In his depositions in this and other cases, Dr. Brodkin has explicitly rejected a "single fiber" theory of causation and the idea any minimal exposure to asbestos fibers is a cause of mesothelioma. (*See* Pl.'s Resp. to Mot. to Exclude 13.) Rather, his opinion is that by smoking thousands of original Kent cigarettes, Mr. Quirin experienced a significant exposure to asbestos. A district court in Washington recently allowed Dr. Brodkin to offer the opinion that each "identified exposure" was a substantial cause of injury. *Lipson*, 2013 WL 6536923, at \*43 ("The Court is satisfied that Dr. Brodkin's opinions are based on a sound methodology and are not simply unreliable opinions equivalent to 'every fiber in disguise.'").

Lorillard and H&V further argue that Dr. Brodkin's testimony should be excluded because he states that there is no clear threshold for increased risk from asbestos exposure and because he did not rule out the possibility that Mr. Quirin's disease could have been caused solely by his occupational exposure to asbestos. In *Schultz*, the district court excluded the expert's medical causation testimony because the doctor opined that "there is no threshold" for safe exposure to benzene and failed to rule out the plaintiff's history of smoking as a potential cause of his leukemia. 721 F.3d at 429. The Seventh Circuit explained that the expert should not have been excluded because "as a careful scientist [he] reserve[ed] the possibility that even less exposure might be dangerous," and "there is no rule requiring the exclusion of expert testimony just because the expert digresses into a collateral issue to explain where the frontier of research lies." *Id.* at 432. In *Lipson*, the Washington district court similarly held that Dr. Brodkin was allowed to testify that all asbestos exposures are cumulative, noting that "Dr.

