

IN THE UNITED STATES DISTRICT COURT FOR THE
EASTERN DISTRICT OF VIRGINIA
ALEXANDRIA DIVISION

DEBORAH ZELLARS,)	
)	
Plaintiff,)	
v.)	Case No. 1:11-cv-967
)	
NEXTECH NORTHEAST, LLC)	
)	
Defendant.)	
_____)	
)	
CARRIE ELAINE HARE,)	
)	
Plaintiff,)	
v.)	Case No. 1:11-cv-968
)	
NEXTECH NORTHEAST, LLC)	
)	
Defendant.)	
_____)	

MEMORANDUM OPINION

THIS MATTER is before the Court on the defendant’s motions in limine to exclude expert testimony and motions for summary judgment. These related negligence cases involve allegations that personal injuries suffered by the plaintiffs in each case were proximately caused by a refrigerant gas leak in a freezer unit at their workplace that was serviced by the defendant, NexTech Northeast, LLC (“NexTech”).

There are two issues before the Court. The first issue is whether the plaintiffs Deborah Zellars's and Carrie Hare's (collectively, "Plaintiffs") expert witnesses offer relevant scientific knowledge and scientifically reliable opinions on the question of whether Plaintiffs' injuries were proximately caused by exposure to refrigerant gas that leaked from the system serviced by NexTech. The Court holds that the reports and testimony of Plaintiffs' causation experts are not reliable and, on some points, not relevant to the specific causation issue presented in these cases, and therefore cannot be admitted under Rule 702 of the Federal Rules of Evidence. First, the opinions of Plaintiffs' experts on causation are not based on sufficient facts about Plaintiffs' level of exposure to the refrigerant at issue in these cases, R-404A, and are not based on adequate scientific knowledge of the toxicity of R-404A. Second, the opinions of Plaintiffs' treating physicians, which are offered to establish specific causation in these cases, are not based on reliable application of scientifically valid principles and methods. For these reasons, the Court grants NexTech's motions in limine to exclude the reports and testimony of Plaintiffs' causation experts.

The second issue before the Court is whether NexTech is entitled to summary judgment on Plaintiffs' negligence claims where Plaintiffs offer no admissible expert testimony establishing that the refrigerant leak proximately caused Plaintiffs' personal injuries. The Court holds that, without admissible expert testimony establishing specific causation, NexTech is entitled to judgment as a matter of law on Plaintiffs' negligence claims. Accordingly, the Court grants NexTech's motions for summary judgment in both cases.

I. BACKGROUND

Deborah Zellars and Carrie Hare (collectively, “Plaintiffs”) were employees of Rite Aid of Virginia, Inc., and worked at a Rite Aid store in Arlington, Virginia, in 2009. Ms. Hare was the manager of the Rite Aid store, and Ms. Zellars was a shift supervisor. Plaintiffs’ work duties included regularly rearranging and organizing retail products displayed in reach-in refrigerators and freezers in the store, but most of their time at work was spent away from the refrigeration units. NexTech Northeast, LLC (“NexTech”) had a contract with Rite Aid pursuant to which NexTech performed maintenance and repair services on the Rite Aid store’s retail display refrigeration system. On September 9, 2009, NexTech performed maintenance on the ice cream freezer at the Rite Aid store in response to an alarm on the freezer, and the NexTech technician added R-404A Freon¹ refrigerant to the system during that service call. NexTech responded to the freezer’s alarm again on September 11, 2009, and determined that the freezer was operating properly during that service call.

On September 16, 2009, Ms. Hare called the Arlington County Fire Department, stating that employees of the Rite Aid store had been complaining of headaches and other symptoms for weeks. After the fire department’s hazmat team arrived at the store, it detected Freon in the air near the ice cream freezer but also determined that oxygen levels in the store were normal. A call was placed to NexTech after the fire department left the store. The NexTech technician detected that a valve was leaking refrigerant gas, repaired the valve, and determined that the system was functioning properly again. Minutes before NexTech completed its work, Ms. Zellars reported to work at the store. She reported to Ms. Hare that she was feeling ill and requested medical

¹ “Freon” is a trademark registered by E.I. duPont de Nemours & Company, but the term is regularly used in reference to chemicals used as refrigerants containing fluorocarbons. The particular refrigerant chemical at issue in these cases is designated R-404A.

attention for shortness of breath, dizziness, and a headache. Ms. Zellars was taken to the emergency room at the Virginia Hospital Center in Arlington, Virginia, where she was diagnosed with anemia and was offered a blood transfusion. Ms. Zellars refused the transfusion and reported that she was feeling better at the emergency room.

Ms. Zellars and Ms. Hare each filed suit against NexTech in the Circuit Court of Arlington County for negligence, and both cases were removed to this Court on September 9, 2011.² Plaintiffs allege that NexTech breached its common law duty of care in failing to properly service the ice cream freezer at the Rite Aid store and in failing to detect and repair the refrigerant leak until September 16, 2009. Plaintiffs allege further that their exposure to the leaking refrigerant gas caused personal injuries, and they offer the testimony of their treating physicians and other experts to support their theories of causation. Ms. Hare's treating physician Mary Ellen Gallagher, M.D. opines that the leaking refrigerant caused headaches, fatigue, dizziness, nausea, sore throat, chest pain, and stomach and epigastric pain suffered by Ms. Hare between August 2009 and April 2010. Ms. Zellars's treating physician Vandana Sharma, M.D. originally opined, in her written report, that neck and back pain, body tremors, and other neurological symptoms suffered by Ms. Zellars were caused by exposure to refrigerant gas fumes while working at the Rite Aid store in September 2009. At her deposition, however, Dr. Sharma opined that Ms. Zellars's condition was caused by exposure to some neurotoxin and that exposure to refrigerant was merely one possible cause. Chemist Robert K. Simon, Ph.D. opines that Ms. Zellars experienced physical symptoms that were consistent with the adverse health effects of overexposure to R-404A refrigerant. Neurotoxicologist Raymond Singer, Ph.D. opines that Ms.

² This Court has original jurisdiction of these cases under 28 U.S.C. § 1332. Section 1332 grants the federal district courts "original jurisdiction of all civil actions where the matter in controversy exceeds . . . \$75,000 . . . and is between . . . citizens of different States[.]" 28 U.S.C. § 1332(a) (2012). Here, NexTech is a citizen of Florida, and Plaintiffs are citizens of Virginia. Also, Plaintiffs each seek judgments in amounts exceeding \$75,000. Therefore, the Court has original jurisdiction of these cases.

Zellers's neurological condition is consistent with and was caused by toxic exposure to refrigerant gas.

The parties to both cases filed several pre-trial motions, which the Court took under advisement after hearing oral argument on July 13, 2012. On July 19, 2012, the Court entered an order in each case granting NexTech's motions in limine to the exclude the reports and testimony of Plaintiffs' expert witnesses on causation. The Court also granted NexTech's motions for summary judgment in each case and denied all other pending motions as moot. In this Memorandum Opinion, the Court sets forth its reasons for granting NexTech's motions in limine and summary judgment motions.

II. MOTIONS IN LIMINE

A. Standard of Review

The Federal Rules of Evidence provide that “[t]he court must decide any preliminary question about whether a witness is qualified . . . or evidence is admissible.” FED. R. EVID. 104(a). Rule 702 of the Federal Rules of Evidence governs the admissibility of expert testimony. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 588 (1993). Rule 702 provides that

[a] witness who is qualified as an expert 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. “[T]he Rules of Evidence . . . assign to the trial judge 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. The subject of an expert's testimony must be “scientific, technical, or other specialized knowledge,” *id.*; therefore, “subjective belief or unsupported speculation” will

not suffice. *Daubert*, 509 U.S. at 589–90. *See also Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 141 (1999) (trial court’s “gatekeeping” obligation announced in *Daubert* applies to testimony based on scientific, technical, or other specialized knowledge); *Bryte ex rel. Bryte v. Am. Household, Inc.*, 429 F.3d 469, 477 (4th Cir. 2005) (“*Daubert* aims to prevent expert speculation”). “Faced with a proffer of expert scientific testimony, then, the trial judge must determine at the outset . . . whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue.” *Daubert*, 509 U.S. at 592 (footnote omitted). “The first prong of this inquiry necessitates an examination of whether the reasoning or methodology underlying the expert’s proffered opinion is reliable,” *Westberry v. Gislaved Gummi AB*, 178 F.3d 257, 260 (4th Cir. 1999), or “scientifically valid.” *Daubert*, 509 U.S. at 592. “The second prong of the inquiry requires an analysis of whether the opinion is relevant to the facts at issue.” *Westberry*, 178 F.3d at 260; *see also Daubert*, 509 U.S. at 592.

In determining whether the theory or technique is “scientifically valid,” courts generally consider several factors: (1) whether the theory or technique used by expert can be, and has been, tested; (2) whether the theory or technique has been subjected to peer review; (3) the known or potential rate of error of the method used; and (4) the degree of the method’s or conclusion’s acceptance within the relevant scientific community. *See id.* at 593–94; *Anderson v. Westinghouse Savannah River Co.*, 406 F.3d 248, 261 (4th Cir. 2005). This list of factors, however, is not exhaustive; courts may consider other factors in assessing whether an expert’s testimony is reliable, including whether the expert has adequately accounted for alternative explanations. FED. R. EVID. 702 advisory committee’s note (2000 amendment). *See also Cooper v. Smith & Nephew, Inc.*, 259 F.3d 194, 202 (4th Cir. 2001); *Perkins v. United States*, 626 F.

Supp. 2d 587, 594–95 (E.D. Va. 2009) (excluding expert testimony on causation where expert failed to adequately account for alternative explanations).

B. Analysis

The Court grants NexTech’s motions in limine to exclude the reports and testimony of Plaintiffs’ causation experts because the opinions of Plaintiffs’ experts on specific causation are not reliable and, on some points, not relevant to the causation issue presented in these cases.

1. Levels of Exposure

In forming their opinions on causation, Plaintiffs’ experts lacked adequate scientific knowledge of the level of exposure to R-404A needed to cause Plaintiffs’ conditions, and lacked sufficient information about Plaintiffs’ actual level of exposure.

Generally, in toxic tort cases, relevant and reliable expert testimony is required to prove (1) “that a particular chemical is harmful to humans generally,” *i.e.*, general causation, and (2) “that exposure to the potentially harmful agent actually caused [the plaintiff’s injury],” *i.e.*, specific causation. *McCallum ex rel. McCallum v. United States*, No. 304CV442, 2005 WL 1048735, at *10 (E.D. Va. 2005). *See also Cavallo v. Star Enter.*, 892 F. Supp. 756, 774 (E.D. Va. 1995), *aff’d in relevant part*, 100 F.3d 1150, 1159 (4th Cir. 1996) (expert testimony is generally required to prove causation in toxic exposure cases). “In order to carry the burden of proving a plaintiff’s injury was caused by exposure to a specified substance, the plaintiff must demonstrate the levels of exposure that are hazardous to human beings generally as well as the plaintiff’s actual level of exposure.” *Westberry*, 178 F.3d at 263 (citations and internal quotation marks omitted). In cases involving “substantial exposure” to a substance, precise and detailed quantitative evidence “need not invariably provide the basis for an expert’s opinion on causation.” *Westberry*, 178 F.3d at 264.

In *Westberry v. Gislaved Gummi AB*, the U.S. Court of Appeals for the Fourth Circuit considered whether the testimony of the plaintiff's causation expert was sufficiently reliable and relevant to justify admission where the expert failed to assess the precise level of exposure necessary to cause the plaintiff's injuries. *Id.* at 262–63. The expert testified that the plaintiff's workplace exposure to airborne talc caused the plaintiff's sinus condition. *Id.* at 260. The plaintiff "testified that he was exposed to very high levels of airborne talc throughout his workday," describing how rubber gaskets manufactured by the defendant arrived covered in talc that would be released into clouds in the air and ultimately cover his work area and his clothes. *Id.* at 264. The parties did not dispute that "inhalation of high levels of talc irritates mucous membranes," *id.*, but the defendant argued that the plaintiff's expert on causation "had no means of accurately assessing what level of exposure was adequate to produce the [plaintiff's] sinus irritation," *Id.* at 263. While "precise information concerning the exposure necessary to cause specific harm to humans and exact details pertaining to the plaintiff's exposure are beneficial," the court recognized that "[o]nly rarely are humans exposed to chemicals in a manner that permits a quantitative determination of adverse outcomes." *Id.* at 264 (citation omitted). The Fourth Circuit held that the plaintiff's testimony established substantial exposure and that more detailed quantitative data about his level of exposure was not necessary to render his expert's opinion sufficiently reliable to admit under Rule 702. *Id.* at 264. In so holding, the court contrasted this case from the Fifth Circuit case *Allen v. Pennsylvania Engineering Corp.* and the Seventh Circuit case *Wintz v. Northrop Corp.* *Id.*

Consistent with *Westberry*, the Fifth Circuit held in *Allen* that "[s]cientific knowledge of the harmful level of exposure to a chemical, plus knowledge that the plaintiff was exposed to such quantities, are minimal facts necessary to sustain the plaintiffs' burden in a toxic tort case."

Allen v. Pa. Eng'g Corp., 102 F.3d 194, 199 (5th Cir. 1996). The *Allen* court affirmed the district court's decision to exclude the testimony of causation experts in a toxic tort case where "the experts' background information concerning [the plaintiff's] exposure [was] so sadly lacking as to be mere guesswork." *Id.* at 198. There was no direct evidence of the plaintiff's level of exposure to the chemical at issue. *Id.* In forming their opinion, the experts "relie[d] principally on the affidavit of a coworker [of the plaintiff] and on extrapolations concerning [the] handling [of the chemical] at the hospital where [the plaintiff] worked based on conditions in other hospitals" *Id.* The court held that information upon which the experts relied is not the type of information reasonably relied upon by other experts in their field, and affirmed the district court's decision to exclude their testimony. *Id.* at 199. Thus, unlike *Westberry*, the expert opinion proffered and challenged in *Allen* was not based on sufficient information about the level of the plaintiff's exposure to the toxic substance at issue.

In *Wintz*, the Seventh Circuit affirmed the district court's decision to exclude a toxicology expert's testimony that in utero exposure to the chemical bromide caused birth defects suffered by one of the plaintiffs, a teen-aged girl who had been diagnosed with Prader-Willi Syndrome ("PWS"). *Wintz v. Northrop Corp.*, 110 F.3d 508, 510 (7th Cir. 1997). At the time he formed his opinion, the toxicologist "knew only that [the girl's mother] had worked with a chemical which contained bromide, and that [the girl] had suffered certain symptoms he found to be consistent with bromide exposure." *Id.* at 513. The toxicologist

had neither seen nor spoken with [the plaintiffs] or reviewed [the daughter's] medical records. He did not perform any tests or calculations concerning the amount of exposure to bromide [the mother] had, nor did he seek any information concerning the work environment in which [the mother] was exposed to bromide. . . . He did not know how frequently, in what quantity, or in what form, [the mother] was exposed to bromide on the job. He did not know the specifics of the work environment (*i.e.*, the size of the room, the ventilation capacity if any, whether [the mother] wore a mask or what type of mask she wore if any), nor did

he attempt to correlate any specific dose [the mother] received with [the daughter's] symptoms.

Id. The Seventh Circuit affirmed the district court's conclusion "that [the toxicologist's] opinions as to causation were speculative in nature and lacking in scientific reliability." *Id.* at 512-13 (internal quotation marks omitted). The district court's determination that "[the toxicologist's] testimony would not be helpful to the trier of fact" was also affirmed, provided that the witness was not a licensed physician or surgeon and "lacked sufficient expertise in PWS, birth defects, or bromide exposure, to qualify him to offer an expert opinion as to the cause of [the daughter's] abnormalities." *Id.* at 513. In sum, "[the toxicologist's] experience, knowledge, and methodology simply were not sufficient to permit him to offer an expert opinion applying the principles of toxicology to a human being in this case." *Id.* Again, unlike *Westberry*, the expert opinion proffered and challenged in *Wintz* was not based on sufficient information about the level of the plaintiff's exposure to the alleged toxin.

Thus, the Fourth Circuit's decision in *Westberry* is consistent with the rule observed among several circuit courts that the plaintiff in a toxic tort case bears the burden of demonstrating her "actual level of exposure" to the alleged toxin. *Westberry*, 178 F.3d at 263. *See also, e.g., McClain v. Metabolife Int'l, Inc.*, 401 F.3d 1233, 1242 (11th Cir. 2005) (requiring proof that the patient was "exposed to a sufficient amount of the substance in question to elicit the health effect in question" and "not simply proof of exposure to the substance"); *Mitchell v. Gencorp Inc.*, 165 F.3d 778, 781 (10th Cir. 1999); *Wright v. Willamette Indus., Inc.*, 91 F.3d 1105, 1106 (8th Cir. 1996).

In the present cases, the opinions of Plaintiffs' causation experts are not based on sufficient facts or data about the level of Plaintiffs' exposure to refrigerant gas to be reliable. Unlike the expert at issue in *Westberry*, Plaintiffs' experts in the present cases did not consider

the extent of Plaintiffs' exposure to leaking refrigerant in forming their opinions on the alleged causal connection between the leak and Plaintiffs' injuries. Without considering such information, the experts' opinions as to specific causation, like those excluded in *Allen* and *Wintz*, are speculative at best and therefore unreliable and inadmissible. *See Daubert*, 509 U.S. at 590 (requiring expert testimony to be based on "more than subjective belief or unsupported speculation"); *Bryte*, 429 F.3d at 477 ("*Daubert* aims to prevent expert speculation"); *Westberry*, 178 F.3d at 263 (proof of "the plaintiff's actual level of exposure" is required to establish causation).

Moreover, Plaintiffs' experts lack sufficient scientific knowledge of the toxicity of the refrigerant at issue in these cases, R-404A, to assist the fact finder in deciding the causation issue. Plaintiffs' experts are not able to evaluate the level of exposure to R-404A necessary to produce the injuries suffered by Plaintiffs. Thus, the proffered experts lack the scientific knowledge necessary to engage in the accepted methodology employed by toxicologists to establish causation in toxic tort cases. *See id.* ("plaintiff must demonstrate the levels of exposure that are hazardous to human beings generally" to prove causation); *Cavallo*, 892 F. Supp. at 764. Without reliable scientific knowledge of what level of exposure to R-404A is needed to produce Plaintiffs' injuries, the experts can only speculate whether the level of Plaintiffs' exposure to R-404A was high enough to cause their injuries, and their opinions as to specific causation are unreliable and must be excluded.

For these reasons, which are elaborated in section B.3. below, the Court grants NexTech's motions in limine to exclude the reports and testimony of Plaintiffs' causation experts.

2. Differential Diagnosis

The opinions of Plaintiffs' treating physicians, which are offered to establish specific causation in these cases, are not based on reliable application of scientifically valid principles and methods.

In *Westberry*, the Fourth Circuit endorsed the view that "a medical opinion on causation based upon a reliable differential diagnosis is sufficiently valid to satisfy the [reliability] prong of the Rule 702 inquiry." *Westberry*, 178 F.3d at 263. "Differential diagnosis, or differential etiology, is a standard scientific technique of identifying the cause of a medical problem by eliminating the likely causes until the most probable one is isolated." *Id.* at 262. Typically, the technique is "performed after physical examinations, the taking of medical histories, and the review of clinical tests, including laboratory tests[.]" *Id.* (citations and internal quotation marks omitted). "A reliable differential diagnosis . . . generally is accomplished by determining the possible causes for the patient's symptoms and then eliminating each of these potential causes until reaching one that cannot be ruled out or determining which of those that cannot be excluded is the most likely." *Id.* (citations omitted). A reliable differential diagnosis does not require ruling in and ruling out "every possible alternative cause of a plaintiff's illness," but "[a] differential diagnosis that fails to take serious account of other potential causes may be so lacking that it cannot provide a reliable basis for an opinion on causation." *Id.* at 265 (citations omitted). "Thus, if an expert utterly fails to consider alternative causes or fails to offer an explanation for why the proffered alternative cause was not the sole cause, a district court is justified in excluding the expert's testimony." *Cooper*, 259 F.3d at 202; *see also Perkins*, 626 F. Supp. 2d at 594-95.

“Ruling in” exposure to a particular substance as a possible cause of a patient’s medical condition requires (1) a reliable determination of the level of exposure necessary to cause the condition and (2) a reliable determination that the patient was exposed to the substance at this level. *See Cavallo*, 892 F. Supp. at 764, 771; *Westberry*, 178 F.3d at 263. In *Cavallo v. Star Enterprise*, Judge Ellis required reliance upon a toxicologist’s methodology in the ruling-in of exposure to a particular chemical as a suspected cause of a patient’s injuries. 892 F. Supp. at 771. The *Cavallo* opinion included a description of the “risk assessment” methodology endorsed by the World Health Organization and various agencies of the United States Government:

First, an evaluation is made of the chemicals to which the individual might have been exposed, and of the concentrations of these chemicals in air breathed by the individual. The second step involves an evaluation, based on the published scientific literature, of the exposures necessary to produce the adverse effects associated with the chemicals to which individuals may be exposed. These two evaluations are then combined in the final step of the risk assessment to provide an estimate of the likelihood that any of the harmful properties of any or all of the chemicals might have been expressed in the exposed individual.

Id. at 764.

In the present cases, Plaintiffs offer the opinions of their treating physicians to establish specific causation through differential diagnosis but fail to show that these physicians reliably applied the method in formulating their opinions. The proffered physicians lacked sufficient scientific knowledge about R-404A toxicity and adequate information about Plaintiffs’ exposure to the refrigerant to reliably rule in R-404A exposure as the cause of Plaintiffs’ injuries. Moreover, the proffered physicians did not adequately inquire about or investigate Plaintiffs’ medical histories in order to properly determine what possible causes of their medical conditions should be ruled in. The physicians also failed to inquire about or investigate whether Plaintiffs’ were exposed to possible toxins other than refrigerant gas in order to determine whether such toxic exposures should be ruled in as possible causes of Plaintiffs’ medical conditions. The Court

holds that Plaintiffs' treating physicians did not reliably apply the accepted method of differential diagnosis in determining that exposure to refrigerant caused or could have caused Plaintiffs' injuries. *See Westberry*, 178 F.3d at 265 ("differential diagnosis that fails to take serious account of other potential causes may be so lacking that it cannot provide a reliable basis for an opinion on causation"); *Cooper*, 259 F.3d at 202; FED. R. EVID. 702 advisory committee's note (2000 amendment) (courts may consider whether an expert has adequately accounted for alternative explanations in deciding whether the expert's opinion is reliable). For this reason, Plaintiffs' experts on specific causation must be excluded.

3. Plaintiffs' Experts on Causation

The Plaintiffs' expert witnesses on the causation issue in these cases are discussed individually in this section.

a. Mary Ellen Gallagher, M.D.

The Court excludes the report and testimony of Dr. Mary Ellen Gallagher because Dr. Gallagher lacks expertise in exposure to refrigerant gas, and her opinion is not based on sufficient facts or reliable application of accepted methods. The opinion of Dr. Gallagher, Carrie Hare's treating physician, is offered to establish that the refrigerant leak detected and repaired at the Rite Aid store on September 16, 2009, caused physical conditions presented by Ms. Hare between August 2009 and April 2010. Mot. in Limine to Exclude Report & Testimony of Gallagher, Ex. A [hereinafter Gallagher Report]; Mot. in Limine to Exclude Report & Testimony of Gallagher, Ex. B at 106, 120–21, 123 [hereinafter Gallagher Dep.]. These physical conditions included headaches, fatigue, dizziness, nausea, sore throat, chest pain, and stomach and epigastric pain. Gallagher Report; Gallagher Dep. at 120–21, 123.

Dr. Gallagher is not qualified to offer, under Federal Rule of Evidence 702(a), scientific or specialized knowledge that would assist the fact-finder as to whether Ms. Hare's health condition was caused by toxic exposure to refrigerant. Dr. Gallagher understands that her testimony requires expertise in "[c]hemical exposure" or, more specifically, exposure to refrigerant "in high concentrations, moderate concentrations, and low concentrations," Gallagher Dep. at 6, but she clearly lacks expertise in this area. Dr. Gallagher's areas of expertise include internal medicine and pediatrics, and she maintains a practice in these areas. *Id.* at 6–7. The scope of Dr. Gallagher's expertise does not encompass toxicology, chemical exposure, or, specifically, exposure to refrigerants. Her background includes training in emergency room medicine in medical school and during her residency, which included some training in diagnosing and treating toxic exposures and drug overdoses. *Id.* at 36–37. However, Dr. Gallagher is not a toxicologist and has had no training in methodologies used for diagnosing refrigerant toxicity. During her deposition, Dr. Gallagher reported a separate case of apparent toxic exposure in which she had been consulted. *Id.* at 37–38. In that case, which involved potential toxic exposure to mold, Dr. Gallagher referred her patients to a toxicologist for diagnosis and treatment. *Id.* Dr. Gallagher made no such referral in Ms. Hare's case but, rather, determined that Ms. Hare's medical condition was caused by exposure to refrigerant fumes without consultation with a toxicologist or any toxicological report of Ms. Hare's condition. *Id.* at 49.

Dr. Gallagher's deposition testimony reflects a general lack of specialized knowledge about toxicology as a field and R-404A toxicity. Specifically, Dr. Gallagher did not know whether different types of refrigerants differed in toxicity, what health effects removal to clean air would have after toxic exposure to R-404A, whether R-404A is a cumulative toxin, or,

perhaps most importantly, the amount of exposure to R-404A that would produce the health effects displayed by Ms. Hare. *Id.* at 52–56, 62, 82–83, 101–02. The limits of Dr. Gallagher’s expertise is apparent from her deposition testimony that, as reflected in her report, she needed to conduct a general Internet search in order to develop her knowledge of the effects of exposure to refrigerants after Ms. Hare reported the refrigerant leak in September 2009. Gallagher Report; Gallagher Dep. at 47. Dr. Gallagher’s Internet-based research, following Ms. Hare’s report of the refrigerant leak, appears to be the extent of her knowledge of refrigerant exposure. For these reasons, the Court holds that Dr. Gallagher lacks sufficient scientific or specialized knowledge to assist the fact-finder on the issue of whether the refrigerant leak at the Rite Aid store in September 2009 caused Ms. Hare’s injuries.

Additionally, the Court holds that Dr. Gallagher did not reliably apply scientifically valid principles and methods in determining that Ms. Hare’s condition was caused by exposure to refrigerant fumes. In her deposition, Dr. Gallagher characterized the method she employed in forming her opinion as differential diagnosis and clinical diagnosis, which she opined was the only reliable way to diagnose exposure to refrigerant chemicals. Gallagher Dep. at 40–45, 123. She described clinical diagnosis as “put[ting] the patient’s past medical history [and] current history together to formulate a diagnosis.” *Id.* at 40. Differential diagnosis typically involves reviewing medical histories and results of clinical tests and then ruling in and ruling out possible causes of a medical condition until the most probable cause is isolated. *Westberry*, 178 F.3d at 262. Dr. Gallagher’s report reflects that she ruled in and ultimately ruled out tension headaches, migraine headaches, intracranial pathology, and H1N1 influenza as potential causes of Ms. Hare’s condition. Gallagher Report. Tension headaches and migraine headaches were ruled out because medications prescribed to alleviate these conditions failed, and Ms. Hare’s symptoms

actually became more severe through these trials. *Id.* Intracranial pathology and H1N1 were ruled out after magnetic resonance imaging (“MRI”) of Ms. Hare’s brain returned normal results and testing for H1N1 returned negative results. *Id.* Dr. Gallagher ruled in the refrigerant gas leak as a potential cause of Ms. Hare’s condition after Ms. Hare reported the leak to her. Gallagher Report; Gallagher Dep. at 77. Dr. Gallagher’s differential diagnosis was unreliable because she did not consider sufficient facts to arrive at an adequate set of potential causes of Ms. Hare’s condition, and she lacked a reliable basis upon which to determine that exposure to refrigerant was the most probable cause.

Dr. Gallagher failed to consider sufficient information about Ms. Hare’s medical history and environment to know whether she was ruling in an adequate set of potential causes of Ms. Hare’s condition. Dr. Gallagher had been treating Ms. Hare for less than a year when Ms. Hare first presented symptoms the physician eventually attributed to the refrigerant leak in September 2009. Gallagher Dep. at 32–33. Dr. Gallagher did not review Ms. Hare’s past medical records, so the medical history Dr. Gallagher considered in forming her opinion in Ms. Hare’s case was provided solely through conversations with Ms. Hare. *Id.* at 42–43, 83. Moreover, Dr. Gallagher did not inquire, investigate, or consider whether there were other chemicals in Ms. Hare’s environment that might have caused her condition, and therefore failed to properly rule in and rule out these potential environmental factors. Dr. Gallagher did not consider or rule out exposure to other chemicals in the Rite Aid store that might have caused her symptoms, like the chemicals used to develop photographs and perfumes sold in the store. *Id.* at 77-78. Dr. Gallagher also failed to inquire whether there were chemicals present in Ms. Hare’s home that might have caused Ms. Hare’s condition through toxic exposure. *Id.* at 83. In sum, Dr. Gallagher did not have access to or did not adequately consider sufficient information to properly rule in

and rule out other potential causes of Ms. Hare's condition, as required in order to conduct a reliable differential diagnosis. *See Westberry*, 178 F.3d at 265 ("differential diagnosis that fails to take serious account of other potential causes" is inadequate); FED. R. EVID. 702 advisory committee's note (2000 amendment) (courts may consider whether an expert has adequately accounted for alternative explanations in deciding whether the expert's opinion is reliable).

Moreover, Dr. Gallagher's failure to show that she properly isolated exposure to refrigerant fumes as the most probable cause of Ms. Hare's condition renders her differential diagnosis unreliable. Dr. Gallagher determined that exposure to fumes from the refrigerant leak caused Ms. Hare's condition after a review of information on the topic through a search of the Internet, which suggested that "there was no formal [testing] protocol" for toxic exposure to refrigerants. Gallagher Report; *see also* Gallagher Dep. at 45–47, 104–05. Dr. Gallagher testified that she generally uses "authoritative medical site[s]" like the eMedicine and Mayo Clinic websites in conducting Internet research for diagnostic purposes, but she could not identify the specific websites she visited in Ms. Hare's case. *Id.* at 46. Dr. Gallagher did not print out or save any of the literature she reviewed and relied upon in forming her opinion, *id.*, so it is not available for review by NexTech or the Court. At her deposition, Dr. Gallagher was not able to describe with any level of detail the studies she reviewed online. She could not describe what testing was done in those studies to arrive at their conclusions about exposure to refrigerant fumes, whether tests were performed on human or animal populations, or the potential rate of error of any testing performed in the studies. *Id.* at 64–65. Thus, Dr. Gallagher fails to show that her online research of the topic of Freon exposure yielded sufficiently reliable information to support an admissible expert opinion that Ms. Hare's condition was caused by toxic exposure to CFC. *See Daubert*, 509 U.S. at 593–94; *Anderson*, 406 F.3d at 261 (factors courts consider in

determining reliability of an expert opinion include whether the theory presented by expert has been tested or subjected to peer review and the known or potential rate of error of the method used).

Dr. Gallagher acknowledges that her opinion requires expertise in exposure to refrigerant fumes “in high concentrations, moderate concentrations, and low concentrations,” Gallagher Dep. at 6, but, at the time she formed her opinion, Dr. Gallagher had no access to information about the air concentration of refrigerant gas to which Ms. Hare was exposed, *id.* at 53. The only information about the refrigerant leak available to Dr. Gallagher at the time she prepared her report was provided by Ms. Hare, who simply told her “that the pressure of Freon . . . in the [refrigeration] unit was higher than it was supposed to be.” *Id.* Dr. Gallagher did not use any reliable data about the severity or duration of the leak or the extent of Ms. Hare’s exposure in forming her opinion. *Id.* at 76, 79–81, 124–25. In forming her opinion, Dr. Gallagher did not know the hours Ms. Hare worked at the Rite Aid store, whether or how often the store’s doors were open, or anything about the flow of air within the store. *Id.* at 78–79. Without considering such information showing “the plaintiff’s actual level of exposure,” Dr. Gallagher’s opinion that exposure to refrigerant fumes caused Ms. Hare’s medical condition is speculative at best and therefore not scientifically reliable. *Westberry*, 178 F.3d at 263; *see also Cavallo*, 892 F. Supp. at 764.

The amount and quality of information Dr. Gallagher had about the level of Ms. Hare’s exposure to refrigerant gas contrasts sharply with the information considered by the plaintiff’s expert in *Westberry*. In *Westberry*, the plaintiff was able to provide descriptive and reliable information about the high levels of airborne talc to which he was exposed, which supported his expert’s opinion that this exposure caused the plaintiff’s sinus problems. *Westberry*, 178 F.3d at

264. Unlike the plaintiff's report in *Westberry*, Ms. Hare's report to Dr. Gallagher about the pressure of refrigerant in Rite Aid's system is not a report upon which Dr. Gallagher could reasonably rely in finding substantial exposure to refrigerant fumes in Ms. Hare's case, especially considering Ms. Hare's lack of expertise on refrigerants and refrigeration systems. Like the expert testimony excluded in *Allen* and *Wintz*, Dr. Gallagher's report is speculative at best and not based on sufficient information about the level of Ms. Hare's chemical exposure to offer a scientifically reliable opinion on causation. *See Daubert*, 509 U.S. at 590 (requiring expert testimony to be based on "more than subjective belief or unsupported speculation"); *Bryte*, 429 F.3d at 477 ("*Daubert* aims to prevent expert speculation"); *Allen*, 102 F.3d at 198 (excluding expert who had no direct evidence of the level of the plaintiff's chemical exposure at work but relied on a worker's report and extrapolations based on information about other workplaces); *Wintz*, 110 F.3d at 513 (excluding expert who did not review medical records or investigate the plaintiff's level of exposure or other information about her work environment).

The Court concludes that Dr. Gallagher's opinion is not based on specialized knowledge in toxicology or a reliable differential diagnosis of toxic exposure to refrigerant fumes, and therefore grants Defendant's Motion in Limine to Exclude Report and Testimony of Mary Ellen Gallagher, M.D. *Daubert*, 509 U.S. at 597; *Kumho Tire*, 526 U.S. at 141 (requiring court to act as gate-keeper to exclude unreliable expert testimony not based on scientific, technical, or other specialized knowledge).

b. Vandana Sharma, M.D.

The Court excludes the report and testimony of Dr. Vandana Sharma because, like Dr. Gallagher, Dr. Sharma lacks expertise in exposure to refrigerant gas, and the opinion offered in her report is not based on sufficient facts or reliable application of accepted methods. Dr.

Sharma, Deborah Zellars's treating physician, is a board certified neurologist who maintains a practice in general neurology. Mot. in Limine to Exclude Report & Testimony of Sharma, Ex. B at 5–7 [hereinafter Sharma Dep. I]. According to her report, completed on February 24, 2012, Dr. Sharma first evaluated Ms. Zellars on August 31, 2011, for pain in her neck and back, muscle tenderness and stiffness, jerking of extremities, body tremors, and other symptoms. Mot. in Limine to Exclude Report & Testimony of Sharma, Ex. A [hereinafter Sharma Report]. In her report, Dr. Sharma opined, to a reasonable degree of medical certainty, that Ms. Zellars's exposure to refrigerant gas while working at the Rite Aid store in September 2009 caused Ms. Zellars's neurological condition. Sharma Report.

According to her deposition testimony, however, Dr. Sharma now confines her testimony to Ms. Zellars's physical condition and symptoms. Sharma Dep. I at 26–27; Mot. in Limine to Exclude Report & Testimony of Sharma, Ex. C at 16 [hereinafter Sharma Dep. II]. Dr. Sharma maintains that Ms. Zellars's neurological condition was caused by some toxicity or toxic event, but she no longer offers exposure to refrigerant as the specific cause to a reasonable degree of medical certainty. Sharma Dep. I at 27–28, 52, 68. According to Dr. Sharma's deposition testimony, refrigerant chemical exposure is only one possible cause of Ms. Zellars's condition and symptoms. Sharma Dep. I at 25–26, 69–70, 72. Dr. Sharma's diagnosis of Ms. Zellars's condition is a "diffuse neurotoxic process" based on the fact that, according to diagnostic testing, Ms. Zellars's condition "involves multiple systems of her central . . . and peripheral nervous [systems] and muscular system." Sharma Dep. I at 57–58.

First, the Court holds that Dr. Sharma is not qualified to offer specialized knowledge about the toxicity of refrigerant chemicals that would assist the fact finder on the question of whether exposure to such chemicals caused, or even could have caused, Ms. Zellars's condition.

Dr. Sharma is a neurologist with no training or expertise in toxicology or refrigerant chemicals, Sharma Dep. I at 13–14, 28, and the scope of her expertise does not encompass toxicology or chemical exposure. Therefore, Dr. Sharma is not qualified to offer specialized knowledge about the toxicity of refrigerants that would assist the fact finder on the question of whether exposure to such chemicals caused, or even could have caused, Ms. Zellars’s condition. The limits of Dr. Sharma’s specialized knowledge in this respect is apparent from her testimony that she needed to conduct an Internet search for articles on the topic posted on academic medical websites in order to develop her knowledge of exposure to refrigerants. Sharma Dep. I at 32–33; Sharma Dep. II at 8. Dr. Sharma’s Internet-based research appears to be the extent of her knowledge of exposure to refrigerants. She cannot describe the mechanism by which refrigerants act as neurotoxins or identify the threshold level of exposure to R-404A that would cause Ms. Zellars’s condition. Sharma Dep. I at 75 –76; Sharma Dep. II at 11, 40. Dr. Sharma also lacks specialized knowledge of the different types of refrigerant chemicals and how they differ in their effects on human health. Sharma Dep. II at 8. Thus, Dr. Sharma has no scientific or specialized knowledge of refrigerant chemicals or toxicology that would assist the fact finder in determining whether Ms. Zellars’s neurological condition was caused by toxic exposure to any refrigerant. Without such expert knowledge, Dr. Sharma can only offer inadmissible speculation about whether Ms. Zellars’s exposure to R-404A was significant enough to cause her injuries. *See Daubert*, 509 U.S. at 590 (requiring expert testimony to be based on “more than subjective belief or unsupported speculation”); *Bryte*, 429 F.3d at 477 (“*Daubert* aims to prevent expert speculation”).

Second, the Court holds that the method by which Dr. Sharma determined that the refrigerant gas leak at the Rite Aid store in September 2009 caused or could have caused Ms.

Zellers's condition was unreliable. At her deposition, Dr. Sharma testified to employing differential diagnosis in Ms. Zellers's case. Sharma Dep. I at 27, 59, 63. Dr. Sharma was able to rule out a neurological syndrome and rule in toxic or traumatic event or insult as the cause of Ms. Zellers's condition based on the fact that her condition involved multiple systems, including the central and peripheral nervous systems and muscular system. Sharma Dep. I at 58–59; Sharma Dep. II at 16.

Dr. Sharma's differential diagnosis was not reliable in Ms. Zellers's case because Dr. Sharma did not adequately investigate or consider Ms. Zellers's medical history or environmental factors other than the refrigerant leak at the Rite Aid store in September 2009. Dr. Sharma acknowledges that it was important for her to consider all traumatic events or chemical exposures in determining the cause of Ms. Zellers condition. Sharma Dep. I at 60, 66; *see also Cooper*, 259 F.3d at 202 (differential diagnosis may be excluded "if an expert utterly fails to consider alternative causes"). However, Dr. Sharma did not investigate or ask about any such exposures, but rather relied solely on Ms. Zellers's report of exposure to refrigerant gas. Sharma Dep. I at 67; Sharma Dep. II at 68–69. In forming her opinion, Dr. Sharma did not review Ms. Zellers's pre-2009 medical records, Sharma Dep. I at 48, and therefore failed to take into account any potential traumatic or toxicological causes of Ms. Zellers's present condition that occurred before 2009.

Additionally, the Court holds that Dr. Sharma's differential diagnosis was unreliable in Ms. Zellers's case because Dr. Sharma did not reliably isolate exposure to refrigerant gas as the most probable cause of Ms. Zellers's condition. Dr. Sharma has acknowledged the importance of knowing the chemicals to which a patient has been exposed in toxic exposure cases. *See Cavallo*, 892 F. Supp. at 764, 771 (requiring evaluation of the particular chemicals involved and scientific

literature on toxicity of those chemicals to establish causation in toxic tort cases). However, she has claimed no knowledge or opinion about the differences between various types of Freon in their health effects or the particular type of Freon to which Ms. Zellars was exposed. Sharma Dep. I at 65; Sharma Dep. II at 8, 29–30.

Dr. Sharma fails to show that her theories of causation have been tested or are based on peer reviewed research. When she ruled in the refrigerant leak as a potential cause of Ms. Zellars's condition, Dr. Sharma relied on a number of articles, including articles about the toxic effects of exposure to certain refrigerants other than R-404A and articles about the toxic effects of intentional inhalation of refrigerants. Sharma Dep. II at 5–14, 27–29. These articles are insufficient to support the theory that the refrigerant to which Ms. Zellars was exposed, R-404A, caused her physical condition. Dr. Sharma opines that Ms. Zellars's body tremors were caused by a brain lesion that is not detected by MRI but offers no peer reviewed studies to support this theory. Sharma Dep. II at 35-37. Moreover, Dr. Zellars cannot identify peer reviewed studies to support the theory that exposure to refrigerants causes the development of brain lesions. Sharma Dep. II at 43–44.

Dr. Sharma lacked sufficient information about the level of Ms. Zellars's exposure to refrigerant gas to rule in such exposure as a possible cause of Ms. Zellars's neurological condition. Dr. Sharma acknowledges the importance of identifying the duration and intensity of a toxic exposure in determining causation. Sharma Dep. II at 14–15, 47; *see also Cavallo*, 892 F. Supp. at 764, 771 (requiring evaluation of the level of exposure to establish causation in toxic tort cases). However, she has claimed no knowledge or opinion about the intensity or duration of Ms. Zellars's exposure to refrigerant gas. Sharma Dep. Vol. 1 at 52–55, 72; Sharma Dep. Vol. 2 at 28. Without considering the level of Ms. Zellars's exposure, Dr. Sharma's opinion as to

specific causation is speculative at best and therefore not scientifically reliable. *See Daubert*, 509 U.S. at 590; *Bryte*, 429 F.3d at 477; *Westberry*, 178 F.3d at 263 (proof of “the plaintiff’s actual level of exposure” is required to establish causation).

The Court concludes that the opinions expressed in Dr. Sharma’s written report and deposition testimony are not based on specialized knowledge in toxicology or a reliable differential diagnosis of toxic exposure to refrigerant fumes. Therefore, the Court grants Defendant’s Motion in Limine to Exclude Report and Testimony of Vandana Sharma, M.D. *See Daubert*, 509 U.S. at 597; *Kumho Tire*, 526 U.S. at 141.

c. Robert K. Simon, Ph.D.

The Court excludes the report and testimony of Dr. Robert K. Simon as to the level of Ms. Zellars’s exposure to R-404A and whether this level of exposure could have caused her medical condition. Dr. Simon’s opinion on specific causation is not based on sufficient scientific knowledge about the toxicity of R-404A or sufficient facts about Ms. Zellars’s exposure to the chemical. Dr. Simon is an expert in analytical chemistry, toxicology, and environmental assessment. Mot. in Limine to Exclude Report & Testimony of Simon, Ex. A at 3-6 [hereinafter Simon Report]. His opinion is offered to establish that Ms. Zellars was exposed to excessive levels of R-404A and experienced symptoms that were consistent with the adverse health effects of overexposure to the refrigerant chemical. Simon Report at 19.

First, the Court holds that Dr. Simon’s opinion as to whether Ms. Zellars’s medical condition is consistent with the health effects of overexposure to R-404A is inadmissible because this opinion is not based on sufficient scientific knowledge of R-404A toxicity to be relevant or reliable. Dr. Simon testified that he did not know what dose of R-404A would be required to cause Ms. Zellars’s alleged health effects. Mot. in Limine to Exclude Report & Testimony of

Simon, Ex. B at 231 [hereinafter Simon Dep.]. Without reliable scientific knowledge of what level of exposure to R-404A is needed to produce the medical condition suffered by Ms. Zellars, Dr. Simon can only speculate whether the level of Ms. Zellars's exposure to R-404A was significant enough to cause her condition. If the level of Ms. Zellars's R-404A exposure was not high enough to cause her condition, then Dr. Simon's opinion that her condition was consistent with the health effects of overexposure to R-404A is irrelevant. In this case, Dr. Simon's opinion would not assist the fact-finder in determining whether the refrigerant leak at the Rite Aid store caused Ms. Zellars's medical condition. Thus, any opinion by Dr. Simon about whether Ms. Zellars's condition was consistent with the health effects of overexposure to R-404A is either speculative or irrelevant, and therefore cannot be admitted under Rule 702. *See Daubert*, 509 U.S. at 590, 592; FED. R. EVID. 702.

Second, the Court holds that Dr. Simon's opinion as to whether Ms. Zellars was exposed to excessive levels of R-404A is inadmissible because this opinion is not based on sufficient facts or data to be scientifically reliable. Dr. Simon opines that levels of R-404A in the air inside the reach-in freezer at Rite Aid "reached multiples of 1000 ppm [parts per million] on numerous occasions due to the leaking Shrader valve, particularly [between September 9, 2009, and September 16, 2009.]" Simon Report at 15. This opinion is based on the report of Ms. Zellars's engineering expert, Ronald Bailey, that refrigerant gas leaked into the freezer and that a one-ounce leak would result in 1000 ppm of R-404A in the air inside the freezer. Simon Dep. at 191, 223-24; Simon Report at 12. Dr. Simon testified, however, that he did not review Mr. Bailey's calculations, Simon Dep. at 224, and does not know the rate at which refrigerant gas leaked into the freezer, Simon Dep. at 112. Dr. Simon acknowledges that the oxygen saturation level in the store was determined to be normal when the refrigerant leak was discovered by the fire

department, Simon Dep. at 135, and that he does not know how much time Ms. Zellars spent working in the freezer, Simon Dep. at 118. At his deposition, Dr. Simon confused the ice cream freezer at issue for a walk-in freezer inside which Ms. Zellars could stand, walk, and work for extended periods of time. Simon Dep. at 101–02, 122, 210. It is undisputed that the freezer at issue in this case was a reach-in freezer for the storage and display of retail products, and that Ms. Zellars never stood inside the freezer. Any opinion Dr. Simon could offer about the level of Ms. Zellars’s exposure to Freon is speculative and unreliable without reliable information about the amount of time Ms. Zellars spent working in the freezer or the rate at which Freon leaked into the freezer. For this reason, the Court holds that Dr. Simon’s opinion that Ms. Zellars’s was exposed to excessive levels to R-404A is unreliable and therefore grants NexTech’s Motion in Limine to Exclude the Report and Testimony of Robert K. Simon, Ph.D.

d. Raymond Singer, Ph.D.

The Court excludes the report and testimony of Dr. Raymond Singer as to the specific cause of Ms. Zellars’s medical condition because Dr. Singer’s opinion on specific causation is not based on sufficient scientific knowledge or facts about Ms. Zellars’s exposure to refrigerant gas. Dr. Singer is a neuropsychologist and neurotoxicologist whose opinion is offered to show that Ms. Zellars “has nervous system dysfunction from neurotoxicity . . . consistent with and caused by poisoning with refrigerant containing fluorocarbons.” Mot. in Limine to Exclude Report & Testimony of Singer, Ex. A at 13 [hereinafter Singer Report]; Mot. in Limine to Exclude Report & Testimony of Singer, Ex. B at 6-7 [hereinafter Singer Dep.]. Dr. Singer is not a physician and therefore is not qualified to make a medical diagnosis of Ms. Zellars’s condition. Dr. Singer offers no independent opinion on the medical diagnosis of Ms. Zellars’s condition. Dr. Singer cannot rely on the report of Dr. Sharma, Ms. Zellars’s treating physician, for his

opinion that exposure to refrigerant caused Ms. Zellars's neurological condition. At his deposition, Dr. Singer testified that, in forming his opinion, he relied on the neurological and medical opinion of Dr. Sharma. Singer Dep. at 100, 175. However, Dr. Sharma has abandoned the opinion presented in her written report that exposure to refrigerant specifically caused Ms. Zellars's condition. Sharma Dep. I at 26–27. For this reason, the Court holds that any opinion offered by Dr. Singer as to the specific cause of Ms. Zellars's condition that relies upon Dr. Sharma's diagnosis of Ms. Zellars's condition is inadmissible.

Dr. Singer's opinion that Ms. Zellars's condition is consistent with exposure to refrigerant is not based on sufficient scientific knowledge of the toxicity of R-404A to be relevant or reliable. Dr. Singer cannot testify within a reasonable degree of scientific certainty what the minimum level of Ms. Zellars's exposure would need to be in order to cause her physical condition. Singer Dep. at 152–53. Without reliable scientific knowledge of what level of exposure to R-404A is needed to produce the medical condition suffered by Ms. Zellars, Dr. Singer can only speculate whether the level of Ms. Zellars's exposure was high enough to cause her condition. Any opinion by Dr. Singer about whether Ms. Zellars's condition was consistent with the health effects of overexposure is either speculative or irrelevant, and therefore cannot be admitted under Rule 702. *See Daubert*, 509 U.S. at 590, 592; FED. R. EVID. 702.

Additionally, Dr. Singer's opinion that Ms. Zellars's condition is consistent with exposure to refrigerant gas is not based on sufficient facts or data about Ms. Zellars's actual level of exposure to be scientifically reliable. Dr. Singer acknowledges that "the harmful property of a substance is calibrated by the level of exposure." Singer Dep. at 9; *see also Westberry*, 178 F.3d at 263 ("In order to carry the burden of proving a plaintiff's injury was caused by exposure to a specified substance, the plaintiff must demonstrate the levels of exposure that are hazardous to

human beings generally as well as the plaintiff's actual level of exposure.”). However, Dr. Singer offers no opinion as to the specific intensity or duration of Ms. Zellars’s exposure to refrigerant gas. Singer Dep. at 215. Any opinion Dr. Singer could offer linking Ms. Zellars’s exposure to refrigerant with particular health outcomes is unreliable without reliable information about the actual level of Ms. Zellars’s exposure. For this reason, the Court holds that Dr. Singer’s opinion that Ms. Zellars’s condition is consistent with Freon exposure is unreliable and therefore grants NexTech’s Motion in Limine to Exclude the Report and Testimony of Raymond Singer, Ph.D.

III. MOTIONS FOR SUMMARY JUDGMENT

A. Standard of Review

Under Rule 56 of the Federal Rules of Civil Procedure, the Court must grant summary judgment if the moving party demonstrates that there is no genuine issue as to any material fact, and that the moving party is entitled to judgment as a matter of law. FED. R. CIV. PROC. 56(c). In reviewing a motion for summary judgment, the Court views the facts in a light most favorable to the non-moving party. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986). Once a motion for summary judgment is properly made and supported, the opposing party has the burden of showing that a genuine dispute exists. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 586–87 (1986). “[T]he mere existence of some alleged factual dispute between the parties will not defeat an otherwise properly supported motion for summary judgment; the requirement is that there be no genuine issue of material fact.” *Anderson*, 477 U.S. at 247–48. Rule 56(e) requires the non-moving party to go beyond the pleadings and by its own affidavits, or by the depositions, answers to interrogatories, and admissions on file, designate specific facts

showing that there is a genuine issue for trial. *Celotex Corp. v. Catrett*, 477 U.S. 317, 324 (1986).

B. Analysis

The Court grants NexTech's Motions for Summary Judgment in both Ms. Zellars's and Ms. Hare's cases because, in each case, the plaintiff fails to show a genuine factual dispute as to whether the refrigerant leak at the Rite Aid store in September 2009 proximately caused their medical injuries. NexTech is entitled to judgment as a matter of law on Plaintiffs' negligence claims.

A negligence claim under Virginia law requires "(1) the identification of a legal duty of the defendant to the plaintiff; (2) a breach of that duty; and (3) injury to the plaintiff proximately caused by the breach." *Talley v. Danek Med., Inc.*, 179 F.3d 154, 157 (4th Cir. 1999). "A proximate cause of an event is that act or omission which, in natural and continuous sequence, unbroken by an efficient intervening cause, produces the event, and without which that event would not have occurred." *Sugarland Run Homeowners Ass'n v. Halfmann*, 535 S.E.2d 469, 472 (Va. 2000) (citation and internal quotation marks omitted). As previously stated, "[i]n order to carry the burden of proving a plaintiff's injury was caused by exposure to a specified substance, the plaintiff must demonstrate the levels of exposure that are hazardous to human beings generally as well as the plaintiff's actual level of exposure." *Westberry*, 178 F.3d at 263 (quoting *Mitchell*, 165 F.3d at 781) (internal quotation marks omitted); *see also Allen v. Pa. Eng'g Corp.*, 102 F.3d at 199 ("Scientific knowledge of the harmful level of exposure to a chemical, plus knowledge that the plaintiff was exposed to such quantities, are minimal facts necessary to sustain the plaintiffs' burden in a toxic tort case."). Reliable and relevant expert testimony is generally required to prove both general and specific causation, *i.e.*, (1) "that a particular

chemical is harmful to humans generally,” and (2) “that exposure to the potentially harmful agent actually caused [the plaintiff’s injury.]” *McCallum*, 2005 WL 1048735, at *10; *see also Cavallo*, 892 F. Supp. at 774 (expert testimony is generally required to prove causation in toxic exposure cases).

Ms. Zellars’s and Ms. Hare’s negligence claims fail as a matter of law because neither plaintiff offers reliable and relevant expert testimony to prove that the refrigerant gas leak at the Rite Aid store specifically caused their injuries. Expert testimony is required in this case to establish causation because the health effects of toxic exposure to chemicals are a matter beyond the knowledge and experience of the average layperson. Without reliable and relevant expert testimony causally linking Plaintiffs’ medical conditions with the refrigerant gas leak at the Rite Aid store, the jury would be left to speculate whether such a causal connection exists. Such speculation would be impermissible. Because the Court finds that the opinions of Plaintiffs’ experts as to specific causation are unreliable and inadmissible, Plaintiffs cannot establish the essential causation element of their negligence claims. For this reason, the Court holds that NexTech is entitled to judgment as a matter of law in both cases and accordingly grants NexTech’s Motions for Summary Judgment.

IV. CONCLUSION

The Court grants NexTech’s motions in limine to exclude the reports and testimony of Plaintiffs’ causation experts and NexTech’s summary judgment motions in both cases. Plaintiffs’ experts lack sufficient facts about the actual level of Plaintiffs’ exposure to refrigerant gas to offer reliable opinions on whether this exposure caused Plaintiffs’ alleged injuries. Moreover, Plaintiffs’ experts lack sufficient scientific knowledge concerning the toxicity of the refrigerant

