

Identifying Critical Action

Trends in Acute Toxic Exposure Cases

by Michael Palermo, Jr. and Patrick G. Donnelly

With all the focus on long-term toxic exposure cases (asbestos, silica, *et al.*), a new trend has developed below the radar: acute exposure to “toxic” chemicals resulting in claimed catastrophic personal injuries. We are seeing cases where ordinary, everyday chemicals (like your building janitor’s bottle of “blue,” for example) are now claimed to cause debilitating injuries. In this article, we explore three developing trends in these increasingly complex cases, focusing on those that will actually simplify your defense.

First, look at the “toxic soup”—is your product even an ingredient? A “toxic soup” allegation of multiple chemicals can actually work in your favor. Second, examine plaintiff’s expert. Is he or she qualified to render those opinions? Using the family physician to offer causation testimony is becoming about as common as having him or her make house calls. The trend is now toward multi-disciplinary, specialized medical and toxicological evidence. Finally, the injury very well

may not be what the plaintiff claims. Can you prove, for example, that he or she does not suffer from Reactive Airways Dysfunction Syndrome (RADS)? This article will analyze successful approaches to this new disease. These three “hot” points of any acute chemical exposure case—product identification, the appropriate experts, and the RADS diagnosis—are examined in turn.

The authors have concluded that these increasingly complex cases can be managed efficiently if broken down into these three main areas.

Focus on Plaintiff’s Failure to Identify a Specific Product

The first developing area in acute chemical exposure cases is in product identification. Defendants have recently made headway against “toxic soup” allegations, with courts beginning to recognize the unfairness of defending against them. Courts have begun to require plaintiffs to show that a particular product from a particular manufacturer caused their harm. As the cases show, product identification can and should be raised at any point in the lawsuit, whether challenging the pleadings, at summary judgment, or even, as one case shows, in a special interrogatory given to the jury. See

Blansett v. BP Exploration & Oil Inc., No. 1-2000-40, 2002 WL 31027075, at *7 (Ohio App. Sept. 12, 2002) (“Without a finding of exposure [to defendant’s product], there can be no causation of injury.”).

As complex as these cases initially appear, they can be distilled into one simple issue: product identification. For example, in cases alleging innocent bystander exposure (that is, where the plaintiff was not the actual user of the chemical and, therefore, cannot identify it), we have successfully argued that plaintiffs are unable to rule out many other chemicals that were present at the time of the exposure, or are unable to identify any particular product as having caused their injury, versus our client’s product. Our firm’s recent experience involved a case in which the plaintiff alleged exposure to four discrete products. A carefully drafted subpoena, however, revealed the presence of 26 other chemicals that potentially could have been in use on that day, including four additional chemicals that were used in the hot tub where she claimed her exposures occurred (literally, a “toxic soup”).

Turning a discreet exposure case into a toxic soup (or, alternatively, requiring the plaintiff to pick your client’s product out of that soup, as in the cases outlined here), often can lead to the desired result. Either the plaintiff ultimately will be unable to identify one product from the soup, or, facing the hurdle of presenting these multiple chemicals to the experts or a jury, the plaintiffs may be inclined to consider a reasonable settlement.

Identification of “Toxic Soup” Ingredients Required

California and Texas courts, in particular, have made notable progress against toxic soup allegations. In *Bockrath v. Aldrich Chemical Co.*, the Supreme Court of California reversed a dismissal for failure to plead that specific chemicals caused specific injuries. *Bockrath v. Aldrich Chemical Co.*, 21 Cal.4th 71 (1999). Plaintiff had sued 51 defendants that had made 222 products present at his workplace. However, the amended complaint failed to link any of the 222 products to any particular injury. The trial court dismissed the complaint, and the appellate court affirmed the dismissal. *Bockrath v. Aldrich Chemical*, 74 Cal.Rptr.2d 774 (1998).

The Supreme Court of California, although agreeing with the dismissal, remanded to



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allow plaintiff to attempt to properly allege which product caused which of his multiple claimed ailments. The *Bockrath* court reasoned that its concern was with “overbroad litigation” by “prospecting plaintiffs who sue multiple defendants on speculation that their products may have caused harm... and who thereafter try to learn through discovery whether their speculation was well founded.” *Id.* at 81. Causation in such cases must “be more than... theoretical,” referring to such speculative pleadings as “sharp practice.” *Id.* at 81–82 (citation omitted).

To avoid the prospecting plaintiff situation, the court ruled that in a multiple chemical exposure case a plaintiff is required to allege that he or she was exposed to each individual chemical, as opposed to a general allegation of exposure to a toxic mixture of a variety of chemicals. Second, the plaintiff must identify which product caused which claimed injury, and that each product was a “substantial factor” in causing the injury. Finally, the plaintiff must allege that each chemical was manufactured by a particular named defendant. *Id.* at 80. The court followed up this reasoning with a pointed discussion of the sanctions an attorney might receive for filing a frivolous pleading joining, for example, “every manufacturer of an airborne substance found in the Los Angeles basin.” The filing lawyer’s pleading must be based on more than “wishful thinking: it requires a well-founded belief” that the identified product caused the injury. *Id.* at 82.

Similarly, in *Alkasem v. Chevron USA, Inc.*, the court affirmed summary judgment in favor of defendants based upon plaintiffs’ failure to identify which chemical caused the alleged injury, and whether that chemical was in fact produced by the defendants. *Alkasem v. Chevron USA, Inc.*, 2003 WL 22040779 (Cal. Ct. App. September 2, 2003). Plaintiffs had claimed injury from airborne contaminants discharged from Chevron’s facility. Their experts identified multiple chemicals emitted from the facility based on a review of Chevron’s own studies, though those same studies concluded that no contaminants left the premises. One plaintiff further testified to seeing a toxic cloud emitting from the plant. Additionally, plaintiffs’ experts opined that the injuries were caused by exposure to chemicals “such as” those disclosed by Chevron’s reports, but not to emissions specifically from Chevron’s plant. *Id.* at *3–4.

The appellate court ruled that this evidence was not enough to show that: (a) any particular chemical caused the harm; and (b) defendants’ emissions were those to which plaintiffs were exposed. The court found the experts’ theories “speculative” and, under *Bockrath*, insufficient to create a triable issue of material fact. *Id.* at *6.

Likewise, in the Texas case of *Dupuy v. American Ecology Environmental Services Corp.*, the court of appeals affirmed dismissal on the defendant’s “no evidence” summary judgment motion. *Dupuy v. Am. Ecology*

Courts can no longer presume that the manufacturer sued is the one that made the chemical.

Envtl. Serv. Corp., 2002 WL 1021342 (Tex. App. May 14, 2002). The defendant argued that, after two years of discovery, the plaintiffs had failed to proffer any evidence that a particular chemical caused their injury. The plaintiffs alleged injury while cleaning a hazardous waste tank located on defendant’s property, complaining of blisters, skin rash and shortness of breath. They provided an affidavit from their expert in response to the “no evidence” motion. *Id.* at *1.

In the affidavit, the expert opined that these injuries were “consistent with exposure to toxic chemicals of the type expected” to be found in a chemical tank. *Id.* at *1. However, no specific chemical or mixture of chemicals was ever identified by the expert. The trial court struck the affidavit for failing to be founded on scientific principles, and thus left the plaintiffs with no causation evidence. In affirming, the court of appeals ruled that striking the affidavit was proper. Among other defects in the affidavit, the court found it to be relevant that the expert “does not identify any chemicals that were present in the tank at the time of [plaintiffs’] alleged exposure, the general nature of those chemicals, or the concentrations” of any chemicals. Additionally, the expert failed to link any chemical to plaintiffs’ symptoms. *Id.* at *4. The court concluded that summary judgment was properly granted in the absence of plaintiffs’ showing which chemical, if any, caused their harm.

The Court of Appeals of Texas affirmed dismissal in another similarly alleged toxic

exposure case. *See Sweeney v. Geon Co.*, 2002 WL 58223 (Tex. App. January 17, 2002). Plaintiffs, who were maintenance workers at a chemical plant, alleged exposure to multiple, “illegally emitted” toxins, including “a catalyst scrub, unknown process chemicals, chromium catalyst... allyl chloride... EDC and vinyl chloride.” *Id.* at *2. Their symptoms included tumors, swelling joints, dizziness, shortness of breath, teeth erosion and chemical burns.

Affirming dismissal, again on a “no evidence” summary judgment motion, the court of appeals found plaintiffs’ evidence insufficient to survive as a triable issue of fact. Plaintiffs presented evidence of the type of harm that could be inflicted by the many chemicals present, through Material Safety Data Sheets and product warning literature. They then argued that they suffered from the same types of injuries. *Id.* at *5. Missing from plaintiffs’ proof, however, was the crucial link showing that exposure to the particular chemicals in fact caused the particular injuries. In effect, the court ruled that expert testimony linking specific chemicals to specific injuries is required in a toxic soup case because causation “is not readily ascertainable from general experience and common sense” in such situations. *Id.* at *5.

Allowing “Toxic Soup” to Be Served

In contrast to these cases are several where the courts reversed summary judgment in favor of the defendants despite the plaintiffs’ inability to identify any particular toxics causing their injuries. Focusing on the causation element of a plaintiff’s claim that he suffered injury when exposed to lime dust at a circus, the Supreme Court of Oklahoma remanded a case to the trial court to make further factual determinations as to whether plaintiff’s opinion evidence was sufficiently reliable to pinpoint the blame onto the lime dust. *Christian v. Gray*, 65 P.3d 591 (Okla. 2003). Plaintiff’s expert opined that “it’s possible that this [injury] could be caused from some exposure to chemicals. What chemicals and is it Lime? I don’t know.” *Id.* at 601. There was evidence that lime dust was present at the circus. *Id.*

The court dismissed defendant’s argument that plaintiff presented no evidence of exposure to lime or any other substance, reasoning that dismissing cases based on the lack of evidence of dose “would prevent many

lawsuits based upon a single-event exposure, such as, for example, when a plaintiff... testifies of being enveloped by a great cloud of noxious gas... in the absence of an expert." *Id.* at 606. Ruling that not all acute toxic exposure cases must be based on dose, the court remanded for the trial court to determine whether, *inter alia* in this case, some evidence of actual exposure to the lime or any other chemical was required from the plaintiff under the circumstances as alleged.

In a similar case, the Utah Supreme Court ruled that the trial court abused its discretion in granting summary judgment to defendants even where, according to the trial court, "plaintiffs are unable to prove exposure to any chemicals, let alone levels known to cause toxic effects." *Alder v. Bayer Corp.*, 61 P.3d 1068, 1089 (Utah 2002). The evidence presented consisted of, among other things, plaintiffs' expert's opinion that exposure "to a mixture of chemicals emanating from the [x-ray] developer" caused their multiple chemical sensitivity symptoms. *Id.* at 1074. Plaintiffs also presented a long list of x-ray film processing chemicals, with literature linking exposure to them with related symptoms. Other evidence showed that the room housing the x-ray machine where plaintiffs worked was not ventilated according to the manufacturer's specifications. Finally, plaintiffs presented medical evidence that they suffered from Multiple Chemical Sensitivity (MCS) and other ailments. *Id.* at 1071-75.

In reversing, the Utah Supreme Court noted that plaintiffs had alleged certain symptoms as a result of exposure to chemicals that were known to cause those symptoms, relying on a laundry list of studies documenting injuries in x-ray technicians and film processor workers. *Id.* at 1087-88. Additionally, in an interesting bit of logical reasoning, the court stated that if "the dose makes the poison" as defendants had argued, then a victim's symptoms of poisoning "are themselves evidence of harmful levels" of toxins, at least sufficient to defeat summary judgment (so the "symptoms make the dose" it would seem). *Id.* at 1088. Relying on "substantial... circumstantial evidence" and the premise that people are entitled to their day in court, the supreme court found that the district court abused its discretion in granting defendants' summary judgment. *Id.* at 1089.

Finally, the Court of Appeals of Washington decided several years ago that evidence linking some injury to a "chemical soup" of compounds off-gassed from the interiors in new truck cabs raised a question of fact sufficient to defeat summary judgment. *Bruns v. PACCAR, Inc.*, 890 P.2d 469, 476 (Wash. Ct. App. 1995). Defendants had provided the list of chemicals off-gassed, along with their claimed ailments and testimony linking the ailments to exposure to those types of toxins. The court reasoned that when a product fails to meet the expectation of the consumer, the inference to be drawn is that there was some sort of defect. Evidence of the chemical soup here was sufficient to show the defect. *Id.* The court reversed summary judgment in favor of defendants, finding that plaintiffs had established a *prima facie* case.

Challenge the "Soup" at Every Opportunity

The conclusion we have drawn from these cases is that defendants should challenge at all stages of the litigation a plaintiff's identification of their product as the one causing his or her harm. The issue should be raised in the pleadings, during fact discovery, during the expert case and even at trial. Anecdotal evidence of exposure to "some chemical," or temporal relationship between exposure and injury are no longer sufficient to impose liability in many states. Because of the prevalence of multiple chemicals in almost any exposure case, the courts can no longer presume that the manufacturer sued is the one that made the chemical that caused the harm, and defendants should press this issue from the onset of litigation.

The Growing Complexity of the Expert Case

Expert qualifications in inhalation cases are likewise becoming increasingly complex. Recently reported inhalation injury cases show a contradictory trend. Expert witness qualification requirements have been liberally construed under Federal Rule of Evidence 104 and its state law equivalents. As a result, it is easier to win qualification as an expert. But courts now impose more stringent reliability standards. This produces a trap. Courts will qualify experts whose education, training and professional experience is not exactly spot-on, and then reject their opinions as unreliable based on their failure

to adhere to the standards of the discipline in which they are not trained in the first place.

This creates opportunity for the defense. For example, a physician who is not board certified in medical toxicology still might be qualified as an expert who is permitted to testify on matters involving toxicology. Such an expert's opinion, however, may be summarily rejected if he or she fails to follow the established methodology of toxicology, and if the supporting experts' (e.g., toxicology, industrial hygiene) conclusions on which the opinion is based are similarly not qualified.

In virtually all cases involving acute inhalation injury, the reliability requirement for admitting expert testimony into evidence requires that the plaintiff put forward evidence of dose. Fixing dose, and establishing specific causation by comparing that dose to a recognized threshold for exposure to a given chemical, is becoming a requirement. As a practical matter, this requirement means that courts will no longer accept testimony from a treating physician, even a pulmonologist, to establish causation without some evidence quantifying the level of exposure. Physicians who point to the fact that the plaintiff is injured—based solely on the temporal relationship between the exposure and the onset of symptoms as conclusive evidence of causation—will find their opinions deemed unreliable. Indeed, opinions of medical causation based solely on temporal relation have been identified as a "red flag of unreliability" by federal courts. As a result, a team of experts must now be fielded in order to challenge the plaintiff's exposure injury.

Who Is Qualified?

It is clear that a toxicologist is not qualified to offer opinions about medical causation. *See, e.g., Plourde v. Gladstone*, 190 F.Supp.2d 708 (D.Vt. 2002). Likewise, an industrial hygienist will not be permitted to testify about causation to the point of medical diagnosis (although they can and do play a critical supporting role). *See, e.g., Heller v. Shaw Indus., Inc.*, 167 F.3d 146 (3d Cir. 2000). It also remains established that an expert may not offer an opinion on a different field or discipline. *See, e.g., Canino v. HRP, Inc.*, 105 F.Supp.2d 21 (N.D.N.Y. 2000).

Within disciplines of the practice of medicine, however, courts are apt to disregard educational formalities, focusing on professional experience instead. Thus, in *McCulloch v. H.B.*

Fuller Co., the Second Circuit allowed an otolaryngologist to testify that a throat injury was caused by glue fumes, rejecting the defense claims that he was unqualified because he was not experienced in occupational medicine. The court reasoned that to require such precise qualification would be an “unwarranted expansion of the gatekeeper role.” *McCullock v. H.B. Fuller Co.*, 61 F.3d 1038, 1043 (2d Cir. 1995). Similarly, the Third Circuit adopted a liberal qualification standard in *In re Paoli R.R. Yard PCB Litig.*, and permitted a well-qualified internist to testify about causation in a PCB case, based on his in-depth research of the subject matter. *In re Paoli R.R. Yard PCB Litig.*, 35 F.3d 717 (3d Cir. 1994), cert. denied, 513 U.S. 1190 (1995).

The most commonly proffered witness in acute inhalation cases is a pulmonologist and, on the face of things, board certification in pulmonology would seem to be the proper professional qualification to serve as an expert on diseases of the lung. The case of *Diaz v. Johnson Matthey, Inc.*, however, highlights the professional limitations of board certification when the issue is an occupational injury to the lungs. *Diaz v. Johnson Matthey, Inc.*, 893 F.Supp. 358 (D.N.J. 1995). In *Diaz*, an employee brought suit against his employer alleging pulmonary injury as a result of exposure to platinum salts. He offered his treating pulmonologist as an expert to establish causation. The defense challenged the pulmonologist’s qualifications, arguing that the pulmonologist had never before diagnosed or treated a patient with a lung injury caused by platinum salts. They cited the fact that he had no education or training in toxicology or occupational medicine, that he made the diagnosis based on review of a single journal article, and that he was unfamiliar with peer-reviewed literature that was directly on-point. The court found the pulmonologist unqualified to testify as to causation. *Id.* at 372–78. *Diaz* stands as the exception. Generally, courts will qualify pulmonologists in acute inhalation injury cases. However, qualification does not presume reliability when it comes to considering the admissibility of causation testimony.

General Causation: The Initial Hurdle for Experts

It is becoming clear that to establish causation an expert must rely upon proof of general and specific causation. This requires

showing that the identified chemical can cause a specific lung injury, and that, as a matter of fact, it did cause the injury. These elements must be proven with tests, peer-reviewed literature, scientifically valid and methodical extrapolation, or by showing general acceptance within the relevant scientific community.

General causation seems an obvious hurdle. If a chemical cannot be shown to cause the harm at issue, any expert testimony positing causation fails, as it ought to fail. A common refrain from experts in inha-

Temporal relationship is not a substitute for evidence of threshold levels of harm and dose evidence showing that the threshold was exceeded.

lation cases is that any irritant can cause respiratory injury and that it’s just a matter of dose and circumstance. Legally, however, this old canard is irrelevant in considering general causation. If the expert fails to establish a basis for his or her opinion with tests, epidemiology studies, peer-reviewed literature or evidence of general acceptance within the medical community, the opinion should be barred. Without such evidence of general causation, the opinion fails for lack of reliability. In the case of RADS, there is a common misperception that any irritant can cause the condition. But the published literature confines the diagnosis to specific chemicals in specific circumstances, and some common irritants are not documented as causes of RADS.

For example, in *Brookshire Bros. Inc. v. Smith*, the Court of Appeals of Texas reversed a jury award in a RADS case, finding that there was no evidence to establish general causation where there was no evidence linking the cleaning chemicals as a known cause of RADS. *Brookshire Bros. Inc. v. Smith*, 2004 WL 1064776 (Tex. Ct. App. May 13, 2004). The court in *Brookshire* ignored the testimony of a pulmonologist who based his causation testimony on *ipse dixit*, basically, “it’s so because I said so.” *Id.* at *4. This was not good enough for the Texas court. The court required reliable proof of general causation, first and

foremost. In toxic exposure cases, then, the general causation requirement is an effective barrier to expanding recognized occupational lung injuries beyond the boundaries established by the published literature.

General causation is also an effective barrier where the chemical inhaled is a known irritant but has not been shown to cause RADS. In *Moore v. Ashland Chemical, Inc.*, the Fifth Circuit rejected as unreliable the testimony of a well-qualified physician who had testified at trial that the plaintiff’s inhalation of toluene had caused RADS. *Moore v. Ashland Chemical, Inc.*, 151 F.3d 269 (5th Cir. 1998). The court flatly rejected the testimony based on the physician’s failure to offer scientific support for his general theory that exposure to Toluene, at any level, would cause RADS. As a threshold matter, reliable proof that the chemical in issue can cause the harm is a requirement for expert testimony establishing causation in an acute inhalation injury case, and the fact that a well-qualified physician testifies that it is does not make it so. The courts require proof that will pass muster under *Daubert*.

Specific Causation—Dose, It’s All about Dose

In the typical inhalation injury case, the plaintiff must also put forward expert testimony to prove specific causation—that not only *could* the chemical cause an injury, but also that, here, it *did*. Several recent decisions have hammered home the importance of establishing threshold levels and actual doses of the alleged exposure. In *Burleson v. Texas Dept. of Criminal Justice*, an inmate alleged that his throat cancer was caused by inhalation of welding stick fumes. *Burleson v. Texas Dept. of Criminal Justice*, 393 F.3d 577 (5th Cir. 2004). The court rejected expert testimony supporting causation, in large part, because the expert could not say what a harmful exposure level would be, or that the plaintiff’s exposure exceeded that level. Likewise, in *Christian v. Gray*, the Supreme Court of Oklahoma rejected expert testimony in support of a family’s claim that they sustained injury as a result of inhaling lime dust while attending the circus. *Christian v. Gray*, 65 P.3d 591 (Okla. 2003). The court held that the plaintiffs’ expert’s causation testimony was unreliable because he failed to establish a threshold for harm from exposure to lime dust, or the amount—or a

method for determining the amount—of lime they actually inhaled.

Given the importance of fixing the dose of inhaled chemicals, plaintiffs must use the best means available to them to come up with an approximation of dose, and defense counsel should hold them strictly to the proofs. There are recognized methods of exposure modeling and exposure simulation. The basic facts and circumstances of an acute inhalation, found in initial fact discovery, can be used to calculate dose using dose reconstruction or simulation or, as we see lately, modeling. Courts are demanding proof of dose: “How much of the chemical got into the ambient air where it might be inhaled? What amounts of the chemical settle on surfaces which might be touched [by plaintiff]? How long would these effects last?” *National Bank of Commerce v. Dow Chemical*, 965 F.Supp. 1490, 1524 (E.D. Ark. 1996). Plaintiffs are hard pressed to explain a total lack of dose calculation when the defense presents effective testimony on dose.

Both the need to establish dose and the fact that courts are becoming more receptive to exposure modeling or simulation make it unlikely that plaintiffs can prevail on acute inhalation injury claims without testimony from either a toxicologist or an industrial hygienist (or both) establishing the actual inhaled dose of the chemical.

In acute inhalation cases, physicians may cite the temporal relationship between the exposure and the onset of symptoms as proof positive of causation. However, absent unusual circumstances (for example, where an entire room full of people suffer the same exposure and the same injury), courts routinely hold that temporal relationship is not a substitute for evidence of threshold levels of harm and dose evidence showing that the threshold was exceeded. In *Cavallo v. Star Enterprises*, the court held: “at bottom, the expert’s opinion is founded primarily on the temporal connection between the spill and the development of Ms. Cavallo’s symptoms. . . . This is not the method of science.” *Cavallo v. Star Enterprises*, 892 F.Supp. 756, 773 (E.D. Va. 1995). In fact, relying on temporal relationship between exposure and symptoms is a “red flag of unreliability” under a *Daubert* consideration. See, e.g., *Downs v. Perstorp*, 126 F.Supp.2d 1090 (E.D. Tenn. 1999).

Putting the Expert Team Together

The expert portion of acute inhalation cases must increasingly address issues from exposure, to dose, to mechanism of injury, to the injury itself. This requires, in most cases, evidence of general causation, that is, establishing that the chemical causes the complained-of injury at a given threshold; and specific causation, that the dose here exceeds this threshold and, in fact, caused the injury. Multiple experts must now be fielded to put together the case. The ultimate “quarterback” of the expert team need not be qualified as an industrial hygienist, toxicologist, or pulmonologist, but he or she will have to rely on these professions and be held responsible for meeting the standards of each of these fields in order to be allowed to testify in these areas.

“RADS”: The Newest Acute Exposure Injury

Finally, with the increasing complexity and cost of litigation, plaintiffs can no longer afford to field cases alleging some acute injury, e.g., a sore throat for a few days, skin rash or acute bronchitis. To justify the costs of pursuing legal action, the injury must now be catastrophic and debilitating. This section will analyze the leading new lung injury, “RADS,” by reviewing both the clinical criteria for the diagnosis, as well as two contrasting cases that illustrate an effective approach to the RADS case.

Challenge the “RADS” Diagnosis

Leading the front in acute toxic exposure cases is the “RADS” injury, short for Reactive Airways Dysfunction Syndrome. RADS is a permanent lung injury that, by definition, is caused by a single, massive chemical exposure, thus making it the perfect diagnosis for the exposed plaintiff. First defined in 1985 (in the article *Reactive Airways Dysfunction Syndrome, Persistent Asthma Syndrome after High Level Irritant Exposures*), more and more lawsuits are appearing where this is the principal injury. Stuart Brooks, M.D., et al., *Reactive Airways Dysfunction Syndrome, Persistent Asthma Syndrome after High Level Irritant Exposures*, 88 Chest 376 (1985). Often called a diagnosis of default, or a differential diagnosis (eliminating all other known possible causes leads to the conclusion of RADS), many courts have begun to validate it as a legitimate injury from acute chemical exposure.

We have seen the term “RADS” thrown about by many treating physicians and plaintiff attorneys. When presented with the clinical criteria for RADS, however, the case for such diagnosis often fails. Dr. Brooks has identified eight specific criteria that must be met in order to positively diagnose chemically induced RADS:

1. No preexisting or prior respiratory complaints (anything from pneumonia to asthma to bronchitis);
2. Symptoms began only after an acute, single exposure to a chemical;
3. The exposure was to an airborne chemical, present in very high concentration, and which had irritant qualities;
4. Symptoms began within 24 hours and have persisted for at least three months (which would rule out ER diagnosis);
5. Symptoms are similar to asthma, with a predominant cough;
6. Pulmonary function tests (“PFTs”) show obstruction;
7. Positive methacholine challenge; and
8. Other types of pulmonary disease ruled out.

Id. at p. 377.

RADS can be distinguished from occupationally induced asthma (that is, exposure to irritants over a long period of time, again, making product identification an important issue) because in the RADS case there generally is no latency period between exposure and symptoms, and symptoms occur after a single exposure. W. Michael Alberts, M.D., et al., *Reviews: Reactive Airways Dysfunction Syndrome*, 109 Chest 1618, 1624 (1996). In the typical RADS case, the best challenge available to the defense often can be that the plaintiff arrived on the scene with some preexisting respiratory condition, such as asthma, bronchitis or smoker’s cough. In a recent case in which the authors’ firm was involved, one plaintiff actually attempted to argue that her prior diagnosis of asthma “didn’t count” because her doctor never told her about it.

Without the RADS diagnosis in this circumstance, plaintiffs are left to fall back on asthma exacerbation or acute chemically induced asthma attack as the injury. Certainly, these are serious conditions in their own right; from the defense perspective, however, the client’s product cannot be said to have “caused” plaintiff’s anticipated lifetime of asthma. The condition was already there before the exposure.

Second, the defense can challenge the criteria that the chemical exposure be in a high concentration, especially from a treating-pulmonologist-turned expert who simply cannot quantify the amount of chemicals present or, often, even the identity of the chemical. Finally, the quality of pulmonary function tests is routinely poor. The tests can be challenged based on the methodology used to administer them, whether the plaintiff was seen to provide good effort, and whether they were interpreted properly. It is often advisable to find an opinion witness qualified in the administration and interpretation of the PFTs in order to challenge their adequacy. Experts can be hired who, by profession, design PFTs and create protocols for administering such tests.

Two Conflicting RADS Cases

Applying a similar analysis, the Eighth Circuit affirmed the exclusion of one expert's testimony that an acute exposure to toluene resulted in RADS (although allowing another expert to so testify). *Moore v. Ashland Chemical Inc.*, 151 F.3d 269 (8th Cir. 1998). Plaintiff's expert, Dr. Jenkins, testified that he was familiar with the Brooks' article on RADS, and that he relied on it in making his diagnosis. He then offered his opinion that *any* exposure to toluene, or even any irritant, could cause RADS. The court, in analyzing the doctor's opinion in the context of the RADS criteria, pointed out that the toluene exposure studies referred to in the Brooks article were "several times greater than" plaintiff's exposure, and, therefore, Dr. Jenkins' extrapolation from those studies to this case was speculative. *Id.* at 277-78. Hence, the court found, Dr. Jenkins had a "paucity of facts" about plaintiff's exposure level. *Id.* at n.10.

Additionally, the plaintiff had a history as a heavy smoker, had just recovered from pneumonia, and had asthma in his youth, making "Dr. Jenkins' theory even more unreliable." *Id.* at 279. One can see, then, how a systematic approach to the expert's case for RADS can bear fruit: the defense attacked dose and prior lung disease, and the court concurred that perhaps Dr. Jenkins' opinion was not scientifically based on the Brooks article as he had represented. That is not to say that the plaintiff did not suffer some injury, but rather, he did not suffer a permanent injury that, by definition, is *caused by* massive chemical inhalation, is severe, and is long-term (as opposed to preexisting asthma exacerbation, an entirely different injury).

In contrast, the same court in *Mattis v. Carlon Electrical Products*, found that plaintiff had properly presented expert testimony that exposure to polyvinyl chloride cement caused his RADS. *Mattis v. Carlon Electrical Products*, 295 F.3d 856 (8th Cir. 2002). Although plaintiff's industrial hygienist expert could not quantify plaintiff's exact exposure level, he did perform an experiment where he simulated the conditions under which the vapor was alleged to have been created. That is, he heated the cement to simulate the 109 degree outdoor temperature at the time of the exposure, and spread it on PVC pipes in an air sampling chamber, which showed the vapors accumulating at "extreme concentrations" in excess of safe levels. *Id.* at 861. He also testified that he had performed this type of test for 25 years and that this testing was accepted practice in his field. *Id.* at n.3. This sufficiently created a question of fact as to the dose plaintiff received, the court concluded.

Mattis' treating physician was then allowed to testify on the RADS diagnosis,

and rely on the re-created exposure levels. The court found that using a differential diagnosis was proper; the physician had ruled out other possible causes of his illness; and she relied on published studies linking RADS to exposure to solvents. *Id.* at 861.

The Final Analysis

The conclusion to be drawn for the defense practitioner in RADS cases is two-fold. First, holding plaintiffs strictly to their proofs, like in the *Moore* case, can lead to the exclusion of causation and injury testimony. Get the expert to commit to the RADS diagnosis, and to agree to the criteria for the diagnosis. Then, walk the expert one-by-one through the eight criteria for the RADS diagnosis; if any one of them fails, challenge the opinion as not scientifically based on the clinical criteria.

Second, like in *Mattis*, a well-prepared plaintiff can get this testimony before a jury. In either situation, defense attorneys can and should mount an attack on this evidence by getting a thorough pre-exposure medical history, reviewing the adequacy of PFTs and other lung function tests, and finally by challenging the expert's assumptions on dose, perhaps even performing one's own dose re-creation.

Conclusion

The trend toward the growing complexity of acute chemical exposure cases requires a multifaceted defense approach to identify where time is best spent. We have found that most of the critical action in these cases is in the three areas outlined here. By focusing on product identification, the appropriate experts, and the case against RADS, defense counsel can assure their clients that all the bases are covered. 