61 P.3d 1068 (2002)
2002 UT 115

Leslie ALDER, aka Leslie Roberts, and Jackie Jones, Plaintiffs and Appellants,

v.

BAYER CORPORATION, AGFA DIVISION, Defendant and Appellee.

No. 20000937.

Supreme Court of Utah.

November 26, 2002.

1070 *1070 Peter C. Collins, Jacquelynn D. Carmichael, Salt Lake City, for plaintiffs.

1071 *1071 Gordon L. Roberts, David M. Bennion, Salt Lake City, and Stephen G. Traflet, Morristown, New Jersey, for defendant.

HOWE, Justice:

INTRODUCTION

¶ 1 Plaintiffs Leslie **Alder**, aka Leslie Roberts, and Jackie Jones (Technicians), former radiography technicians at LDS Hospital in Salt Lake City, Utah, brought this action against defendant **Bayer** Corporation's AGFA division, alleging illness from chemical exposure caused by AGFA's negligent installation and servicing of its x-ray processing machine. The trial court excluded Technicians' expert testimony relative to the cause of their alleged illness and granted summary judgment in favor of AGFA. Technicians appeal.

FACTS

¶ 2 Sometime prior to March 1993, AGFA's field engineer, Tim Murray, installed AGFA's Curix Compact processing machine in LDS Hospital's newly-constructed mammography suite. The machine had been in operation for several years in other locations within the hospital. AGFA's installation guidelines specified a minimum air exchange rate of between ten and fifteen times the room's air volume per hour. Murray communicated this requirement to the hospital, which was responsible for the ventilation as part of the construction of the new mammography suite. Murray had previously received training regarding the hazards of exposure to chemical fumes from the machine and the necessity for adequate ventilation in rooms where the processor was used. At the time of installation, he expressed concern regarding the adequacy of the new mammography suite's ventilation. However, he did not test the ventilation in the new room. Sometime after the installation, he asked LDS Hospital's chief technologist, Patrick Bendall, if the hospital had tested the ventilation. Murray was told that the hospital maintenance department had checked the room and that the ventilation was adequate.

¶ 3 Technicians Leslie **Alder** and Jackie Jones had operated the Curix x-ray processing machine in its previous locations without experiencing any unusual illnesses. However, after the machine was installed in the mammography suite, Jones complained to Murray that she had lost her voice and experienced tightness in her chest. Hospital minutes for April 12, 1995, stated: "Jackie and Leslie work 10 hour days and are constantly around the processor and suspect the chemicals in the processor are causing the symptoms." Three other individuals also reported symptoms in connection with working in the mammography suite.

¶ 4 Murray became aware that the ceiling vent in the new room was not functioning properly and "wasn't exhausting a lot of air." He also acknowledged that the AGFA installation guidelines required him to "be concerned with the ventilation in the room[s]" where the processors were installed. However, he made no tests of the machine or the ventilation system,

even when instructed to do so by AGFA's product specialist George Cervenka. In March of 1995, at the hospital's request, Murray installed AGFA's vent kit, consisting of piping that connected to the machine's hose and ran up the ceiling vent. However, in spite of his concern that inadequate ventilation was causing Technicians' health problems, Murray again did not test the ventilation and did not inquire at that time whether the hospital had recently tested the ventilation of the room, nor did he recall suggesting better ventilation to anyone at the hospital. Bendall testified[1] that AGFA was "in the loop" from the time Technicians made their first complaints regarding the room's ventilation and their own health problems. Bendall further testified that he relied on the expertise of AGFA's people regarding safely ventilating the workplace.

¶ 5 Ultimately, Technicians' symptoms included loss of voice, watery eyes, red skin, nausea, muscle aches, dizziness, joint pain, earaches, runny nose, confusion, memory loss, slow healing, and severe fatigue. They sought treatment from a
1072 number of physicians, *1072 who found no evidence of malingering[2] and variously diagnosed them with multiple chemical sensitivities (MCS),[3] cognitive impairment, toxic encephalopathy, immune toxicity, chronic fatigue, and symptoms of fibromyalgia.[4]

¶ 6 Technicians were referred by their employer to Anthony Suruda, M.D., M.P.H., for examination and determination of occupational exposure to chemicals. Dr. Suruda found that Technicians had become sensitized to multiple chemicals, diagnosed them with MCS, and recommended that each of them avoid working in any environment containing glutaraldehyde. He testified that glutaraldehyde is a known irritant and that when he visited the mammography suite, he believed that he smelled a glutaraldehyde odor over the processor.

¶ 7 Dr. Deborah Robinson,[5] **Alder's** primary care physician, conducted a differential diagnosis to rule out alternative explanations for **Alder's** symptoms. She diagnosed **Alder** with chronic fatigue syndrome[6] (CFS) and MCS in association with fibromyalgia. Dr. Robinson further testified that CFS has only become a recognized diagnosis within the last five to ten years. She also described fibromyalgia as a rheumatological diagnosis defined by a constellation of symptoms but without specific serological abnormalities for a laboratory diagnosis. Dr. Robinson testified that she believed to a reasonable medical probability that Ms. **Alder's** chronic fatigue syndrome was caused by chemical exposure in the workplace at LDS Hospital in the poorly ventilated space that had been described to her. In addressing the distinction between MCS and CFS, she stated that they sometimes, but not always, coexist and that thirty to forty percent of people with one condition also suffer with the other.

¶ 8 After analyzing the results of neuropsychological tests administered elsewhere, Dr. Robinson concluded that **Alder** "was very functional, and now she's not as functional. There are demonstrable abnormalities in her neuropsychometric testing that would suggest that she would have difficulty in performing tasks that she could previously do." In Dr.
1073 Robinson's opinion, **Alder** was disabled *1073 both because of her intolerance to chemical exposure and because of daily pain and fatigue. Dr. Robinson further testified that "[c]ertainly the chemical smell sensitivity and the basic symptoms of her chronic fatigue had an onset at the time of her exposure." She answered "I believe so," to the question "[d]oes the testing by itself indicate to a reasonable degree of medical probability that Leslie **Alder** suffered some form of chemical insult?" Dr. Robinson explained that even in the absence of a defined biological pathway for MCS and CFS, it can be concluded that these abnormalities occur in "association[] with certain exposures," and that she could "[d]efinitely" say "that there is a cause and effect connection, all things considered, between [**Alder's**] exposure in the workplace and [her] symptoms."

¶ 9 Dr. Lucinda Bateman,[7] Jones' primary physician, has focused on CFS in her practice and writing. Dr. Bateman testified that CFS is a valid disease that can, like fibromyalgia, be caused by chemical exposure. It was her opinion that Jones' symptoms resulted from workplace exposure, based largely on the fact that Jones used the Curix machine for many years without problems and began to be ill shortly after the machine was relocated to the new mammography suite. Dr. Bateman concluded that "if I had to give her a diagnosis, I would call it multiple chemical sensitivity. But I would never say that excludes her from a diagnosis of chronic fatigue." Dr. Bateman observed that those "people familiar with the diagnosis and management of chronic fatigue or fibromyalgia would say those illnesses can also be caused by a chemical exposure."

¶ 10 Dr. Janiece Pompa, Ph.D.,[8] administered to Jones and evaluated a series of neuropsychological tests. She was prepared to testify regarding this examination, including the standard neuropsychological testing procedures followed. Her expected testimony did not relate specifically to MCS and involved widely accepted procedures. Dr. Pompa found that Jones exhibited significant cognitive deficits of the type typically associated with solvent exposure and noted that "[t]hese include headache, dizziness, fatigue, paresthesia, pain, weakness, and memory disturbance." Dr. Pompa explained that these symptoms can occur in advance of detectable neurological tissue changes and furthermore that "[s]evere exposure is capable of causing dementia, involving deficits in memory, judgment, abstract thought and other cortical functions." She observed that "[i]t is unlikely that [Jones'] complaints constitute a pre-existing condition, as her memory and attentional deficits are so pronounced that she would not have been able to keep a job, much less a supervisory position." Dr. Pompa testified to a reasonable degree of medical probability that the cognitive deficits that she observed in Ms. Jones' testing resulted from chemical exposure suffered in the workplace. Dr. Pompa answered "yes" to the question "[a]re you able to say to a reasonable degree of medical probability that Ms. Jones cognitive deficits were caused by chemical exposure versus depression?" In summary, Dr. Pompa concluded:

> At present, Ms. Jones' cognitive deficits would render her unfit for work in her previous position. She could only handle a job with very few attentional and memory requirements, where she would not be required to make independent judgments or solve complex problems, or work quickly with her hands. Her physical problems would limit her employability even further. Ms. Jones may benefit from cognitive rehabilitation to help her learn ways to compensate for her deficits.... It is also recommended that she seek counseling with a mental health professional familiar with the neuropsychological effects of chemical exposure, in order to
> 1074 help her reduce her level of depression and develop realistic *1074 expectations for herself, given her current disabilities and reduced level of functioning.

¶ 11 Dr. Pompa's testing of **Alder** yielded similar results. Both Technicians exhibited "significant neuromotor slowing" in their hands that placed them in the "severely impaired range."

¶ 12 Dr. Michael Gray, M.D., M.P.H.,[9] was a treating physician to both Jones and **Alder**. His differential diagnoses of **Alder's** illnesses included glutaraldehyde exposure and toxicity, immune toxicity, toxic encephalopathy, and reactive airways disease. He concluded that **Alder** was "temporarily totally disabled in the context of her ability to enter a work environment, and be gainfully employed." Dr. Gray diagnosed Jones with similar conditions and disability and advised both technicians to remain off work. Dr. Gray stated that "it is my considered medical opinion, based on the differential diagnosis and general clinical assessment for these two individuals, that their exposure[s] in the context in question to a mixture of chemicals emanating from the developer were sufficient" to cause Technicians' illnesses. He stated in a monograph that he coauthored on the subject that glutaraldehyde is one of the chemicals listed as hazardous to hospital workers. Toxicologist Richard Lipsey, Ph.D.,[10] affirmed that Technicians' symptoms are those listed in the scientific literature as potential health consequences of exposure to film processing chemicals.

¶ 13 Dr. Mark R. Cullen, a professor of medicine at Yale University,[11] testified at deposition that the temporal relationship between exposure and symptoms provides an objective way to verify patients' subjective reports. Dr. Cullen is the author of seventy-seven original peer reviewed manuscripts, the majority of which address occupational health and exposure to toxins. Dr. Cullen was prepared to testify that the symptoms complained of by Ms. **Alder** and Ms. Jones were "toxicologically probable consequences of [chemical] exposure." Regarding Jones, Dr. Cullen observed:

> The headache, difficulty concentrating, and upper respiratory symptoms, particularly the hoarseness which she experienced during this time period, I believe can be directly attributable to those exposures as was suggested by almost all of the contemporaneous evaluations and supported by physical examination done at the time.

¶ 14 Dr. Cullen strongly recommended that both Technicians leave their work as radiographers and avoid all further exposure to x-ray processing and related chemicals. He expressed the opinion that for Jones any return to her prior occupation would be impeded by "her neuropsychological impairments as well as her reactivity to the chemical environment."

¶ 15 In the spring of 1997, Technicians were examined by an independent medical panel of the Occupational and Environmental Medicine Clinic at the University of Utah Medical Center. The panel prepared a report for Administrative Law Judge Kathleen Switzer. The report indicated that "[b]ased on reasonable medical probability" Jones' chemical
1075 exposure caused her irritant-induced laryngeal disorder and substance-induced *1075 persisting dementia, and that she had no functional ability to continue work at the hospital. The panel made similar findings regarding **Alder**. Judge Switzer inquired what portion of Technician Jones' sixteen percent permanent impairment as determined under the guidelines of the AMA's *Guides to the Evaluation of Permanent Impairment,* 4th Edition, was "a result of the glutaraldehyde and hydroquinone exposure at LDS Hospital and what portion is due to other causes?" The panel representative responded, "[w]e have no reason to apportion causation to factors or agents other than the x-ray processing fluid."

¶ 16 Regarding Jones, the panel also noted that

> [o]bjective measures of the patient's neurocognitive functioning by way of neuropsychological testing revealed impairment more serious than a cognitive or amnestic disorder, meeting criteria for dementia. Since the dementia is persistent following exposure to substances known to cause neurocognitive problems, the specific diagnosis of Substance-Induced Persisting Dementia appears specific and appropriate.

The panel further stated that Technicians' "future medical treatment that could be reasonable and medically necessary for [their] occupational exposure while employed at LDS Hospital is four months of cognitive rehabilitation to help [them] adjust to [their] cognitive loss."

¶ 17 AGFA's experts dispute the reports of Technicians' symptoms, as well as the connection between the symptoms and chemical exposure. AGFA's physician, Dr. Emile Bardana,[12] examined Technicians and concluded that they had "suffered no permanent respiratory impairment or immunological injury of any kind," and could return to work as radiology technologists. He discounted the diagnoses of MCS or "immune toxicity" as lacking a consistent disease definition and never having been demonstrated through testing.

¶ 18 Technicians left their positions at the hospital in June 1995 upon the recommendation of their own physicians, and allegedly have since been unable to pursue their specialty as radiology technicians. They maintain that they have been largely confined to their homes by severe reactions to a large array of common chemicals and by their extreme fatigue. In April 1995, the hospital modified the ventilation system in the mammography suite by installing a seven-inch vent directly to the outside. No air quality tests were performed before this remediation.

¶ 19 Ultimately, Technicians brought this action against AGFA, alleging that the chemical exposure resulting from AGFA's negligent installation and servicing of its Curix x-ray processing machine proximately caused their illness. AGFA moved for summary judgment on the basis that Technicians' claims were barred by the two-year statute of limitations on defective product strict liability claims under Utah Code Ann. section 78-15-3. The district court denied summary judgment, holding that none of Technicians' claims involved a defective product, but rather that the case involved alleged negligence of people. AGFA next moved for summary judgment on the grounds that it had no duty relative to the hospital's ventilation system, that Technicians could prove no chemical exposure and no injury because MCS is not a medically accepted diagnosis and involves novel and unreliable science, and that therefore Technicians' expert testimony was inadmissible. The court excluded all MCS-related expert testimony, classified all of Technicians' alleged injuries as MCS, and granted summary judgment in favor of AGFA. Technicians appeal.

STANDARD OF REVIEW

¶ 20 We will affirm summary judgment only when "there is no genuine issue as to any material fact and ... the moving party is entitled to a judgment as a matter of law." Utah R. Civ. P. 56(c); *see also Tustian v. Schriever,* 2001 UT 84, ¶ 13, 34
1076 P.3d *1076 755. We review the trial court's legal conclusions for correctness, granting no deference. *Ault v. Holden,* 2002 UT 33, ¶ 15, 44 P.3d 781 (citing *Utah Coal & Lumber Rest., Inc. v. Outdoor Endeavors Unlimited,* 2001 UT 100, ¶ 9, 40 P.3d 581). "`In reviewing a grant of summary judgment, we view the facts and all reasonable inferences drawn therefrom

in the light most favorable to the nonmoving party.'" *DCM Inv. **Corp**. v. Pinecrest Inv. Co.*, 2001 UT 91, ¶ 6, 34 P.3d 785 (quoting *Dixon v. Pro Image, Inc.*, 1999 UT 89, ¶ 12, 987 P.2d 48). We review the district court's admission or exclusion of expert testimony for abuse of discretion. *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 138, 118 S.Ct. 512, 515, 139 L.Ed.2d 508, 514 (1997).

ANALYSIS

I. DID AGFA'S INSTALLATION AND MAINTENANCE OF THE CURIX X-RAY PROCESSOR CREATE A DUTY OF CARE TO TECHNICIANS?

A. Product Liability Statute of Limitations

¶ 21 We emphasize at the outset that the district court was correct in denying AGFA's product liability statute of limitations motion for summary judgment. The court held that the claims brought here do not involve a defect or malfunction in the Curix machine itself and concluded that "this is a negligence case only." Nonetheless, AGFA continues to argue, as a fall-back position, that Technicians' claims are time-barred by the two-year Product Liability Act statute of limitation, Utah Code Ann. § 78-15-3 (1996).

¶ 22 Utah Code Ann. section 78-15-6 (1996) provides in part:

> (1) No product shall be considered to have a defect or to be in a defective condition, unless at the time the product was sold by the manufacturer or other initial seller, there was a defect or defective condition in the product which made the product unreasonably dangerous to the user or consumer.
>
> (2) As used in this act, "unreasonably dangerous" means that the product was dangerous to an extent beyond which would be contemplated by the ordinary and prudent buyer, consumer or user of that product in that community considering the product's characteristics, propensities, risks, dangers and uses together with any actual knowledge, training, or experience possessed by that particular buyer, user or consumer.

¶ 23 Technicians have not alleged that the Curix was defective or unreasonably dangerous when purchased. Indeed, the facts would not support such an allegation since Technicians used the processing machine without problems for several years prior to its reinstallation in the smaller, windowless mammography suite. *Cf. Slisze v. Stanley-Bostitch*, 1999 UT 20, ¶ 10, 979 P.2d 317 (declining to find "less safe" product unreasonably dangerous). Rather, Technicians contended that AGFA was negligent in its installation and maintenance of the Curix processor in the new location. Section 78-12-25(3) provides a four-year statute of limitation for claims of negligence. Technicians brought this action within four years of discovery of their injuries, and therefore this action is not time barred. *See Slisze*, 1999 UT 20, ¶ 8, 979 P.2d 317 (plain language of the product liability statute does not preclude common law negligence claims).

B. Duty of Care

¶ 24 Initially, we note that because this case is before us on a grant of summary judgment we must decide only what the law and the evidence indicate that Technicians have a right to attempt to prove. What they actually can prove is a determination for the trier of fact. Consequently, if the legal framework exists for a duty of care, contingent upon proof of specific facts supported by evidence in the record, we must remand to the trial court for factual determinations.

¶ 25 The district court determined that Technicians could not prove that AGFA had a duty relative to the hospital's ventilation system or other legal duty "sufficient to support a claim of negligence." To establish a duty, Technicians rely
1077 most relevantly on the Restatement (Second) of Torts, sections *1077 324A and 388.[13] We shall discuss each of these sections in turn.

¶ 26 Section 324A of the Restatement (Second) of Torts states:

> One who undertakes, gratuitously or for consideration, to render services to another which he should recognize as necessary for the protection of a third person or his things, is subject to liability to the third person for physical harm resulting from his failure to exercise reasonable care to protect his undertaking, if
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> (a) his failure to exercise reasonable care increases the risk of such harm, or
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> (b) he has undertaken to perform a duty owed by the other to the third person, or
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> (c) the harm is suffered because of the reliance of the other or the third person upon the undertaking.

¶ 27 We have not previously addressed section 324A. However, other courts have adopted the duty to third parties that section 324A imposes. The Seventh Circuit Court of Appeals in *Figueroa v. Evangelical Covenant Church,* 879 F.2d 1427 (7th Cir.1989), recognized that section 324A creates liability to a third party in a party who undertakes a duty to a second party for the benefit of the third party. *Id.* at 1434 (applying Illinois law). The *Figueroa* court relied on *Scott & Fetzer Co. v. Montgomery Ward & Co.,* 112 Ill.2d 378, 98 Ill.Dec. 1, 493 N.E.2d 1022 (1986) (holding that section 324A applied to impose a duty on a fire-warning system company toward businesses adjacent to the one to which it provided services), and *Eichler v. Plitt Theatres, Inc.,* 167 Ill.App.3d 685, 118 Ill.Dec. 503, 521 N.E.2d 1196 (1988) (holding that section 324A applied to impose a duty on theater toward persons coming onto adjacent parking lot where owner of lot relied on theater to remove snow and ice from parking lot). *Figueroa,* 879 F.2d at 1434; *see also Repola v. Morbark Indus., Inc.,* 934 F.2d 483, 486 n. 3 (3d Cir.1991) (holding that New Jersey law "permits an individual who is not a party to a contract, but who is within the zone of hazard created by the contract's activity, to maintain a cause of action against a contracting party for negligent performance of its contractual responsibilities").

¶ 28 The Utah Court of Appeals adopted section 324 of the Restatement (Second) of Torts in *Atkinson v. Stateline Hotel Casino & Resort,* 2001 UT App 63, ¶ 19 n. 6, 21 P.3d 667, stating that

> the appellate courts of this state have not previously adopted section 324 of the Restatement (Second) of Torts. Our doing so now, however, is not much of a jurisprudential leap since "the rule stated in [section 324] is [merely] an application of the one stated in [section] 323." Restatement (Second) of Torts § 324 cmt. a (1965).

We agree, and extend that adoption to section 324A.

¶ 29 There is no law, evidence, or stipulation indicating that the hospital's exclusive control of the ventilation system relieved AGFA of the duty it had undertaken to install and maintain its machine in a safe and operable condition. Therefore, AGFA's physical undertaking of the installation and maintenance of the Curix machine, which it should have known was necessary for Technicians' safety, conferred a duty of reasonable care in that undertaking under Restatement section 324A.

1078 *1078 ¶ 30 In order to be subject to liability under section 324A, AGFA must also meet the requirements of at least one of subsections (a), (b), or (c). As the Fifth Circuit Court of Appeals explained in *Canipe v. National Loss Control Service **Corp**.*, 736 F.2d 1055, 1062 (5th Cir.1984), subsection (a) of section 324A "requires some change in conditions that increases the risk of harm to the plaintiff over the level that existed before the defendant became involved." *See also Turbe v. Gov't of Virgin Islands,* 938 F.2d 427, 432 (3d Cir.1991) (holding under section 324A that street lamp company that failed to replace burned out globe was not liable for nighttime attack on pedestrian); *Homer v. Pabst Brewing Co.,* 806 F.2d 119, 121-23 (7th Cir.1986) (holding under section 324A that company providing limited medical services to its own employees was not liable to "unidentifiable members of the general public"); *Smallwood v. United States,* 988 F.Supp. 1479, 1482 (S.D.Ga.1997) (holding OSHA not liable to employee who stepped in vat of molten metal that OSHA's safety inspection had failed to identify because vats were "hazardous prior to the inspections"); *Vaughan v. Edison Co.,* 48 Mass.App.Ct. 225, 719 N.E.2d 520, 525 (1999) (holding power company not liable to woman hit by car in crosswalk where street lamps were not working); *Wissel v. Ohio High Sch. Athletic Ass'n,* 78 Ohio App.3d 529, 605 N.E.2d 458, 464-67 (1992) (holding under section 324A that state high school athletic association was not liable to athlete injured in football

game). In *Turbe,* the Third Circuit Court of Appeals cited Judge Cardozo's opinion in *H.R. Moch Co. v. Rensselaer Water Co.*, 247 N.Y. 160, 159 N.E. 896, 898 (1928), for the proposition that "[t]he court affirmed the dismissal of the complaint because the [defendant] had not launched a force or instrument of harm, but instead had only failed to facilitate the prevention of harm that occurred through other causes." *Turbe,* 938 F.2d at 432-33.

¶ 31 In the case before us, however, AGFA's installation of the Curix machine in the smaller, poorly ventilated mammography suite did create a "force or instrument of harm." Technicians' purported chemical exposure would not have occurred in the absence of that installation. A jury could find that AGFA's "failure to exercise reasonable care" in assuring that the total installation met AGFA's own safety standards actively "increased the risk of harm" under section 324A subsection (a).

¶ 32 Since the three subsections are stated in the alternative, meeting any one would suffice. In the instant case, however, AGFA's actions arguably fulfilled all three. AGFA met subsection (b) when it attempted to "improve the fume problem," *see infra* ¶ 70, by installing the vent kit. By so doing, it undertook at least some portion of the duty for disposing of chemical emissions, which the hospital originally owed to Technicians through proper operation of its ventilation system. *See Canipe,* 736 F.2d at 1062-63 ("Subsection (b) comes into play as long as the party who owes the plaintiff a duty of care has delegated to the defendant any particular part of that duty.").

¶ 33 The record is also replete with evidence of the hospital's reliance on AGFA's procedures. As the Fifth Circuit stated in *Canipe,* "[t]he reliance element of subsection (c) is satisfied if, in relying on the defendant's undertaking, the employer `neglect[s] or reduces[s]' its own safety program." *Id.* at 1063 (citation omitted). Thus, upon the facts before us there is at least a triable issue as to whether the hospital, seeing AGFA's efforts to improve the air quality, relied upon AGFA for that function and thus neglected to examine and improve its own ventilation system, fulfilling subsection(c).

¶ 34 Additionally, AGFA may be subject to liability as a "supplier" under section 388, which provides:

> One who supplies directly or through a third person a chattel for another to use is subject to liability to those whom the supplier should expect to use the chattel with the consent of the other or to be endangered by its probable use, for physical harm caused by the use of the chattel in a manner for which and by a person for whose use it is supplied, if the supplier
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> (a) knows or has reason to know that the chattel is or is likely to be dangerous for the use for which it is supplied, and
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> 1079 *1079 (b) has no reason to believe that those for whose use the chattel is supplied will realize its dangerous condition, and
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> (c) fails to exercise reasonable care to inform them of its dangerous condition or of the facts which make it likely to be dangerous.

Restatement (Second) of Torts § 388 (1965). This court adopted section 388 as Utah law in *Schneider v. Suhrmann,* 8 Utah 2d 35, 37, 327 P.2d 822, 823 (1958).[14] The *Schneider* court stated:

> Plaintiff bases his claim of negligence against the supplier upon the doctrine, of which we do not doubt the correctness, that the supplier of a commodity ... is subject to liability to those whom he should expect to use it if the supplier (a) knows of its dangerous potential, (b) knows or reasonably should know that the user will not realize the danger, and (c) the supplier fails to use reasonable care to safeguard against the danger or to inform the user of the facts which make it likely to be dangerous.

Id. (citing Restatement of Torts § 388).

¶ 35 In the instant case, the foundational provision of section 388 is met because the Curix processing machine was supplied by AGFA for x-ray processing use by Technicians, as installed by AGFA in the new mammography suite. AGFA's agent, Murray, testified that he had received training on the AGFA safety standards and the dangers of chemical

exposure. He was also well aware of the ventilation requirements. Moreover, the instructions from AGFA product specialist George Cervenka to Murray that he test the ventilation are, inter alia, evidence of both AGFA's and Murray's awareness of a safety compliance issue. Therefore, a jury could find that the facts present here meet the requirements of subsection(a).

¶ 36 Murray arguably had no reason to believe, as required in subsection (b), that Technicians were aware of the dangers associated with the Curix machine in the mammography suite environment since they had used it for several years in other locations without problems. Moreover, Technicians' awareness of the chemical irritation that they experienced does not, without more, presuppose an understanding of the potential for serious, long-term, irreversible harm.

¶ 37 Comment b to section 388 states that "[a] fortiori, one so supplying a chattel is subject to liability if by word or deed he leads those who are to use the chattel to believe it to be of a character or in a condition safer for use than he knows it to be or to be likely to be." In this case, Murray failed to protest the continued operation of the Curix. Whether his actions led the hospital and Technicians to believe that the machine was in a condition safer than he knew it was "likely to be" raises an issue of triable fact.

¶ 38 Additionally, Utah law as established in *Schneider,* goes beyond the language of the Restatements by augmenting the supplier's duty to inform with a duty to "use reasonable care to safeguard against the danger." Therefore, a jury could find that AGFA breached its duty by failing to take reasonable measures to prevent the exposure. Even in the absence of that finding, there is a triable issue as to adequate warning. The dissent is accurate in its observation that AGFA communicated to the hospital the requirement for ten complete air exchanges per hour. However, that warning arguably falls short of informing the user Technicians of the facts which made the Curix machine "likely to be dangerous." These facts could be found to include disclosure of the specific, serious, long-term effects of chemical exposure, since that was the real danger and the one giving rise to the alleged injuries.

¶ 39 Finally, we note the strikingly analogous legal scenario presented by *Tallman v. City of Hurricane,* 1999 UT 55, 985 P.2d 892. In *Tallman,* the city of Hurricane hired Progressive Construction Company to install water lines. *Id.* at ¶ 2. Progressive then subcontracted with Haukos to dig the trenches in which Progressive employees would lay the pipe. *Id.*
1080 Progressive had a contractual *1080 responsibility to provide "all trench protection and shoring" which it did not fulfill. *Id.* Progressive employee Tallman was killed when a rock falling from an unshored trench wall struck him on the head. *Id.* Progressive believed that the trenches had been dug in solid rock, but no engineer investigated to verify this. *Id.* at ¶ 3.

¶ 40 In our analysis, we analogized the digging of a trench to the manufacture of a chattel, with associated duties under Restatement (Second) of Torts section 389. *Id.* at ¶¶ 9-15. We wrote that, "even if the trench was `capable of being made safe for use,' the Restatement underscores the importance of a jury deciding whether Haukos realized the unlikelihood that shoring would be completed before the trench was used by Progressive's employees." *Id.* at ¶ 15.

¶ 41 Section 389 states:

> One who supplies directly or through a third person a chattel for another's use, knowing or having reason to know that the chattel is unlikely to be made reasonably safe before being put to a use which the supplier should expect it to be put, is subject to liability for physical harm caused by such use to those whom the supplier should expect to use the chattel or to be endangered by its probable use, and who are ignorant of the dangerous character of the chattel or whose knowledge thereof does not make them contributorily negligent, although the supplier has informed the other for whose use the chattel is supplied of its dangerous character.

Restatement (Second) of Torts § 389 (1965). In the instant case, AGFA, like Haukos, functioned as a supplier. The hospital, like Progressive, functioned as a general contractor who employed a subcontractor but retained responsibility for the safety of the environment—in this case the ventilation— which it did not fulfill. Also like Progressive, the hospital expressed a belief that the conditions were safe—that the ventilation was adequate—but failed to investigate. AGFA acknowledged the potential danger to which, like Haukos, it knew that employees of its general contractor would be exposed. In *Tallman,* we adopted relevant Occupational Safety & Health Association (OSHA) and Utah Occupational Safety & Health Association (UOSHA) standards governing the digging of trenches as evidence of the standard of

reasonable care. *Id.* at ¶ 11. Likewise, in the instant case, AGFA's own uncontested safety standards for installation of the Curix provide persuasive evidence of the standard of care.

¶ 42 Therefore, under section 389, the case before us presents at least two issues of triable fact. The first is whether Murray, as AGFA's agent, knew or had reason to know that the Curix was "unlikely to be made reasonably safe" before being put to the expected use in the mammography suite. The second is whether Technicians' experience with the Curix in its various locations, coupled with whatever general knowledge they may have had concerning the hazards of photographic chemicals, defeats their "ignorance of the dangerous character" of the Curix in operation under conditions of inadequate ventilation. We note the difference in the subjective standard of section 388—that AGFA "has no reason to believe" that employees recognized the dangerous condition—and the objective standard of 389—that Technicians were actually ignorant of the danger, regardless of what AGFA subjectively believed.

¶ 43 Thus, to paraphrase *Tallman,* "even if the [Curix machine] was `capable of being made safe for use,' the Restatement underscores the importance of a jury deciding whether [AGFA] realized the unlikelihood that [the ventilation] would be [adequate] before the [Curix machine] was used by [the hospital's] employees." *Id.* at ¶ 15. Consequently, a jury could properly find under *Tallman* that AGFA owed Technicians a duty of care.

¶ 44 Therefore, we conclude that the legal framework exists to create a duty of care running from AGFA to Technicians under Restatement (Second) of Torts sections 324A, 388, and 389. The duty and AGFA's possible breach of that duty are supported by sufficient evidence to raise material issues of triable fact. We hold that determination of the factual elements
1081 necessary for duty, breach, and consequent liability are questions *1081 for the jury and reverse the summary judgment in favor of AGFA.

II. IS "MULTIPLE CHEMICAL SENSITIVITY" A LEGALLY COGNIZABLE INJURY?

¶ 45 The district court's ruling addressed only those injuries defined by Technicians' experts as multiple chemical sensitivity (MCS). The court found that "MCS is a controversial diagnosis that has been excluded in numerous jurisdictions for lack of sound scientific reasoning and methodology," and noted that "numerous medical organizations, including the American Medical Association, refuse to accept MCS."

¶ 46 The two principal cases relied on by the district court are *Bradley v. Brown,* 42 F.3d 434 (7th Cir.1994), and *Summers v. Missouri Pacific Railroad System,* 132 F.3d 599 (10th Cir.1997). In *Summers,* the court observed that "MCS is a controversial diagnosis that has been excluded under *Daubert* as unsupported by sound scientific reasoning or methodology." 132 F.3d at 603. *See generally Daubert v. Merrell Dow Pharm.,* 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993).

¶ 47 The plaintiffs in *Bradley* alleged that they suffered from MCS as a result of exposure to pesticides. 42 F.3d at 435. The circuit court upheld the district court's determination that "`the "science" of MCS's etiology has not progressed from the plausible, that is, the hypothetical, to knowledge capable of assisting a fact-finder, jury or judge.'" *Id.* at 438 (quoting *Bradley v. Brown,* 852 F.Supp. 690, 700 (N.D.Ind.1994)). The circuit court observed that "`[u]nder the Rules, the trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable.'" *Bradley,* 42 F.3d at 438 (quoting *Daubert,* 509 U.S. at 589, 113 S.Ct. at 2795). The court further noted that the district court had examined in depth literally hundreds of pages of material discussing MCS. *Id.* After commending the lower court for its careful and thorough execution of its "gatekeeping" function, the circuit court refused to disturb the district court's conclusion that "`Plaintiffs have failed to show that [the] theories concerning MCS's causes have been adequately tested; their own evidence suggests just the opposite.'" *Id.* (quoting *Bradley,* 852 F.Supp. at 700).

¶ 48 MCS has remained a prominent issue in medical science. The record refers to over 200 peer-reviewed publications on MCS within the last decade. A simple internet search for "multiple chemical sensitivity" yields 26,000 results. Given the almost exponential expansion of data on MCS, the time may come when that condition will gain medical and legal

recognition. For the present, however, as the district court found, MCS is not recognized by the American Medical Association and numerous other medical organizations. These include the American College of Physicians, the American Academy of Allergy and Immunology, the American College of Occupational Medicine, the General Medical Council of Great Britain and the International Society of Regulatory Toxicology and Pharmacology.

¶ 49 While lack of general acceptance is not always fatal to admissibility, *see* State v. Rimmasch, 775 P.2d 388, 396-99 (Utah 1989), as we discuss below, it is not reasonable to expect that the scientific resources and technical wisdom of the district court could outstrip those of the American Medical Association and similar medical organizations. As the Seventh Circuit Court of Appeals recognized in *Bradley,* "`scientific controversy must be settled by the methods of science rather than by the methods of litigation.'" 42 F.3d at 438 (quoting *Bradley,* 852 F.Supp. at 700). Therefore, we hold that the district court was within the discretion of its gatekeeping function in excluding scientific and medical expert testimony relating solely to MCS.

III. HAVE TECHNICIANS SUSTAINED LEGALLY COGNIZABLE INJURIES OTHER THAN MCS?

¶ 50 Working backwards from the diagnosis of MCS, the district court declared all testimony relating to MCS inadmissible as "not based upon inherently reliable scientific or medical foundation" under *Rimmasch* and Utah Rule of Evidence 702.
1082 The court then disposed of Technicians' alleged fibromyalgia, *1082 CFS, and chemically induced cognitive deficits by proclaiming in a footnote with no cite to medical or legal authority that "[t]hese diagnoses appear to essentially be MCS couched in different terms." After thus summarily excluding all of Technicians' expert testimony relative to injury without acknowledging the standard clinical diagnostic methods employed, the court announced that they had failed to establish the damages element of negligence. Yet the record is replete with evidence for Dr. Cullen's observation that Technicians "are not making the symptoms up, [they] are very real, often extremely intense, life ruining symptoms, and therefore they have an underlying pathophysiologic basis."

¶ 51 The record indicates that Technicians suffer from symptoms of fibromyalgia, cognitive deficits, and CFS, as well as more transitory symptoms indicative of chemical exposure. Neither the district court nor AGFA has cited a scintilla of evidence for the proposition that CFS, fibromyalgia, and cognitive deficits cannot exist independently, and that they are nothing more than "MCS couched in different terms." The bald statement that the illnesses "display nearly identical symptoms and show significant overlap" is not evidence of medical identity of MCS, fibromyalgia, CFS, and cognitive deficits. The very fact that the other conditions have been medically recognized as diagnoses, while MCS has not, supports the distinction. Neither AGFA nor the district court has challenged the validity of these stand-apart conditions as medically recognized diagnoses.

¶ 52 Expert testimony is typically freely admitted for all three of these conditions, and courts have recognized all three as bases for accommodations and awards. *See, e.g., Weixel v. Bd. of Educ.,* 287 F.3d 138, 146-48 (2d Cir.2002) (finding plaintiff diagnosed with CFS and fibromyalgia disabled within the meaning of the Americans With Disabilities Act); *Carson v. Canada Life Assurance,* 28 Fed.Appx. 262, 263-64 (4th Cir.2002) (per curiam) (unpublished opinion) (finding no reasonable basis to withhold insurance benefits where medical evidence indicated that plaintiff had fibromyalgia and was unable to perform her customary duties); *Vega v. Comm'r of Soc. Sec.,* 265 F.3d 1214, 1219-20 (11th Cir.2001) (finding that the ALJ erroneously rejected diagnosis of CFS, and gave insufficient weight to plaintiff's expert testimony where medical evidence and plaintiff's testimony supported diagnosis); *Godbey v. Apfel,* 238 F.3d 803, 807-10 (7th Cir.2000) (vacating and remanding ALJ decision that failed to consider evidence of plaintiff's cognitive deficits); *Kearney v. Standard Ins. Co.,* 175 F.3d 1084, 1091-94 (9th Cir.1999) (reversing summary judgment on genuine issue of material fact regarding plaintiff's disability due to cognitive impairment).

¶ 53 Moreover, in *Summers* our own Tenth Circuit Court of Appeals has admitted expert testimony of a medically accepted diagnosis relative to the same symptoms for which it had excluded MCS-related testimony. 132 F.3d at 603-06. There, the court upheld the trial court's exclusion of expert testimony based solely on tests for MCS but admitted the testimony of a second expert witness who employed tests for an alternative diagnosis. The court observed that the "reports prepared by

Dr. Schreiber clearly indicate that both plaintiffs suffer from *objective* abnormalities which, in the case of Summers, he attributes to `toxic damage to his central and peripheral nervous system as a result of exposure to the fumes,'" and noted that "[e]ven if Dr. Schreiber's testimony were to be excluded on *Daubert* review, it could not be excluded for the same reasons relied on to exclude [the MCS] testimony." *Id.* at 605. Likewise, expert testimony of Technicians' stand-apart injuries cannot be excluded for the same reason the district court relied on for excluding all testimony relating to MCS—that the evidence lacks a basis in "a valid and reliable diagnosis."

¶ 54 Although CFS, fibromyalgia, and induced cognitive deficits lack definitive laboratory diagnostic tests, they are not unique among recognized diagnoses in this respect. For example, as Dr. Cullen testified, until quite recently multiple sclerosis could only be diagnosed symptomatically. In the absence of modern medical imaging techniques, multiple sclerosis' savage demyelination of nerve tissue proceeded unseen behind the puzzling array of observable symptoms.
1083 Nonetheless, *1083 mere invisibility did not render the destruction unreal. Human ignorance is no deterrent to the wonders—and horrors—of nature. Therefore, although proof must "be more than merely subjective," *Harnicher v. Univ. of Utah Med. Ctr.,* 962 P.2d 67, 71 (Utah 1998), we will not place impossible obstacles in the way of plaintiffs' attempts to prove objective damages.

¶ 55 We hold that the district court committed factual error in grouping all related symptoms and conditions together under the heading of MCS. We reemphasize that fibromyalgia, CFS, and cognitive deficits are all accepted diagnoses and that the record contains sufficient evidence of these diagnoses to raise an issue of triable fact. Therefore, we reverse the district court's holding that Technicians have failed to show legally cognizable injury.

IV. ADMISSION OF EXPERT TESTIMONY

A. Legal Tests of Admissibility Under Rule 702 and Rimmasch

¶ 56 Utah Rule of Evidence 702 establishes the general standard for admissibility of expert testimony, providing that

> [i]f scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Utah R. Evid. 702.[15] In *Rimmasch,* 775 P.2d 388 (Utah 1989), we further elaborated "the standard by which the admissibility of expert scientific testimony is to be judged." *Id.* at 399. Such a standard is necessary because science in the court is a two-edged sword. While often helpful, scientific testimony also has the potential to overawe and confuse, and even to be misused for that purpose. Consequently, jurisprudential history reveals a consistent attempt to ensure the reliability and helpfulness of evidence while allowing a maximum of relevant information to flow to the finder of fact.

¶ 57 In *Rimmasch,* we rejected exclusive use of the general acceptance test set forth in *Frye v. United States,* 293 F. 1013 (D.C.Cir.1923). *Rimmasch,* 775 P.2d at 396-99. Instead, we adopted the reasoning of *Phillips v. Jackson,* 615 P.2d 1228 (Utah 1980), approving inherent reliability rather than general acceptance as "the touchstone of admissibility." *Rimmasch,* 775 P.2d at 396. Although "`a showing of general acceptance would generally be sufficient' to show inherent reliability and to justify the admission of scientific evidence," general acceptance was no longer the "sine qua non of admission." *Id.* at 396-97 (quoting *Phillips,* 615 P.2d at 1234). In the absence of general acceptance, other proofs of reliability could also suffice. We expressed confidence that "the more flexible test articulated in *Phillips* seems fully capable of performing the necessary screening function without unduly impeding the flow of reliable scientific evidence to the fact finder." *Id.* at 397 n. 6.

¶ 58 *Rimmasch* also set the limits of its own application. Historically, "where expert testimony is based upon *novel* scientific principles or techniques, courts have long imposed additional tests of admissibility" beyond the standard rules of evidence. *Id.* at 396 (emphasis added). Thus, "`[h]owever the test is formulated ... a foundation establishing the reliability of *new* scientific evidence must be established for it to be admissible.'" *Id.* at 397 (emphasis added) (quoting *Kofford v.*

Flora, 744 P.2d 1343, 1347 (Utah 1987)).

¶ 59 We reconfirmed in *State v. Adams,* 2000 UT 42, 5 P.3d 642, that "the *Rimmasch* test was not intended to apply to all expert testimony. Rather, *Rimmasch* is implicated only when the expert testimony is `based on newly discovered principles.'" *Id.* at ¶ 16 (quoting *Rimmasch,* 775 P.2d at 396). In *State v. Kelley,* 2000 UT 41, 1 P.3d 546, we confirmed that *Rimmasch* is inapplicable where "there is no plausible claim that the type of expert testimony offered by the
1084 prosecution *1084 was based on novel scientific principles or techniques." *Id.* at ¶ 19. In *Patey v. Lainhart,* 1999 UT 31, 977 P.2d 1193, we refused to apply *Rimmasch* after noting that "[i]n this case, [the] type of expert testimony which was offered ... was [not] based upon novel scientific principles or techniques." *Id.* at ¶ 16. Again, in *Green v. Louder,* 2001 UT 62, 29 P.3d 638, we limited application of the *Rimmasch* inherent reliability test to "expert testimony based on novel scientific principles or techniques." *Id.* at ¶ 27.

¶ 60 Furthermore, disagreement among experts, and even between the experts and the judge, is not a valid basis for exclusion of testimony. The Ninth Circuit Court of Appeals made this clear in *Kennedy v. Collagen* ***Corp.***, 161 F.3d 1226 (9th Cir. 1998), stating:

> Judges in jury trials should not exclude expert testimony simply because they disagree with the conclusions of the expert.... The test is whether or not the reasoning is scientific and will assist the jury. If it satisfies these two requirements, then *it is a matter for the finder of fact to decide what weight to accord the expert's testimony.* In arriving at a conclusion, the factfinder may be confronted with opposing experts, additional tests, experiments, and publications, all of which may increase or lessen the value of the expert's testimony. But their presence should not preclude admission of the expert's testimony—*they go to the weight, not the admissibility.*

Id. at 1230-31 (emphasis added). Therefore, we reaffirm our previous holdings that the *Rimmasch* test applies only to novel scientific methods and techniques. Other scientific testimony is to be evaluated under rule 702 without heightened tests of "inherent reliability."

B. Application to Differential Diagnosis Testimony

¶ 61 In *McCullock v. H.B. Fuller Co.,* the Second Circuit Court of Appeals defined "differential etiology" as "listing possible causes, then eliminating all causes but one." 61 F.3d 1038, 1044 (2d Cir.1995). In that case, as here, an expert based his opinion on a range of factors, including care and treatment of the plaintiffs, medical histories as related by them and derived from medical and other reports, pathological studies, the expert's own training and experience, review of the relevant product safety specifications, and scientific and medical treatises. *Id.* The *McCullock* court upheld the admissibility of that expert's testimony. *Id.*

¶ 62 In the instant case, the district court summarily concluded that "Plaintiffs['] evidence is not based upon inherently reliable scientific or medical foundation as required under *Rimmasch* and Utah Rules of Evidence 702." To the contrary, however, differential diagnosis is one of the oldest and most widely used and recognized of all the methods. Historically and even presently, in many instances, differential diagnosis has been the only method available. Rejecting this method for lack of quantitative laboratory-based tests creates the risk that "in chemical injury cases, if the plaintiff can produce only clinical medical experts whose opinions are based solely on well accepted clinical medicine methodology, they must face trial without a medical causation expert witness." *Moore v. Ashland Chem. Inc.,* 151 F.3d 269, 281 n. 2 (5th Cir.1998) (en banc) (Dennis, J., dissenting).

¶ 63 AGFA relies on *Glastetter v. Novartis Pharmaceuticals* ***Corp.***, 252 F.3d 986 (8th Cir.2001) (per curiam), for the proposition that there must be a basis for generally "ruling in" an agent as a known cause of the relevant class of injury before admitting differential diagnosis expert testimony. *Id.* at 989. The record in the instant case, however, contains ample documentation that exposure to x-ray processing chemicals causes the types of harm alleged by Technicians. Furthermore, the *Glastetter* court held that "[b]ecause a differential diagnosis is *presumptively admissible,* ... a district court may exercise its gatekeeping function to exclude only those diagnoses that are scientifically invalid." *Id.* (emphasis added).

We agree. Therefore, while the district court may exclude differential diagnosis expert testimony relating directly and solely
1085 to MCS in the instant case, it cannot exclude expert *1085 testimony regarding CFS, fibromyalgia, and cognitive deficits.

¶ 64 A number of the circuit courts of appeal in addition to the Eighth Circuit have recognized differential diagnosis as a standard scientific technique. The plaintiff in *Westberry v. Gislaved Gummi AB,* 178 F.3d 257 (4th Cir.1999), alleged severe sinus problems due to inhalation of talc. *Id.* at 260. The defendant argued that the physician's differential diagnosis expert testimony should have been ruled inadmissible as scientifically unreliable because the expert had no epidemiological or animal studies, no published peer-reviewed studies, or laboratory data to support talc as a causative agent for sinus disease. *Id.* at 262. However, the Fourth Circuit held that "[d]ifferential diagnosis, or differential etiology, is a standard scientific technique." *Id.* at 262; *see also Ambrosini v. Labarraque,* 101 F.3d 129, 140-41 (D.C.Cir.1996) (holding that district court abused its discretion in refusing to admit testimony based on differential diagnosis).

¶ 65 In *McCullock,* where the plaintiff alleged that glue fumes had caused her throat polyps, the court found the physician's differential diagnosis testimony admissible, even in the absence of medical literature relating glue to throat polyps. 61 F.3d at 1043-44. The court stated that "disputes as to the strength of his credentials, faults in his use of differential etiology as a methodology, or the lack of textual authority for his opinion, *go to the weight, not the admissibility, of his testimony." Id.* at 1044 (emphasis added). The court noted that "`[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.'" *Id.* (quoting *Daubert v. Merrell Dow Pharm., Inc.,* 509 U.S. 579, 596, 113 S.Ct. 2786, 2798, 125 L.Ed.2d 469 (1993)); *see also Hardyman v. Norfolk Ry. Co.,* 243 F.3d 255, 260-67 (6th Cir.2001) (reversing lower court's exclusion of differential diagnosis expert testimony); *Kannankeril v. Terminix Int'l, Inc.,* 128 F.3d 802, 808 (3d Cir.1997) (contested expert testimony raises "an issue of credibility, not of admissibility").

¶ 66 Here, as in *Patey,* expert testimony based on accepted and standard methods and techniques does "not even implicate *Rimmasch,* much less violate its requirements." *Patey,* 977 P.2d at 1196. Therefore, we hold that Technicians' differential diagnosis expert testimony for their alleged non-MCS conditions is admissible.

V. CAN TECHNICIANS RECOVER IN THE ABSENCE OF PROOF OF SPECIFIC LEVELS OF CHEMICAL EXPOSURE WHERE CHEMICALS ARE KNOWN TO BE PRESENT AND HARM HAS OCCURRED?

A. Evidence of Exposure

¶ 67 The district court held that "plaintiffs are unable to prove exposure to any chemicals, let alone levels known to cause known toxic effects," and are therefore unable to prove causation. Certainly Technicians' difficulty in proving exposure to toxic levels of chemicals is compounded by the fact that no one actually tested the air quality in the mammography suite until after April 1995 when the hospital remediated the ventilation by installing a seven-inch vent directly to the outside.

¶ 68 AGFA points out that industrial hygienist John Spencer conducted a "worst case scenario" test after the improvement in the ventilation in which he blocked all the vents during the processing of mammography films. The test did not indicate toxic or, for some substances, even detectable levels of chemicals. The exact parameters of the tests are unclear from the record. It is clear, however, that before remediation the ventilation was woefully inadequate. The printed report of air quality tests conducted by OSHA on May 16, 1995, stated that

> [Technicians] had been complaining about chemicals in the film developer (Curex Compact Daylight load Mammo System). At the time there were no vent systems attached to the machine. Fixers and developers are used in the machine. The fixer contains ammonium thiosulfate, acetic acid and ammonium sulfite. The
> 1086 developer contains among other chemicals glutaraldehyde and hydroquinone. *Initially the* *1086 *Mammotech room had only two air exchanges per hour.*

(Emphasis added.)

¶ 69 According to the findings of fact of the University of Utah independent medical panel referenced above, "[o]thers started calling [Jones] `canary,' and claimed they knew how bad the chemicals were by how fast she would lose her voice." The medical panel further noted that "other individuals in addition to Ms. **Alder** were experiencing regular symptomatic irritative responses in the work environment and that a range of photographic chemicals including hydroquinone and glutaraldehyde were used on a very regular basis."

¶ 70 AGFA does not deny that the Curix machine operated in this environment, used photo processing chemicals, and produced an exhaust stream at least potentially laced with chemicals. Murray at various times both designed a deflector to direct the exhaust stream away from Technicians' faces and installed the AGFA ventilation kit. He recorded in a written action slip that he had installed the vent kit on a trial basis "to try to improve [the] fume problem." Furthermore, the stringent warning in AGFA's own Planning Specifications instructed: "Make sure there is adequate air exchange in order to prevent too high a concentration of chemical fumes building up. *An air exchange rate of 10 times the room volume per hour is required.*" (Emphasis added.) This in connection with OSHA's finding of an exchange rate of only two room volumes per hour constitutes evidence of chemical exposure, especially in association with Technicians' symptoms.

¶ 71 At the very least, this set of circumstances gives rise to the array of factual arguments noted in Technicians' briefs on appeal. Technicians assert that Spencer's tests could not indicate the extent of exposure sustained by Technicians, or anyone, because he ignored the issue of cumulative build-up. We agree. If, for example, the ventilation rate was short by at least eight complete air exchanges per hour, what was the cumulative chemical concentration in the air by the eleventh hour? Did the ventilation run continuously, and was the air completely refreshed at night? If not, what was the concentration by quitting time on Friday, or after a week, a month, or two years? Technicians' expert witness Dr. Lipsey was prepared to testify regarding exposure and to run calculations for the above hypotheticals if requested.

B. Legal Precedent

¶ 72 AGFA argues that Technicians' failure to prove exposure to toxic levels of chemicals is fatal to their case. The district court found that Technicians' "inability" to prove such exposure defeated the essential element of causation in an action for negligence. Other courts disagree, however, on the preciseness of proof of exposure necessary for a chemical injury recovery. The split is particularly pronounced between the lower state and federal courts and the courts of appeal. Like the district court here, many of the lower courts in other jurisdictions have avoided examination of the sometimes difficult and technical issues in chemical injury actions by excluding expert testimony and dismissing the case. However, several courts of appeal have reversed and remanded such cases. In view of this, and of the fact that such lower court decisions are neither binding nor particularly persuasive to us, we restrict our review to the courts of appeal opinions and our own previous decisions.

¶ 73 AGFA relies on the Eighth Circuit Court's observation in *Wright v. Willamette Industries, Inc.*, 91 F.3d 1105 (8th Cir.1996), "that a plaintiff in a toxic tort case must prove levels of exposure that are hazardous to human beings generally as well as the plaintiff's actual level of exposure to the defendant's toxic substance before he or she may recover." *Id.* at 1106. On the following page, however, the court softened that statement by holding:

> We do not require a mathematically precise table equating levels of exposure with levels of harm, but there must be evidence from which a reasonable person could conclude that a defendant's emission has probably caused a particular plaintiff the kind of harm of which he or she complains before there can be a recovery.

1087 *1087 *Id.* at 1107. In cases such as the one before us, "reasonable person could conclude" translates to "reasonable medical certainty." Here Technicians' experts are prepared to testify to a reasonable medical certainty that exposure to toxic levels of x-ray processing chemicals caused Technicians' injuries. Furthermore, the *Wright* court's use of "probably caused" emphasizes that the burden of proof requires no more than a preponderance of the evidence.

¶ 74 AGFA further relies on *Allen v. Pennsylvania Engineering **Corp**.*, 102 F.3d 194 (5th Cir.1996), wherein the court stated 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." *Id.* at 199. In that case, the plaintiff developed brain cancer many years after poorly documented and intermittent exposure to ethylene oxide (EtO), which had been classified as a carcinogen by public health agencies. *Id.* at 195-96, 199. The *Allen* court observed that "although occupational exposure to EtO has been studied for many years, not a single scientific study has revealed a link between human brain cancer and EtO exposure." *Id.* at 197. Furthermore, "[t]he experts actually knew more about Allen's exposure to EtO through his smoking a pack of cigarettes a day than they did about his occupational exposure to the chemical." *Id.* at 198.

¶ 75 In contrast, the case before us involves an allegation of daily exposure during the period in which symptoms developed to substances documented as causative agents for the specific harm alleged. The list of literature reviewed by the University of Utah panel includes, inter alia, articles and monographs on—reactions to chemical fumes in radiology departments[16] and mortality patterns among press photographers.[17] Twenty-seven of the sources reviewed specifically address the dangers of glutaraldehyde exposure. The titles of these articles alone list asthma,[18] proctitis,[19] tachycardia and palpitations,[20] proctocolitis,[21] allergy,[22] peripheral sensory irritation and hypersensitivity,[23] and epistaxis[24] as possible side effects of such exposure. One "Chemical Caution" note labels glutaraldehyde "an effective but lethal sterilizer,"[25] and another calls it a potential health risk to nurses.[26] Thirteen additional studies target the dangers of
1088 hydroquinone. These include a study on the mortality of *1088 technicians engaged in the manufacture and use of hydroquinone.[27]

¶ 76 Furthermore, subsequent to *Allen,* the Fifth Circuit Court of Appeals decided *Curtis v. M & S Petroleum, Inc.*, 174 F.3d 661 (5th Cir.1999). In *Curtis,* the plaintiffs alleged injury from workplace exposure to benzene. *Id.* at 664. No definitive air quality tests were available. *Id.* at 671. The plaintiffs' expert witness relied on, inter alia, knowledge of the working environment and observation of the workers' symptoms to conclude that refinery workers were exposed to benzene at several hundred times the permissible level. *Id.* at 671-72. The court admitted the expert's testimony that in the existing circumstances, the workers' symptoms themselves indicated high levels of benzene exposure. *Id.* at 671. The *Curtis* court held that "the law does not require plaintiffs to show the precise level of benzene to which they were exposed." *Id.* We find the closely analogous *Curtis* more persuasive than the earlier, more distinguishable *Allen.*

¶ 77 A number of other circuits have also admitted expert testimony without precise proof of toxic levels of exposure. In *McCullock,* 61 F.3d at 1040, proof of exposure consisted of testimony that the plaintiff worked within thirty feet of a hot glue pot and could smell the fumes. Nevertheless, the court admitted expert testimony that exposure to the fumes had caused plaintiff's throat polyps. *Id.* at 1043-44.

¶ 78 In *Westberry,* 178 F.3d 257 (4th Cir. 1999), the court rejected defendant's challenge to plaintiff's expert medical testimony where accumulations of talc were evident in the environment although the level of airborne talc was never measured and plaintiff's tissue concentration of talc was never determined. *Id.* at 263-66. The court stated that

> it must be recognized that "[o]nly rarely are humans exposed to chemicals in a manner that permits a quantitative determination of adverse outcomes.... Human exposure occurs most frequently in occupational settings where workers are exposed to industrial chemicals like lead or asbestos; however, even under these circumstances, it is usually difficult, if not impossible, to quantify the amount of exposure."

Id. at 264 (quoting Federal Judicial Center, Reference Manual on Scientific Evidence 187 (1994)).

¶ 79 In *Kannankeril v. Terminix Int'l, Inc.,* 128 F.3d 802 (3d Cir.1997), the plaintiff, a medical doctor, developed debilitating symptoms and was forced to give up her hospital position after her residence was sprayed with pesticide. *Id.* at 805. The symptoms included cognitive impairment and general chemical sensitivities. *Id.* Air quality samples taken nine months after the final application of pesticide indicated "nondetectable levels of pesticides." *Id.* The Third Circuit concluded that "it is for the trier of fact to determine what weight to give the ambient air test results as an indication of exposure." *Id.* at 809. We agree.

¶ 80 AGFA recognizes "the dose makes the poison" as one of the "central tenets" of toxicology. It admits, and even cites authority for the proposition that all chemicals may be harmful if consumed in large quantities. In so doing, AGFA inadvertently concedes to the reasoning of *McCullock* and *Kannankeril.* Specifically, if all chemicals are harmful and the poison is in the dose, then wherever chemicals are part of the environment, victims' toxic symptoms are themselves evidence of harmful levels, at least as an issue of triable fact.

¶ 81 Furthermore, common law tort doctrine declares that "one who injures another takes him as he is." *Brunson v. Strong,* 17 Utah 2d 364, 367, 412 P.2d 451, 453 (1966). If AGFA has not breached a duty of care to Technicians, then the level of airborne chemicals in the mammography suite becomes irrelevant here. If, however, AGFA has committed the tort of negligence in allowing the Curix machine to be operated in an environment where the ventilation did not meet its own safety standards, then "toxic level" becomes any level that is harmful to these specific plaintiffs.

1089 *1089 ¶ 82 The district court's declaration that "plaintiffs are unable to prove exposure to any chemicals, let alone levels known to cause known toxic effects" ignored substantial testimonial and circumstantial evidence of Technicians' prolonged exposure to x-ray processing chemicals. The court invoked summary judgment although Technicians' level of exposure and even the operating definition of toxic level are vigorously contested issues of fact.[28] In so doing, the court abused its discretion. The right of supplicants to prove that which they are able in court is a fundamental tenet of our jurisprudence. *See Miller v. USAA Cas. Ins. Co.,* 2002 UT 6, ¶ 66, 44 P.3d 663 (stating that by inappropriately dismissing claims, "the district court unconstitutionally denied [the plaintiffs] the opportunity to have their day in court"); *Gitsch v. Wight,* 61 Utah 175, 178-79, 211 P. 705, 706 (1922) ("That every person has a right to his day in court and an opportunity to be heard before he can be deprived of a justiciable right is too elementary for discussion....").

¶ 83 Therefore, Technicians' claims cannot be dismissed on the basis that incomplete tests administered after remediation by AGFA's own expert do not show "toxic" levels of exposure under AGFA's own definition of toxic. To thus stifle the unresolved factual issues of chemical exposure under a cloak of premature summary judgment effectively denies Technicians their day in court. Consequently, we reverse summary judgment on the issue of exposure.

VI. CAN A TEMPORAL RELATIONSHIP BETWEEN CHEMICAL EXPOSURE AND INJURY SUPPORT THE CAUSATION PRONG OF NEGLIGENCE?

¶ 84 The district court addressed proof of causation no further than finding that it failed because Technicians could not prove exposure. AGFA relies on *Moore v. Ashland Chemical Inc.,* 151 F.3d 269, 279 (5th Cir.1998) (en banc), in which the Fifth Circuit Court of Appeals held that the district court did not abuse its discretion in excluding expert testimony that plaintiff's exposure to a toluene mixture caused his subsequent reactive airways disease. In that case plaintiff's expert could cite little documented evidence that toluene causes reactive airway disease. In the case before us, however, the symptoms that Technicians have suffered are documented in connection with exposure to photographic processing chemicals. Any argument that their illnesses stem from other causes creates an issue of triable fact.

¶ 85 AGFA argues that numerous courts have rejected as unreliable the inference of causation from a temporal relationship between the exposure and illness. For this proposition, it cites *Porter v. Whitehall Laboratories, Inc.,* 9 F.3d 607, 611-12 (7th Cir. 1993), and *In re Breast Implant Litigation,* 11 F.Supp.2d 1217 (D.Colo.1998). We address *Porter* only, finding a decision of the Colorado federal district court superfluous in the face of abundant federal Circuit Court of Appeals decisions.

¶ 86 In *Porter,* the court found a temporal relationship between ingestion of ibuprofen and kidney failure inadequate to support admission of causation testimony where experts admitted that they did not have sufficient knowledge to rule out other causes. 9 F.3d at 616. Although not directly overruled within the Seventh Circuit, this 1993 decision has been overshadowed by more recent cases from other jurisdictions. The Fourth Circuit Court of Appeals in *Westberry* held that "a temporal relationship between exposure to a substance and the onset of a disease or a worsening of symptoms can provide *compelling* evidence of causation." 178 F.3d at 265 (emphasis added). In *Zuchowicz v. United States,* 140 F.3d 381 (2d Cir.1998), the plaintiff's wife developed and ultimately died of primary pulmonary hypertension following ingestion

of an accidently prescribed overdose of the drug Danocrine. *Id.* at 384. Evidence of causation rested solely on the testimony of two highly qualified experts. *Id.* at 385-86. Since overdoses of Danocrine had rarely occurred and never been
1090 studied, there was no documented connection between the drug and primary pulmonary hypertension. *1090 *Id.* at 385. Nevertheless, the Second Circuit held admissible expert testimony linking the overdose with the disease. *Id.* at 386-87. One expert based his causation conclusion "on the temporal relationship between the overdose and the start of the disease and the differential etiology method of excluding other possible causes." *Id.* at 385. He compared the course of Mrs. Zachowicz's disease with other drug-induced pulmonary illnesses. *Id.* at 385-86. The second expert testified as to the physiological effects that the components of Danocrine could be expected to cause. *Id.* at 386. The court held the challenged medical testimony admissible.

¶ 87 The *Zuchowicz* court provided a thoughtful review of the theory of causation, stating:

> "[I]t is well established that causation `may be proved by circumstantial evidence,' ... and that `[t]he causal relation between an injury and its later physical effects may be established by the direct opinion of a physician, by his deduction by the process of eliminating causes other than the traumatic agency, or by his opinion based upon a hypothetical question.'"

Id. at 389 (quoting *Shelnitz v. Greenberg,* 200 Conn. 58, 509 A.2d 1023, 1027, 1028 (1986)). Drawing upon opinions of Chief Judge Cardozo in New York and Chief Justice Traynor in California, the court concluded:

> [I]f (a) a negligent act was deemed wrongful *because* that act increased the chances that a particular type of accident would occur, and (b) a mishap of that very sort did happen, this was enough to support a finding by the trier of fact that the negligent behavior caused the harm.

Id. at 390. The court further noted that "[w]here such a strong causal link exists, it is up to the negligent party to bring in evidence denying *but for cause* and suggesting that in the actual case the wrongful conduct had not been a substantial factor." *Id.* at 390-91. In the instant case, AGFA's safety specifications mandated ten complete room air exchanges per hour precisely to reduce the risk of toxic chemical exposure. The alleged harm occurred in the absence of adequate air exchange. Under the reasoning of *Zuchowicz,* this alone is sufficient to support causation and AGFA bears the burden of refuting the presumption of "but for" causation.

¶ 88 Individuals routinely feel the effects of a wide array of common phenomena whose mechanisms remain unexplained by science, including, for example, the law of gravity, the nature of light, the source of personality, and the process of cell differentiation. If a bicyclist falls and breaks his arm, causation is assumed without argument because of the temporal relationship between the accident and the injury. The law does not object that no one measured the exact magnitude and angle of the forces applied to the bone. Courts do not exclude all testimony regarding the fall because the mechanism of gravity remains undiscovered. Legally, an observable sequence of condition event altered condition, has been found sufficient to establish causation even when the exact mechanism is unknown. Therefore, we hold that Technicians enjoy the same opportunity to prove that which they can, as do the victims of more prosaic injuries.

CONCLUSION

¶ 89 We hold that the law supports a duty of care running from AGFA to Technicians for the safe installation and maintenance of the Curix x-ray processing machine and that the factual determinations supporting that duty and its breach are questions for the jury. We further hold that expert testimony qualified under Utah Rule of Evidence 702 is admissible regarding Technicians' diagnoses of CFS, fibromyalgia, and chemically induced cognitive deficits, and that Technicians have raised triable issues of fact regarding injury, exposure, and causation. Therefore, we reverse the summary judgment and remand this case to the district court for trial.

¶ 90 Chief Justice DURHAM and Justice RUSSON concur in Justice HOWE's opinion.

WILKINS, Justice, dissenting:

¶ 91 I respectfully dissent. I would affirm the trial court's summary judgment in favor of defendants **Bayer** Corporation,
1091 AGFA Division (now known as AGFA Corporation) on the basis that the defendants ("AGFA") owed *1091 no duty to the plaintiffs upon which a cause of action for negligence can be pursued. As a result, I would not reach the other issues addressed by the lead opinion.

¶ 92 AGFA Corporation entered into a contract with LDS Hospital to supply the x-ray processing equipment giving rise to this action. As part of that contract, AGFA informed its customer, LDS Hospital, of the ventilation requirements of the equipment, and of the risks involved from inadequate ventilation. LDS Hospital undertook to provide the ventilation for the equipment. There is no evidence in the record suggesting that AGFA had any responsibility under the contract with LDS Hospital to install, inspect, or approve the ventilation arrangements made by the hospital.

¶ 93 The plaintiffs have not made, and cannot support, a cause of action based on claims that the machine was defective or unreasonably dangerous when purchased, since they used the machine without problems for a period of years prior to its relocation into the new space prepared by the hospital. The only possible remaining claims raised by the plaintiffs sound in tort, based on claims of negligence.

¶ 94 I will assume, for purposes of this analysis, that the plaintiffs suffered the injuries of which they complain, and incurred them entirely as a result of exposure to chemical fumes emitted by the AGFA equipment located at their place of employment within LDS Hospital. These assumptions, many of which AGFA does not concede, still leave the plaintiffs without a cause of action if no tort duty exists running from AGFA to the plaintiffs. Absent such a duty, any discussion of the plaintiffs' other issues on appeal, namely the questions of legal causation, differential diagnosis as a basis for expert medical testimony, and the nature of the plaintiffs' injuries, become moot questions. Absent a duty, we need not reach any of those other issues, since no cause of action would lie against AGFA.

¶ 95 I cannot identify any source of a duty sufficient to hold AGFA liable in tort to plaintiffs for the failure of the hospital's ventilation system. The AGFA representative and service person did not, at any time, test the ventilation system installed by the hospital. However, under the contractual arrangement between AGFA and the hospital, AGFA had no responsibility to test the ventilation system. AGFA supplied the hospital with the specifications required for the ventilation of the equipment, and warned the hospital of the dangers associated with inadequate ventilation. When asked by the hospital staff, or representatives of the hospital, AGFA's representative questioned the adequacy of the ventilation, and suggested the hospital assure it had been correctly and adequately provided. There is nothing in the record to suggest that any defect in operation or maintenance of the equipment was the cause of the injuries of which the plaintiffs complain. All of the evidence in the record, and all reasonable inferences that can be drawn from the evidence in support of the claims of the plaintiffs, suggest that the plaintiffs' exposure to the fumes was the result of a failure of the ventilation system, not any failure of maintenance or operation of the equipment itself.

¶ 96 The ventilation system was designed, installed, and operated by the hospital. AGFA only undertook the duty of installing the machine in its new location in the mammography suite and of maintaining it. The AGFA specifications for the equipment clearly described the ventilation requirements for the machine, and directed the hospital to consult with the AGFA representative if there was any doubt about that requirement. When the hospital had concerns about the ventilation requirements for the equipment, it consulted the AGFA representative. However, there is no evidence that the hospital ever asked AGFA to correct the ventilation problem or to verify the adequacy of the existing ventilation system installed by the hospital, that AGFA assumed any responsibility for the adequacy of the ventilation system, or that AGFA acted to verify, correct, or assume responsibility for the ventilation system installed by the hospital.

¶ 97 I disagree that when AGFA undertook the contractual duty to install and maintain the equipment in the room designed
1092 and built by the hospital, it undertook the responsibility to guarantee that *the hospital* had *1092 installed the ventilation system in accord with AGFA's directions.

¶ 98 The admitted agreement between AGFA and the hospital was an allocation of the risks inherent in the installation, maintenance, and operation of the equipment. Those two parties chose to allocate the risks as they did. It is improper for us to attempt to redistribute those responsibilities by resort to previously unadopted and inapplicable provisions of the Restatement (Second) of Torts.

¶ 99 Finally, given the posture of the case as presented on appeal, the parties are bound by the facts they have presented and those uncontested facts before the trial court when the motion was decided. I would not remand with instructions for factual findings when the facts needed to support the tort theory advanced by the plaintiffs were not placed in contest in the record before the trial court.

¶ 100 I would affirm the decision of the trial court. On the uncontested facts, the plaintiffs cannot establish a tort duty owed them by AGFA, and as such, their claims must fail.

¶ 101 Associate Chief Justice DURRANT concurs in the dissenting opinion of Justice WILKINS.

[1] Because the district court granted summary judgment, the witnesses did not testify at trial. Therefore, the testimony cited is deposition testimony unless otherwise noted.

[2] There was testimony that Technicians were known to be "[e]xcellent employees."

[3] Multiple chemical sensitivity is characterized by a symptomatic response to environmental exposure to some substance or irritant, which then recurs at lower levels of exposure and also at low levels of exposure to substances other than the original irritant.

Consensus Criteria for MCS

1. "The symptoms are reproducible with [repeated chemical] exposure."

2. "The condition is chronic."

3. "Low levels of exposure [lower than previously or commonly tolerated] result in manifestations of the syndrome."

4. "The symptoms improve or resolve when incitants are removed."

5. "Responses occur to multiple chemically unrelated substances."

6. [Added in 1999]: Symptoms involve multiple organ systems.

Multiple Chemical Sensitivity: a 1999 Consensus, 54:3 Arch. Environ. Health 147 (1999) (citing J.R. Nethercott et al., *Multiple Chemical Sensitivities Syndrome: Toward a Working Case Definition,* 48 Arch. Environ. Health 19 (1993)).

[4] is a complex, chronic condition that causes widespread pain and profound fatigue, as well as a variety of other symptoms, including sleep disturbances, stiffness, headaches, cognitive disorders, and depression. The American College of Rheumatology specifies that fibromyalgia's diagnosis is characterized by widespread musculoskeletal pain for longer than three months in all four quadrants of the body, by an absence of other systemic disease that could be the cause of the pain, and by the presence of 11 of 18 designated "tender points" (points of extreme tenderness) at characteristic locations on the body. No cure is available, but the symptoms can often be mitigated by narcotic medications.

Carson v. Canada Life Assurance Co., 28 Fed. Appx. 262, 263-64 (4th Cir.2002) (per curiam) (unpublished opinion).

[5] Dr. Robinson described the nature of her medical practice as "[g]eneral internal medicine with an emphasis on women's health issues and an interest in chronic fatigue syndrome."

[6] to Social Security Ruling 99-2p, the hallmark symptom of CFS is the presence of clinically evaluated, persistent or relapsing chronic fatigue that is of new or definite onset and cannot be explained by another physical or mental disorder. Moreover, CFS is not the result of ongoing exertion, is not substantially alleviated by rest, and results in substantial reduction in previous levels of occupational, educational, social, or personal activities. There is no test for CFS.

Vega v. Comm'r of Soc. Sec., 265 F.3d 1214, 1219-20 (11th Cir.2001).

[7] Dr. Bateman attended medical school at Johns Hopkins and completed her residency at the University of Utah. She is a board certified general internist with an interest in CFS, MCS, fibromyalgia, and atypical neurological illnesses. She has also published on the subject of CFS.

[8] Dr. Pompa, a licensed psychologist, specializes in the fields of child psychology and neuropsychology. Her qualifications include a neuropsychology minor in graduate school, a predoctoral internship with a neuropsychology rotation and a post-doctoral residency in child neuropsychology at Primary Children's Medical Center in Salt Lake City.

[9] Dr. Gray completed his medical degree at the University of Cincinnati College of Medicine in 1974, followed by a three-year residency

in internal medicine at the Cook County Hospital in Chicago, Illinois. He received a master's degree in public health and in 1978 was appointed the director of occupational medicine at the Arizona Center for Occupational Medicine. Dr. Gray is board certified in occupational medicine and is board eligible in internal medicine. He has taught internal medicine and published numerous monographs and articles, one of which identified glutaraldehyde as a chemical hazardous to hospital workers. Although not certified, Dr. Gray has training in industrial hygiene and training and experience in neurology.

[10] Dr. Lipsey obtained his Ph.D. in toxicology from the University of Illinois, in the department of Entomology. He serves on the faculty of the American Academy of Environmental Medicine, on the Environmental Protection Board for the city of Jacksonville, and on the University of Florida Medical Center Toxicology Advisory Committee.

[11] Dr. Cullen is also director of the Yale New Haven Occupational and Environmental Medicine Program and a medical consultant for the International Chemical Workers Union, as well as a member of other medical boards. Dr. Cullen is board certified in internal medicine and preventive medicine in the occupational medicine subspecialty.

[12] Dr. Bardana is professor of medicine and head of the Division of Allergy and Clinical Immunology at Oregon Health Sciences University in Portland, Oregon. He is also certified by the Board of Internal Medicine and the American Board of Allergy and Immunology.

[13] The dissent relies first on the purported contract between the hospital and AGFA, construing the presumed provisions against any duty on the part of AGFA for the mammography suite ventilation. Inconveniently, however, the contract is not part of the record, and we have no certain knowledge of its specific provisions. Technicians refer only generally to AGFA's contract with the employer, and AGFA counters that Technicians "cannot cite in the record to any alleged contract and cannot identify with specificity the purported obligations imposed on AGFA pursuant to this alleged contract."

The standard of review for summary judgment requires that "`we view the facts and all reasonable inferences drawn therefrom in the light most favorable to the nonmoving party.'" *DCM Inv. **Corp**. v. Pinecrest Inv. Co.,* 2001 UT 91, ¶ 6, 34 P.3d 785 (quoting *Dixon v. Pro Image, Inc.,* 1999 UT 89, ¶ 12, 987 P.2d 48). Therefore, we cannot indulge in a default inference that the absent contractual provisions would support defendants as the dissent would have us do. Any inference must necessarily be in favor of plaintiffs as the nonmoving party. The law does not permit us to affirm summary judgment and deny plaintiffs their day in court on the basis of guesswork regarding a contract not before us.

[14] *Schneider* referenced the original restatement. However, since the language of section 388 in the original and the Restatement (Second) are substantially similar in all material respects, we impute adoption of the Restatement (Second) of Torts.

[15] We note that "knowledge, skill, experience, training, or education" covers a broad range of qualifications but does not make a formal educational degree in the relevant subject a prerequisite for the admission of expert testimony.

[16] M. Gordon, *Reactions to Chemical Fumes in Radiology Departments,* 52 Radiography 85 (1987).

[17] B.A. Miller & A. Blair, *Mortality Patterns Among Press Photographers,* 25 J. Occupational Med. 439 (1983).

[18] M. Chan-Yeung et al., *Occupational Asthma in a Technologist Exposed to Glutaraldehyde,* 91 J. Allergy & Chem. Immunology 974 (1993); P.G.F. Gannon et al., *Occupational Asthma Due to Glutaraldehyde and Formaldehyde in Endoscopy and X-ray Departments,* 50 Thorax 156 (1995) (stating that glutaraldehyde can cause occupational asthma and that sensitization may occur at levels below the current occupational standard).

[19] R.R. Babb & B.T. Paaso, *Glutaraldehyde Proctitis,* 163 West J. Med. 477 (1995).

[20] P. Connaughton, *Occupational Exposure to Glutaraldehyde Associated with Tachycardia and Palpitations,* 159 Med. J. Austl. 567 (1993).

[21] P. Dolce et al., *Outbreak of Glutaraldehyde-induced Proctocolitis,* 23 Am. J. Infection Control 34 (1995).

[22] H.A. Waldron, *Glutaraldehyde Allergy in Hospital Workers,* 339 Lancet 880 (1992); *see also* D. Norback, *Skin and Respiratory Symptoms From Exposure to Glutaraldehyde in Medical Services,* 14 Scand. J. Work Environ. Health 366 (1988) (correlating eye, skin and airway symptoms, headache, nausea, and fatigue to low dose glutaraldehyde exposure among medical workers).

[23] M.S. Werley et al., *Respiratory Peripheral Sensory Irritation and Hypersensitivity Studies with Glutaraldehyde Vapor,* 11 Toxicology & Indus. Health 489 (1995).

[24] P. Wiggins et al., *Epistaxis Due to Glutaraldehyde Exposure,* 31 J. Occup. Med. 854 (1989) (reporting skin and respiratory symptoms of occupational exposure to glutaraldehyde).

[25] D. Pennell, *Chemical Caution: Glutaraldehyde Is an Effective but Lethal Sterilizer,* 85:11 N.Z. Nurs. J. 29 (Dec. 1992-Jan.1993).

[26] M.A. Newman & J.B. Kachuba, *Glutaraldehyde: A Potential Health Risk to Nurses,* 14 Gastroenterology Nurs. 296 (1992).

[27] J.W. Pifer et al., *Mortality Study of Employees Engaged in the Manufacture and Use of Hydroquinone,* 67 Int'l Archives of Occupational and Envtl. Health 280 (1995).

[28] Technicians argue, and AGFA does not dispute, that the various official standards for "toxic level" are driven more by bureaucratic and political concerns than by objective health studies.