[Cite as *Kerns v. Hobart Bros. Co.*, 2008-Ohio-2242.]

IN THE COURT OF APPEALS FOR MIAMI COUNTY, OHIO

ROBIN S. KERNS, et al. :

Plaintiffs-Appellants : C.A. CASE NO. 2007 CA 32

v. : T.C. NO. 05-235

HOBART BROTHERS COMPANY, et al. : (Civil Appeal from Common Pleas Court)

Defendants-Appellees :

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O P I N I O N

Rendered on the 9th day of May, 2008.

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DONOVAN, J.

{¶ 1} Plaintiff-appellants Robin S. Kearns, individually and as legal guardian of James Kearns, and Edward Kearns (hereinafter "Appellants") appeal from a decision of the Miami County Court of Common Pleas which sustained the motions for summary judgment of

defendant-appellees Hobart Brothers Company (hereinafter "Hobart") and Illinois Tool Works, Inc. (hereinafter "ITW") in a written decision filed on October 3, 2007.[1] The trial court sustained appellees' summary judgment motions after granting their joint motions in limine to exclude all four of appellants' expert witnesses pursuant to Evid. R. 702 in written decisions also filed on October 3, 2007. On October 30, the trial court entered its final order and judgment entry in favor of Hobart and ITW with respect to all of appellants' claims. Appellants' filed a timely notice of appeal with this Court on November 1, 2007.

I

{¶ 2} Appellant Robin Kerns, James Kerns' mother, was employed in the supply department at the Hobart manufacturing plant in Troy, Ohio, as a packer from 1972 through 1983. Her duties while employed at the plant included retrieving, labeling, and boxing finished parts in order to fill customer orders. Throughout the course of her employment, Hobart's manufacturing processes included printed circuit board assembly and coating, transformer assembly and coating, de-greasing operations, spray painting, and powder coating finishing processes. Certain chemicals, which appellants allege possess genotoxic[2] properties, were used in these processes, including xylene, toluene, ethyl benzene, methanol, freon TF, epichlorohydrin, bisphenol-A, triglycidal isocyanurate, methylmercury, and lead.

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[1]It should be noted that defendants Morton International and Rohm and Haas Company were initial parties to the instant litigation. However, they settled the claims against them prior to the trial court's grant of summary judgment to the remaining appellees and were properly dismissed from the action.

[2]Genotoxicity refers to a chemical's capacity to cause genetic damage, including chromosomal rearrangement such as the type James Kerns allegedly suffered in utero as a result of his mother's alleged exposure during her employment at Hobart.

{¶ 3} Based on the date of his birth, James was conceived in late 1982 or early 1983, while Robin was still employed at the Hobart manufacturing plant. In her complaint, Robin alleges that at some point during the initial seven days after James was conceived, she (and therefore, James, as well) was exposed to some mixture of the aforementioned chemicals. As a result of exposure to the genotoxic chemicals in utero, the appellants contend that James' chromosomes were damaged and rearranged, further resulting in profound mental retardation and extensive birth defects. Thus, the appellants allege that as a result of Hobart's negligence or recklessness in failing to comply with state and federal guidelines regarding the use of the listed chemicals, she was exposed to a mixture of genotoxic chemicals during the inception of her pregnancy that proximately caused James' chromosomal damage and rearrangement, which ultimately resulted in his retardation and birth defects.

{¶ 4} Prior to trial, appellees Hobart and ITW moved to exclude all of plaintiffs' experts including two medical causation experts (Drs. Nina Holland and Cynthia Bearer), an industrial hygienist (Dr. Charles Keil), and a polymer chemist (Dr. Mark Soucek). After extensive briefing from both parties, the trial court sustained appellees' motion to exclude with respect to each of plaintiffs' experts pursuant to Evid. R. 702 and the Ohio Supreme Court's recent holdings in *Valentine v. Conrad*, 110 Ohio St.3d 42, 850 N.E.2d 683, 2006-Ohio-3561, and *Terry v. Caputo*, 115 Ohio St.3d 351, 875 N.E.2d 72, 2007-Ohio-5023. The trial court then granted appellees' motion for summary judgment regarding medical causation and entered judgment in favor of appellees.

{¶ 5} It is from this judgment that Robin Kerns, James Kerns, and Edward Kerns now appeal.

II

{¶ 6} Because appellants' first, second, and third assignments of error are interrelated, they will be discussed together as follows:

{¶ 7} "THE TRIAL COURT COMMITTED REVERSIBLE ERROR BY GRANTING APPELLEES' MOTIONS IN LIMINE TO EXCLUDE THE EXPERT OPINION TESTIMONY OF DR. HOLLAND AND DR. BEARER ON THE ISSUE OF CAUSATION.

{¶ 8} "THE TRIAL COURT COMMITTED REVERSIBLE ERROR BY GRANTING APPELLEES' MOTIONS IN LIMINE TO EXCLUDE THE EXPERT OPINION TESTIMONY OF DR. SOUCEK ON THE ISSUE OF CHEMICAL EXPOSURE ASSESSMENT.

{¶ 9} "THE TRIAL COURT COMMITTED REVERSIBLE ERROR BY GRANTING APPELLEES' MOTIONS IN LIMINE TO EXCLUDE THE EXPERT OPINION TESTIMONY OF DR. KEIL ON THE ISSUE OF CHEMICAL EXPOSURE ASSESSMENT."

A. STANDARD OF REVIEW

{¶ 10} Initially, appellants assert that the trial court applied incorrect standards of law in evaluating the expert testimony under Evid. R. 702. Appellants contend, therefore, that our standard of review in this matter is de novo, rather than an abuse of discretion. If appellants are correct, then all rulings made by a trial court would be subject to de novo review, and the abuse of discretion standard would not exist.

{¶ 11} With respect to the proper standard of review to be utilized regarding the admission of expert testimony, the Ohio Supreme Court has provided the following guidelines:

{¶ 12} "The determination of the admissibility of expert testimony is within the discretion of the trial court. Evid. R. 104(A). Such decisions will not be disturbed absent abuse of discretion. *** 'Abuse of discretion' suggests unreasonableness, arbitrariness, or unconscionability. Without those elements, it is not the role of this court to substitute its

judgment for that of the trial court. *** (Citations omitted)." *Valentine v. Conrad*, 110 Ohio St.3d at 43, 850 N.E.2d at 686. Thus, we review the instant appeal under an abuse of discretion standard.

{¶ 13} Evid. R. 702 provides:

{¶ 14} "A witness may testify as an expert if all of the following apply:

{¶ 15} "(A) The witness' testimony either relates to matters beyond the knowledge or experience possessed by lay persons or dispels a misconception common among lay persons;

{¶ 16} "(B) The witness is qualified as an expert by specialized knowledge, skill, experience, training, or education regarding the subject matter of the testimony;

{¶ 17} "(C) The witness' testimony is based on reliable scientific, technical, or other specialized information. To the extent that the testimony reports the result of a procedure, test, or experiment, the testimony is reliable only if all of the following apply:

{¶ 18} "(1) The theory upon which the procedure, test, or experiment is based is objectively verifiable or is validly derived from widely accepted knowledge, facts, or principles;

{¶ 19} "(2) The design of the procedure, test, or experiment reliably implements the theory;

{¶ 20} "(3) The particular procedure, test, or experiment was conducted in a way that will yield an accurate result."

{¶ 21} It is undisputed that the opinions expressed by appellants' experts related to matters beyond the knowledge and experience of laypersons. See Evid. R. 702(A). Additionally, the credentials and experience of the witnesses clearly qualify them as experts under Evid. R. 702(B). As in *Valentine*, the sole issue presented to us is whether the testimony in question is reliable under Evid. R. 702(C).

{¶ 22} Regarding the proper analysis to be performed under Evid. R. 702(C), the Ohio Supreme Court stated the following in *Valentine*, 110 Ohio St.3d at 44-45:

{¶ 23} "In determining whether the opinion of an expert is reliable under Evid. R. 702(C), a trial court examines whether the expert's conclusion is based on scientifically valid principles and methods. ***. A court should not focus on whether the expert opinion is correct or whether the testimony satisfies the proponent's burden of proof at trial. ***. Accordingly, we are not concerned with the substance of the experts' conclusions; our focus is on how the experts arrived at their conclusions.

{¶ 24} "The qualification and reliability requirements of Evid. R. 702 are distinct. Because even a qualified expert is capable of rendering scientifically unreliable testimony, it is imperative for the trial court, as gatekeeper, to examine the principles and methodology that underlie an expert's opinion. *** ('under [Fed.R.Evid. 702] the trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable'); *** (discussing the gatekeeping role of the trial judge under Fed.R.Evid. 702). It is that determination that ensures that the testimony will be helpful to the trier of fact.

{¶ 25} "Experts often base their opinions on data and research from within their field of study. Evid.R. 702(C) requires not only that those underlying resources are scientifically valid, but also that they support the opinion. Although scientists certainly may draw inferences from a body of work, trial courts must ensure that any such extrapolation accords with scientific principles and methods. In this respect, we find persuasive *Gen. Elec. Co. v. Joiner*. In *Joiner*, the United States Supreme Court, in discussing the reliability requirements of Fed.R.Evid. 702, stated, 'A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.' ***. Because expert opinion based on nebulous methodology is

unhelpful to the trier of fact, it has no place in courts of law." (Citations omitted).

{¶ 26} Appellants contend that the trial court erred when it excluded the expert testimony of Dr. Holland, Dr. Bearer, Dr. Soucek, and Dr. Keil prior to trial. Dr. Holland, a geneticist, was retained by appellants to offer testimony regarding general causation in connection with the genotoxic chemicals which allegedly caused James' chromosomal damage and resultant birth defects. Dr. Bearer is a neonatologist, biochemist, and research scientist who studies the effects of certain environmental exposures on children's health. Dr. Bearer testified regarding specific causation in connection with the genotoxic chemicals detrimental effect on the health of James.

{¶ 27} Dr. Soucek is a polymer chemist and a research scientist studying chemical and powder coating. He offered testimony regarding the specific chemicals which were present in the Hobart plant at the time Robin Kerns was allegedly exposed. Dr. Keil, an industrial hygienist and exposure reconstructionist, testified regarding the manner in which Robin Kerns was exposed to the chemicals in question as well as the amounts of each chemical to which she was exposed.

{¶ 28} In their brief, appellees argue that the methodology used by each of appellants' experts was unreliable and speculative. Appellees assert that the trial court properly excluded appellants' experts' testimony because there was an analytical gap in the extrapolation between the data the doctors relied upon and the opinions they proffered regarding the actual cause and origin of James' injuries.

B. DR. NINA HOLLAND

{¶ 29} "To present a prima facie case involving an injury caused by exposure to mold or other toxic substance, a claimant must establish (1) that the toxin is capable of causing the

medical condition or ailment (general causation), and (2) that the toxic substance in fact caused the claimant's medical condition (specific causation)." 115 Ohio St.3d 351, 355, 875 N.E.2d 72, 77, 2007-Ohio-5023. During her deposition, Dr. Holland testified that she is a geneticist and a research toxicologist. The appellants retained Dr. Holland to testify as to general causation, that is "whether a substance is capable of causing a particular injury or condition in the general population."*Terry*, 115 Ohio St.3d at 355, quoting *Merrell Dow Pharmaceuticals, Inc. v. Havner* (1997), 40 Tex.Sup.Ct.J. 846, 953 S.W.2d 706. Thus, it fell upon Dr. Holland to testify that the chemicals in question were able to cause chromosomal rearrangement and damage of the sort suffered by James Kerns in utero.

{¶ 30} During her deposition, Dr. Holland testified that based on her research regarding the alleged genotoxic properties of the chemicals in question, said chemicals could cause the chromosomal abnormalities suffered by James Kerns when Robin Kerns was allegedly exposed at the Hobart plant. Specifically, Dr. Holland based her opinions on 1) in vitro studies in which some of the chemicals in question caused changes in cells in petri dishes; 2) studies which demonstrated that some of the chemicals in question were associated with spontaneous abortions; 3) separate studies which demonstrated that spontaneous abortions can be caused by chromosomal abnormalities; 4) studies performed on animal cells; and 5) epidemiological studies demonstrating that workers in other industries who were exposed to certain chemicals possess certain cytogenic markers allegedly indicative of chromosomal abnormality. With respect to the conclusions drawn from epidemiological studies, Dr. Holland conceded that a genetic abnormality in an individual worker's cells does not necessarily mean that the change was caused by occupational exposure to a chemical. In fact, both Dr. Holland and Dr. Bearer conceded that chromosomal abnormalities have many unknown causes.

{¶ 31} More importantly, Dr. Holland testified that she could point to no studies or articles that establish a causal connection between in utero exposure to the chemicals in question and structural chromosomal rearrangement resulting in birth defects. This is illustrated in the following exchange:

{¶ 32} "Q: But as you sit here today, you can't think of any such reports of children born with multiple structural chromosomal abnormalities due to occupational exposures; is that correct?

{¶ 33} "Dr. Holland: I do not have a report to this fact on this table today.

{¶ 34} "Q: And can you think of one as you sit here?

{¶ 35} "A: I think those reports could be found, but I don't have it here.

{¶ 36} "Q: Can you give me an example of a specific such [sic] report?

{¶ 37} "A: No, not at the moment.

{¶ 38} "Q: So you can't think of anything as you sit here today?

{¶ 39} "A: Not when I sit here today, yes. But as I said before, kind of my professional understanding of the situation based on, you know, all this various kind of field of knowledge, that this is quite likely. This is why I feel that it may be quite possible that those reports exist if you look for them, but I did not.

{¶ 40} "Q: Well, you did a literature review on the chemicals at issue in this case; is that correct?

{¶ 41} "A: Yes.

{¶ 42} "Q: And did you find any such reports with respect to the chemicals at issue in this case?

{¶ 43} "A: No."

{¶ 44} ***

{¶ 45} "Q: My understanding of what you said is there are no epidemiological studies or reports of children with multiple chromosomal abnormalities due to occupational exposures to the chemicals at issue in this case, correct?

{¶ 46} "A: I'm not aware of any."

{¶ 47} Epidemiologic studies are studies of "the causes of diseases in humans as inferred from observations of humans." *Valentine v. PPG Industries, Inc.*, 158 Ohio App.3d 615, 821 N.E.2d 580, 2004-Ohio-4521. In *Valentine*, the plaintiff hired experts who cited epidemiological studies which allegedly demonstrated a link between the chemicals the plaintiff was exposed to and the type of cancer he developed. The epidemiological studies relied upon by the plaintiff's experts did not involve persons in the same industry in which the plaintiff worked and did not identify a particular chemical or combination of chemicals that cause the specific type of cancer. Further, the animal studies cited by the plaintiff's experts in *Valentine* did not indicate that the specific cancer develops across species. Thus, the experts were required to extrapolate from the conclusions of the underlying materials to reach their opinions regarding the cause of the plaintiff's brain cancer. The Ohio Supreme Court held that the trial court did not abuse its discretion in excluding the experts' testimony since too great an analytical gap existed between the underlying data and the proffered opinions.

{¶ 48} In the instant case, Dr. Holland' testimony reveals that she relied on epidemiological studies which involved workers in different industries who were exposed to different chemicals or combinations of chemicals who suffered different injuries. Moreover, there is no evidence in the record to support Dr. Holland's claim that the animal studies which she cites to support her conclusion that the chemicals in question were able to cause

chromosomal rearrangement and damage of the sort suffered by James Kerns in utero.

{¶ 49} Simply put, the nebulous methodology Dr. Holland used to reach her ultimate conclusion is unreliable, which, in turn, renders her opinion speculative at best. Thus, the trial court did not abuse its discretion when it excluded the testimony of Dr. Holland.

C. DR. CYNTHIA BEARER

{¶ 50} During her deposition, Dr. Bearer testified that she is a pediatrician who specializes in neonatology. Dr. Bearer testified that she does not consider herself to be a geneticist or a dysmorphologist, that is one who studies the causes and circumstances involved in the occurrence of birth defects, as well as developmental disorders in humans. The appellants retained Dr. Bearer to testify as to specific causation, that is "whether a substance caused a particular individual's injury."*Terry*, 115 Ohio St.3d at 355, quoting *Merrell Dow Pharmaceuticals, Inc. v. Havner* (1997), 40 Tex.Sup.Ct.J. 846, 953 S.W.2d 706. Appellants contend that Dr. Bearer's testimony was improperly excluded because she "systematically applied differential diagnosis to rule out every other potential cause for James Kerns' chromosomal abnormalities." According to appellants, once Dr. Bearer ruled out all other possible causes for James Kerns' injuries, the only plausible explanation that remained was that he was exposed in utero to one or a combination of genotoxic chemicals which were present at the Hobart plant when Robin Kerns was employed there.

{¶ 51} "'Differential diagnosis' describes the process of isolating the cause of a patient's symptoms through the systematic elimination of all potential causes. ***. Although differential diagnosis is a standard scientific method for determining causation, ***, its use is appropriate only when considering potential causes that are scientifically known. For example, in *Westberry*, the plaintiff alleged that breathing airborne talc caused aggravation of a preexisting

sinus condition. Because the parties did not dispute that inhalation of high levels of talc causes irritation in mucous membranes, differential diagnosis was a valid method to establish causation. *** (Citations omitted)." *Valentine v. Conrad*, 110 Ohio St.3d at 45-46, 850 N.E.2d at 688. In *Valentine*, the trial court found that the plaintiff's experts were unable to establish that any of the chemicals to which the plaintiff was exposed were capable of causing the cancer that he developed. Therefore, the trial court found, and the Supreme Court of Ohio agreed, that differential diagnosis was not a reliable method for determining legal causation in that case, and the experts' opinions in that regard were excluded.

{¶ 52} For the same reasons outlined in *Valentine*, Dr. Bearer's use of differential diagnosis to assess the root cause of James Kerns' chromosomal abnormalities was improper under the circumstances. The following exchanges between Dr. Bearer and appellees' counsel are illustrative of this point:

{¶ 53} "Q: And that – have you heard that one, let's say somewhere between 15 to 25 percent of congenital malformations are due to genetic causes?

{¶ 54} "Dr. Bearer: Yes.

{¶ 55} "Q: Is that a fairly well-known statistic? Is it a controversial –

{¶ 56} "A: It's –

{¶ 57} "Q: Am I presenting a controversial statistic? I can't tell if you're hesitating because it's controversial or –

{¶ 58} "A: No, I'm just holding my breath for the questions.

{¶ 59} "Q: No, that's a fairly well accepted statistic that somewhere between 15 and 25 percent of live-born infants have genetic abnormalities; right?

{¶ 60} ***

{¶ 61} "A: It's somewhere around there, and it's on the March of Dimes site. But that's in the – in the ones that have known causes so –

{¶ 62} "Q: 15 to 25 percent –

{¶ 63} "A: Of birth defects are known to have genetic causes. Right, *there's a whole bunch of them that have unknown causes, correct*."

{¶ 64} "Q: Right. And the estimate range somewhere between 65 to 75 percent of congenital malformations have a cause that is currently unknown?

{¶ 65} "A: *Correct*.

{¶ 66} "Q: And then statistics are, that I have picked up and I think [are] fairly widely used, is that approximately 10 percent are estimated to be, quote/unquote, environmental.

{¶ 67} "A: Okay.

{¶ 68} "Q: Have you heard that statistic?

{¶ 69} "A: Yes.

{¶ 70} "Q: And within that, chemicals, prescriptions, ionizing radiation, are less than one percent of that 10 percent? Have you heard that?

{¶ 71} "A: You know, I could look it up on the March of Dimes Web site. It doesn't seem out of sync with what I've seen, so –

{¶ 72} "Q: Now, that portion of genetic, being 15 to 25 percent, as those statistics are being put out there, are those genetic cases, those in that 15 to 25 percent, generally accepted as being caused by known chemical exposures?

{¶ 73} "A: *I don't think anybody's said what they're caused by*.

{¶ 74} "Q: Nobody knows, right?

{¶ 75} "A: *Right*.

{¶ 76} "Q: And the same with that unknown catch bag of 65 to 75 percent, nobody knows what causes those?

{¶ 77} "A: *Correct*.

{¶ 78} "Q: In fact, some of that may be reasons we haven't discovered yet; right?

{¶ 79} "A: *Right. Little green aliens from Mars with laser guns*.

{¶ 80} "Q: So in this 15 to 25 percent that have genetic causes, nobody knows what's causing – mainstream is that nobody really knows what's causing these genetic anomalies; right?

{¶ 81} "A: *Correct*."

{¶ 82} ***

{¶ 83} "Q: And when we talk about spontaneous abortion, and I think we discussed this a little bit earlier, there are these general statistics out there for percentages of pregnancies lost to spontaneous abortion. Again, I don't intend, when I give you statistics right now to be controversial. I think they're fairly well laid out that approximately 15 percent of all clinically recognizable pregnancies are lost in spontaneous abortion; right?

{¶ 84} "A: I think it's something like that, yeah.

{¶ 85} ***

{¶ 86} Q: And for spontaneous abortions, 50 to 60 percent of them can be attributed to chromosomal abnormalities; right?

{¶ 87} "A: I think so, yes.

{¶ 88} "Q: Approximately. If you –

{¶ 89} "A: I think it was more like 20 - some percent of them.

{¶ 90} "Q: There's some large percentage of them that are due to chromosomal

abnormalities; right?

{¶ 91} "A: Yes.

{¶ 92} "Q: And when those statistics are given, nobody knows what's causing the spontaneous abortions and the chromosomal anomalies that are being reported in these numbers; right?

{¶ 93} "A: *That's correct*."

{¶ 94} From the above testimony, it is clear that Dr. Bearer admits that there are several unknown potential causes of chromosomal abnormalities which result in congenital birth defects. Under Ohio law, the use of differential diagnosis requires that an expert be able to discern *all* potential causes of a particular injury before being able to isolate the single cause of a patient's symptoms. It is axiomatic that one cannot rule out causes that are unknown or unable to be properly discerned and isolated. Under these circumstances, Dr. Bearer's use of differential diagnosis to determine the root cause of James Kerns' chromosomal damage renders her methodology unreliable and speculative.

{¶ 95} Additionally, Dr. Bearer relied on a temporal relationship to establish that James Kerns' chromosomal anomalies were caused by Robin Kerns' exposure to genotoxic chemicals while working at the Hobart plant. In particular, Dr. Bearer pointed out that Robin Kerns suffered a miscarriage and then conceived James Kerns while employed at the Hobart plant. Dr. Bearer also noted, however, that Robin Kerns gave birth to a normal child when she did not work there. Thus, Dr. Bearer assumed that exposure to a chemical at the Hobart must have caused Robin Kerns' initial miscarriage, as well as James Kerns injuries.

{¶ 96} Even if we ignore the fact that Dr. Bearer testified that there are several unknown causes for chromosomal aberrations resulting in miscarriages (spontaneous abortions), as well as

chromosomal anomalies in live births, "the mere coincidence of exposure and the appearance of a disease is never sufficient to prove causation in an individual instance." *Valentine v. PPG Industries, Inc.*, 158 Ohio App.3d at 637. In *Valentine*, the trial court found that the contemporaneous death of one of the plaintiff's co-workers from the same type of cancer that the plaintiff developed did not establish medical causation.

{¶ 97} The Ohio Supreme Court agreed and stated:

{¶ 98} "When an unusual event follows closely on the heels of another unusual event, the ordinary person infers a causal relation ***. But lay speculations on medical causality, however plausible, are a perilous basis for inferring causality. ***. [T]he courtroom is not the place for scientific guesswork, even of the inspired sort. Law lags science; it does not lead it (Citations omitted)." *Valentine v. Conrad*, 110 Ohio St.3d at 46. The methodology Dr. Bearer used to reach the conclusion that Robin Kerns alleged exposure to genotoxic chemicals at the Hobart plant was the proximate cause of James Kerns' injuries was inherently unreliable. Thus, the trial court did not abuse its discretion when it excluded the expert testimony of Dr. Bearer.

D. DR. MARK SOUCEK

{¶ 99} Dr. Mark Soucek testified that he is a polymer chemist and a research scientist who studies chemical and powder coatings used in various manufacturing processes. He was retained by appellants to offer his expert opinion regarding the toxic chemical compounds Robin Kearns was purportedly exposed to at the Hobart plant when she became pregnant with James Kerns. In order to perform this task, Dr. Soucek testified that he reviewed historical documents produced by appellees during the discovery phase of the litigation. From the historical documents, he identified ten chemicals that were allegedly present at the facility during the time

immediately following James Kerns' conception in late 1982 or early 1983.

{¶ 100} From the record, it is apparent that the methodology Dr. Soucek used to determine the chemicals present in the plant during the relevant time period is unreliable, and was therefore properly excluded. First, Dr. Soucek testified that he included chemicals in his opinion that were present in the plant before and after the relevant time period. Dr. Soucek conceded that he "did not look at the dates for every single thing that was in his report." In fact, Dr. Soucek admitted that he included chemicals in his report that were not used at the facility until 1984 or well after, clearly outside the parameters set by the approximate date of James Kerns' conception.

{¶ 101} Further, Dr. Soucek admitted during his deposition that he was unable to determine the exact ingredients in several of the products manufactured at the Hobart plant during the relevant time period from the documents he was provided. Dr. Soucek testified that in those cases, he included chemicals he believed to be present in "typical" formulations of those products, not the actual chemicals those products contained.

{¶ 102} Evid. R. 702(C) states in pertinent part:

{¶ 103} "(C) The witness' testimony is based on reliable scientific, technical, or other specialized information. To the extent that the testimony reports the result of a procedure, test, or experiment, the testimony is reliable only if all of the following apply:

{¶ 104} "(2) The design of the procedure, test, or experiment reliably implements the theory;

{¶ 105} "(3) The particular procedure, test, or experiment was conducted in a way that will yield an accurate result."

{¶ 106} In determining the chemicals present at the Hobart plant when Robin

Kerns became pregnant with James Kerns, Dr. Soucek was limited to a brief time frame, namely seven days in late 1982 or early 1983. By his own admission, Dr. Soucek considered chemicals which were allegedly present at the plant before late 1982 and well after early 1983. The record establishes that Dr. Soucek considered chemicals which were present in the 1990s. Moreover, Dr. Soucek's opinion is clearly speculative as to the actual chemicals used in several products manufactured at the Hobart plant during the relevant time period. Dr. Soucek conceded that he included chemicals in his report that he thought would be present in those products, not the actual chemicals used. We agree with appellees that the methodology used by Dr. Soucek to determine the chemicals present at the plant was neither "reliably implemented" nor "conducted in a way that will yield an accurate result. Evid. R. 702(C)(2) & (3). Thus, the trial court did not abuse its discretion when it excluded Dr. Soucek's testimony based upon a finding that his methodology was unreliable which rendered his results speculative.

E. DR. CHARLES KEIL

{¶ 107} Dr. Keil testified that he is a certified industrial hygienist and professor who teaches a course in industrial hygiene at Bowling Green State University. He was retained by appellants in order to offer his expert scientific opinion regarding Robin and James Kerns' exposure at the Hobart plant. In formulating his opinion, Dr. Keil reviewed documents provided by appellees during discovery, as well as documents obtained by appellants' counsel from the Regional Air Pollution Control Agency. Dr. Keil also personally inspected the plant and reviewed other data he considered relevant to his opinion. Appellants contend that the trial court erred in excluding the expert opinion of Dr. Keil because his exposure reconstruction model demonstrates that Robin Kerns was exposed to significant concentrations of various genotoxic chemicals which adversely affected James Kerns in utero.

{¶ 108} Appellants argue that the trial court properly excluded Dr. Keil's testimony because his exposure reconstruction model either assumed certain variables were present or simply failed to take into account certain details surrounding Robin Kerns' alleged exposure to the genotoxic chemicals. After a thorough review of Dr. Keil's deposition and the arguments presented by both parties, it is clear that the trial court did not abuse its discretion when it excluded his testimony.

{¶ 109} First, Dr. Keil was unable to determine, with any degree of specificity, the concentrations of chemicals and other allegedly toxic particles which were vented through rooftop stacks at the Hobart plant. In order to do this, Dr. Keil was required to determine the total amounts of chemicals and coatings that were used in production at the plant in late 1982 or early 1983. Because the records from that time period were sparse, Dr. Keil admitted that he assumed that the amounts of chemicals used were equal to the amounts used in later years. Dr. Keil also based his calculations on assumptions he made regarding the number and size of various types of parts that were manufactured each hour at the plant, as well as the amount of chemicals applied to each part.

{¶ 110} Moreover, the record establishes that Dr. Keil was unable to determine exact emission amounts for the chemicals in question based on a combination of his own personal observations and the information he was provided. Dr. Keil testified that he assumed varying emission amounts for each product operation. For example, Dr. Keil did not have any information regarding the ventilation of varnish operations in 1982 or 1983, so he relied on information on those processes compiled in the 1990s. In light of the numerous assumptions he was forced to make, Dr. Keil's methodology in determining the amount of chemicals released into the air is clearly unreliable. Dr. Keil was undertaking an impossible task by attempting to

determine purported exposure amounts decades after the fact.

{¶ 111} Further, Dr. Keil's methodology in determining the amount of chemicals in the air outside the windows where Robin Kerns worked was also unreliable. Dr. Keil conceded in his deposition that airborne chemicals become more diluted as the distance they travel increases. For the purposes of his exposure reconstruction model, Dr. Keil opined that the rooftop stacks which vented the chemicals were approximately 15 feet from the supply department windows. In reality, the rooftop stacks were located approximately 165 and 180 feet away from the supply department windows. The fact that Dr. Keil relied on incorrect measurements in order to determine the amount of chemicals in the air immediately outside the supply department windows renders his methodology flawed and conclusions speculative.

{¶ 112} Lastly, other than opining that the Hobart plant was under negative pressure, that is air from the outside of the building was being drawn into the inside of the building, Dr. Keil's calculations only applied to the concentrations of chemicals outside the building, rather than the air inside the supply department where Robin Kerns actually worked and would have been exposed. Dr. Keil conceded that "a change in concentration would have occurred" when the allegedly toxic air may have entered the building through the window seals based on the air conditions in the supply department. Dr. Keil admitted that he made no measurements or calculations regarding the movement of air through the closed window seals as they existed in late 1982 or early 1983. As appellees correctly note, the main issue in this case is whether Robin Kerns was exposed to sufficient concentrations of allegedly genotoxic chemicals in the Hobart plant supply department in late 1982 or early 1983 that could cause chromosomal damage to James Kerns in utero. Dr. Keil's testimony does not reliably establish

what, if any, undetermined concentration of chemicals was able to enter the building though the closed windows in the supply department where Robin Kerns worked. It is important to note that Dr. Keil made no attempt to determine the type or condition of the window frames as they existed during the relevant time period, over 25 years ago. As such, the methodology employed by Dr. Keil to demonstrate the level of chemicals Robin Kerns was exposed to, or even if she exposed at all, is clearly unreliable as he failed to provide any estimate of the concentrations of the chemicals *inside the building* where Robin Kerns actually worked and would have been exposed. Thus, the trial court did not abuse its discretion when it performed it gatekeeping function under Evid. R. 702 and excluded his testimony.

{¶ 113} Appellants first, second, and third assignments of error are overruled.

III

{¶ 114} Appellants' fourth assignment of error is as follows:

{¶ 115} "THE TRIAL COURT COMMITTED REVERSIBLE ERROR BY DENYING APPELLANTS' MOTIONS IN LIMINE TO EXCLUDE THE EXPERT MEDICAL OPINION TESTIMONY OF DRS. GRAHAM, AASE, AND SCIALLI."

{¶ 116} In light of our disposition with respect to appellants' first, second, and third assignments of error, appellants' fourth assignment is rendered moot. Thus, we do not reach the merits of this assignment.

IV

{¶ 117} Because they are interrelated, appellants' fifth, sixth, and seventh assignments of error will be discussed together as follows:

{¶ 118} "THE TRIAL COURT COMMITTED REVERSIBLE ERROR BY GRANTING APPELLEES' MOTION FOR SUMMARY JUDGMENT ON MEDICAL

CAUSATION.

{¶ 119} "THE TRIAL COURT COMMITTED REVERSIBLE ERROR BY GRANTING APPELLEES' ILLINOIS TOOL WORKS' MOTION FOR SUMMARY JUDGMENT.

{¶ 120} "THE TRIAL COURT COMMITTED REVERSIBLE ERROR BY GRANTING APPELLEES' MOTION FOR SUMMARY JUDGMENT ON LOSS OF CONSORTIUM.

{¶ 121} An appellate court reviews an award of summary judgment de novo. *Grafton v. Ohio Edison Co.* (1996), 77 Ohio St.3d 102, 105, 671 N.E.2d 241. We apply the same standard as the trial court, viewing the facts in the case in a light most favorable to the non-moving party and resolving any doubt in favor of the non-moving party. *Viock v. Stowe-Woodward Co.* (1983), 13 Ohio App.3d 7, 12, 467 N.E.2d 1378.

{¶ 122} Pursuant to Civil Rule 56(C), summary judgment is proper if:

{¶ 123} "(1) No genuine issue as to any material fact remains to be litigated; (2) the moving party is entitled to judgment as a matter of law; and (3) it appears from the evidence that reasonable minds can come to but one conclusion, and viewing such evidence most strongly in favor of the party against whom the motion for summary judgment is made, that conclusion is adverse to that party." *Temple v. Wean United, Inc.* (1977), 50 Ohio St.2d 317, 327, 364 N.E.2d 267. To prevail on a motion for summary judgment, the party moving for summary judgment must be able to point to evidentiary materials that show that there is no genuine issue as to any material fact, and that the moving party is entitled to judgment as a matter of law. *Dresher v. Burt* (1996), 75 Ohio St.3d 280, 293, 662 N.E.2d 264. The non-moving party must then present evidence that some issue of material fact remains for the trial court to resolve. *Id.*

{¶ 124} To withstand summary judgment in a negligence action, a plaintiff must present evidence that the defendant owed the plaintiff a duty, that the duty was breached, and that the breach was the proximate cause of the plaintiff's damages. *Jeffers v. Olexo* (1989), 43 Ohio St.3d 140, 142, 539 N.E.2d 614. Pursuant to Evid. R. 702, expert testimony is required on complex issues outside of a layperson's common knowledge, such as an injury's cause and effect. *Darnell v. Eastman* (1970), 23 Ohio St.2d 13, 261 N.E.2d 114, syllabus. To prove that "a toxic substance caused the plaintiff's medical condition, the plaintiff must establish both that 1) the toxic substance is capable of causing the condition (general causation); and 2) the toxic substance in fact caused the plaintiff's medical condition (specific causation)." *Valentine v. PPG Industries, Inc.*, 158 Ohio App.3d 615, 821 N.E.2d 580. In the absence of expert medical opinion, summary judgment on the issue of causation is proper.

{¶ 125} In the instant case, the trial court held that the testimony of appellants' experts was unreliable. The testimony was properly excluded pursuant to Evid. R. 702. Without expert testimony on the issues of causation and exposure, appellants are unable to meet their burden of proof at trial on the key issues of causation and exposure. Thus, the trial court did not err when it sustained appellees' motion for summary judgment.

{¶ 126} In light of this holding, appellant's assignment that the trial court erred in granting summary judgment to ITW with respect to its alleged successor liability is rendered moot, and we need not address the merits of this argument.

{¶ 127} Lastly, a loss of consortium claim is a derivative cause of action dependent upon the existence of a primary cause of action. *Miller v. City of Xenia*, Greene App. No. 2001-CA-82, 2002-Ohio-1303. Because we find that the primary cause of action, negligent exposure to genotoxic chemicals in utero is properly subject to summary judgment, the

derivative cause of action brought on behalf of James Kerns' parents fails as a matter of law.

V

{¶ 128} All of appellants' assignments having been overruled or rendered moot, the judgment of the trial court is **affirmed**.

. . . . . .

FAIN, J., concurs.
BROGAN, J., dissents.

BROGAN, J., dissenting:

{¶ 129} I respectfully dissent. I believe that the trial court abused its discretion when it excluded the opinions of the appellants' expert witnesses. Their testimony is based on reliable, scientific or other specialized information. Evid.R. 702(C). Drs. Holland and Bearer used the Bradford-Hill guidelines to reach their opinions that the genotoxic chemicals at issue do cause significant genetic damage in humans as well as test animals, and that Robin Kern's alleged toxic exposure to a mixture of these chemicals at Hobart while pregnant was the cause of James Kerns' chromosomal damage and birth defects. Both Dr. Holland and Dr. Bearer testified about the scientific evidence that the genotoxic chemicals at issue cause genetic abnormalities in humans and that these chemicals more than likely caused James' genetic damage in utero. Dr. Bearer conducted a differential diagnosis ruling out other potential causes. Both doctors relied on peer-reviewed occupational epidemiological studies of workers exposed to the chemical solvents at issue reporting an increase in miscarriages if pregnant women are exposed. Both doctors noted that scientific evidence demonstrates the majority of miscarried fetuses are lost as a result of chromosomal abnormalities. They noted that the injury suffered by James Kerns in utero was a complex chromosomal/genetic damage and that such damage

invariably results in either miscarriage, still birth, or birth defects. The trial court also ignored the testimony of Drs. Holland and Bearer concerning the Rutledge study which explained the application to humans of animal studies on genotoxicity during early prenatal development.

{¶ 130} The trial court also erred in excluding the expert testimonies of Drs. Soucek and Keil. Dr. Soucek testified he researched records made available to him and determined what chemicals were present in the Hobart plant during Robin Kerns' pregnancy with James. Dr. Keil similarly reviewed documents produced by the defendants and the Regional Air Pollution Control Agency (RAPCA). He offered his opinion that the plant where Robin Kerns worked when she was pregnant with James was under negative air pressure that would contribute to the influx of toxic emissions from other plant operations into Robin Kerns' work location.

{¶ 131} It is important to remember that in determining whether the opinion of the expert is reliable under Evid.R. 702(C), a trial court examines whether the expert's conclusion is based on scientifically valid principles and methods. *Miller*, 20 Ohio St.3d 607. The experts who testified for the plaintiff are eminently qualified and they provided ample proof their opinions were based on reliable principles and methodology. I also agree with appellants that there are genuine issues of material fact concerning ITW's successor liability in this lawsuit. I would reverse the trial court's grant of summary judgment to the defendants.

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