IN THE SUPREME COURT OF MISSISSIPPI

NO. 2009-CA-01037-SCT

ANGELIA PATTERSON, ON BEHALF OF THE WRONGFUL DEATH BENEFICIARIES AND AS ADMINISTRATRIX OF THE ESTATE OF ATRAVIUS COLEMAN, DECEASED

v.

DR. BOB TIBBS, DR. WILLIAM MCARTHUR AND BOLIVAR COUNTY MEDICAL CENTER

DATE OF JUDGMENT:	06/11/2009
TRIAL JUDGE:	HON. CHARLES E. WEBSTER
COURT FROM WHICH APPEALED:	BOLIVAR COUNTY CIRCUIT COURT
ATTORNEY FOR APPELLANT:	GEORGE F. HOLLOWELL, JR.
ATTORNEYS FOR APPELLEES:	L. CARL HAGWOOD MARY FRANCES STALLINGS-ENGLAND DIANE V. PRADAT BRADLEY K. OVERCASH KIMBERLY NELSON HOWLAND
NATURE OF THE CASE:	CIVIL - WRONGFUL DEATH
DISPOSITION:	AFFIRMED IN PART, REVERSED IN PART AND REMANDED - 03/17/2011
MOTION FOR REHEARING FILED:	
MANDATE ISSUED:	

BEFORE CARLSON, P.J., LAMAR AND CHANDLER, JJ.

CARLSON, PRESIDING JUSTICE, FOR THE COURT:

¶1. Atravius Coleman was born at Bolivar County Medical Center (BMC) on February 22, 2002, at 4:23 a.m. Atravius died less than one day later, on February 23, 2002, at 12:05 a.m. His mother, Angelia Patterson, brought a wrongful-death claim against BMC, Dr. Bob

Tibbs, and Dr. William McArthur (the defendants), claiming that they had caused Atravius's death either through negligence or by breaching the standard of care. The defendants filed a motion to exclude Patterson's expert witnesses on causation, claiming that their testimony was not reliable. After a two-day ***Daubert***[1] hearing in the Circuit Court for the Second Judicial District of Bolivar County, the trial judge granted the defendants' motion and excluded the expert witnesses' testimony on the predeath levels of Demerol in Atravius's blood. The trial court subsequently granted summary judgment in favor of the defendants.

¶2. Patterson now appeals to this Court. We find that the trial court did not abuse its discretion in excluding the experts' testimony and that the trial court did not err in granting summary judgment in favor of Dr. William McArthur. However, we are constrained to find that the trial court erred in granting summary judgment in favor of Dr. Bob Tibbs and Bolivar County Medical Center. Thus, we affirm in part and reverse in part the trial court's judgment in favor of all defendants, and we remand this case for further proceedings relating to Patterson's claims against Dr. Tibbs and Bolivar County Medical Center.

FACTS AND PROCEEDINGS IN THE TRIAL COURT

¶3. Angelia Patterson arrived at BMC on February 21, 2002, and was attended to by Dr. McArthur. She gave birth to a baby boy, Atravius Coleman, on February 22, 2002, at 4:23 a.m. Atravius appeared to be healthy at birth, receiving a nine-out-of-ten APGAR score one

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[1] ***Daubert v. Merrell Dow Pharmaceuticals, Inc.***, 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993).

minute after delivery and five minutes after delivery.[2] Atravius was placed under the care of Dr. Tibbs after his birth, even though Dr. McArthur performed the circumcision on Atravius.

¶4. Atravius was taken for circumcision at 1:45 p.m. on February 22, 2002. Dr. McArthur performed the circumcision and stated in his affidavit that he did not give Atravius Demerol for pain relief. Also, according to Atravius's medical records, no pain medication was administered for this procedure. A nurse noted that Atravius looked pale at 3:30 p.m. Dr. Tibbs was notified of Atravius's condition and ordered an echocardiogram. The results of the test were "suspicious for hypoplastic left heart syndrome." Plans were then made to transport Atravius to the University of Mississippi Medical Center Pediatric Department (UMC). Atravius died at BMC before the ambulance from UMC arrived.

¶5. The defendants claim that Atravius died as a result of hypoplastic left heart syndrome and that the condition is fatal without surgery. Patterson claims that Atravius died from an overdose of Demerol, which he either received from his mother before delivery or after his birth, likely during his circumcision. To support this claim, Patterson retained two expert-causation witnesses: Dr. Steven Shukan and Dr. Steven Hayne.

¶6. Dr. Shukan is a board-certified pediatrician. Dr. Shukan's opinion is that Atravius received a lethal dose of Demerol (meperidine) – approximately 100 milliliters – around the same time as his circumcision. To form this opinion, Dr. Shukan used a process called back-

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[2]APGAR is an acronym for Activity, Pulse, Grimace, Appearance, and Respiration. It measures the status of these conditions and is usually given immediately following birth and a second time five minutes later. A score of seven or above is indicative of a healthy newborn.

extrapolation. Dr. Shukan started with the amount of Demerol and normeperidine in the blood sample taken from Atravius after his death.[3] Using the half-life of the drug[4] and the post-death drug levels in Atravius's blood sample, Dr. Shukan was able to calculate a predeath level of the drug. The half-life used is essential to the calculation. Because neonates metabolize drugs more slowly than adults, a different half-life must be used in calculations involving neonates.

¶7. Dr. Shukan used a half-life of three to three-and-one-half hours in his back-extrapolation calculation. Dr. Shukan testified in his deposition that he referred to his pharmacy textbooks, *Nelson's Textbook of Pediatrics*, *The Physicians' Desk Reference*, and WebMD (a website) in forming his opinion. He also stated that he used his professional knowledge of Demerol when forming his overall opinion that Atravius had died from a lethal dose of Demerol. Although Dr. Shukan testified that he had referred to these sources in forming his opinion, he did not state which source specified a half-life of three to three-and-one-half hours. However, he did testify that Demerol has a half-life of two to five hours in adults and that the half-life is a "little longer than the two hours in kids, most authorities would say in the neighborhood of slightly above three hours." He did not testify as to what

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[3] 0.17 mcg/ml of Demerol and 0.12 mcg/ml of normeperidine were found in the sample. The results of the sample are undisputed. Normeperidine is a byproduct of Demerol and occurs in the body after metabolism of Demerol. Demerol is a trade name for meperidine.

[4] The half-life of a drug is the time required for the activity of a drug taken into the body to lose one half its initial effectiveness.

authorities he was relying upon when he stated that "most authorities" say the half-life of Demerol in a neonate is slightly above three hours.

¶8. Patterson also retained Dr. Steven Hayne as an expert-causation witness. Dr. Hayne, a pathologist, performed an autopsy on Atravius. Using the same back-extrapolation process, Dr. Hayne determined that Atravius likely had died from a lethal dose of Demerol that he had received from his mother prior to birth.[5] Dr. Hayne used a half-life of four-and-one-half to five hours. He obtained this half-life by calling the director of the Mississippi State Crime Laboratory and a toxicologist employed at the lab.

¶9. The defendants moved to exclude the expert testimony of both Dr. Shukan and Dr. Hayne. A two-day ***Daubert*** hearing was held, and the trial judge ultimately excluded the testimony of Dr. Shukan and Dr. Hayne on Atravius's predeath Demerol levels.

¶10. At the hearing, the depositions of Dr. Shukan and Dr. Hayne were admitted, and several other experts testified. Dr. Christopher Long, a forensic toxicologist, testified for the plaintiff. Dr. Long reviewed a number of articles on the half-life of Demerol in neonates and acknowledged that a wide range of half-lives is documented.

¶11. Dr. John Cleary, a board-certified pharmacotherapist, testified for the defense. Dr. Cleary testified that there are multiple articles on the half-life of Demerol in newborns and that the average half-life is approximately eleven hours.[6] When asked if the half-life of three

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[5] It is undisputed that Angelia Patterson received two doses of Demerol during her labor. The amount, however, is disputed. Patterson claims she received two 100-ml doses, which is more than the recommended amount. The defendants claim that Patterson received two 50-ml doses, which is a generally accepted therapeutic amount.

[6] The defendants presented the following sources: *Pharmacokinetics and Pharmacodynamics of Intravenous Meperidine in Neonates and Infants* reports that the half-

to three-and-one-half hours has a scientific basis, Dr. Cleary responded that "[i]t is scientifically and medically based in an adult. It does not apply to an infant within the first few days of life."

¶12. Dr. John Joel Donaldson, a licensed physician, also testified for the defense. Dr. Donaldson testified that, contrary to Dr. Shukan's testimony, he had never seen any research or literature that supported the use of a three to three-and-one-half-hour half-life in a newborn.

¶13. After the ***Daubert*** hearing, the trial court entered an order excluding the testimony of Dr. Shukan and Dr. Hayne on the predeath levels of Demerol in Atravius's system. The trial judge noted that the half-lives used by Dr. Shukan and Dr. Hayne are of particular significance because the reliability of the doctors' mathematical calculations depends on the correct half-life being used.[7] The trial court also noted that it is generally accepted that the

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life of Demerol in babies less than one week old ranges from 4.9 to 16.8 hours, averaging at 10.7 hours. A half-life of 3.3 hours was reported in one preterm baby. Marja-Leena Pokela et al., *Pharmacokinetics and Pharmacodynamics of Intravenous Meperidine in Neonates and Infants*, 52 Clinical Pharmacology and Therapeutics 345 (Oct. 1992). *Disposition of Meperidine and Normeperidine Following Multiple Doses During Labor* reports that the half-life can range from 11.36 to 17.33 hours, averaging at 13.24 hours. Betty R. Kuhnert et al., *Disposition of Meperidine and Normeperidine Following Multiple Doses During Labor*, 151 American Journal of Obstetrics and Gynecology 414 (Feb. 1985). *Drug Therapy in Infants: Pharmacologic Principles and Clinical Experience* reports that the half-life of Demerol in newborns can range from 6.5 to 39 hours. This source also states that the half-life in infants three to eighteen months is 2.3 hours. Robert J. Roberts, *Drug Therapy in Infants: Pharmacologic Principles and of age Clinical Experience* 302 (W.B. Saunders Co. 1984).

[7] The trial judge gave the following explanation of half-lives:

> [I]n the context of drugs and medications, the term "half-life" refers to the amount of time required for half the dosage of a particular drug to be metabolized by the body. For example, if a healthy adult is given 100

half-life of Demerol in an adult is approximately three hours, but that there is difficulty in "attempting to correlate the half-life of [Demerol] to an infant." It is difficult to determine an exact half-life in newborns because the liver – which is the organ responsible for eliminating drugs from the body – is not fully developed and is not capable of working at its full capacity, which results in a longer half-life in newborns versus adults. The trial court further noted that there is minimal, and varied, scientific documentation on the half-life of Demerol in newborns, stating that "[i]t appears that the breadth of such ranges [is] limited only by the number of medical journals one reads."

¶14. With regard to Dr. Shukan's assertion that the half-life of Demerol in a newborn is three to three-and-one-half hours, the trial court stated that:

> No evidence was presented explaining exactly how Dr. Shukan came to choose three to three and one-half hours as the half-life of meperidine to be used in his back extrapolation calculations. It seems to this court that arbitrarily choosing a half-life from the panoply of half-lives available when dealing with a neonate is tantamount to choosing a half-life by throwing darts at a medical dartboard. While one may occasionally hit the proper number, it is not a process that instills confidence in the result.

¶15. When discussing Dr. Hayne's opinion that the half-life of Demerol in a newborn is four-and-one-half to five hours, the trial court noted in its order that Dr. Hayne received this number from personnel at the Mississippi Crime Laboratory and in a footnote, stated that "[c]ertainly there is nothing untoward in Dr. Hayne seeking additional input from another

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> milligrams of a particular drug and the half-life of that drug is ten hours, then after ten hours one would expect to find only 50 milligrams of that drug remaining active in the body. In another ten hours, there would only be 25 milligrams of that drug remaining active in the body. In another ten hours, only 12.5 milligrams, and so on.

expert, a practice which appears not to be uncommon among academicians." The trial court then stated that it had

> the same reservations regarding the use of a half-life for meperidine in the range of 4.5 to 5 hours as it does when considering a half-life of 3 to 3.5 hours. To be clear, the court does not question the process of back extrapolation. Rather, the court's reservations in this case grow from what the court finds to be a lack of scientific agreement and/or specificity as concerns the half-life of meperidine in a neonate.

¶16. The trial court concluded its order by finding that:

> As concerns the opinions offered by Dr. Shukan and Dr. Hayne as to the *pre-death* levels or concentrations of meperidine or normeperidine in the body of this child, the court finds that such opinions are relevant and would assist the trier of fact. However, due to the limited scientific studies gauging the half-life of meperidine in the body of a *neonate*, this court is compelled to find that the opinions lack the necessary element of reliability in that it is not based upon sufficient data. This court finds, based upon the evidence presented and the scientific and/or medical literature offered describing the ranges of half-lives of meperidine and/or normeperidine in a neonate are so wide that pre-death levels and/or concentrations of such drug *in a neonate* cannot be determined with any reasonable degree of medical or scientific certainty by the process of back extrapolation.
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> For the reasons stated above, this court will disallow the introduction of any opinion from any expert attempting to assert a pre-death level and/or concentration of meperidine and/or normeperidine in the body of this child based upon any back extrapolation.

(Emphasis added in original.)

¶17. After the trial court excluded the expert testimony on the predeath levels of Demerol in Atravius's system, it granted summary judgment in favor of all three defendants.[8] The trial court stated it was "of the opinion that said motion should be granted because without the

[8] The trial court's order states that the defendants made an *ore tenus* motion for summary judgment. There is no record of the motion in the transcript.

excluded testimony, Plaintiffs have no expert testimony to prove causation . . . ." Patterson now appeals the trial court's judgment to this Court.

DISCUSSION

¶18. Patterson presents two issues for this Court's consideration: (1) whether the trial court erred in excluding the expert testimony of Dr. Shukan and Dr. Hayne; and (2) whether the trial court erred in granting summary judgment in favor of the defendants.

I. WHETHER THE TRIAL COURT ERRED IN EXCLUDING THE EXPERT TESTIMONY OF DR. SHUKAN AND DR. HAYNE.

A. Standard of Review

¶19. The standard of review for the admission or exclusion of expert testimony is abuse of discretion. ***Utz v. Running & Rolling Trucking, Inc.***, 32 So. 3d 450, 457 (Miss. 2010) (citations omitted). This Court should find error in the trial court's decision to exclude expert testimony only if the decision was arbitrary or clearly erroneous. ***Franklin Corp. v. Tedford***, 18 So. 3d 215, 237 (Miss. 2009) (citing ***Troupe v. McAuley***, 955 So. 2d 848, 856 (Miss. 2007)).

B. Mississippi Rule of Evidence 702 and Daubert

¶20. In addressing ***Daubert*** issues, our analysis must be guided by Rule 702, which addresses the admissibility of expert testimony:

> If 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, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

Miss. R. Evid. 702.

¶21. In ***Daubert***, the United States Supreme Court held that experts should be given wide latitude when offering opinions within their expertise. ***Daubert,*** 509 U.S. at 592. The ***Daubert*** Court rejected the ***Frye***[9] standard, which required "general acceptance" of the theories offered by experts, and held that expert testimony must be relevant and reliable. ***Id.*** at 589. ***Daubert*** enumerated several factors which the trial courts may consider when determining if expert testimony is reliable: (1) whether the expert's theory can be or has been tested; (2) whether the theory has been subjected to peer review and publication; (3) the known or potential rate of error of a technique or theory when applied; and (4) the general acceptance that the theory has garnered in the relevant expert community. ***Id.*** at 593-94. These factors are nonexclusive, and their application depends on the nature of the issue, the expert's expertise, and the subject of the testimony offered by the expert. ***Miss. Transp. Comm'n v. McLemore***, 863 So. 2d 31, 37 (Miss. 2003).

¶22. When determining whether expert testimony is admissible, our trial judges should act as gatekeepers and must determine whether the proposed testimony meets the requirements of Rule 702 and ***Daubert***'s relevance and reliability prongs. Evidence is relevant if it will assist the trier of fact. ***Daubert***, 509 U.S. at 591. The offered testimony in today's case is clearly relevant, and the defendants do not dispute its relevance. Because the offered testimony is relevant, our inquiry in today's case will focus on whether the testimony was reliable.

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[9] ***Frye v. United States***, 54 App. D.C. 46, 47, 293 F. 1013, 1014 (1923).

C. Reliability

¶23. In his order excluding the expert testimony, the trial judge focused on the lack of consensus among a wide range of authorities on the half-life of Demerol in a newborn. He also, however, pointed out that Dr. Hayne and Dr. Shukan had failed to provide an authority that supports the half-lives used in their calculations. Patterson now argues that lack of consensus among authorities is not a valid reason for excluding expert testimony under ***Daubert.***

¶24. In support of her argument, Patterson cites ***Tedford***, 18 So. 3d at 238, where this Court upheld the trial court's admission of four expert witnesses in a workers' compensation case. The plaintiffs in ***Tedford*** were exposed to a neurotoxin while at work, and the expert witnesses testified to the effect the toxin had on the plaintiffs. ***Id.*** at 234-36. On appeal, the defendants argued that the trial court had erred in allowing the expert testimony because "none knew of the [neurotoxin] exposure level at which injury occurs in humans," and "none knew of the exposure experienced by the . . . plaintiffs." ***Id.*** at 237. This Court noted that the impact of the toxin on humans is a new field of study and that ethical constraints have limited scientists' studies in this field. ***Id.*** Ultimately, this Court found that "the *absence* of data on the exact exposure level at which humans suffer neurologic injury ought not preclude the Plaintiffs' experts from testifying." ***Id.*** (emphasis added).

¶25. We find ***Tedford*** to be distinguishable from today's case. In ***Tedford,*** there was an *absence* of data relating to the subject of the experts' opinions. ***Id.*** In today's case there is not an absence of data on the half-life of Demerol in newborns; rather, the defendants presented published data on the subject which contradicts the plaintiff's experts. The

shortage of data in this case is an absence of data supporting the half-lives used by the plaintiff's experts.

¶26. In ***Watts v. Radiator Specialty Company***, 990 So. 2d 143, 150 (Miss. 2008), this Court held that expert testimony may be excluded as scientifically unreliable when there is a lack of scientific data supporting the expert's opinion. In ***Watts***, the subject of the expert testimony was the focus of several different studies on which the expert had relied in forming his opinion. ***Id.*** at 147. However, none of the studies "provide[d] a basis for the conclusion" that the expert had made. ***Id.*** The dissenting opinion in ***Watts*** argued that expert opinions need not be supported unequivocally by published studies. ***Id.*** at 154. The majority responded by stating that:

> While certainly there is no requirement that an expert's opinion be 'generally accepted in the scientific community' as under the ***Frye*** standard, *it is a factor for trial courts to consider*. This factor was properly considered by the trial court. When this Court adopted the ***Daubert*** standard, it did not 'lower the bar' for admittance of expert testimony. We simply recognized that our learned trial judges are in the best position to make the determination. We made them the gatekeepers of expert testimony, not the doormen.

Id. at 150 (emphasis added).

¶27. In ***Poole v. Avara***, 908 So. 2d 716, 724 (Miss. 2005), this Court also held that consensus among peer-reviewed materials is not a requirement of admissibility. Citing ***Daubert***, this Court in ***Poole*** stated that "[r]equiring that the subject of expert testimony be known to a certainty is not necessary either, however, because, as the ***Daubert*** Court pointed out, 'there are no certainties in science.'" ***Id.*** at 723-24 (citing ***Daubert***, 509 U.S. at 590).

¶28. To counter Patterson's argument that the trial court erred in excluding the expert testimony, the defendants cite this Court's recent holding in ***Hill v. Mills***, 26 So. 3d 322, 331

(Miss. 2010), that "when an expert . . . renders an opinion that is attacked as not accepted within the scientific community, the party offering that expert's opinion must, at a minimum, present the trial judge with some evidence indicating that the offered opinion has some degree of acceptance and support within the scientific community."

¶29. This Court in ***Hill*** distinguished ***Poole***, stating that:

> We do not today retreat in any respect from our holding in ***Poole***. We find it completely distinguishable. Unlike the present case, the challenged opinion at issue in ***Poole*** had not been the subject of peer-reviewed articles. Consequently, the defendant in ***Poole*** did not challenge the expert's opinions by producing peer-reviewed articles or authorities which contradicted the opinions. Thus, ***Poole*** stands for the proposition that there exists no per se requirement that an expert's opinion be supported by peer-reviewed articles.
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> In contrast to ***Poole***, the subject matter of the expert opinion in the case before us today has been extensively explored and documented, and one hundred percent of the documentation presented to the trial judge contradicts Dr. Fuselier's opinion. Thus, we cannot say that the trial judge abused his discretion in finding that, under Rule 702, Dr. Fuselier's opinions regarding available interventions to prolong Hill's pregnancy were unreliable and inadmissible.
>
> We restate for emphasis that, *when the reliability of an expert's opinion is attacked with credible evidence that the opinion is not accepted within the scientific community, the proponent of the opinion under attack should provide at least a minimal defense supporting the reliability of the opinion.* The proponent of the expert cannot sit on the side lines and assume the trial court will ignore the unrebutted evidence and find the expert's opinion reliable. Were we automatically to allow introduction of expert opinions which are based upon nothing more than personal experience in cases where those opinions are contradicted in the scientific literature, we would effectively render Rule 702 and ***Daubert*** a nullity.

Id. at 332-33 (citations omitted) (emphasis added).

¶30. We find that today's case is analogous to ***Hill***. The defendants presented peer-reviewed articles contradicting the expert opinions offered by Patterson, and she failed to

provide evidence that the offered opinions have some degree of scientific acceptance and support. The defendants presented one peer-reviewed article stating that the half-life of Demerol in neonates is approximately 10.7 hours, another article stating that the half-life varies from 6.5 to 39 hours in newborns, and another stating that the average half-life is 13.24 hours. Patterson did not present scientific literature in support of Dr. Shukan's and Dr. Hayne's opinions. While Dr. Shukan did state that he referred to medical texts and websites in forming his overall opinion, he did not provide a source for the half-life he used in his calculation. Dr. Hayne testified that he obtained the half-life used in his calculation – four and one half to five hours – from Mississippi Crime Laboratory personnel.

¶31. Patterson is correct in her assertion that lack of consensus among sources does not automatically render an expert opinion inadmissible. An offered opinion that has been contradicted by published and peer-reviewed data, however, must be supported by some evidence of support and acceptance in the scientific community. Patterson has failed to meet this standard. Accordingly, the trial court did not abuse its discretion in excluding the expert witnesses' testimony on the predeath levels of Demerol in Atravius's system.

D. Credibility Versus Reliability

¶32. In the alternative, Patterson argues that today's issue is one of credibility, which is proper for the trier of fact to determine and not the trial court. ***Treasure Bay Corp. v. Ricard***, 967 So. 2d 1235, 1239 (Miss. 2007). As part of its gatekeeping role under Rule 702, the trial court is to determine whether expert testimony is reliable. ***Id.*** at 1241 (citing Miss. R. Evid. 702 cmt.). "Neither the rule nor its comment mentions any requirement that statements relied upon by an expert using proper, reliable, methodology also be found credible." ***Id.***

¶33. In ***Treasure Bay***, the expert witness relied on a statement made by a drunk driver in forming his opinion that the driver was visibly intoxicated when served intoxicating beverages by a casino. ***Id.*** at 1237-38. When arguing that summary judgment was improper, the defendants claimed that the trial court should not have relied on the expert's opinion "because it was partially based upon a statement by [the drunk driver], which, according to the defendants, lacks credibility." ***Id.*** at 1240. Specifically, the defendants argued that the driver's statement was untruthful. ***Id.*** In response, this Court held that:

> Indeed, experts in many fields, including medicine, accident reconstruction and forensic pathology, frequently rely on histories provided by patients and witnesses. Thus, it would be unsettling for this Court abruptly to reject all expert opinion which relies on a historical account of the facts. Of course, whether or not the facts relied upon are credible is a matter for cross-examination and collateral attack at trial.

Id.

¶34. Patterson argues that, even if the trial court found the half-lives used by Dr. Shukan and Dr. Hayne to be incorrect, according to this Court's reasoning in ***Treasure Bay***, it was error to exclude the testimony. Patterson supports this argument by claiming that the half-life used in a back-extrapolation calculation is an issue of credibility, which may be attacked through cross-examination or contradicting experts.

¶35. This Court, however, has held that "the sufficiency of foundational facts or evidence on which to base an opinion is a *question of law*." ***Janssen Pharmaceutica, Inc. v. Bailey***, 878 So. 2d 31, 60 (Miss. 2004) (citations omitted) (emphasis added). As part of the trial court's gatekeeping role, it must "examine the reliability" of the expert's opinion and must

determine whether the facts "afford a 'reasonably accurate basis' for the expert's conclusion." ***Id.*** (citations omitted).

¶36. We find that the question of whether Dr. Hayne and Dr. Shukan used the correct half-life in their calculations is an issue of reliability, not credibility. The Court in ***Treasure Bay*** referred to a "historical account of . . . facts" when finding that statements relied upon by experts need not be judged on their credibility by the trial court in determining whether to accept an expert's opinion. ***Treasure Bay,*** 967 So. 2d at 1240. The experts in today's case, however, do not rely on a factual statement made by another doctor or a patient. The experts must rely on scientific data to form their opinions. Under Rule 702, these opinions must be based on "sufficient facts or data." Using a correct half-life is essential to performing a correct back-extrapolation calculation. Without the correct data, the experts' calculations will not be based on sufficient data. This is an issue of law which the trial court must determine, not the trier of fact. *See* ***Janssen***, 878 So. 2d at 60; ***Int'l Paper Co. v. Townsend***, 961 So. 2d 741, 758 (Miss. Ct. App. 2007) (citations omitted) ("The sufficiency of foundational facts or evidence on which an expert bases his opinion is a question of law which must be determined by the trial judge.").

¶37. In sum, we find that the trial court did not abuse its discretion in excluding the testimony of Dr. Shukan and Dr. Hayne. Patterson failed to present evidence supporting her experts' testimony when the defendants challenged the reliability of the plaintiff's experts with published data. This lack of support is an issue of reliability, not credibility.

II. WHETHER THE TRIAL COURT ERRED IN GRANTING SUMMARY JUDGMENT IN FAVOR OF THE DEFENDANTS.

¶38. The trial court granted summary judgment in favor of all three defendants after it excluded the testimony of Dr. Shukan and Dr. Hayne. The trial court stated that summary judgment was proper because Patterson could not show causation without the excluded testimony. Patterson now argues that she can show causation without the excluded testimony and that summary judgment was improper.

A. Procedural Background

¶39. Because of the unusual procedural posture of this case, a brief discussion of the procedural facts relating to this issue is necessary. The trial court entered its order excluding the testimony of Dr. Shukan and Dr. Hayne on January 14, 2009. It is important to note that the order excluded only the testimony that related to the predeath levels of Demerol in Atravius's system. The order did not exclude the testimony as a whole. On June 11, 2009, the trial court granted summary judgment in favor of all three defendants. The judgment stated that the defendants had made an *ore tenus* motion for summary judgment. There is no record of the motion, or Patterson's response, in the transcript.[10]

¶40. At oral argument, counsel for Dr. Tibbs stated that he had drafted the judgment and submitted it to the trial court. Counsel admitted that the defendants did not file a motion for summary judgment and that a summary judgment hearing was never held. Patterson's counsel argued in his brief and at oral argument that Patterson could show causation without the excluded Demerol testimony.

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[10] The defendants argued in their briefs and at oral argument that Patterson had waived her ability to appeal the entry of summary judgment because she did not object to it at the trial-court level. Because the record does not contain a motion for summary judgment, we find that this argument is without merit. One cannot respond, or object, to a motion that does not exist.

B. Relevant Law

¶41. Mississippi Rule of Civil Procedure 56 governs motions for summary judgment. This Court reviews de novo a trial court's grant of summary judgment. ***Chisolm v. Miss. Dep't. of Transp.***, 942 So. 2d 136, 140 (Miss. 2006) (citing ***Webb v. Braswell***, 930 So. 2d 387, 395 (Miss. 2006)). This Court examines all evidence, including pleadings, answers to interrogatories, depositions, and affidavits. ***Id.*** (citing ***McCullough v. Cook***, 679 So. 2d 627, 630 (Miss. 1996)). The evidence must be viewed in the light most favorable to the nonmoving party. ***Id.*** (citing ***Hataway v. Nicholls***, 893 So. 2d 1054, 1057 (Miss. 2005)). Summary judgment is appropriate when the nonmoving party has failed sufficiently to establish an essential element of that party's claim. ***Buckel v. Chaney***, 47 So. 3d 148, 153 (Miss. 2010) (citations omitted). The essential elements of a medical-malpractice claim are:

> (1) the existence of a duty on the part of a physician to conform to the specific standard of conduct, (2) the applicable standard of care, (3) the failure to perform to that standard, (4) that the breach of duty by the physician was the proximate cause of the plaintiff's injury, and (5) that damages to the plaintiff resulted.

Estate of Northrop v. Hutto, 9 So. 3d 381, 384 (Miss. 2009) (citing ***Barner v. Gorman***, 605 So. 2d 805, 808-09 (Miss. 1992)).

¶42. The foregoing standard is even more important when considering the unusual procedural history of this case. We are without the benefit of parts of the record commonly used by this Court to guide our analysis of summary judgment issues: the defendants' motion and supporting documents, the plaintiff's response, or a hearing transcript. Thus, in accord with our standard, we examined all the evidentiary matters in this case in the light most favorable to the nonmoving party. After a careful examination of the record, we find that the

trial court did not err in granting summary judgment in favor of Dr. McArthur. We do find, however, that the trial court erred in granting summary judgment in favor of BMC and Dr. Tibbs. Because the causation testimony relating to Dr. McArthur is distinct from the testimony relating to Dr. Tibbs and BMC, we address Dr. McArthur first. Then, because of the similar analysis used, we address Dr. Tibbs and BMC together.

C. Dr. McArthur

¶43. Dr. McArthur delivered Atravius and performed his circumcision. The causation testimony relating to Dr. McArthur focused on Dr. Hayne's theory that Angelia Patterson had received an overdose of Demerol during labor and Dr. Shukan's testimony that Atravius had received an overdose of Demerol during his circumcision. Dr. Shukan also testified that Dr. McArthur had breached the standard of care by failing to include a surgical note documenting whether he had given Atravius Demerol during the circumcision. Other than the testimony relating to the Demerol theories, there is no evidence of causation relating to Dr. McArthur in the record. There is no need to discuss the other elements of medical malpractice because Patterson has failed to establish the essential element of causation. *See* ***Estate of Northrop***, 9 So. 3d at 384; ***Buckel***, 47 So. 3d at 153. Accordingly, the trial judge did not err in granting summary judgment in favor of Dr. McArthur.

D. Dr. Tibbs and BMC

¶44. At first blush, one might reasonably assume that a grant of summary judgment in favor of Dr. Tibbs and BMC would be appropriate. The bulk of the testimony in this case involved the Demerol theories propounded by Dr. Hayne and Dr. Shukan. Without this testimony, one would naturally think that Patterson cannot prove causation. Upon close

examination of the record, however, this Court finds testimony which tends to show causation on the part of Dr. Tibbs and BMC.

¶45. During his deposition testimony, Dr. Shukan essentially discussed the timeline of events leading to Atravius's death, including the standards of care breached and whether those breaches caused Atravius's death. The following are excerpts of Dr. Shukan's deposition:

> Dr. Shukan: At 6 p.m. an IV was started, and this is where I think there was a breakdown in what is considered good nursing abilities and good nursing care. That IV was ordered at 5 p.m. and wasn't started in this child until 6 p.m.
>
> Counsel: Is that a deviation from the standard of care, in your opinion?
>
> Dr. Shukan: I certainly would agree.
>
> Counsel: That's my question. Is it –
>
> Dr. Shukan: I certainly would agree that it is a deviation -- were a deviation from good nursing care. Ordered at 5 in a child who has a significant problem, started at 6. This is not medicine they had to go out and get. This is IV fluids that are usually available to most nurses.
>
> Counsel for BMC: Objection to the statement that this is medicine they did not have to go out and get.
>
> Counsel: All right. Do you have an opinion whether or not, based upon reasonable medical probability, this caused or contributed to the death of Atravius Coleman?
>
> Dr. Shukan: I certainly think that there's a possibility and probability here that it could have contributed.
>
> Counsel: Okay. All right. Go ahead.
>
> Dr. Shukan: Okay. At 7:30 a Dopamine drip was started. Now, Dopamine is a drug that helps to increase blood pressure. That's its sole usage. That is a full four hours after this child showed significant problems in respiration and significant problems in oxygenation, ability to get oxygen to his blood. At

5:30 he showed a very significant decrease in blood pressure, and we didn't see this started for another two hours after that, the Dopamine. By that time –

Counsel: I'm sorry.

Dr. Shukan: Uh-huh.

Counsel: So let me ask you this: Based upon reasonable medical probability, is that a deviation in the standard of care to not start the Dopamine until 7:30?

Dr. Shukan: I would think so. This child needed Dopamine before.

Counsel: All right. Who do you feel that deviated from the standard of care --

Dr. Shukan: I would think when the doctor in charge looks at 5:30 at a blood pressure of 15 diastolic, that he would be the one that should have ordered that with rapidity. That should have been started much quicker.

Counsel: All right. And your talking about what doctor?

Dr. Shukan: Dr. Tibbs.

Counsel: All right. And did this in any way cause or contribute to the death of Atravius Coleman?

Counsel for Dr. Tibbs: Object to the form of the question.

Counsel: You can answer it.

Counsel: Based upon reasonable medical probability.

Dr. Shukan: In my opinion, this very well could have aided in the death -- contributed to the death of Atravius Coleman.

Counsel: All right. Go ahead.

Dr. Shukan: Critical in this chart are the next three entries. At 9:45, some six hours and -- six and a quarter hours after the onset of this horrible event, he was noted to have a diastolic pressure of 13. This child is crashing. He is now officially in shock. 9:45. The only thing I can find documented here is that another blood gas was drawn one hour later. There are no changes in IVs;

there are no changes in medications given; one hour later further evidence of crashing. This child now had -- I'm sorry -- 9:45 he had 19 diastolic pressure, low. Here's 13 –

Counsel: What time is that?

Dr. Shukan: That would be at 10:45. A whole hour went by and this child had nothing. This -- and also, a blood gas was done back at 9:45 that showed a Ph of 7.22 so our acidosis is getting worse, and the critical agent here is a bicarbonate of 7.1. The normal bicarbonate being in the 26, 28 range. This means the child has used up all the ability to buffer the acid, and there's virtually no more ability -- because bicarb is a base and buffers acid. It's almost gone. This child now has severe metabolic acidosis, and it's predictable at this point, you're going to have trouble. Very predictable. He needed bicarb.

. . . .

Counsel: All right. Based upon reasonable medical probability, at 9:45 p.m. was there a deviation from the standard of care, and if so, by whom was there a deviation?

Dr. Shukan: Well, there's no question in my mind that bicarb should have been added here. This situation should have been also fraught with the medicines that we'll see that were given an hour later, and that would be Dr. Tibbs who should have been there, should have been in the nursery, and we'll find out in a moment that he wasn't and should have been in charge here trying to save this child's life.

Counsel: In your opinion, was that a deviation of the standard of care?

Dr. Shukan: Yes, sir.

Counsel: By Dr. Tibbs?

Dr. Shukan: Yes.

Counsel: Did that cause or contribute to the death of Atravius Coleman?

Dr. Shukan: I would think it contributed very possibly, to the death, yes.

Counsel: All right.

Dr. Shukan: Very probably to the death.

Counsel: Okay. Now, what about the nurses at 9:45? Do you have any deviation from the standard of care as it pertains to the nurses at Bolivar Medical Center at that time?

Dr. Shukan: I certainly do.

Counsel: All right. What deviations did they have at that time?

Dr. Shukan: Okay. As you note at 9:45, I am describing a situation that's terminal shock. If this isn't taken care of immediately, this child has no hope. And no phone call was made to Dr. Tibbs until one hour and twenty minutes later. Clearly documented on the chart that this child at this point, the point that the nurse called Dr. Tibbs, the child was unresponsive to deep-pain stimuli, he had a PO2 of 92. Dr. Tibbs, who was in the lounge, in the doctor's lounge, was called. One hour and twenty minutes in shock. There is no increase in fluids; there was no antishock medicine; those will be enumerated down here, epinephrine, Atropine. These are all medicines used in shock, not an hour and 20 minutes after shock has started. So there's a big deviation here.

Counsel: By whom?

Dr. Shukan: Well, no nurse -- the nurse to begin with for not making a phone call, not recognizing this as an agonal or painful, terminal end result -- situation rather, and not calling the doctor for 1 hour and 20 minutes. And number two, I believe that Dr. Tibbs, being an intensive care pediatrician involved in this, should have known that this child is this sick. I can't go to the lounge. I need to be here. He was obviously out of the nursery for at least an hour and twenty minutes here. That's not what you do when you have a child who's in metabolic acidosis, and it's not getting better.

. . . .

Counsel: All right. As far as Dr. Tibbs is concerned, based upon reasonable medical probability, was there a deviation?

Dr. Shukan: Yes.

Counsel: Have you explained it?

Dr. Shukan: I have explained it.

Counsel: All right. Did this deviation cause or contribute to the death of Atravius Coleman, and base that upon reasonable medical probability.

Dr. Shukan: I would think the probability at this point was that the fact that he wasn't cared for correctly, at least in this time frame, lead to his death 45 minutes later.

Counsel: Okay. Now, do you have any -- was there any deviations from the standard of care at 11:05 by the nurses of Bolivar Medical Center?

. . . .

Dr. Shukan: Yes, the standard -- the deviation from normal care. In fact, they should have called him 1 hour and 20 minutes earlier, in my opinion - -

Counsel: Okay.

Dr. Shukan: -- and we may have saved his life.

Counsel: All right. So, is that based upon reasonable medical probability, that deviation you just made reference to?

Dr. Shukan: Certainly.

Counsel: Did that, in your opinion, based upon reasonable medical probability, cause or contribute to the death of Atravius Coleman?

Dr. Shukan: I would think that it contributed to the demise 45 minutes later of this child, yes.

¶46. Dr. Shukan also submitted an affidavit in which he stated that, regardless of the cause of Atravius's condition, Dr. Tibbs should have treated his condition more aggressively. Dr. Shukan stated:

> Dr. Tibbs should have recognized that the combination of metabolic acidosis and depressed respirations are not part of hypoplastic left ventricular syndrome. He should have treated the metabolic acidosis more aggressively. Regardless of the cause, the metabolic acidosis must be treated more aggressively and certainly Dr. Tibbs should have used life saving vasoactive medications earlier instead of saving them for the last few minutes of the child's life.

¶47. Although one may argue that the foregoing testimony was predicated on the assumption that Atravius died of a Demerol overdose, we must keep in mind that the cause

of Atravius's death is an issue for the trier of fact to determine. *See* ***Worthy v. McNair***, 37 So. 3d 609, 620 (Miss. 2010) (quoting ***Causey v. Sanders***, 998 So. 2d 393, 403 (Miss. 2009)). The defendants argue that Atravius died of hypoplastic left heart syndrome. And although Patterson has argued that Atravius died of as a result of a Demerol overdose, the testimony above focused on the treatment that Atravius received after his condition began to deteriorate for whatever reason. Dr. Shukan was of the opinion that, regardless of the cause of Atravius's condition, Atravius should have received different treatment in the hours before his death. When viewing the testimony above in the light most favorable to Patterson, we find that genuine issues of material fact exist concerning whether BMC and Dr. Tibbs caused Atravius's death or failed to prevent it. *See* ***Palmer v. Anderson Infirmary Benevolent Ass'n***, 656 So. 2d 790, 796 (Miss. 1995) (quoting ***Kelley v. Frederic***, 573 So. 2d 1385, 1389 (Miss. 1990)) ("There is no magical form to which a plaintiff's supporting expert opinion must conform, so long as its import is apparent.").

¶48. We also find that Patterson has presented sufficient evidence to withstand summary judgment concerning the other essential elements of a medical-malpractice claim against Dr. Tibbs and BMC. Dr. Tibbs and BMC had a duty to meet the following national standard of care:

> Given the circumstances of each patient, each care giver has the duty to use his or her knowledge and treat, through maximum reasonable medical recovery, each patient with such reasonable diligence, patience, skill, confidence, and prudence as are practiced by minimally competent care givers in the same specialty or general field of practice throughout the United States, who have available to them the same general facilities, services, equipment, and options.

Jeffrey Jackson & Mary Miller, 6 Encyclopedia of Miss. Law § 58:5 (Miss. Practice Series 2001) (citing ***Starcher v. Byrne***, 687 So. 2d 737 (Miss. 1997); ***Toche v. Kilebrew***, 734 So. 2d 276 (Miss. 1999); ***Palmer v. Biloxi Reg'l Med. Ctr.***, 564 So. 2d 1346 (Miss. 1990)). Dr. Shukan testified in his deposition to the specific standards that the nurses and Dr. Tibbs should have met while treating Atravius. Dr. Shukan also testified that the nurses and Dr. Tibbs failed to meet some of these standards. Finally, Patterson suffered various damages due to Atravius's death.

¶49. When viewing all of the evidence in the light most favorable to Patterson, we find that a genuine issue of material fact exists concerning Patterson's claims against Dr. Tibbs and BMC. Accordingly, we find that the trial court erred in granting summary judgment in favor of Dr. Tibbs and BMC.

CONCLUSION

¶50. The trial court did not commit reversible error in excluding the expert testimony of Dr. Shukan and Dr. Hayne on the predeath levels of Demerol in Atravius's system. The defendants contradicted the experts' testimony with published, peer-reviewed data, and Patterson failed to respond with evidence showing acceptance and support in the scientific community of the experts' theories. Thus, the trial court's decision to exclude the testimony was not arbitrary or clearly erroneous. The trial court properly granted summary judgment in favor of Dr. McArthur. Without the excluded Demerol testimony, Patterson could not show that Dr. McArthur had caused any injury.

¶51. On the other hand, the trial court did err in granting summary judgment in favor of Dr. Tibbs and BMC. Even without the excluded Demerol testimony, evidence in the record supports Patterson's claims against Dr. Tibbs and BMC.

¶52. For these reasons, we affirm the trial court's judgment in favor of Dr. William McArthur; however, we reverse the trial court's judgment in favor of Dr. Bob Tibbs and Bolivar County Medical Center, and we remand this case to the Circuit Court for the Second Judicial District of Bolivar County for further proceedings consistent with this opinion.

¶53. **AFFIRMED IN PART, REVERSED IN PART AND REMANDED.**

WALLER, C.J., DICKINSON, P.J., RANDOLPH, LAMAR, KITCHENS, CHANDLER AND PIERCE, JJ., CONCUR. KING, J., NOT PARTICIPATING.