[DO NOT PUBLISH]

IN THE UNITED STATES COURT OF APPEALS

FOR THE ELEVENTH CIRCUIT

No. 04-13762

D. C. Docket No. 01-00266-CV-OC-22-GRJ

KRISTINE MARY NELSON,
as Personal Representative of the
Estate of Robert Bruce Nelson,

Plaintiff-Appellee,

versus

FREIGHTLINER, LLC,
a foreign limited liability corporation,
INTERSTATE EQUIPMENT LEASING, INC.,
a foreign corporation,
SWIFT TRANSPORTATION,
a foreign corporation,

Defendants-Appellants.

Appeal from the United States District Court
for the Middle District of Florida

(September 29, 2005)

Before DUBINA, PRYOR and KRAVITCH, Circuit Judges.

PER CURIAM:

This appeal raises several issues regarding rulings made by the district court in this suit brought by Kristine Mary Nelson against Freightliner, LLC, Interstate Equipment Leasing, Inc., and Swift Transportation Co., Inc., for the wrongful death of her husband, Robert Bruce Nelson (decedent). Nelson alleged that the decedent, a long-haul truck driver, died from carbon monoxide intoxication when carbon monoxide leaked into the cab of his truck due to the defendants' negligence. A jury returned a verdict in favor of Nelson.

The defendants appeal on several grounds. The defendants argue that the district court erroneously applied Florida law and erroneously allowed an inference of negligence from the evidence presented. The defendants also appeal several evidentiary rulings of the district court. Because the district court correctly concluded both that Florida law governed this case and an inference of negligence was permitted under Florida law, and the district court did not abuse its discretion in its evidentiary rulings, we affirm.

I. BACKGROUND

In April 1999, the decedent began employment as a truck driver for Swift Transportation with his base at the Swift terminal in Ocala, Florida. In May 2000,

the decedent became an independent contractor-owner, and shortly thereafter, he took possession of a new Freightliner diesel tractor-trailer truck at a Swift facility in Portland, Oregon. On June 8, 2000, after making several trips with the truck, the decedent advised the dispatcher that he would stop for the night at a rest stop in Kentucky, before completing a delivery in Louisville, Kentucky.

On the morning of June 9, 2000, the dispatcher noticed that the decedent's truck had not moved since the previous night, and she attempted to contact him. Because she was unable to contact the decedent, an investigation was conducted to locate his truck. The decedent was found dead in the cab of his truck at approximately 12:30 in the afternoon. The truck was idling and locked and there were no obvious signs of the cause of death. The decedent's body was lying in the fetal position, face down between the seats of the truck.

Due to the circumstances surrounding his death, the decedent's body was sent to the Office of the Chief Medical Examiner in Louisville, Kentucky, for an autopsy. Dr. Donna Hunsaker, an assistant medical examiner, performed the autopsy on June 10, 2000. Hunsaker concluded from personal observation that the decedent died from ischemic heart disease. Hunsaker prepared an autopsy report and recorded her diagnosis.

Because the decedent was found in an idling truck, Hunsaker also sent a

sample of the decedent's blood to the Kentucky state laboratory to be tested for carbon monoxide. After performing a blood test, the laboratory concluded that the blood contained 67 percent carboxyhemoglobin, hemoglobin bound to carbon monoxide. When Hunsaker received the results of the blood test, she amended her diagnosis of the cause of death to carbon monoxide intoxication from motor vehicle exhaust.

Nelson sued the defendants in Florida state court. The defendants removed the case to federal court based on diversity jurisdiction and answered the complaint after the district court denied their motions to dismiss the complaint. The defendants then filed a choice of law memorandum and argued that the district court should apply Kentucky law, because the death occurred in Kentucky and no other state had more significant contacts. After reviewing the relevant contacts and choice of law rules, the district court ruled that Florida law governed the case. The district court also denied the defendants' motion for summary judgment.

The defendants moved to exclude the results of the Kentucky laboratory blood test under the Federal Rules of Evidence and Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S. Ct. 2786 (1993). That pretrial motion was referred to Magistrate Judge Gary Jones. After a Daubert hearing, Judge Jones denied the motion.

The case went to trial before Judge William Hodges. After presentation of all the evidence, the jury deadlocked on the question of cause of death. Judge Hodges declared a mistrial.

A second trial began seven months later before Judge Anne Conway. Judge Conway bifurcated the trial between liability and damages. Judge Conway adopted the rulings made by Judge Hodges in the earlier trial as law of the case. At the close of the second trial, the jury found the defendants liable for the death of Robert Bruce Nelson and awarded more than four million dollars in damages. Judge Conway denied the defendants' post-trial motions. The defendants appeal.

II. STANDARD OF REVIEW

This Court reviews the "district court's choice of law de novo." Shaps v. Provident Life & Acc. Ins. Co., 317 F.3d 1326, 1329 (11th Cir. 2003). The denial of a motion for judgment as a matter of law is also reviewed de novo. Mut. Serv. Cas. Ins. Co. v. Henderson, 368 F.3d 1309, 1314 (11th Cir. 2004). We review for abuse of discretion the evidentiary rulings of the district court. McClain v. Metabolife Int'l, Inc., 401 F.3d 1233, 1238 (11th Cir. 2005). We must affirm the evidentiary rulings of the district court unless we determine that the district court has made a "clear error of judgment or has applied an incorrect legal standard." Id. (internal quotation marks and citations omitted). "This deferential standard is not

relaxed even though a ruling on the admissibility of expert evidence may be outcome-determinative." Allison v. McGhan Medical Corp., 184 F.3d 1300, 1306 (11th Cir. 1999). We may notice an error raised for the first time on appeal, if the error is "'so fundamental that it may have resulted in a miscarriage of justice.'" See S.E.C. v. Diversified Corp. Consulting Group, 378 F.3d 1219, 1227 n.14 (11th Cir. 2004) (quoting 9A Charles Alan Wright & Arthur R. Miller, Federal Practice and Procedure § 2472).

III. DISCUSSION

This appeal involves several discrete issues that we address separately. We first address the defendants' argument that the district court should have applied Kentucky law to this case. Second, we address the defendants' argument that the district court erroneously denied judgment as a matter of law. Last, we address the defendants' arguments regarding the evidentiary rulings of the district court.

A. The District Court Correctly Applied Florida Law.

"In determining which law applies, a federal district court sitting in diversity must apply the choice of law rules of the forum state." Trumpet Vine Invs., N.V. v. Union Capital Partners I., Inc., 92 F.3d 1110, 1115 (11th Cir. 1996). This suit was brought in Florida. Florida choice of law rules, therefore, apply.

In tort cases, Florida applies the significant relationship test of the

Restatement (Second) of Conflict of Laws. Bishop v. Fla. Specialty Paint Co., 389 So. 2d 999, 1001 (Fla. 1980). The test involves consideration of several factors to determine which state has the most contacts with the action or the greatest interest in the outcome:

> (1) The rights and liabilities of the parties with respect to an issue in tort are determined by the local law of the state which, with respect to that issue, has the most significant relationship to the occurrence and the parties under the principles stated in § 6.
> (2) Contacts to be taken into account in applying the principles of § 6 to determine the law applicable to an issue include
>
> (a) the place where the injury occurred,
> (b) the place where the conduct causing the injury occurred,
> (c) the domicil, residence, nationality, place of incorporation and place of business of the parties, and
> (d) the place where the relationship, if any, between the parties is centered.
>
> These contacts are to be evaluated according to their relative importance with respect to the particular issue.

Restatement (Second) of Conflict of Laws § 145. The Restatement then directs the court to determine which state has the most significant relationship to the occurrence and the parties by applying the following factors in section 6:

> (a) the needs of the interstate and international systems,
> (b) the relevant policies of the forum,
> (c) the relevant policies of other interested states and the relative interests of those states in the determination of the particular issue,
> (d) the protection of justified expectations,
> (e) the basic policies underlying the particular field of law,
> (f) certainty, predictability and uniformity of result, and
> (g) ease in the determination and application of the law to be applied.

Id. § 6.

We address the application of this test in two parts. First, we identify how many sovereigns have an interest in this case. Second, we explain which sovereign has the most significant relationship.

1. Six Sovereigns Have An Interest in This Case

In the light of the factors stated in section 145, at least six sovereigns, Kentucky, Florida, Oregon, Delaware, Arizona, and Canada, have an interest in applying their law to this case. First, the injury occurred in Kentucky. Second, the conduct alleged to have caused the injury occurred in Oregon where the truck was manufactured, or Kentucky where the alleged malfunction occurred. Third, the decedent was a Canadian resident, who had significant contacts with the State of Florida. The decedent maintained a business address at his mother's home in Florida, a checking account in Florida, and a Florida voter identification card. The plaintiff is a Canadian resident, but the decedent's son, who is also a claimant, is a resident of Florida. The defendants are incorporated and have their principal places of business in Delaware, Arizona, and Oregon. In addition, Swift operates a place of business in Florida. Fourth, the relationship between the decedent and Swift was centered in Florida, because that was the decedent's home base.

As to these six interested sovereigns, we must determine which sovereign

has the most significant relationship to the case or the most interest in having its law applied. The parties understandably argue only for the application of either Kentucky or Florida law. We, therefore, will not address the interests of Delaware, Arizona, Oregon, and Canada. See Piamba Cortes v. Am. Airlines, Inc., 177 F.3d 1272, 1297 (11th Cir. 1999).

2. Florida Has the Most Significant Relationship to This Case.

In personal injury and wrongful death actions, the law of the place of the injury is the default, unless another state has a more significant relationship to the action:

> In an action for a personal injury, the local law of the state where the injury occurred determines the rights and liabilities of the parties, unless, with respect to the particular issue, some other state has a more significant relationship under the principles stated in § 6 to the occurrence and the parties, in which event the local law of the other state will be applied.

Restatement (Second) of Conflict of Laws § 146; see also id. § 175. Because the accident occurred in Kentucky, the law of Kentucky should control this case, unless Florida has a more significant relationship.

To determine which state has the most significant relationship "we cannot simply add up the factors delineated in section 145(2) and then apply the law of the sovereign with the greatest numerical total. . . . Rather, we must, as mandated by section 145(1), turn to the factors delineated in section 6 to determine which

sovereign has the most significant contact." Piamba Cortes, 177 F.3d at 1298-99 (quoting Judge v. Am. Motors Corp., 908 F.2d 1565, 1569 (11th Cir. 1990)).

"The importance of these factors varies depending on the nature of the issue that underlies the conflict of laws." Piamba Cortes, 177 F.3d at 1299. In a tort case, for example, factors (d) and (f) have little significance because torts, especially unintentional torts, do not occur with predictability.

> [P]ersons who cause injury . . . usually act without giving thought to the law that may be applied to determine the legal consequences of this conduct. . . . [T]he values of certainty, predictability and uniformity of result are of lesser importance in torts than in areas where the parties and their lawyers are likely to give thought to the problem of the applicable law in planning their transactions.

Restatement (Second) of Conflict of Laws § 145 cmt. b. Because of the relative insignificance of factors (d) and (f), the remaining five factors assume greater importance. Id. Of these, "the section 6(2) analysis for wrongful death claims 'turns in large part on the balance of competing interests contemplated by sections 6(2)(b) and 6(2)(c).'" Piamba Cortes, 177 F.3d at 1299 (quoting Judge, 908 F.2d at 1569.).

To balance the competing interests of Florida and Kentucky, we take three steps. "First, we identify the particular rule of law to be applied by each interested state. Second, we identify the purposes or policies underlying each state's rule. Third, we 'assess the degree to which the purposes underlying each rule would be

furthered by the rule's application.'" Id. (internal citations omitted) (quoting Judge, 908 F.2d at 1569-70). Generally, the court should apply the law of the state whose interests are most affected. Id.

Both Kentucky and Florida have laws providing for recovery for wrongful death. Kentucky law authorizes the personal representative of the deceased to bring a suit for damages against the person who caused the death. Ky. Rev. St. Ann. § 411.130(1). The damages recovered, less funeral expenses and costs of administration and recovery, are distributed among the survivors according to the statute. Id. § 411.130(2). Florida law permits survivors of the deceased to recover the value of lost support and services, future loss of support and services, loss of companionship or parental companionship, mental pain and suffering, medical or funeral expenses, loss of earnings, and net accumulations. Fla. Stat. Ann. §§ 768.18, 768.21. Recovery of damages in Florida depends on the survivor's relationship to the deceased. See id. § 768.21.

Although the recovery and distribution of damages under Florida and Kentucky law differs, the policy that underlies both statutes is to compensate the survivors of the deceased for their loss. The express stated purpose of the Florida statute is "to shift the losses resulting when wrongful death occurs from the survivors of the decedent to the wrongdoer." Id. § 768.17. Several factors show

that the same public policy underlies the Kentucky wrongful death statute. The Kentucky wrongful death statute allows survivors of the deceased, in a specific order, to recover both compensatory and punitive damages for wrongful death. Ky. Rev. Stat. Ann. § 411.130. In addition, the Constitution of the Commonwealth of Kentucky expressly provides a cause of action for wrongful death, Ky. Const. § 241, and states that the "General Assembly shall have no power to limit the amount to be recovered for injuries resulting in death, or for injuries to person or property." Ky. Const. § 54.

Florida, however, has a greater interest in applying its law to this case than Kentucky for several reasons. First, the interest of Kentucky in applying its law to this case is minor: neither any plaintiff nor defendant is a resident of Kentucky, and the only link between Kentucky and this case is the place of the injury. Second, the decedent was at least a part-time resident of Florida. Florida has a significant interest in insuring that the survivors of its residents are compensated for a resident's wrongful death. Third, at least one claimant, the decedent's son, Steven, is a resident of Florida. Florida has an interest in insuring that its residents are fully compensated for their loss, and Florida law allows a child of the decedent to recover for loss of support and services; loss of parental companionship, instruction and guidance; and mental pain and suffering. Fl. Stat. Ann. §

768.21(3). Kentucky law does not permit individual recovery by a survivor of a decedent; the whole of the recovery under Kentucky law is divided among the survivors of the deceased according to the statute. Ky. Rev. St. Ann. § 411.130(2). Florida law, therefore, more fully compensates a claimant than does the law of Kentucky.

The remaining factors in section 6 also favor the application of Florida law. Florida is the state in which the district court sits. The determination and application of Florida law is, therefore, at least marginally easier than the determination and application of Kentucky law, and the application of Florida law does not offend the needs of the interstate system. The district court correctly applied Florida law.

B. The District Court Properly Denied Judgment As A Matter of Law.

Under Florida law, a plaintiff in a products liability action may prove his case by "creating a legal inference that the product was defective both at the time of the injury and at the time it was within the control of the supplier." Cassisi v. Maytag Co., 396 So. 2d 1140, 1148 (Fla. Dist. Ct. App. 1981). This inference, known as the Cassisi inference, "arises from the occurrence of the accident itself." Id. The Cassisi inference permits a plaintiff to bring a product defect case to the jury even though the plaintiff cannot pinpoint a defect in the product. The plaintiff

must prove only that a product malfunctioned during its normal use: "[W]hen a product malfunctions during normal operation, a legal inference, which is in effect a mirror reflection of the Restatement's standard of product defectiveness, arises, and the injured plaintiff thereby establishes a prima facie case for jury consideration." Id. at 1148.

The defendants argue that they are entitled to judgment as a matter of law because the plaintiff is not entitled to assert the Cassisi inference in this case. The defendants argue that the Cassisi inference is inappropriate because Nelson has not provided evidence of a malfunction in the diesel truck. Nelson alleges that the decedent died from carbon monoxide poisoning, but the defendants argue that she has produced no evidence apart from the level of carboxyhemoglobin allegedly found in the decedent's blood of either a defect or a malfunction. The defendants assert that the diesel truck has been examined, and no evidence of a defect, leak, or repair was found.

The defendants' argument fails. Nelson presented evidence of a product malfunction in the form of the Kentucky lab report that the decedent had a saturation of 67 percent carboxyhemoglobin in his blood when he died. There is no dispute that, when he died, Nelson was operating his truck in a normal manner. Because a diesel truck is designed to prevent carbon monoxide and other gases

from leaking into the cab of the truck, evidence that carbon monoxide leaked into the cab, during normal use, is evidence of a malfunction. Because Nelson presented evidence of a malfunction of the diesel truck during its normal use, the Cassisi inference was proper. The district court properly denied judgment as a matter of law.

C. The District Court Did Not Abuse Its Discretion in Its Evidentiary Rulings.

Of key importance to this appeal is the admissibility of several forms of scientific evidence that are crucial to Nelson's case. Nelson alleges that the decedent died from carbon monoxide intoxication when a defect in the manufacture of the Freightliner truck allowed carbon monoxide to leak into the cab of the truck. The defendants' dispute both the existence of a defect in the truck and that the decedent died from carbon monoxide intoxication. To prevail in her wrongful death suit, Nelson had to prove that carbon monoxide intoxication was the cause of death and the intoxication was caused by a defect in the truck.

To prove carbon monoxide intoxication was the cause of the decedent's death, Nelson offered, in addition to other evidence, the following three forms of evidence: (1) the results of a blood test performed by the Kentucky state lab; (2) the testimony of Michael Ward, the individual who performed the blood test; and (3) measurements of the amount of carbon monoxide emitted by a Freightliner

truck. The defendants objected to the introduction of both the blood test and the emissions tests as unreliable under Daubert. The defendants objected to the testimony of Ward, who testified as a fact witness at trial, on the ground that the testimony given was actually expert testimony and Ward was not qualified as an expert. The district court admitted all three forms of evidence.

Our review of these evidentiary rulings is divided into four parts. We first address the standard for the admissibility of expert testimony. We then address the admissibility of each form of evidence in turn.

1. The Admissibility of Expert Testimony.

The trial court exercises a gatekeeping function with regard to all evidence admitted at trial, and this function is especially important when expert testimony is involved. See generally Daubert, 509 U.S. 579, 113 S. Ct. 2786. The admissibility of expert evidence is governed by Rule 702 of the Federal Rules of Evidence, which contains three indicia of reliability that the trial court must review to determine the admissibility of the evidence:

> 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.

Fed. R. Evid. 702. "The burden of laying the proper foundation for the admission of the expert testimony is on the party offering the expert, and admissibility must be shown by a preponderance of the evidence." Allison, 184 F.3d at 1306.

In Daubert v. Merrell Dow Pharmaceuticals, Inc., the Supreme Court considered the duties of a trial judge to determine the admissibility of expert testimony under Rule 702, and the Court required the trial judge to "ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable." 509 U.S. at 589, 113 S. Ct. at 2795. To aid in this determination, the Supreme Court listed several indicia of reliability. Those indicia of reliability or "general observations" regarding reliability include the following questions about the expert's reasoning or methodology: "(1) whether it can be (and has been) tested; (2) whether it has been subjected to peer review and publication; (3) what its known or potential rate of error is, and whether standards controlling its operation exist; and (4) whether it is generally accepted in the field." United States v. Brown, 415 F.3d 1257, 1266-67 (11th Cir. 2005) (citing Daubert, 509 U.S. at 593-94, 113 S. Ct. at 2796). Using this framework regarding scientific testimony, we turn to the admission of this form of evidence in this case.

2. The Admission of the Caboxyhemoglobin Test Was not an Abuse of Discretion.

The primary evidence in support of Nelson's theory that the decedent died

from carbon monoxide intoxication is the report of the Kentucky lab that the decedent's blood was 67 percent saturated with carboxyhemoglobin. The defendants moved to exclude the lab report as unreliable under Daubert. The magistrate judge denied that motion.

Our review of the admission of the lab report is divided into four parts. First, we address the test performed by the Kentucky lab. Second, we address the defendants' challenge of that test under Daubert. Third, we address the multiple errors of the magistrate judge in evaluating the Kentucky test. Finally, we address why the district court, despite the errors of the magistrate judge, did not abuse its discretion in admitting the lab report.

a. The Test Performed by the Kentucky Lab.

Carboxyhemoglobin is the compound formed when carbon monoxide fuses with hemoglobin in blood, rendering the hemoglobin incapable of fusing with oxygen and transporting the oxygen to different parts of the body. A person dies from carbon monoxide intoxication from asphyxiation, because the body cannot get sufficient oxygen. Hemoglobin that is capable of fusing with oxygen or carbon monoxide is referred to as deoxyhemoglobin. In addition to deoxyhemoglobin, blood contains complex forms of hemoglobin, such as methemoglobin and sulfhemoglobin. These complex forms of hemoglobin are non-functional or

incapable of fusing with oxygen or carbon monoxide. Both carboxyhemoglobin and non-functional hemoglobin can accumulate in a body after death due to decomposition.

Scientists have developed several procedures to determine the level of carboxyhemoglobin in blood. The procedures include gas chromatography and visible spectrometry. The procedure used by the Kentucky lab is a spectrophotometric method that uses light waves to measure the proportion of carboxyhemoglobin in an individual's blood. The procedure calculates the percentage of hemoglobin bound to carbon monoxide by measurement against the total amount of hemoglobin present in the blood.

To perform the spectrophotometric method used in the Kentucky lab, the following steps are taken: (1) a solution is prepared by adding a small amount (0.25 ml) of concentrated ammonia to 200 milliliters (ml) of water and then adding the blood sample until a red color appears; (2) the blood solution is then divided into three tubes, which are labeled "S", "O", and "C"; (3) the tube labeled "O" is saturated with oxygen and the tube labeled "C" is saturated with carbon monoxide; (4) the "O" and "C" tubes are then inserted into an instrument called a UV ultraviolet visible spectrophotometer; (5) the spectrophotometer measures the peak absorbance of light in the tube marked "C", which is assumed to be fully

carboxylated; (6) the tube marked "S", which is the unaltered blood sample, is then substituted for the carboxylated tube and the peak absorbance of light in the sample tube is measured; (7) the peak absorbance of the sample tube is then compared to the peak absorbance of the carboxylated tube to obtain the relative absorbance or level of carboxyhemoglobin in the blood sample.

In sum, the above procedure measures the saturation of carboxyhemoglobin by comparing light waves transmitted through three tubes. The tube marked "O" is assumed to be 100 percent oxygen saturated. The tube marked "C" is assumed to be 100 percent carbon monoxide saturated. The tube marked "S" is the original sample. The relative percentage of carboxyhemoglobin in the original sample is determined by measuring the ratio of absorbance of light in the original sample to the absorbance of light in the carbon monoxide saturated sample.

b. The Defendants' Challenge of the Kentucky Test Under Daubert.

The defendants challenged the reliability of the procedure used by the Kentucky lab on the ground that the procedure does not eliminate the interference created by the existence of non-functional hemoglobin, most specifically methemoglobin, in post-mortem blood. The defendants also argued that the procedure has not been subjected to peer review and publication and has no known rate of error. In support of their challenge, the defendants presented the affidavit

and testimony of Dr. Robert DeMott.

Dr. DeMott opined that the procedure used by the Kentucky lab was unreliable because it did not use a proper reducing agent to convert methemoglobin to functional hemoglobin or deoxyhemoglobin. Dr. DeMott explained that because methemoglobin is incapable of binding with carbon monoxide, the blood solution saturated with carbon monoxide will only reach 100 percent carboxyhemoglobin if any methemoglobin present in the sample is reduced. To negate interference from methemoglobin, a reducing agent, such as sodium dithionite, must be added to the blood to convert the methemoglobin to deoxyhemoglobin, or the test can result in grossly overstated levels of carboxyhemoglobin.

The Kentucky lab procedure does not call for the addition of sodium dithionite to the sample to reduce methemoglobin. Ward testified that the Kentucky lab uses ammonium hydroxide to perform the reducing function. The defendants contend that ammonium hydroxide is not a reliable reducing agent.

Dr. DeMott opined that, based on its chemical properties, ammonium hydroxide does not have the reduction potential necessary to convert methemoglobin to deoxyhemoglobin. Dr. DeMott testified, and cited numerous articles in support of his opinion, that the commonly used reducing agent to reduce methemoglobin to deoxyhemoglobin is sodium dithionite. In his affidavit, Dr.

DeMott cited articles in support of his opinion that the presence of methemoglobin will interfere with the carboxyhemoglobin reading from the spectrophotometric method.

Dr. DeMott concluded that the result reached by the Kentucky lab was not an adequate basis to determine the toxicological cause of death. Dr. DeMott opined that, due to the level of decomposition and heat to which the decedent's body was exposed, significant amounts of endogenously created carboxyhemoglobin could have accumulated in the decedent's blood after death and could interfere with the carboxyhemoglobin result because it could not distinguished from carboxyhemoglobin present before death. Dr. DeMott opined that the breakdown of hemoglobin could have resulted in an inflated carboxyhemoglobin result.

Apart from the absence of sodium dithionite from the procedure used by the Kentucky lab, the evidence, presented by the defendants, established that the spectrophotometric method used by the Kentucky lab is a peer reviewed, generally accepted method of carboxyhemoglobin testing. The defendants' reliability challenge focused solely on the existence of interfering factors in the blood, due to decomposition or other factors, that can skew the results of the test, and, in particular, the lack of a proper reducing agent used by the Kentucky lab.

c. The Magistrate Judge's Daubert Hearing and Multiple Errors.

Following a Daubert hearing, Judge Jones concluded that the results of the carboxyhemoglobin test were admissible for several reasons. Judge Jones noted that Nelson had not produced any publication in support of the procedure used by the Kentucky lab, but found that fact outweighed by the ample evidence that the Kentucky lab had used the procedure for over 20 years. Judge Jones further stated that the method had been "peer reviewed" within the State of Kentucky by the agencies that relied on the lab results. Finally, Judge Jones found that the dispute between the parties regarding the appropriate use of ammonium hydroxide was a question of weight, not admissibility.

In his final order dated August 26, 2003, Judge Jones listed seven reasons why the results of the carboxyhemoglobin test satisfied Daubert standards:

> (1) the Kentucky Laboratory's methodology has been approved by independent outside consultants and has been used by the lab for a significant number of years, (2) the Kentucky Lab has been established by the State of Kentucky as the sole toxicological analyzer for postmortem blood samples in the State of Kentucky, (3) use of visual spectrometry (the method used by the Lab) is a method of analysis used for nearly thirty years and has been personally used by Michael Ward, the Toxicological Supervisor of the Kentucky Lab, for twenty-seven years, (4) test[] results rendered by the Kentucky Lab frequently have been retested, according to Dr. Hunsaker, and the results of the second tests were never statistically significant, (5) Ward, Dr. Montgomery and Dr. Hunsaker all testified that decomposition of the blood sample would not inflate the carboxyhemoglobin quantification by a statistically significant

> amount, (6) the use of ammonium hydroxide as a reducing agent to take into account potential interferences is equally as effective as sodium dithionite–the reducing agent Defendants argue should have been used, and (7) the methodology used by the Kentucky Lab also insulates the results from matrix effects through the use of the calibration of the visual spectrometer for each individual test. While there is other evidence of record that supports Plaintiff's argument that the testing methodology had sufficient indicia of reliability, suffice it to say that the dispute concerning the methodology used by the Kentucky Lab concerns which method is the best and not whether the method used by the Kentucky Laboratory is unreliable under a Daubert analysis.

The majority of reasons cited by Judge Jones as indicia of reliability utterly fail to establish the reliability of the carboxyhemoglobin test performed by the Kentucky lab. There are, for example, at least two problems with the finding that the "Kentucky Laboratory's methodology has been approved by independent outside consultants and has been used by the lab for a significant number of years." First, the only evidence of outside approval was the testimony of Ward, who performed the test. Although Ward stated that an outside consultant, Dr. Goldberger, had not found any errors with the method used by the Kentucky lab, Dr. Goldberger did not testify. Neither did Nelson present an affidavit from Dr. Goldberger nor any objective source to corroborate Ward's statement. There is no more evidence of outside support than Ward's bald assertion. Reliability cannot be established by the mere ipse dixit of an expert. United States v. Frazier, 387 F.3d 1244, 1261 (11th Cir. 2004). Second, that a laboratory has used a procedure for a

number of years, without more, is not evidence of reliability. An unreliable test does not become reliable just because the test is used for a lengthy period of time.

Judge Jones also stated that "the Kentucky Lab has been established by the State of Kentucky as the sole toxicological analyzer for postmortem blood samples in the State of Kentucky." This fact does not establish the reliability of the methods used by the Kentucky Lab. The confidence of the Commonwealth of Kentucky in its laboratory does not prove that the methods used by the lab are scientifically sound.

Neither is approval and use by the agencies of the Commonwealth of Kentucky a form of peer review as suggested at the Daubert hearing. Peer review involves "submission to the scrutiny of the scientific community." Daubert, 509 U.S. at 593, 113 S. Ct. at 2797. Peer review is not acceptance by a collection of agencies that are not qualified to comment on the reliability of a methodology.

Judge Jones's third reason, that "use of visual spectrometry (the method used by the Lab) is a method of analysis used for nearly thirty years and has been personally used by Michael Ward, the Toxicological Supervisor of the Kentucky Lab, for twenty-seven years," is similar to the first reason and is subject to the same criticism. That Ward has used a methodology for 27 years does not establish its reliability, and no evidence was presented that any entity other than the

Kentucky lab used the test in question.

Judge Jones's fourth reason, that "test[] results rendered by the Kentucky Lab frequently have been retested, according to Dr. Hunsaker, and the results of the second tests were never statistically significant," again does not establish reliability. The testimony did not establish that the results of the Kentucky lab were retested by another laboratory or with another method. That results from an unreliable test, if retested using the same unreliable test, should result in statistically similar results is not astonishing and is not evidence of reliability.

Judge Jones's sixth reason, that "the use of ammonium hydroxide as a reducing agent to take into account potential interferences is equally as effective as sodium dithionite–the reducing agent Defendants argue should have been used," begs the question. That ammonium hydroxide acts as a reducing agent is precisely what the defendants dispute. A heavily disputed question regarding the efficacy of a test is not an indicia of reliability.

Judge Jones's final reason, that "the methodology used by the Kentucky Lab also insulates the results from matrix effects through the use of the calibration of the visual spectrometer for each individual test," again fails to address the defendants' criticism of the methodology. Whether the spectrometer was calibrated would have a bearing on the accuracy of the results from a reliable test.

Calibration of the spectrometer has no bearing on the reliability of the underlying procedure.

d. Despite the Errors of the Magistrate Judge, The District Court Did Not Abuse Its Discretion in Admitting the Kentucky Lab Report.

Despite the multiple errors in the order of the magistrate judge, it was not an abuse of discretion for the district court to admit the results of the carboxyhemoglobin test. Although Nelson presented no valid evidence that the use of ammonium hydroxide as a reducing agent has been tested, has been peer reviewed, has a known rate of error, or is generally accepted in the scientific community, the defendants ironically did an admirable job of presenting evidence that the spectrophotometric procedure used by the Kentucky lab is reliable when sodium dithionite is used as a reducing agent. The defendants also showed, through cross-examination of Dr. Hunsaker, that, in the case of the decedent, there was a valid scientific debate about both whether the presence of methemoglobin in the blood sample would have a statistically significant effect on the carboxyhemoglobin reading and whether endogenously created carboxyhemoglobin would have a significant effect. Because there was testimony that "decomposition of the blood sample would not inflate the carboxyhemoglobin quantification by a statistically significant amount," the district court did not abuse its discretion by determining that the challenge to the carboxyhemoglobin test

performed by the Kentucky lab involved a question of weight, not admissibility.

Dr. DeMott criticized the procedure used by the Kentucky lab on the ground that the presence of methemoglobin and endogenously created carboxyhemoglobin would interfere with the carboxyhemoglobin reading. Dr. DeMott also stated that methemoglobin and carboxyhemoglobin accumulated in a body with decomposition and accumulated at a faster rate in the presence of heat. Because the decedent's body was exposed to heat after death and the decomposition noted was moderate to severe, Dr. DeMott opined that enough methemoglobin and endogenous carboxyhemoglobin could have accumulated in the decedent's blood to make the results of the carboxyhemoglobin test unreliable. The problem for the defendants is that they elicited testimony from another witness to dispute Dr. DeMott's opinion.

In their cross-examination of Dr. Hunsaker, who performed the autopsy of the decedent, the defendants elicited testimony that the post-mortem accumulation of methemoglobin in the decedent's blood would not account for more than one to two percent of the carboxyhemoglobin reading. At trial Dr. Hunsaker reaffirmed her opinion that it was "about correct" that "one percent would account for Mr. Nelson's postmortem production of methemoglobin based upon the moderate to severe decomposition." Dr. Hunsaker also opined that the endogenously produced

carboxyhemoglobin would be a very small amount.

Regardless of what "reducing agent" was used, the accuracy of the test performed by the Kentucky lab hinged on the dispute regarding the accumulation of methemoglobin and endogenous carboxyhemoglobin after death. There was no real dispute concerning the scientific validity of the underlying test. The only dispute concerned the significance of any interference from methemoglobin and endogenous carboxyhemoglobin. The evidence that the interference from methemoglobin and endogenous carboxyhemoglobin, in this particular case, would not be significant was sufficient to make the defendants' evidentiary challenge a matter of weight, not admissibility.

"The alleged flaws in [the Kentucky methodology] are of a character that impugn the accuracy of [the] results, not the general scientific validity of [the] methods. The identification of such flaws in generally reliable scientific evidence is precisely the role of cross-examination." Quiet Technology DC-8, Inc. v. Hurel-Dubois UK Ltd., 326 F.3d 1333, 1345 (11th Cir. 2003). Because the basic methodology used by the Kentucky lab is a reliable and generally accepted methodology and there was a legitimate dispute regarding the effect of the flaws identified by the defendants, the district court did not abuse its discretion when it found that the challenge regarded the weight to be given to the carboxyhemoglobin

test and not its admissibility.

3. The District Court Did Not Err When It Admitted Ward's Testimony.

The defendants also challenge the admissibility of elements of Ward's testimony, who was not disclosed or qualified as an expert witness but testified as a lay witness. The defendants argue, and Nelson does not deny, that Ward testified to matters that were outside the scope of his testimony as a fact witness. The majority of the statements about which the defendants complain, however, were elicited on cross-examination. In fact, Judge Conway commented during cross-examination that she "[didn't] know why counsel's going into all these questions with a fact witness." "It is "a cardinal rule of appellate review that a party may not challenge as error a ruling or other trial proceeding invited by that party."' United States v. Ross, 131 F.3d 970, 988 (11th Cir. 1997). We do not address, therefore, the defendants' challenge with regard to Ward's testimony that was elicited on cross-examination.

Although the remaining testimony about which the defendants complain was elicited on direct examination, the defendants did not object to that testimony. Our thorough review of the trial transcripts reveals that on only one occasion did the defendants object to the testimony of Ward on the ground that it was outside the scope of his testimony as a fact witness. That objection was sustained. Because

they did not preserve their objection, we will entertain the defendants' argument on appeal only if any error was plain. Diversified Corp., 378 F.3d at 1227. We will correct an error only if it "resulted in a miscarriage of justice." Id. at 1227 n.14. No reversal is required in this case.

Assuming Ward testified to matters that were plainly outside the scope of his testimony as a fact witness, any error in allowing that testimony was neither particularly egregious nor did it result in a "miscarriage of justice." Id. Although Ward testified as a fact witness, he could have been qualified as an expert. Ward had at least 28 years of experience in post-mortem blood analysis, had been a Certified Toxicological Chemist for approximately 10 years, was employed as the forensic laboratory supervisor for the Kentucky lab, and had testified regarding his work in both state and federal court on multiple occasions. See Fed. R. Evid. 702; United States v. Chastain, 198 F.3d 1338, 1348-49 (11th Cir. 1999). In addition, Ward was vigorously cross-examined by the defendants regarding both his qualifications and his opinions.

4. The Admission of the Results of the Test Performed by Miller and Bredemeyer Was Not an Abuse of Discretion.

Lastly, the defendants argue that the district court erroneously allowed Nelson's experts, William Miller and Ronald Bredemeyer, to testify about carbon monoxide emission measurements taken from a different model truck than that

driven by the decedent. "As a general rule, the district court has wide discretion to admit evidence of experiments conducted under substantially similar conditions." Barnes v. Gen. Motors Corp., 547 F.2d 275, 277 (5th Cir. 1977). The burden is on the proponent "to lay a proper foundation demonstrating a similarity of circumstances and conditions." Id.

Nelson presented evidence of carbon monoxide emissions testing performed by Bredemeyer and Miller on a Freightliner truck with a Detroit Diesel engine, Series 60 to show that the truck could produce enough carbon monoxide to kill a person. Although the truck on which the experiment was performed was not the same model as that driven by the decedent, Bredemeyer testified that the engine and exhaust were "virtually the same as far as the exhaust system from the engine back itself." Bredemeyer further testified that the differences in the truck were "nothing that would affect the difference in the emissions output of the engine." Over the defendants' objection, the district court admitted the testimony and noted that the differences in the truck went to the weight of the testimony and not its admissibility. This conclusion was not an abuse of discretion.

Similarly, the defendants' criticisms of the test performed by Bredemeyer and Miller on grounds of differences in location, temperature, and RPMs at which the testing was performed affect the weight that should be given to the test results,

not the admissibility of those results. The emissions testing was relevant. The defendants argued that the truck the decedent was driving could not produce lethal amounts of carbon monoxide. The test performed by Miller and Bredemeyer was admitted to refute the defendants argument. Admission of the emissions testing was not an abuse of discretion.

IV. CONCLUSION

After a careful and meticulous review of the record, we conclude that the district court did not err in this case. The district court properly applied Florida law and instructed the jury on the Cassisi inference, and the district court did not err when it admitted the results of the carboxyhemoglobin test performed by the Kentucky lab, the testimony of Michael Ward, and the emissions test performed by Miller and Bredemeyer. The judgment of the district court is

AFFIRMED.