

IN THE SUPREME COURT OF GEORGIA
STATE OF GEORGIA

LAURA W. BUTLER, Individually)
and as ADMINISTRATRIX of the)
Estate of WALTER C. BUTLER, JR.,) CASE NO. S11C1620
Deceased,)
)
Appellant,)
)
v.)
)
UNION CARBIDE CORPORATION,))
)
Appellee.)

**AMICUS BRIEF OF BROOKS IN SUPPORT OF
PETITION FOR CERTIORARI**

I. Identity of Amicus

Eugene C. Brooks, IV, has practiced law in Savannah, Georgia for 29 years and is a member in good standing of the State Bar of Georgia. He represents injured persons, and he is a past- president of the Georgia Trial Lawyers Association and past editor of the The Verdict. Mr. Brooks has been and continues to represent persons claiming injurious exposure to toxins. He believes that the Butler opinion as written and incorporating the trial court's Order as an Appendix will unduly prejudice the actions of his present and future clients.

II. Introduction

The status of an Appendix to an opinion of the Court of Appeals is not addressed in its rules. Ga. App. R. 33-36. This unusual practice has no precedent that Amicus can find. However, the Appendix appears to be adopted as part of the opinion, and so must be considered as such although not a single Court of Appeals' judge authored the Appendix portion of the opinion. See Butler v Union Carbide, No. A11A0481, slip. op. at 23-49. Georgia's Constitution recognizes opinions of the Court of Appeals, but not Superior Courts, as precedential. Ga. Const. Art. 6, §5, ¶ 3. Since no judge on the Court of Appeals wrote the Appendix, the constitutionality of the Appendix as legal precedent is questionable, although the constitutionality issue is beyond the scope of this brief. Ga. Const. Art. 6, §5, ¶¶ 1, 2. However, the Appendix will likely be relied upon as precedent in citations to Butler.

The Court of Appeals upheld the trial court's exclusion of expert testimony on specific causation based on the abuse of discretion standard. Butler, *supra*. slip op. at 2, 18. The Butler trial court had ruled without the assistance of a law clerk due to budget cuts while also attending to the many other duties of a Superior Court. Id. at 31 n. 17. The trial court's order contains problematic statements and rationales that were not recited by the Court of Appeals. Yet, the attached order

provides a template for other trial courts to follow in exclusion of specific medical causation opinions. This Appendix has the potential for creating significant unintended consequences for many Georgians injured by toxic exposures as well as those injured in more generic circumstances such as a car wreck.

Amicus' primary concerns are the following: (1) the trial court's misunderstanding of dose-response curve theory, (2) and the trial court's requirement for quantification of the exposure and subsequent comparison to a dose-response curve before a medical doctor can render an admissible differential diagnosis. Butler, *supra*, slip op. at 33-50. This opinion has the potential for adversely affecting the legal rights of many Georgians for many years, and so should be further reviewed. Ga. S. Ct. R. 40.

It appears that the trial court was persuaded with the Defendant's evidence that the Plaintiff's decedent's exposure was *de minimus* and, therefore, could not have contributed to the Plaintiff's decedent's mesothelioma. That being the case, the trial court could have ruled that the *de minimus* exposure could not have caused or contributed to the Plaintiff's injury. However, the broad reasoning used by the trial court in reliance on the Daubert criteria adopted in O.C.G.A. §§ 24-9-67.1(b), (f) is likely to have many unintended consequences when applied to medical causation issues generally.

III. There Will Be Unintended Consequences Of The Butler Opinion's Appendix

This example is hypothetical but is based on a similar incident that was decided by a jury last December. Vick v. JRR Mgmt. Co., No.71635 (State Court of Bibb Co.) attached as Exhibit 1. Assume that a man walked into a retail store and inhaled epoxy paint fumes containing a mixture of chemicals, including isocyanates, being sprayed above the entrance door. Fumes have blown into the store. The man smelled the fumes; they irritated his eyes and mildly burned his throat. Workers in the store complained of irritated eyes and headache. When he left, the man again inhaled epoxy paint fumes, however, they seemed stronger than before. He began to cough, have difficulty breathing, and became short of breath. He sought medical attention when his cough did not improve. He did not have any breathing problems before this exposure. Thereafter, he suffered from asthma that required daily medications and a lifestyle change. His treating doctor and an expert witness opined that his exposure to the epoxy paint fumes caused his irritant-induced asthma. He filed suit approximately a year after his exposure when his health failed to improve.

Under the interpretation of the exposure criteria in Butler, this medical testimony would likely be inadmissible because (1) the man's exposure to each

chemical in the mixture could not be accurately quantified, and (2) no dose-response curve had been developed for the chemical mixture the man was exposed to. Butler, supra., slip. op. at 37-38, 49-50. The man could not accurately quantify the amount of each chemical in the mixture because he was not wearing a test monitor for the particular chemicals he was exposed to and the company spraying the epoxy paint was not monitoring the fume levels. Exhibit 1 at 2-3. Additionally, a dose-response curve did not exist for the chemical mixture this man was exposed to because present day ethics prevent scientists from intentionally exposing humans to chemicals in an attempt to measure the extent of injury caused by various levels of exposure (ie. doses). Primiano v Cook, 598 F.3d 558, 565-566 (9th Cir. 2010); McClelland v. I-Flow Corp., 710 F. Supp.2d 1092, 1109 (D. Ore. 2010). Likewise, dose-response curves do not exist for most of the toxins that injure people. Federal Judicial Center, Reference Manual on Scientific Evidence 412 (2nd ed. 2000)[hereinafter referred to as Fed. Ct. Manual]. Less than 1% of chemicals in commerce have been subjected to full safety assessment. Id. However, using commonly accepted medical methodology known as differential diagnosis, the medical doctors did not need to quantify the man's exposure or compare an exposure level to a dose-response curve when determining the most likely cause of the man's asthma. Exhibit 1 at 2-3.

Butler's admissibility requirements on specific medical causation places Georgia outside of the Daubert mainstream. Butler, supra., slip op. at 37-38, 49-50. The Butler requirements could also be applied to any tort alleging bodily injury. For instance, the Butler Appendix would support arguments that a person injured in a rear end traffic collision must quantify the amount of force that herniated his cervical disc and must then compare this force to a scientific test that demonstrates the adequacy of the impact's force to cause the alleged injury. The Appendix criticizes evidence showing that a patient's injury occurred after an exposure as "circular reasoning." Id. at 37. This same rationale would apply to someone injured in the car wreck.

Expanding the car wreck analogy, assume that a tortfeasor failed to stop his car when approaching a line of traffic before crashing into a stopped car. The driver in the stopped car thereafter complained of a neck injury, and was treated and released at the emergency room with a diagnose of cervical strain. Assume that the injured driver's symptoms continued, that two weeks later he underwent an MRI evaluation and that his treating doctor diagnosed a herniated cervical disc. Under Butler's quantification requirement, the injured driver would have to prove the actual speed of the tortfeasor at impact, the weight of the vehicles, their vectors of movement, the amount of 'force'(ie. dose) transmitted through the car's

frame, the amount of ‘force’ transmitted to the seat, and the amount of the ‘force’ that acted on the injured driver’s neck. Then the driver’s doctor or expert witness would have to compare the theorized force (ie. dose) to scientific studies that had measured how much force was required to herniate a human cervical disc(ie. response). Butler would require comparison of the forces generated during the wreck with an impact-injury curve, or a force-injury curve, scientifically developed in the exact circumstances of the driver’s wreck. Otherwise, according to the Butler Appendix, law would be leading science, rather than applying science. Id. at 38. The Butler trial court required “error rates,” but such scientific evidence is rarely available. Id. at 44.

The Butler Appendix applied an erroneous rationale based upon the fallacy that dose-response curves, or force-injury curves, with measurable rates of error are necessary before a medical doctor can reach an reliable opinion on specific causation. Id., at 37-38, 49-50. However, in real life, the neurosurgeon treating the injured driver would consider the patient’s history of a previously well neck and the trauma of a rear-end collision, and he would diagnose the herniated disc by physical symptoms, their temporal relationship to the trauma, and the MRI scan showing a herniated disc. From this evidence, he can opine, from a medical standpoint, that the wreck caused the cervical herniation.

Butler's requirements create an absurdity because they fallaciously assume every day occurrences must have been studied in a scientific laboratory and that such studies are necessary before scientifically based opinions can be formed. Id. In the car wreck example, an injured driver's exposure to the alleged injuring 'force' (ie. dose) would have to be scientifically quantified by the treating neurosurgeon and compared to a force-injury curve (ie. dose-response curve), before the neurosurgeon could opine that the rear end collision caused or contributed to his patient's herniated disc (ie. response). Butler creates a kafkaesque legal world because a person injured by a toxin, or injured by an impact in a rear-end traffic collision, and being treated for his injury, could rarely if ever prove specific causation of his injury. Id.

Similarly, the Butler Appendix's dissatisfaction with the Plaintiff's inability to recreate the Plaintiff's actual exposure to the particular type of asbestos from a particular product is unrealistic. Id. at 42. This would be comparable to requiring the man in the hypothetical epoxy paint fume exposure described above to itemize and quantify the various doses from each of the various chemical composing the mixture, including the various isocyanates, that he was exposed to. While such air levels could perhaps be measured in a laboratory with expensive equipment pursuant to a peer reviewed protocol, the quantification of the plaintiff's exposure

based on specified amount of asbestos fibers required by Butler's Appendix would be comparable to requiring the hypothetical man exposed in the retail store to the epoxy paint fumes to quantify the percentages of the each inhaled chemical from the mixture of epoxy paint fumes. Such quantification is unrealistic. Any attempt to portray a quantification estimate developed a year later as accurate would be subject to a devastating cross examination and would likely be inadmissible under the Daubert criteria.

IV. Dose-Response Curves Provide Probabilities of Risk

_____A. Dose-Response Curves Are Unnecessary to Satisfy Admissibility Standards

The trial court stated that, "The dose-response relationship [for asbestos-induced mesothelioma] with its threshold just has not been established by adequate testing as of this date." Butler, *supra*. slip. op. at 38. It is true that a dose-response curve has not been developed for asbestos exposure (ie. the dose) for causation of mesothelioma (ie. the response). How could one be? No scientist can ethically expose a group of people to asbestos and wait to measure the

percentage of people that develop various illnesses, particularly cancer. Primiano, *supra.*, 598 F.3d at 565-566; McClelland, *supra.* 710 F. Supp.2d at 1109. For example, it would now be unethical for a scientist to expose persons to various doses of syphilis so that the scientist could measure the persons' various responses over time. The Butler Appendix reasons that since no dose-response curve has been developed for asbestos-induced mesothelioma, Dr. Maddox's theory cannot be tested, no error rate can be established, and therefore his testimony is inadmissible. Butler, *supra.* slip. op. at 38. The Appendix states that the law cannot lead science. Id. However, most scientists in the world have already accepted Mr. Maddox's view, which is based on epidemiology. Epidemiology is a scientific method for determining the likelihood of human injury from many exposures. Fed. Ref. Manual, *supra.* at 413-15. The trial court failed to follow science.

The Butler trial court failed to understand dose-response curve theory, and so based its rationale on a false premise. Every day doctors, including those conducting research, diagnose patients' cause of injury without the benefit of dose-response curves. See Exh. 3 attached, S. Brooks, "The Spectrum of Irritant-Induced Asthma Sudden and Not-so-Sudden Onset and the Role of Allergy," 113(1) Chest 42-49 (1998) [The causation finding on studied patients did not

require quantification of exposure or reference to dose-response curves].

Dose-response curves are used by toxicologist and pharmacologists to understand the probability that a person will react to a certain a dose or exposure.

See examples attached as Exhibit 3 from Hardman & Limbird, Goodman and Gilman's, The Pharmacological Basis of Therapeutics 68 (10th ed. 2001)

[hereinafter referred to as "Goodman and Gilman"]. For instance, if death is the end point, then the LD50 is the point on a dose-response curve when 50% of the tested population, usually mice, will die. LD is the abbreviation for "lethal dose." The LD50 is the lethal dose for 50% of the tested population. Id.

The LD50 does not set a level of exposure under which no mice will die; however, less than 50% of the mice are expected to die if exposed to less than the LD50. As the exposure decreases, death becomes less probable (ie. less than 50% of the mice are expected to die). Id. Since each mouse is biologically different, each mouse will react differently. Only at LD100 will all mice die. Under this theory, it is probable that twenty percent of the mice will survive when exposed to a level corresponding to LD80.

People also react differently to different levels of exposures. That is how biology works. See Exhibit 2. Some people will react at lower levels and some will react at higher levels of exposure. Id. Dose-response curves theorize where

on the exposure curve various percentages of persons will react, for better or for worse. They do not and never have provided injury threshold levels.

Ambiguity in exposure and individual reactions to different levels of exposure are expected. McClain v Metabolife Intern., Inc., 401 F. 3d 1233, 1241 N. 6 (11th Cir. 2005). A person who suffers an injury at a lower level than the majority of the population may be entitled to a “thin skull” jury charge. Binns v MARTA, 168 Ga. App. 261, 264, 308 S.E.2d 674, 677 (1983); Cobb & Eldridge, Ga. Law of Damages §2B-5 (3rd ed.).

Pharmaceutical companies are aware of biological individuality when they test new drugs. People will have different reactions, some beneficial and some harmful, at different levels. Goodman and Gillman, supra at 61 (Exhibit 3). The same drug will affect different people differently. Id. Probabilities of benefit and risk are obtained although no one can be exposed to a chemical compound for the sole purpose of determining harm. The FDA uses the findings to assess the risk of a drug. The FDA will approve a drug if its benefits outweigh its risks. McClain, supra. at 1249 citing Fed. Ref. Manual. This risk assessment does not mean that the drug will never cause injury to some people; it only means that, based on the presented evidence, the drug will probably do more good than harm.

B. The Butler Appendix Erroneously Applied Dose-Response Theory to Specific Causation

The Butler trial court writing misunderstood the purpose of dose-response curves and the probabilities of injury based on risk assessments that are inherent to regulatory guidelines, such as TLVs, when it opined with its own unsupported scientific theory that more people would have mesothelioma if the threshold injury level was low. Butler, *supra.*, slip. op. at 38. The Butler trial court ignored the mesothelioma epidemic identified by the science of epidemiology and closely associated with asbestos exposure. The mesothelioma rate would be much lower if the human population had not been exposed to asbestos. As discussed above, the trial court mistakenly inferred that without quantification of the exposure, comparison to a dose-response curve, and reference to an error rate, that specific causation could not be established. Id. at 37-38, 49-50. However, there will never be a scientifically derived dose-response curve for mesothelioma because of present-day medical ethics. The rarity of the occurrence should not rule out its admissibility. McClelland, *supra.*, 710 F.Supp. 2d at 1103, 1106. A known rate of error is unnecessary to satisfy the Daubert admissibility standard, even when the medical literature is unsettled. McClelland, *supra.*, 710 F.Supp at 1106.

Not everyone exposed to asbestos develops mesothelioma. Some people

develop other malignancies, including various types of lung cancer or cancer of other organs. Some people do not develop any illness; some develop benign lesions such as pleural plaques; some develop disabling pulmonary fibrosis called asbestosis. Morgan and Seaton, Occupational Lung Diseases 308-373 (3d. ed. 1995). Each patient's biological individualism influences his response to the exposure (the dose). Dose-response curves for each of the injuries and malignancies (the responses) have not been developed and are unlikely to be developed because of medical ethics. However, epidemiology has developed a science of injury causation and/or probability and it has scientifically established that asbestos exposure can cause injury, including mesothelioma.

The Butler trial court criticized Dr. Maddox because his specific causation theory that any asbestos exposure can contribute to mesothelioma could not be tested. Butler, supra. slip. op. at 43. Again, how could it be? The only method to test the theory would be to expose tens of thousands of people to low levels of asbestos and wait to see who developed mesothelioma. The epidemiology has already observed the exposure levels and has developed the science supporting the theory. The Butler trial court misunderstood the science; its criticism is irrational.

In everyday experience, we know that cigarettes affect different people differently. Some people suffer no ill-effects (response). Some people develop

breathing problems (another response). Some develop cancers, although different people develop different cancers (more responses). Some cancers are rare. The rarity of the cancer does not mean that the cigarette smoke exposure was not causative. Again, dose-response curves do not exist to determine how much cigarette smoke, or from which cigarettes, or for how long each cigarette must be smoked, to develop particular cancers. Epidemiology has proven the association that is now well accepted in the scientific community. However, Daubert does not even require epidemiology to establish causation. U.S. v. W.R. Grace, 504 F.3rd. 745, 765 (9th Cir. 2007).

Dose-response curves, if relevant ones exist, may be helpful in determining comparative toxicity of substances or in determining general causation of particular well-tested toxins. TLVs and other regulatory guidelines may be helpful on issues of reasonable care, such as whether the defendant was negligent in allowing a certain degree of exposure. While dose-response curves are helpful in laboratory science, they are not determinative of whether a person has been injured by a toxic exposure and are not a significant part of a differential diagnosis.

V. Exposure Levels Are Seldom Quantifiable

The trial court characterization of the plaintiff's expert's rationale as

“circular reasoning,” when stating that an expert cannot presume a threshold level of exposure has occurred just because the patient has reported an injury from the exposure, demonstrates that the trial court misunderstood medical science. Butler, *supra*. slip. op. at 37. As we have seen above, threshold levels of response are individual. Different people react at different levels of exposure. Fed. Ref. Manual *supra*. at 477.

The symptoms of an exposed person are often the only signs of the degree of exposure. Most toxic exposures are unexpected and unmeasured. McClain v Metabolife Intern., Inc., 401 F. 3d 1233, 1241 n. 6 (11th Cir. 2005). People do not expect to be exposed to an injurious toxin. People do not wear monitors to measure each of the tens of thousands of potentially toxic chemicals or their multitudinous combinations that are present in our modern world. Most chemical and toxin users do not monitor air levels when they are using chemicals or releasing toxins. In most instances, people are the canaries in the cage. The occurrence of a person’s symptoms in relation to their exposure is a vitally important part of their medical history. Fed. Ref. Manual, *supra*. at 452-53.

Rather than being paralyzed by scientific analysis, doctors use the differential diagnostic method to determine causation and diagnose their patients so that they can provide adequate medical treatment. That is the real world.

Exhibit 2. The Butler trial court's unrealistic expectations are divorced from reality. A trial court abuses its discretion when it strictly applies the statutorily suggested Daubert factors for testing an expert's methodology. Hamilton-King v HNTB Ga., Inc., 296 Ga. App. 864, 868, 676 S.E.2d 287 (2009).

VI. Differential Diagnostics Do Not Require Dose-Response Curves

Differential diagnostics is a well-recognized methodology of the medical profession. Fed. Ref. Manual at 463-64; Best, 563 F.3d 171, 178-84 (6th Cir. 2009); Westbury v Gislaved Gummi AB, 178 F.3d 257, 262-63 (4th Cir. 1999); Glaser v Thompson Med. Co., 32 F.3d 969, 978 (6th Cir. 1994); Perkins v Origin Medsystems, Inc. 299 F. Supp. 2d 45 (D. Conn. 2004); McClelland. supra., 710 F. Supp. 2d at 1102-03. [None of these opinions required a comparison of a quantified exposure to a dose-response curve with measurable error rates]. An expert is not required to rule out all other possible causes of an injury. In re Fosamax Product Liability Litigation, 688 F. Supp. 2d 259, 268 (S.D.N.Y. 2010); Lauzon v Senco Products, Inc. 270 F.3d 681, 693-94 (8th Cir. 2001); Westbury, supra. 178 F.3d at 265; Marcus v Adventis Health System/West, 345 Or. 237, 248, 193 P.3d 1, 6 (2008) citing Note, *Navigating Uncertainty: Gatekeeping in the*

Absence of Hard Science, 113 Harv. L. Rev. 1467, 1474 (2000) [Suggesting the applicable Daubert analysis depends upon the context of the exposure]. Specific causation must be proven with reasonable probability, not with scientific certainty. Zwiren v Thompson, 276 Ga. 498, 578 S.E.2d 862 (2003); Rodríguez v Georgia Pacific Corp., 290 Ga. App. 442, 446, 661 S.E. 2d 141, 144 (2008); Underberg v Southern Alarm, 284 Ga.App. 108, 114, 643 S.E.2d 374 (2007).

Doctors, as other experts, are required to employ the same degree of intellectual rigor that characterizes the expert's practice in their relevant field. Kumho Tire Co. v Carmichael, 526 U. S. 137, 152 (1999); Best v Lowe's Centers, Inc., 563 F.3d 171, 181 (6th Cir. 2009). In Best, the trial court abused its discretion when excluding a doctor's opinion on causation of anosmia (loss of smell) after a man's unexpected chemical exposure in a retail store. Best, supra. at 174. The opinion never discussed quantification of the exposure and so, presumably, there was no dose evidence. Best does not require evidence of a dose-response curve or evidence of the rate of error. The Best trial court had erroneously excluded the medical specific causation opinion because the doctor had not ruled out all possible other causes in his differential diagnosis. Id. at 177. The Sixth Circuit explained the differential diagnostic method in detail and accepted the Material Safety Data Sheet (MSDS) as reliable evidence that the

doctor had relied upon to ‘rule in’ the mixture of chemicals that the Plaintiff had been exposed to as a cause of his anosmia. Id. at 175, 179, 181. Defendants argued that the doctor’s opinion was inadmissible because of the lack of any scientific studies showing that the particular mixture of chemicals in the product could cause anosmia, and because the doctor failed to ‘rule out’ a particular medication as a possible cause. The Sixth Circuit noted that plaintiff’s doctor was not required to rule out every other possible cause other than the exposure, but also noted that many other causes had been ‘ruled out.’ Id. at 181. Daubert does not require perfect methodology but only requires the same level of intellectual rigor characterized by the expert in his field. Id. at 181 citing Kumho Tire, 526 U.S. 137, 152. The Sixth Circuit found that the trial Court abused its discretion by misapplying the law. Id. at 176, 184. Any weakness in the doctor’s differential diagnosis goes to the opinion’s weight, not to its admissibility. Id. at 182 citing Heller v. Shaw Industries, Inc., 167 F.3d 146, 157 (3rd Cir. 1999).

Doctors are expected to testify on issues of diagnosis, prognosis and causation. Fed. Ref. Manual, *supra*. at 451. Doctors are expected to rely on patient history, the primary and most useful tool in the practice of clinical medicine. Id. at 452. History is important in determining the patient’s condition, what medical tests that should be ordered, the most reasonable diagnosis, and the

best course of treatment. Id. Seventy percent (70%) of a patient's significant problems can be determined by history. Id. at 452-53. Medical diagnosis is not an exact science. Id. at 465; Best, 563 F.3d at 178-184 [discusses differential diagnostic methodology].

A physical exam by the doctor can determine twenty percent (20%) of a patient's significant problems. Fed. Ref. Manual, *supra*. at 455. Review of signs, such as blood tests and x-rays are important objective signs that the doctor must skillfully interpret while considering the patient's reported symptoms. Id. Tests are useful in confirming a suspected diagnosis. Id. at 457.

In a clinical diagnosis, doctors may use the differential diagnosis method. With this methodology, the doctor first considers possible causes. These may be referred to as working diagnoses. Id. at 463. The doctor may rule out some of the possible causes with a variety of means, such as testing, physical examination, and trying different treatments. Id. at 463. Doctors combine probability of disease with their knowledge of the patient's signs and symptoms when they consider competing causes and ultimately arrive at the likelihood of a particular diagnosis. Id. at 467. It is a process of refinement. Id. at 468.

Definitive tests for causality are rare, and physicians must always use an element of judgement in determining the relationship between exposure and

disease in a given patient. Id. at 470-71. The law does not require conclusive medical opinions because medical knowledge is often uncertain. Primiano, *supra*. 598 F.3d at 565-66.

Temporal relationships between the exposure and the injury are important, and a doctor is not required to ‘rule out’ all possible causes of a disease or injury. Best, 563 F.3d at 182, Heller, 167 F.3d at 157; Westerly v Gumi, 178 F.3d 257, 265 (4th Cir. 1999); Marcus v Adventist Health System/West, 345 Or. 237, 248, 193 P.3d 1, 6 (2008) *citing* Note, *Navigating Uncertainty: Gatekeeping in the Absence of Hard Science*, 113 Harv. L. Rev. 1467, 1474 (2000). The more immediate the reaction to the exposure, the less Daubert analysis should be necessary. Note, Harv.L.R. *supra*. at 1471-74. Temporality is a valid concern since plaintiffs must prove that the injury occurred after the exposure in order to prevail on specific causation. Temporality, coupled with biological plausibility, may be adequate to support causation, even in the absence of dose-response curves quantification of exposure, or error rates. Best, 563 F.3d at 181; Heller, 167 F.3d at 157; McCulloch v. H.B. Fullen Co. 61 F.3d 1038, 1040-43 (2nd Cir. 1995); Note, 113 Harv. L.R. at 1479 at 59. Other possible causes of a disease or injury are left for the jury to consider after cross-examination. Best, 563 F.3d at 182; Heller, 167 F.3d at 152. A doctor, as any other expert, is only required to employ

the degree of intellectual rigor that characterizes the expert's practice in his relevant field. Kumho Tire, *supra.* 526 U.S. at 152; Best, *supra.* 563 F.3d at 181; Armstrong v Durango Georgia Paper Co., 2005 WL 2373443, 6 (S.D. Ga. 2005)[Specific causation opinion based on probability is admissible].

_____ The differential diagnostic methodology was developed by the medical profession to determine the proper treatment for patients. The methodology was not developed to satisfy the courts' evidentiary standards. However, Butler changes the Georgia's evidentiary standards and proposes its own heightened requirements for admission of specific causation opinion based on the differential diagnostic method. Rejecting well-accepted medical methodology violates Daubert and, therefore, O.C.G.A. § 24-9-67.1(b). Kumho Tire, *supra.*, 526 U.S. at 152; Best, *supra.* 563 F.3d at 1181-84; Heller, *supra.* 167 F.3d at 157.

Georgia should continue to allow admissibility of evidence based on the methodology used by doctors in real world situations. When a patient complaining of breathing difficulty comes into the emergency room, the doctors will consider many possible causes. The patient may be having a heart attack, kidney failure, an asthma attack, or a number of diseases affecting the heart or respiration. All of these causes are initially part of the differential and are known as working diagnoses. Then the doctor takes a history and can rule out many of the possible

causes. If during this history, the patient reports a chemical or toxic exposure, then that exposure remains in the differential if the injury is biologically plausible with the known risks of the chemical or toxin. Then the doctor physically examines the patient and, based on his findings, orders objective tests on the patient. Then the doctor determines the most likely diagnose and cause of injury. There may be several possibilities, or one of the possible causes may stand out. The doctor can then provide treatment.

If the doctor decides that the most likely cause for the patient's breathing difficulty was over-exposure to chemicals that have irritated and inflamed the patient's airways, then the doctor will treat the patient with steroids and bronchodialators. The doctor would test the patient differently if the most likely cause was stroke or heart attack.

At no time would the treating doctor withhold treatment while he tried to quantify the chemical exposure so that he could refer to a dose-response curve and review error rates in determining if the chemical exposure could have caused the patient's breathing difficulty. The history of the exposure along with the observed symptoms and the ruling out of other causes would be adequate under the differential diagnostic methodology.

Likewise, if a patient came into an emergency room complaining of neck

pain the doctor would have many possibilities to consider. However, if the patient reported that his neck was fine until he was rear ended by a car that failed to stop in a line of traffic, then the doctor can rule out many other possible causes. The patient's history and the doctor's determination of causation influence the doctor's diagnosis and treatment. The doctor would not withhold treatment to determine the 'force' exerted on the patient's neck (ie. dose) and then compare this 'force' to any tables reciting the 'force' necessary to harm a human neck (ie. response). However, the doctor would know that, in general, force of this type could injure a human neck.

The Butler requirement in the adopted Appendix that an doctor must precisely quantify exposure and then compare this exposure to a relevant dose-response curve with a known error rate when performing a reliable differential diagnosis is wrong. Butler, *supra*. slip. op. at 37-38, 49-50. Neither clinical medicine nor peer reviewed medical studies require such quantifications, comparisons, or error rates. See Exhibit 2. There is no legal justification for adding additional requirements on medical methodology before medical opinions are admitted into evidence. Neither judges nor lawyers practice medicine. They may have opinions, and the lawyers may argue about whether the methodology was properly applied, but the courts should not be allowed to require additional

methodology above that typically used by the medical profession in the ordinary course of its practice. O.C.G.A. § 24-9-67.1(b); Kumho Tire, *supra.*, 526 U.S. at 152

CONCLUSION

The attachment of the Butler trial court's order to a published Court of Appeal's opinion unduly emphasizes a rationale based on fallacious reasoning. A trial court has many responsibilities including determinations on matters of divorce, custody, felony and tort law. In this particular instance, the trial court noted that it did not even have the benefit of research conducted by a law clerk due to budget constraints. Butler, *supra.* at 31 n. 17. Yet, this order is now presented to the State as a template for excluding medical specific causation opinions. Ga. Const. Art. 6, §5, ¶ 3.

The area of chemical and toxic exposure is a speciality with many issues that have been made unduly complicated and expensive to prove by legal admissibility requirements. Supplemental affidavits are sometimes necessary and do not justify an *ad hominem* attack on an expert. Butler, *supra.* slip op. at 47. The additional Butler requirements, will add additional burdens on the Plaintiffs that, in most cases, cannot be met. Additionally, the Butler rationale will likely be expanded to other areas of tort law involving specific causation of any type of

injury. Butler's rationales are likely to produce a chaotic flurry of Georgia court opinions characteristic of the federal judiciary's struggle with Daubert.

This is a matter of great concern, gravity and importance to the public. Ga. S. Ct. Rule 40. Tort law provides a modicum of public safety. Unrealistic legal requirements limiting evidence will substantially affect the tort system's ability to provide this safety. Amicus respectfully requests that the Petition for Certiorari be granted.

THIS, 28th day of July, 2011.

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CERTIFICATE OF SERVICE

It is hereby certified a copy of the foregoing Amicus Brief has been served upon all counsel for Petitioner/Appellant, Laura Butler and Appellee, Union Carbide Corporation listed below via United States First Class Mail, postage prepaid, on the 28th day of July, 2011.

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