THE STATE OF SOUTH CAROLINA

In the Court of Appeals

RECEIVED

DEC 06 2010

SC Court of Appeals

APPEAL FROM ORANGEBURG COUNTY
Court of Common Pleas
James C Williams, Jr , Circuit Court Judge

Case No 08- CP-38-826

ORIGINAL

Kareem J Graves and Tara Graves, individually and as duly appointed personal representatives of the Estate of India Iyanna Graves — Appellants,

vs

CAS Medical Systems, Inc — Respondent

FINAL BRIEF OF APPELLANTS

J Edward Bell, III
[redacted]
Law Offices of J Edward Bell LLC
Post Office Box 2590
232 King Street
Georgetown, S C 29442

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Table of Cases

Court Rules

Other Authorities

STATEMENT OF ISSUES ON APPEAL

1 Did the Circuit Court abuse its discretion in excluding the opinions of the three software experts on grounds that the opinions failed to meet Rule 702's requirement of reliability?

2 Did the Circuit Court abuse its discretion in excluding the post-deposition affidavits of software experts Daugherity and Lively under Cothran v Brown, 357 S C 210, 592 S E 2d 629 (2004)?

3 Did the Circuit Court abuse its discretion in excluding the expert opinion of medical expert Wilkins under Rule 702 on grounds of qualification and reliability?

4 Given that the opinions of the experts should have been considered in deciding the summary judgment motion, did the Circuit Court err in granting the motion for summary judgment?

5 Assuming arguendo that the software experts' specific defect opinions were properly excluded, did the Circuit Court err in granting summary judgment because the circumstantial evidence alone presented was sufficient to establish defect and causation for summary judgment purposes?

STATEMENT OF THE CASE

On April 7, 2006, Kareem J Graves and Tara Graves, individually and as duly appointed personal representatives of the Estate of India Iyanna Graves, filed a wrongful death injury action against the Defendant, CAS Medical Systems, Inc , in the Court of Common Pleas for Orangeburg County, South Carolina In this action, the Plaintiffs alleged that the death of their infant child, India Iyanna Graves, had been proximately

caused by the alarm failure of a CAS AMI Plus Apnea/Heart Rate Monitor designed, manufactured, and sold by the Defendant The Defendant filed an Answer denying liability

Discovery commenced and the Plaintiffs designated three software experts who opined as to the defects and causation with respect to the monitor, and a medical expert who opined that India would have survived had the alarm timely sounded Following the deposition of the experts, the Defendant on March 6, 2009, filed a motion for summary judgment on all claims The Circuit Court declined to rule on the motion at this time and ordered the Plaintiffs to respond fully to CAS s outstanding discovery, including discovery regarding the experts' opinions

The Plaintiffs thereafter provided this discovery and also served the Defendant with affidavits from software experts Dr Walter C Daugherity and Dr William R Lively that supplemented and clarified their deposition testimony On April 28, 2009, CAS filed a motion to strike the affidavits and to exclude the deposition testimony under Rule 702, SCRE The Plaintiffs filed oppositions to these motions and additional memoranda opposing the summary judgment motion

By Order filed April 8, 2010, the Circuit Court granted the Defendant's motion to exclude the affidavits The Circuit Court also excluded the experts opinions under Rule 702 and granted the summary judgment motion The Circuit Court on April 23, 2010, denied the Plaintiffs' motion to alter or amend these orders filed under Rule 59, SCRCP

The Plaintiff timely filed a Notice of Appeal from the orders excluding the experts deposition testimony and the affidavits the order granting summary judgment, and the order denying the Rule 59 motion

STATEMENT OF FACTS

A The Product

The CAS AMI Plus Apnea/Heart Rate Monitor is a medical device designed to monitor the breathing and heart rates of infants A foam belt is wrapped around the infant s chest and secured with a Velcro strip Electrodes that monitor chest movement and heart rate are attached to the belt, the belt is attached to a patient cable running to the monitor The electrodes sense the expansion and contraction of the infant s chest When the infant stops breathing and no movement is detected, an alarm is suppose to sound If the electrodes sense the heart beat is outside the set alarm limits, an alarm is also suppose to sound The alarm continues to sound until the problem is corrected, the reset button is pushed, or the power turned off (R , Vol III pp 1200-1201)

In addition to these audio signals, there are lights, *inter alia*, for power and for heart and breathing function on the front of the monitor When the power is on and heart and breathing are outside alarm parameters, the lights are green When breathing or heart activity falls within the alarm parameters, the lights turn red (R , Vol III pp 1200-1201)

When the electrodes detect a breathing or heart event within the alarm parameters, the event is logged internally in the monitor Further, the software sends a signal to the audible alarm to activate The software also sends a signal to a microphone near the internal alarm to listen for the audible alarm If the microphone reports back to the software that the alarm is not heard, a back-up alarm is activated The monitor's log records any failure of the internal or back-up alarm to sound (R , Vol II, pp 555-556)

The alarm is quite loud – 85 decibels (R , Vol II, p 548) The alarm is intended to awaken both the baby and the parents, or alert the parents if they are not asleep The

baby either begins breathing normally once awake or, if not, the parents are instructed to stimulate the baby The stimulation usually revives the baby, if not the parents are instructed to obtain prompt medical attention for the baby

The CAS AMI Plus Apnea/Heart Rate Monitor for many years has had problems with its audible alarm system malfunctioning Approximately 50 complaints that the alarm failed to sound when the system detected a life-threatening event have been made by users to CAS and/or to the Federal Drug Administration (R , Vol III, pp 1235-1500 and Vol IV, pp 1501-1728) In response to 2 or 3 of these complaints, CAS itself could not determine the cause of the alarm failure and installed new motherboards in the system (Walter C Daugherity Dep at 39, lines 19-25, 40, lines 1-6) (R , Vol II, pp 691-697)

Plaintiffs software expert Frank R Painter carefully examined each of these complaints and testified that they are 'very, very similar in nature to the ones we have " (Frank R Painter Dep at 66, lines 11-13) (R , Vol II, p 680) In all 50 of the reports, the monitor had the LED light lit, there was an alarm condition, and no audible alarm sounded (Frank R Painter Dep at 72, lines 15-20) (R , Vol II, p 681)

B The short life and death of India Graves

India Graves was born prematurely along with triplet sisters Paris and Asia to Tara Graves on December 30, 2003 Due to the infants medical condition doctors at the hospital ordered that all three babies be monitored with sleep apnea monitors to monitor their breathing and heart rate CAS AMI Plus Apnea/Heart Rate Monitors were delivered to the hospital for all three babies and attached to the children during their stay at the

hospital Hospital personnel also instructed Tara and Kareem Graves as to the proper use of the monitors once the babies had been released from the hospital (R , Vol I p 17-18)

On February 17, 2004, the hospital released the babies to their parents' care with the AMI Plus monitors India and her sisters returned to the Graves' Orangeburg, South Carolina home From February 17 to April 11, 2004, Tara or Kareem Graves properly attached the monitor to India each night before they went to bed (R , Vol I p 17-18)

Unknown to the parents, during this period the audible front alarm on the monitor failed to sound 11 times and the rear alarm failed to sound 4 times (Walter C Daugherity Dep at 57, lines 4-6) (R , Vol II, p 694) As Dr Daugherity explained in this deposition, the CAS monitor itself "is reporting that it is defective (Walter C Daugherity Dep at 57, line 10) (R , Vol II, p 694) [1]

On the night of India s death, India and her two sisters were sleeping in the same upstairs bedroom as Tara and Kareem Each girl slept in a bassinet ' right next to my bed " (Tara P Graves Dep at 74, lines 3-5) (R , Vol II, p 703)

Sometime between 1 a m and 2 a m , Tara was ironing a shirt in the bedroom India was propped up on a pillow on the bed The electrodes were already attached to her and by the patient cable to the monitor (Tara P Graves Dep at 84, lines 18-25, 85, lines 1-25) (R , Vol II, pp 705-706) Kareem had already fallen asleep in the bed (Tara P Graves Dep at 81, lines 1-15) (R , Vol II, p 704) Tara noticed India had fallen asleep Tara ' picked her up and laid her in the bassinet and set the monitor up under the bottom [of the bassinet] (Tara P Graves Dep at 81 lines 5-8) (R , Vol II, p 704)

---

[1] These failures were discovered after India s death when the Plaintiffs' software experts examined the computer log that recorded these alarm failures

Tara then went to bed about 2 00 a m (Tara P Graves Dep at 85, lines 2-5) (R , Vol II p 706) Shortly after 2 00 a m , according to the printouts from the CAS Monitor, India began have breathing difficulties For the next hours, India had episodes of hypoxia, bradycardia, and not breathing Finally, she went into full cardiac arrest (Dr Donna A Wilkins Dep at 71, lines 18-20)(R , Vol II, p 739A) ("[t]his was an hour of hypoxia, bradycardia, not breathing, and, finally, cardiac arrest because it went on so long") By 2 54 a m , India had no heart rate and had passed the resuscitation point (Dr Donna A Wilkins Dep at 72, lines 2-7) (R , Vol II, p 740)

The CAS Monitor properly recorded all of these episodes on the event log The alarm lights also turned red as each episode occurred Tragically, however, the audible alarm failed to sound (Tara P Graves Dep at 110, lines 19-23) (R , Vol II, p 713) Tara and Kareem accordingly continued to sleep through not only the first event but also past the 2 54 a m event when India's heart stopped beating

At some point after 2 54 a m , Tara was awakened by a bad dream and jumped out of the bed She went into another bedroom and checked on her sister and her son Then she returned to her bedroom and checked Paris and Asia Both girls "jumped' when she touched them When Tara nudged India, however, India did not move Tara turned the lights on and realized India was not breathing She screamed for her husband and told him to call 911 because India was not breathing She started CPR on India (Tara P Graves Dep at 85, lines 7-25) (R , Vol II p 706) See also (Kareem J Graves Dep at 48, lines 4-20) (R , Vol II, p 717)

Although India had completely stopped breathing and her heart had stopped, Tara testified that she did not hear any alarms going off from the time India went to bed to her

death (Tara P Graves Dep at 110, lines 19-23) (R Appendix, Vol II, p 713) Nor did she hear any alarm sound on the other monitors (Tara P Graves Dep at 110, lines 24-25) (R , Vol II, p 713) The evidence is undisputed, however, that the monitor was otherwise properly operational Tara testified that, as she tried to revive India, all of the lights on the monitor were on She could not recall if they were flashing but "I know they were all lit up in red ' (Tara P Graves Dep at 88, lines 8-9) (R , Vol II, p 707) All the lights were red, "except for the green power" light (Tara P Graves Dep at 88, lines 10-11)(R , Vol II, p 707)

Tara knew that the audible alarm had worked on past occasions (Tara P Graves Dep at 158, lines 17-19) (R , Vol II, p 714) The alarm had awakened her in the middle of the night on these occasions (Tara P Graves Dep at 159, lines 22-24) (R , Vol II, p 715)

Kareem likewise remembered that "all the lights were on ' (Kareem J Graves Dep at 50, lines 21-22) (R , Vol II, p 718) He was adamant, however, that "I didn't hear any alarms' at all that night (Kareem J Graves Dep at 60, lines 16-23) (R , Vol II, p 719) He further explained that 'you can t sleep through the alarm I mean even the chirping you can t sleep through that ' (Kareem J Graves Dep at 69, lines 16-21) (R , Vol II, p 720) He testified that he is not a heavy sleeper (Kareem J Graves Dep at 69, line 25) (R , Vol II, p 720)

Tara s sister, April Simmons, and April's son were also sleeping in an adjoining bedroom that night Although April on past occasions had heard the monitor's alarm go off regardless of whether she was upstairs or downstairs, she did not hear any alarm from

the monitor that night (April Simmons Dep at 18, lines 6-8, 31, lines 22-24, 32, lines 3-12) (R , Vol II pp 722, 726-727)

Neither Kareem nor Tara turned the monitor off while waiting for the EMS (Tara P Graves Dep at 90, lines 8-16) (R , Vol II p 708) Orangeburg County EMS paramedic Anita R Kelly arrived at the scene at 4 01 a m Although the monitor lights remained red and the monitor should have continued to alarm, Ms Kelly likewise did not hear any alarm sounding during the time she was in the house (Anita R Kelly Dep 96, lines 19-24) (R , Vol II p 731) She determined that India had no heart rate Ms Kelly wrote on her incident report that 'alarm showing loosely, negative alarm' (Anita R Kelly Dep at 47, lines 18) (R , Vol II p 729) In her deposition, Ms Kelly testified that she had no memory of whether she obtained this information by actually looking at the monitor, or whether the mother told her the alarm had failed to sound After refreshing her memory by reviewing her report, she testified "yes, I did look at the monitor " (Anita R Kelly Dep at 101, lines 21-22) (R , Vol II p 732) She explained that she would have used quotation marks if the mother had told her the alarm had not sounded and that the absence of quotation marks meant she had actually looked at the monitor herself (Anita R Kelly Dep at 92, lines 7-13) (R , Vol II p 730)

Ms Kelly took India s body out to the EMS truck (Tara P Graves Dep at 91 lines 7-10) (R , Vol II p 709) The coroner arrived at the truck and pronounced the child dead (Tara P Graves Dep at 97, lines 18-20) (R , Vol II p 711) An autopsy disclosed that the baby had died of sudden infant death syndrome (Tara P Graves Dep at 96, lines 17-20) (R , Vol II p 710)

C The Plaintiffs Evidence of Defect and Causation

The Plaintiffs subsequently filed the instant wrongful death action against CAS to recover for India's death The Amended Complaint asserted claims for strict liability, breach of warranty, and negligence (Amended Complaint) (R , Vol I pp 16-25)

The Plaintiffs' software experts, Dr Walter C Daugherity, a computer science instructor, and Dr William A Lively, a computer science professor, and Frank R Painter, a biomedical engineer, examined the CAS Monitor and the software that operates the alarm system They read the depositions of Tara and Kareem wherein the parents described the events of the night of April 11 and stated that the alarm had failed to sound They also reviewed the many other complaints made by alarm users that the alarm had failed to sound As previously noted, the experts also discovered that the printout had recorded fifteen incidents where the alarm had failed to sound when hooked up to India prior to her death The experts also tested an exemplar monitor Based on this review and their extensive knowledge of software code, the experts determined that the *design* of the software used in the CAS monitor was defective, and that within this design there were defective lines of code that caused the failure of the alarm to sound during the night of India s death In their depositions, the experts opined that the software was defective and unreasonably dangerous for a life-critical system such as the CAS monitor, and the defective software was a proximate cause of the alarm failing to sound on the night of India's so easily preventable death

In his deposition, Dr Daugherity testified that ' the defect is the overall design (Daugherity Dep at 33, lines 19) (R , Vol II p 687) In this regard,

> The code is poorly designed The implementation is inadequate for proper testability The code was not properly maintained and, consequently, I consider the software to be defective in design and inappropriate to be relied on in a life critical system

(Daugherity Dep at 86, lines 18-23) (R , Vol II p 696) He explained that the poor testability was the result of the code having an incredible 34 billion paths through the code for just one of the 800 modules (Daugherity Dep at 75, lines 1-8) (R , Vol II p 695) More specifically, he explained that the paths of execution in the code were subject to being interrupted by external events Thus, if the electrodes detected a breathing rate or heart rate on the infant that should trigger the alarm sounding, the alarm sound command would first test for a low battery and then would conduct other tests before it reached the end of the path where the alarm sound command was located But, if an "external interrupt event" happened during this sequence, the command might not complete the path and the alarm would not sound

> The first test is to test for the very low battery condition If that's false, that is, it's not in a very low battery condition, then it goes to the next test to see if the alarm failed flag has been set But if interrupts are on, then its possible that another external event could interrupt the processing at this point so that it could never complete the path and end up to the point right here that would turn the alarm on
>
> So if the environment in which it s operating had interrupts on and an external interrupt occurred after it entered this routine but before it got to the alarm on point, then the alarm would fail to sound

(Daugherity Dep at 36, lines 15-25, 37, lines 1-4) (R , Vol II pp 689-690) With respect to the type of external interrupt events that could cause the alarm not to sound, Dr Daugherity explained as follows

> Q What type of external interrupt are you referring to?
> A This is basically a device that has inverted flow of control, so the program itself does not determine the order in which the modules are executed, that s determined by the external inputs, such as the power on/off button, the reset button, a signal from the leads, that would be current that was passed through the subject's body, there's a clock tick, when the clock ticks, there's an internal Watchdog timer, and there's an external Watchdog timer

So all of those things are outside the program s control, and the program has no way of knowing in what sequence or order any of those external events will occur because they are asynchronous, or the length of time between them

(Daugherity Dep at 37, lines 7-21) (R , Vol II p 690) See also (Frank R Painter Dep at 55-57) (R , Vol II pp 677-679) (discussing the type of external interrupt events that could cause the alarm not to sound)

He further testified that the defective design more likely than not proximately caused the alarm not to sound

Q What is the defect in this programming?
A Well, we discussed that in several of my answers, that the defect is an overall defect of poor quality design, poor testability, and poor maintenance The term "bug" is usually used to refer to a specific line or lines of code which are incorrect and have to be replaced by the correct lines of codes
Q Did that defect, as you describe it, cause the monitor alarm not to sound?
MR DuBose Object to the form
A Most likely As I said --
Q (BY MR WINSLOW) More likely than not?
A More likely than the other possible causes that I considered

(Daugherity Dep at 167, lines 13-25, 168, lines 1-3)(emphasis added) (R , Vol II pp 700-701)

Dr Lively concurred in this opinion All three experts agreed that this defect rendered the monitor unreasonably dangerous for a life critical system (Daugherity Dep at 163, lines 1-16) (R , Vol II p 699), (Frank R Painter Dep at 117-119, 175, lines 2-13) (R , Vol II pp 682-685), (William M Lively Dep at 106, lines 1-23) (R , Vol II p 672)

Di Donna Wilkins, the Plaintiffs' medical expert testified in her deposition that, if the alarm had sounded, "the baby would be alive today" because the parents would have responded and stimulated the baby (Wilkins Dep at 70, lines 2-13) (R , Vol II p

739) She further assigned the percentage likelihood that this would have occurred at "more than 51% " (Wilkins Dep at 129, lines 23-25) (R , Vol II p 741)

In his deposition, Mr Daugherity testified that CAS should have used an alternative design – structured code – that was available at the date of manufacture of the product and would have eliminated the defect (Daugherity Dep at 33, line 25, 34, lines 1-10) (R , Vol II pp 687-688) The structured code has a specific path and destination that has no interruption paths that cross over the path In his affidavit, Mr Daugherity gave precise testimony as to the type of code that should have been used- "other adequate flow of control mechanism available such as if, if else, for while, do, and switch, that would have allowed the program to function in an organized linear manner The proper use of these statements would have avoided creating spaghetti code and would have prevented intermittent failures " (April 17, 2009 Affidavit of Walter Daugherity) (R , Vol II p 550) Dr Lively testified that such code could be written at a cost of $300,000 to $400,000 (William R Lively Dep at 150, lines 16-23) (R , Vol II p 675)

The software experts also submitted affidavits that supplemented their deposition testimony Subsequent to his deposition, Dr Daugherity studied the log reports and goto statements He submitted an affidavit in which he explained that log reports more likely than not were unreliable because of the use of spaghetti code and goto statements Further in light of the eyewitness testimony that the alarm did not function, "it is certain that the logs are not reliable ' He also concluded that the excessive goto statements in the code contributed to the improper structure and "allows the software to execute in unpredictable and uncontrollable ways " (April 17 2009 Affidavit of Walter Daugherity) (R , Vol II pp 551, 550)

Dr Lively's March 11, 2009 affidavit reiterated the deposition testimony that ' the unorganized structure of the code causes lines of code to not follow their intended path and not reach their required destination ' (March 11, 2009 Affidavit of William Lively) (R , Vol II p 544) The affidavit also reiterated that the faulty software design caused the alarm problem He squarely opined again that "'spaghetti code is a direct cause for the alarm to malfunction (R , Vol II p 576)

The Circuit Court, however, granted CAS's motion to exclude the deposition testimony of all four experts under Rule 702, SCRCP In addition, the Circuit Court granted CAS's motion to exclude the post-deposition affidavits of Dr Daugherity and Dr Lively under Cothran v Brown, 357 S C 210, 592 S E 2d 629 (2004) With the opinions of these experts thus excluded, the Circuit Court concluded that that the Plaintiffs had no admissible evidence to reach the jury on defect, causation, and alternative design The Circuit Court therefore granted summary judgment for the Defendant

In the Plaintiffs' Rule 59, SCRCP motion, the Plaintiffs pointed out that the Circuit Court had failed to address their argument that the Plaintiffs had presented sufficient *circumstantial* evidence with respect to their statutory strict liability claim to reach the jury on the existence of a defect and causation The Circuit Court remedied this omission in its Order denying the motion for reconsideration by ruling that a plaintiff cannot prove a product defect by circumstantial evidence in South Carolina (Order Denying Rule 59 Motion) (R , Vol I pp 12-15)

ARGUMENT

The Circuit's Court s decision to grant summary judgment for CAS on "no defect ' grounds almost defies belief Whatever the merits of the experts' opinions as to precisely what was wrong with the software, the Circuit Court was presented with the sworn testimony of Tara Graves, Kareem Graves, Anita Kelly, and April Simons that the alarm did not sound after the Graves' awoke, *even though the monitor was still attached to India and India had no heart rate and had stopped breathing* In other words, the alarm not only failed to sound during India's final hour while the adults were asleep but after India s death while the Graves family and the paramedic were dealing with this tragic incident On summary judgment, of course, the Circuit Court was *required* to accept this sworn testimony as true Given this direct eyewitness testimony of the monitor failing to perform the very function it was designed to perform, it is obviously nonsensical to conclude, as did the Circuit Court, that no evidence of defect was presented because the experts could not find the specific lines of code responsible for the malfunction

In granting summary judgment for the Defendant on no defect grounds, the Court made two distinct errors that require that the summary judgment be reversed First, the Court improperly excluded the opinions of the Plaintiffs experts both as stated in their depositions and in their subsequent affidavits Had the experts' opinions been admitted their testimony as to defect, causation, and alternative design would have precluded summary judgment Second, even without the experts specific defect opinions, South Carolina law permits any fact at issue to be proven by circumstantial evidence The circumstantial evidence

presented alone was sufficient to establish defect and causation and to entitle the Plaintiffs to reach the jury

I THE SUMMARY JUDGMENT MUST BE REVERSED BECAUSE THE CIRCUIT COURT ABUSED ITS DISCRETION IN EXCLUDING THE TESTIMONY OF THE PLAINTIFFS EXPERT WITNESSES

A The opinions offered by the Plaintiffs' experts meet all of the requirements of Rule 702

In South Carolina, trial courts are obligated to review all expert testimony to ensure that it passes the threshold foundation requirements of qualification, reliability and assistance to the trier of fact

> We hold that the trial courts of this state have a gatekeeping role with respect to all evidence sought to be admitted under Rule 702, whether the evidence is scientific or nonscientific In the discharge of its gatekeeping role, a trial court must assess the threshold foundational requirements of qualifications and reliability and further find that the proposed evidence will assist the trier of fact The familiar evidentiary mantra that a challenge to evidence goes to "weight, not admissibility" may be invoked only after the trial court has vetted the matters of qualifications and reliability and admitted the evidence

State v White, 382 S C 265, 274, 676 S E 2d 684 (2009)

Although all expert testimony – both scientific and nonscientific – thus must pass the reliability requirements of Rule 702 in order to be admissible, the factors used to assess reliability differ *substantially* depending on whether the expert testimony is scientific, or nonscientific If the expert testimony is *scientific*, trial courts under State v Council are required to consider the following factors to determine of the evidence passes threshold admissibility requirements

> In considering the admissibility of scientific evidence under the Jones standard, the Court looks at several factors, including (1) the publications

> and peer review of the technique, (2) prior application of the method to the type of evidence involved in the case, (3) the quality control procedures used to ensure reliability, and (4) the consistency of the method with recognized scientific laws and procedures

State v Council, 335 S C 1, 19-21, 515 S E 2d 508 (1999)

Conversely, when the proffered expert testimony is *not* scientific, the State v Council/State v Jones factors do not apply as they serve no useful analytical purpose

> State v Council, 335 S C 1, 515 S E 2d 508 (1999) is often cited for the gatekeeping role of the trial court with regard to expert testimony under Rule 702, as well as the standard reliability factors for scientific evidence The foundational reliability requirement for expert testimony does not lend itself to a one-size-fits-all approach, for the Council factors for scientific evidence serve no useful analytical purpose when evaluating nonscientific expert testimony

State v White, 382 S C 265, 676 S E 2d 684 (2009) In State v White, the Court explained that it would not set forth similar factors for nonscientific evidence but would leave that task up to the trial court

> We do not pretend to know the myriad of Rule 702 qualification and reliability challenges that could arise with respect to nonscientific expert evidence Consequently, we offer no formulaic approach that will apply in the generality of cases Yet the trial court in the discharge of its gatekeeping role in determining admissibility must initially answer the always present threshold questions of qualification and reliability

382 S C at 276 For example, in State v White, the Court ruled that dog tracking expert evidence passed the gatekeeping test based on the following foundation rather than the Jones/Council factors

> By extrapolating from our case law and other authorities, we conclude a sufficient foundation for the admission of dog tracking evidence is established if (1) the evidence shows the dog handler satisfies the qualifications of an expert under Rule 702, (2) the evidence shows the dog is of a breed characterized by an acute power of scent, (3) the dog has been trained to follow a trail by scent, (4) by experience the dog is found to be reliable, (5) the dog was placed on the trail where the suspect was

> known to have been within a reasonable time, and (6) the trail was not otherwise contaminated

382 S C at 265 Similarly, in Jamison v Morris, 385 S C 215, 684 S E 2d 168 (2009), the Court held that an expert s alcohol impairment testimony based on a SLED blood test result failed the reliability test not because of the Jones/Council factors but because the expert could not prove a chain of custody for the blood test

It must be remembered that *exclusion under Rule 702 is the exception rather than the rule* Normally, questions about the reliability of expert testimony should be challenged by vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof Addressing the similar federal standard, the Fifth Circuit accordingly has explained

> However, in determining the admissibility of expert testimony, the district court should approach its task "with proper deference to the jury's role as the arbiter of disputes between conflicting opinions As a general rule, questions relating to the bases and sources of an expert's opinion affect the weight to be assigned that opinion rather than its admissibility and should be left for the jury's consideration " Viterbo v Dow Chemical Co , 826 F 2d 240, 422 (5th Cir 1987)
>
> As the Court in Daubert makes clear, however, the trial court's role as gatekeeper is not intended to serve as a replacement for the adversary system "Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence "

United States v 14 38 Acres of Land, 80 F 3d 1074, 1078 (5th Cir 1996)

With the gatekeeping requirements of Rule 702 thus properly understood, the Circuit Court clearly abused its discretion in excluding the opinions of the Plaintiffs' experts Most obviously, the Circuit Court inexplicably concluded with no support whatsoever that the opinions of the experts "fit within the scientific category " (R , Vol I p 6) The court then proceeded to vet their testimony under the factors used to vet

scientific expert testimony Finding that the opinions had not been published, had not been subjected to peer review, had not been tested, and had no known rate of error, the Court excluded the opinions

The Circuit Court's mischaracterization of the expert testimony alone requires reversal Neither, Daugherity, Lively, Painter nor Wilkins offered scientific testimony The software experts simply offered opinions based on well-established computer science principles and then reasoned to the best inference Dr Wilkins gave routine medical expert testimony

While the Circuit Court purported to rule that exclusion would be mandated even if the testimony was considered merely technical, the Circuit Court did not undertake a separate inquiry into the factors that would bear on the reliability of this obviously nonscientific testimony The only additional reliability factor the court considered was the defect experts' methodology of accepting as true *the eyewitness testimony* that the monitor malfunctioned on the night of India's death and then excluding all causes of the malfunction but a product defect The Circuit Court in effect ruled that this methodology was not reliable But this type of methodology, known as "differential diagnosis" in the medical context, and "reasoning to the best inference" in non-medical contexts, is a well-accepted methodology for diagnosing medical problems, Westberry v Gislaved Gummi AB, 178 F 3d 257, 262 (4th Cir 1999) (holding that differential diagnosis is a reliable technique "of identifying the cause of a medical problem by eliminating the likely causes until the most probable one is isolated"), Clausen v M/V New Carissa, 339 F 3d 1049, 1058-59 (9th Cir 2003) (recognizing differential diagnosis as a reliable method), Zuchowicz v United States, 140 F 3d 381, 387 (2d Cir 1998) (upholding district court

decision to admit differential diagnosis testimony), and for determining product defects

Bitler v A O Smith, 400 F 3d 1227, 1235-36 (10th Cir 2004)

Indeed, the reliability of this methodology is underscored by the widely accepted rule that circumstantial evidence alone is sufficient to establish defect and causation in a strict liability case

> Jurisdictions which model their decisional law along Restatement lines uniformly hold that a strict liability claimant may demonstrate an unsafe defect through direct eyewitness observation of a product malfunction, and need not adduce expert testimony to overcome a motion for summary judgment Although it is helpful for a plaintiff to have direct evidence of the defective condition which caused the injury or expert testimony to point to that specific defect, such evidence is not essential in a strict liability case based on § 402A and direct observation of " [t]he malfunction itself is circumstantial evidence of a defective condition '" Thus, a manufacturer's own employee-expert does not necessarily trump a strict liability claimant's circumstantial non-"expert" evidence at the summary judgment stage
>
> [fn11] Indeed, strict liability claimants may resort to an array of circumstantial evidence ("Such circumstantial evidence includes (1) the malfunction of the product, (2) expert testimony as to a variety of possible causes, (3) the timing of the malfunction in relation to when the plaintiff first obtained the product, (4) similar accidents involving the same product, (5) elimination of other possible causes of the accident, and (6) proof tending to establish that the accident does not occur absent a manufacturing defect")

Perez-Trujillo v Volvo Car Corporation, 137 F 3d 50, 57 (1st Cir 1998) [2]

There are no South Carolina cases rejecting reasoning to the best inference as an accepted methodology under Rule 702 in product liability cases In the products context, this methodology must meet the following standards

> Experts must provide objective reasons for eliminating alternative causes when employing a "differential analysis " Furthermore, the inference to the best explanation must first be in the range of possible causes, there must be some independent evidence that the cause identified is of the type

[2] The Plaintiffs have alternatively contended that they were entitled to reach the jury on the circumstantial evidence in the case even if the specific defect testimony was properly excluded

> that could have been the cause But more than mere possibility, an inference to the best explanation for the cause of an accident must eliminate other possible sources as highly improbable, and must demonstrate that the cause identified is highly probable

400 F 3d at 1237-38 The Plaintiffs' experts met each of these standards as discussed *infra* The Circuit Court accordingly clearly erred in faulting the experts opinions because they began their analysis with the assumption that the monitor had malfunctioned, as the eyewitness testimony established

Finally, the exclusion of the experts cannot be justified because they failed to reproduce a malfunction through testing It must be remembered that the defective design of the code itself precluded reproductive testing – the astronomical number of paths in one module made it simply impossible to duplicate all of the possible sequences In any event, Rule 702 does not require full reproductive testing of an expert's opinion Indeed, testing is not necessarily required at all, particularly where as here nonscientific evidence is involved As the Tenth Circuit explained (under the similar federal standard) "testing is not necessary in all instances to establish reliability under *Daubert* ' Bitler v A O Smith, 400 F 3d 1227, 1235-36 (10th Cir 2004) Testing is most important "[w]hen an expert proposes a theory that modifies otherwise well-established knowledge about regularly occurring phenomenon ' Thus, the court in Bitler upheld the testimony of two experts who had not conducted tests of their opinions

> Employing his experience and knowledge as a fire investigator, Boh observed the physical evidence at the scene of the accident and deduced the likely cause of the explosion Although such a method is not susceptible to testing or peer review, it does constitute generally acceptable practice as a method for fire investigators to analyze the cause

> of fire accidents Nothing in Rule 702 or *Daubert* requires more We conclude that the trial court did not abuse its discretion in finding Boh's personal experience, training, method of observation, and deductive reasoning sufficiently reliable to constitute "scientifically valid" methodology Thus, because testing is not necessary in all instances to establish reliability under *Daubert* and because the district court reasonably found that it was not required by the particular factual circumstances of this case, we conclude that the district court did not abuse its discretion in admitting the Bitlers' experts' testimony

400 F 3d at 1235-36

The Circuit Court thus employed the wrong criteria in evaluating the reliability of the experts' opinions When their opinions are properly viewed as non-scientific testimony, the methodology they used –reasoning to the best inference after applying established technical rules of computer science - fully complies with Rule 702, and State v White, 382 S C 265, 676 S E 2d 684 (2009)

The Circuit Court also erroneously ruled that the experts impermissibly relied on the 50 alarm failures reported to CAS and the FDA because 'the substantial similarity of the complaints to the alleged failure in this case never shown " (Order at 7) (R , Vol I p 7) In so ruling, the Circuit Court simply accepted the unsupported statement of defense counsel in the draft order prepared for the Court and ignored the actual evidence As previously noted, Plaintiffs' software expert Frank R Painter carefully examined each of these complaints and testified that they are "very, very similar in nature to the ones we have ' (Frank R Painter Dep at 66, lines 11-13) (R , Vol II p 680) In all 50 of the reports the monitor had the LED light lit, there was an alarm condition, and no audible alarm sounded (Frank R Painter Dep at 72, lines 15-20) (R , Vol II p 681) The Court can confirm this opinion by examining the actual complaints which were submitted into

evidence and are a part of the record While the Defendant claimed that a few of the alarm failures were the result of a defect in the monitor that had been repaired following a recall, the defense presented no evidence rebutting Mr Painter's expert opinion that the reports were "very, very similar' to the instant case

In any event, at the summary judgment stage, the evidence must be viewed in the light most favorable to the Plaintiffs Hence, the contrary interpretation of the 50 similar incidents offered by the defense simply creates a question of fact as to substantial similarity

B The affidavits are not excludible as sham affidavits

The Circuit Court excluded the post-deposition affidavits of Dr Daugherity and Dr Lively under Cothran v Brown, 357 S C 210, 592 S E 2d 629 (2004) on grounds that the affidavits were "directly contradictory' to the opinions given by these experts in their deposition and that the other factors listed by the court justified their exclusion The Circuit Court clearly abused its discretion in so ruling

In Cochran, the court explained that sham affidavits – that is, affidavits that contain opinions that *contradict* prior deposition testimony – do not create a question of fact for summary judgment purposes in the following circumstances

> We find persuasive the reasoning of federal case law Federal courts, including the Fourth Circuit, have held a court may disregard a subsequent affidavit as a "sham," that is, as not creating an issue of fact for purposes of summary judgment, by submitting the subsequent affidavit to contradict that party's own prior sworn statement
>
> In distinguishing between a sham affidavit and a correcting or clarifying affidavit, the following considerations provide guidance (1)

> whether an explanation is offered for the statements that contradict prior sworn statements, (2) the importance to the litigation of the fact about which there is a contradiction, (3) whether the nonmovant had access to this fact prior to the previous sworn testimony, (4) the frequency and degree of variation between statements in the previous sworn testimony and statements made in the later affidavit concerning this fact, (5) whether the previous sworn testimony indicates the witness was confused at the time, (6) when, in relation to summary judgment, the second affidavit is submitted

Cothran v Brown, 357 S C 210, 592 S E 2d 629 (2004) The Court need not evaluate the Cothran factors at all because any Cothran attack on the affidavits founder on the first element – there is no contradiction at all

In his deposition, Dr Daugherity stated that ' the defect is the overall design ' (Daugherity Dep at 33, lines 19) (R , Vol II p 687) Dr Daugherity testified that one particular design feature in the software – the unconditional branch instructions or 'goto' statements - proximately caused the alarm not to sound

> Q Do you find any unconditional branch instructions in the AMI Plus code that caused the alarm not to sound, in your opinion?
> A Yes, there are

(Daugherity Dep at 149, lines 17-20) (R , Vol II p 851) He supplemented this testimony by explaining that, within the defective design, were "defective lines of code"[3] that could not be located because the unstructured design of the code made it extremely difficult to locate the defective lines of code He explained that it might be possible to find these errors but that it would take six months to a year and require creation of a special software package

[3] This is not to be confused with 'coding errors –i e , a typo, transposed character, or misplaced character within a particular line of code Dr Daugherity has not been able to locate any coding error to-date (April 17, 2009 Affidavit of Walter Daugherity) (R Vol II p 549)

> A Okay Mr Hastings asked me what it would take to find the line or lines of code which were incorrect and repair them And I did some thinking and analysis and gave him a response on that which was, you know, six months to a year and creation of a suite of software that would automatically test the most common paths in the code since the poor design makes testing all the paths in the code impossible, and that that procedure might be able to locate the line or lines in the code which need to be addressed If the code had been properly designed, then it would be much more possible to do that

(Daugherity Dep at 138, lines 4-15) (R , Vol II p 847A)

In his April 17, 2009 Affidavit, Dr Daugherity explained that, after a year of study, he had located the defective lines of the code and attached these as Exhibits 2 and 3 to the Affidavit He reiterated that he had identified the 'structure of the software in the AMI Plus as the defect ' (April 17, 2009 Affidavit of Walter Daugherity) (R , Vol II p 547) He further explained that one cause of the defective structure in the software was the use of goto statements If, as in this software, excessive numbers of goto statements are used, the resulting code is so unreliable as to be defective because it will cause the software to fail intermittently

(April 17, 2009 Affidavit of Walter Daugherity) (R , Vol II p 550)

In his deposition, Mr Daugherity testified that CAS should have used an alternative design – structured code – that was available at the date of manufacture of the product and would have eliminated the defect

> In a piece of software of this complexity, it s important to use good design principles in order to produce a program which meets the specifics, is testable, and is maintainable This approach which is evidenced by the code under discussion is one where, instead of using best industry practice of the time of structured or object oriented programming, results in the lines of flow of control of execution being a rather tangled mess, like a bowl of spaghetti, which is why is has the name "spaghetti code

(Daugherity Dep at 33, line 25, 34, lines 1-10) (R , Vol II pp 687-688) In his affidavit, Mr Daugherity gave precise testimony as the type of code that should have been used- 'other adequate flow of control mechanism available such as if, if else, for while, do, and switch, that would have allowed the program to function in an organized linear manner The proper use of these statements would have avoided creating spaghetti code and would have prevented intermittent failures ' (April 17, 2009 Affidavit of Walter Daugherity)(R , Vol II p 550)(emphasis omitted) Thus, the alternative design testimony is consistent as well – the only difference is that the affidavit gives more detail as to the alternative design

Finally, in his deposition, Mr Daugherity testified that the defective design proximately caused the alarm not to sound

> Q The lawyer used the term "bug," and that the bug caused the alarm not to sound What is the defect in this programming?
> A Well, we discussed that in several of my answers, that the defect is an overall defect of poor quality design, poor testability, and poor maintenance The term "bug" is usually used to refer to a specific line or lines of code which are incorrect and have to be replaced by the correct lines of codes
> Q Did that defect, as you describe it, cause the monitor alarm not to sound?
> MR DuBose Object to the form
> A Most likely As I said --
> Q (BY MR WINSLOW) More likely than not?
> A More likely than the other possible causes that I considered

(Daugherity Dep at 167, lines 13-25, 168, lines 1-3)(R , Vol II pp 700-701)(emphasis added) In his April 17, 2009 affidavit, he reaffirmed that the poor design of the software proximately caused the failure of the alarm to sound (April 17, 2009 Affidavit of Walter Daugherity) (R , Vol II pp 546-552) Causation thus is consistent in both the deposition and affidavit

The Circuit Court also abused its discretion in excluding Dr William Lively's affidavit Dr Lively squarely testified that 'the software is the problem ' (Lively Dep at 60, line 10) (R , Vol II p 671) See also (Lively Dep at 115, lines 22-23)("there was an error in the monitor that's part of the design") (R , Vol II p 958A) He further explained that the goto statements should not have been used because they allow the signal to travel an erroneous pathway (Lively Dep at 144, lines 5-10)(R , Vol II p 674) Dr Lively's March 11, 2009 affidavit makes the same statement – "the unorganized structure of the code causes lines of code to not follow their intended path and not reach their required destination (March 11, 2009 Affidavit of William Lively) (R , Vol II p 544) Dr Lively s March 13, 2009 affidavit reiterates that the faulty software design caused the alarm problem He squarely opined that ' spaghetti code' is a direct cause for the alarm to malfunction ' (R , Vol II p 576) Thus, the affidavits of William Lively are entirely consistent with the testimony given in his deposition on all material points The Circuit Court clearly abused its discretion in excluding the affidavit

C The Circuit Court abused its discretion in excluding Dr Wilkins opinions

The Circuit Court ruled that Dr Wilkins was not qualified to give an opinion on sudden infant death (SIDS) survivability because she is not "an expert on SIDS " SIDS, however, is simply a diagnosis of exclusion The real question is whether Dr Wilkins is qualified to give an opinion as to whether India would have survived had the alarm timely sounded The record shows that she is more than qualified to give such an opinion Rule 702, SCRE, permits an expert to qualify based on her knowledge, education, or experience Dr Wilkins actually qualifies on all three bases Dr Wilkins is a board

certified pediatrician and specializes in neonatal-perinatal medicine [4] (Dr Donna A Wilkins Dep at 7, line 25, 8, line 1) (R , Vol II pp 734-735) Dr Wilkins has been practicing medicine for 29 years She studied SIDs in medical school, in pediatric residency, and her neonatology practice She reads articles on SIDS from time to time and keeps up with the latest research She even subscribes to three journals that covers SIDS and has experience in neonatal care in the home setting (Dr Donna A Wilkins Dep at 8, line 21, 17, lines 2-6, lines 20-25, 18, lines 16-25, 19, lines 17-23) (R , Vol II pp 735-738) Dr Wilkins, by virtue of her knowledge, education, and experience thus is eminently qualified to give an opinion on whether India would have survived had the alarm timely sounded

The Circuit Court also ruled that "Dr Wilkins' opinions on survivability of SIDS do not meet the State v Council factors for reliability " (Order at 8) (R , Vol I p 8) As the South Carolina Supreme Court has ruled, "the Council factors for scientific evidence serve no useful analytical purpose when evaluating nonscientific expert testimony ' State v White, 382 S C 265, 676 S E 2d 684 (2009) Dr Wilkins arrived at her opinion by studying the monitor log print outs that showed each event where India's breathing and heart fell outside of normal parameters, eliminated any other cause of the death based on the medical records, and then applied her extensive experience in working with newborns in similar situations Because Dr Wilkins offered routine medical testimony based on her knowledge, education, and experience rather than scientific testimony, her testimony could not properly be evaluated under State v Council Given her expertise in the field,

[4] Neonatal perinatal medicine is the care of sick newborns in an intensive care unit (Dr Donna A Wilkins Dep at 8 lines 4 6) (R Vol II p 735)

no credible argument can be made that her opinion lacks sufficient reliability to pass Rule 702 scrutiny

D The experts' opinions established defect, causation, and alternative design for summary judgment purposes

When the experts' opinions are considered in opposition to the summary judgment motion, the Plaintiffs clearly made a submissible case on the existence of a defect in the software, on the defect being the proximate cause of the monitor's failure to sound when India stopped breathing, and on the availability of a feasible alternative design that would have prevented the accident

Although the Circuit Court signed a draft order prepared by defense counsel that also purported to exclude the experts' testimony under Rule 403, the Circuit Court gave no explanation as to how the crucial probative value of the opinions was outweighed by their prejudicial effect The Court of Appeals can properly disregard this conclusory finding but, in any event, there is nothing in any expert's opinion that would suggest an opinion on an improper basis Prejudice for purposes of Rule 403 means "an undue tendency to suggest decision on an improper basis, commonly, though not necessarily, an emotional one ' Old Chief v United States, 519 U S 172, 180 (1997)(construing the identical federal rule) The summary judgment entered in favor of the Defendant must therefore be reversed

II THE SUMMARY JUDGMENT MUST BE REVERSED BECAUSE THE CIRCUMSTANTIAL EVIDENCE ALONE WAS SUFFICIENT TO ESTABLISH DEFECT AND CAUSATION

Assuming arguendo that the experts' specific defect opinions were properly excluded, the summary judgment must still be reversed because the Plaintiffs presented sufficient circumstantial evidence with respect to their statutory strict liability claim to reach the jury on the existence of a defect and causation The Circuit Court did not address this argument in the Order granting summary judgment In denying the Plaintiffs' Rule 59 motion, the Circuit Court rejected this because, *inter alia*, the argument purportedly had not been raised prior to the Rule 59 motion In fact, however, the Plaintiffs raised the argument in the Plaintiffs Opposition to Second Motion for Summary Judgment and reiterated it at the February 4, 2010 hearing (Transcript at 58, lines 7-11,60, lines 15-23)(R , Vol I, p 310-310) The Defendant's attorney even argued that South Carolina did not permit this in his November 9, 2009 Reply

South Carolina law squarely supports this argument In South Carolina, ' [a]ny fact in issue may be proved by circumstantial evidence as well as direct evidence, and circumstantial evidence is just as good as direct evidence if it is equally as convincing to the trier of the facts " St Paul Fire and Marine Ins Co v American Ins Co , 251 S C 56, 59-60, 159 S E 2d 921 (1968) Further, "[t]he law makes absolutely no distinction between the weight or value to be given to either direct or circumstantial evidence " Moriarty v Garden Sanctuary Church of God, 341 S C 320, 534 S E 2d 672 (2000)(emphasis added), *quoting* State v Needs, 333 S C 134, 156 n 13, 508 N E 2d 857 (1998)

The Plaintiffs thus are not required to show a specific defect in the CAS monitor but may present circumstantial evidence of defect and causation Where a plaintiff sues

under the strict liability in tort doctrine, the use of circumstantial evidence to prove defect and causation is uniformly accepted in all other states The Restatement (Third) of Torts Products Liability itself now provides that a plaintiff in a product liability action is not required to prove a specific defect in a product and may properly prove that the product was defective and unreasonably dangerous using circumstantial evidence

> It may be inferred that the harm sustained by the plaintiff was caused by a product defect existing at the time of sale or distribution, without proof of a specific defect when the incident that harmed the plaintiff
> (a) was of a kind that ordinarily occurs as a result of product defect, and
> (b) was not, in the particular case, solely the result of causes other than product defect existing at the time of sale or distribution

Restatement (Third) of Torts Product Liability § 3 (1998) Comment c further explains

> *No requirement that plaintiff prove what aspect of the product was defective* The inference of defect may be drawn under this Section without proof of the specific defect Furthermore, quite apart from the question of what type of defect was involved, the plaintiff need not explain specifically what constituent part of the product failed

Restatement (Third) of Torts Products Liability § 3 Comment c (1997)

While South Carolina state courts have not yet addressed this Restatement provision, that is irrelevant to the Circuit Court's error in this case because South Carolina law most certainly permits any fact in issue to be proven by circumstantial evidence as previously noted

Nor is the use of circumstantial evidence prohibited in this strict liability case because South Carolina does not recognize *res ipsa loquitur* by that name First, *res ipsa loquitur* is a negligence concept, and not a strict liability one The Plaintiffs *are not proceeding under negligence at all* but under strict liability Second, the Plaintiffs have never argued *res ipsa loquitur* but simply that they can prove their case using

circumstantial evidence [5] Third, the Plaintiffs have never argued that "the fact of an accident" alone is sufficient to reach the jury as it most certainly is not But direct eyewitness evidence of a malfunction in the normal use of a product, *and* evidence ruling out all causes of the malfunction but a product defect is sufficient to reach the jury in all other states That is precisely the evidence presented to the Circuit Court

In this case, the Plaintiffs presented compelling circumstantial evidence of defect and causation First, four eyewitnesses testified that the CAS monitor malfunctioned on the night of the accident in that it never made an audible alarm Second, the parents also testified that the monitor had been properly set up and yet failed to sound when the infant stopped breathing Third, the parents testified that the electric power had operated that night and, therefore, the alarm failure could not be blamed on a lack of power Fourth, the Plaintiffs presented expert testimony that the CAS software contained a design defect that possibly could permit this very type of malfunction - Dr Daugherity's observation that the software used unstructured spaghetti code in violation of industry standards and that this code was vulnerable to external interrupt events that would cause the alarm to fail to sound despite a signal from the electrodes of heart or breathing problem The opinions of the other two defect expert corroborate Dr Daugherity's opinion that the code structure permitted errors to occur

---

[5] While this case does not involve *res ipsa loquitur* at all, it should be noted that South Carolina most certainly does allow negligence to be proved by circumstantial evidence As even Dean Prosser has recognized, *res ipsa loquitur* ' is accepted and applied by all of our courts, except in South Carolina, which still mysteriously rejects it by name, while applying as a practical matter under principles of circumstantial evidence " W Prosser & P Keeton, Prosser & Keeton on Torts, § at 244 (5th ed 1984)

Fifth, in both his deposition and his April 17, 2009 Affidavit, Mr Daugherity provided an extensive explanation of precisely how he had eliminated all possible causes of the malfunction but a defect in the software and concluded in effect that the most probable explanation was that a defect in the software had proximately caused the monitor to fail to sound an alarm Sixth, Mr Daugherity provided a reliable opinion as to how this could happen notwithstanding that the monitor s report log did not show a malfunction on the night in question

The various objections listed by the Court disappear when the case is viewed from the standpoint of circumstantial evidence CAS made no showing that Dr Daugherity's opinion that the code structure permitted errors to occur was not reliable –CAS contended only that his opinion that a specific error in the code existed and caused the malfunction was unreliable because he could not find the defective code at the time of his deposition, could not reproduce a malfunction by testing, and could point to no peer review studies, or rate of error calculations to support his opinion [6]These requirements, however, are imposed only when an expert offering scientific testimony opines as to a specific defect in his opinion Similarly, when a plaintiff proceeds on circumstantial evidence, there is no requirement that a feasible alternative design be identified, although Mr Daugherity in fact indentified such a design – the use of structured code Finally, there is certainly no inconsistency between the depositions and affidavits on the circumstantial evidence – the affidavits simply provide a fuller explanation of how the circumstantial evidence shows defect and causation

[6] Dr Daugherity presented compelling testimony that his opinion that unstructured code was a defect that permitted this type of error to occur reflected industry standards and cited to peer reviewed studies that supported this conclusion

The Circuit Court accordingly erred in ruling that the Plaintiffs could not use circumstantial evidence to prove their case Because the circumstantial evidence alone establishes defect and causation, the summary judgment motion be denied

CONCLUSION

For any and all of the reasons stated, the summary judgment must be reversed and the case remanded for trial

LAW OFFICES OF J EDWARD BELL, III, LLC

By _____

J Edward Bell
Thomas William Winslow
P O Box 2590
Georgetown, South Carolina 29442
TEL 843/546-2408
ATTORNEY FOR APPELLANT

November 20, 2010

THE STATE OF SOUTH CAROLINA

In the Court of Appeals

APPEAL FROM ORANGEBURG COUNTY
Court of Common Pleas
James C Williams, Jr , Circuit Court Judge

Case No 08- CP-38-826

Kareem J Graves and Tara Graves, individually and as duly appointed personal representatives of the Estate of India Iyanna Graves — Appellants,

vs

CAS Medical Systems, Inc — Respondent

CERTIFICATE OF COUNSEL

The undersigned hereby certifies that this Final Brief complies with Rule 211(b), SCAR

LAW OFFICES OF J EDWARD BELL, III, LLC

By _____

J Edward Bell, III
Thomas William Winslow
Law Offices of J Edward Bell LLC
Post Office Box 2590
232 King Street
Georgetown, S C 29442

November 22, 2010

THE STATE OF SOUTH CAROLINA

In the Court of Appeals

APPEAL FROM RICHLAND COUNTY
Court of Common Pleas
James C Williams, Jr , Circuit Court Judge

Case No CA-08-CP38-826

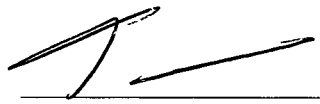
Kareem J Graves and Tara Graves,
individually and as duly appointed personal
representatives of the Estate of India Iyanna Graves — Appellants,

vs

CAS Medical Systems, Inc — Respondent

PROOF OF SERVICE

I certify that I have served one (1) copy of the Appellants Final Brief, by depositing a copy of it in the United States Postal Service, shipping prepaid, on December 3, 2010, addressed to their attorney of record Clarke W Dubose, Esquire, Haynsworth Sinkler Boyd, P A , Post Office Box 11889, Columbia, South Carolina 29211-1889



J Edward Bell, III
Thomas William Winslow
The Bell Legal Group, LLC
232 King Street
Georgetown, SC 29442
Tel 843-546-2408
Fax 843-546-9604
Attorney for the Appellants

December 3, 2010
Georgetown, SC