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SUPREME COURT OF THE STATE OF MICHIGAN

PEOPLE OF THE STATE OF MICHIGAN,

Plaintiff-Appellee,

v

MILTON LEE LEMONS,

Defendant-Appellant.

Supreme Court No. 163939

Court of Appeals No. 348277
Lower Court No. 06-004818-01-FC

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AMICUS CURIAE BRIEF OF THE CENTER FOR INTEGRITY IN FORENSIC SCIENCES

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INTERESTS OF AMICUS[1]

The Center for Integrity in Forensic Sciences, Inc. ("CIFS") is a national non-profit organization incorporated in Wisconsin. CIFS is the first nationwide non-profit organization in the United States to focus exclusively on strengthening forensic science in order to improve the reliability and safety of criminal prosecutions. To accomplish these goals, CIFS focuses on policy analysis, direct representation of those wronged by faulty forensic science, continuing legal education, and experiential education of tomorrow's lawyers and scientists.

Based on CIFS's experiences in advocacy, client representation, and research, amicus has documented the role that the misapplication of scientific evidence has played in producing miscarriages of justice. Indeed, misleading forensic evidence is one of the leading causes of wrongful convictions according to the National Registry of Exonerations.[2] The threat such evidence presents to the fair administration of justice is particularly grave in homicide cases and those involving the alleged abuse of a child, where emotions tend to run high. Amicus has a compelling interest in ensuring that scientific evidence and testimony is accurate throughout the criminal legal system and that wrongful convictions are remedied when errors in forensic science testimony or changes in scientific understanding are found.

INTRODUCTION AND SUMMARY

[1] No counsel for a party authored the brief in whole or in part, and no counsel or party made a monetary contribution intended to fund the preparation or submission of the brief. Nobody other than the amicus curiae, its members, or its counsel, made such a monetary contribution.

[2] https://www.law.umich.edu/special/exoneration/Pages/ExonerationsContribFactorsByCrime.aspx

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Beginning in the 1970s, parents and caregivers have been accused of abuse and homicide based on a collection of medical findings in their charges, specifically, subdural bleeding (bleeding beneath the brain's coverings), retinal bleeding (bleeding at the back of the eyes), and encephalopathy (brain swelling and dysfunction). Collectively, these findings are referred to as "Shaken Baby Syndrome" or "Abusive Head Trauma" (SBS/AHT). Despite previous certainty about this diagnosis—physicians previously assumed that the presence of these findings pointed unerringly to shaking or other abuse—evidence has amassed in the recent past that suggests these findings are not always explained by abuse or even trauma; accidents can cause these findings, as can a wide variety of nontraumatic conditions, including genetic disorders, bleeding disorders, and infection.

As alternative causes of these medical findings have emerged, so, too, has a realization that the hypothesis rests on extremely problematic foundations. Now, we know that not only do the findings previously thought to be diagnostic of shaking have explanations other than child abuse, but we are also aware that very little is known about the pathophysiology of the findings in general. Like so many forensic science theories, SBS/AHT was deployed in courtrooms without sufficient foundational validity, and experts testified about it with more certainty than the theory warranted. And, as a result of this flawed hypothesis, wrongful convictions—like Chazlee Lemons'[3]—proliferated.

[3] Ms. Lemons currently uses a different name than the one in this case's caption. We use her chosen name and pronouns throughout our brief.

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Amicus asks this Court to review this case in order to address the Court of Appeals' improper reliance on insufficient and uncertain forensic testimony and evidence, to clarify the admissibility of biomechanical engineering testimony, to clarify the appropriate use of medical opinion evidence in determining causation, and to clarify the difference between medical data and confession data.

ARGUMENT

I. This Court should clarify the admissibility of biomechanical engineering testimony in child abuse cases.

Assessing the value of opinions from differently qualified experts is a complicated but essential part of a complex scientific case. While there is some overlap between biomechanical and medical assessments, they are ultimately different disciplines. It is understandable for a fact-finder's first impression to be that medical opinion is most important in a case like this one; however, when the question is related to the effects of physical and mechanical forces on the human body, that issue is properly assessed by a biomechanical engineer, rather than a physician. Physicians are experts in the diagnosis and treatment of injuries but are not qualified to assess this separate discipline: the effects of physics of the world on bodies.

When the focus is diagnosis and treatment, physicians are unquestionably the experts. However, in this case and others like it, the primary dispute is not about the existence of the medical findings, but rather about their causation. When the question is physical causation—whether a particular injury scenario rises above the threshold known to result in injury to the human body—engineers are regularly recognized by courts as appropriate experts. *See, e.g., Wagoner v Schlumberger Tech Corp*, No. 07–

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CV–244–J, 2008 WL 5120750, (D Wyo June 19, 2008); *Morgan v Girgis*, No. 07 Civ.1960(WCC), 2008 WL 2115250, (SDNY May 16, 2008); *Bowers v Norfolk S Corp*, 537 FSupp2d 1343, 1377 (MD Ga 2007); *Shires v King*, No. 2:05–CV–84, 2006 WL 5171770 (ED Tenn Aug 10, 2006); *Berner v Carnival Corp*, 632 F Supp 2d 1208, 1212 (SD Fla 2009); *see also Behn v State*, 621 So2d 534, 536 (Fla 1st DCA 1993). Indeed, some courts have deemed biomechanics testimony essential in child abuse cases and reversed cases where biomechanics testimony was absent or disallowed. *See, e.g., Gregory Council v State*, 98 So 3d 115, 117 (Fla Dist Ct App 2012); *Spurgeon v State*, 298 So 3d 726 (Fla Dist Ct App 2020).

The court below raises important questions about the state of knowledge surrounding child abuse in general and SBS/AHT in particular. It is true that many questions still exist surrounding these often controversial medical determinations. What we do know, however, is of particular significance in this case.

To begin, it is beyond question, even by strong supporters of SBS/AHT, that the medical findings often attributed to abuse have myriad causes. Cindy W. Christian & Robert Block, *Abusive Head Trauma in Infants and Children*, 123 PEDIATRICS 1409, 1410 (2009); Andrew P. Sirotnak, *Medical Disorders that Mimic Abusive Head Trauma, in Abusive Head Trauma in Infants and Children: A Medical, Legal, and Forensic Reference*, at 191-226 (GW Med Publ'g 2006). Testimony that certain injuries can *only* be caused by intentional shaking has been shown to be false. *See, e.g., People v Bailey*, 144 AD3d 1562, 1564; 41 NYS3d 625 (NY App Div 2016). The only comprehensive assessment of literature related to shaking and the triad of

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findings often attributed to it has found no high-quality evidence that supports the claim that shaking causes the constellation of head and eye findings often attributed to it. Swedish Agency for Health Technology Assessment and Assessment of Social Services, *Traumatic Shaking: The Role of the Triad in Medical Investigations of Suspected Traumatic Shaking*, Report 255E/2016.

What is more, the testimony that these injuries attributed to abuse can *never* be caused by accident has also been proven false. Significant evidence in the form of case reports, witnessed accidents, and biomechanical experimentation confirms that accidents, even those that may initially appear nonfatal, can cause fatal injuries. *See, e.g.,* John Plunkett, *Fatal Pediatric Head Injuries Caused by Short-Distance Falls*, 22 AM J FORENSIC MED PATHOL 1 (2001); Chris Van Ee et al, *Child ATD Reconstruction of a Fatal Pediatric Fall,* PROC ASME (2009); Patrick D. Barnes, *Ethical Issues in Imaging Non-accidental Injury: Child Abuse*, 13 TOPICS MAGNETIC RESONANCE IMAGING 85, 89 (2002). Indeed, virtually all of the biomechanical research indicates that shaking is an unlikely mechanism for these traditional medical findings and that, instead, falls and accidents are reasonable explanations.[4]

[4] *See, e.g.*, Ann-Christine Duhaime et al, *The Shaken Baby Syndrome: A Clinical, Pathological and Biomechanical Study*, 66 J NEUROSURGERY 409, 414 (1987); Michael T. Prange et al, *Anthropomorphic Simulations of Falls, Shakes, and Inflicted Impacts in Infant*s, 99 J NEUROSURGERY 143, 149 (2003); W. Goldsmith & J. Plunkett, *A Biomechanical Analysis of the Causes of Traumatic Brain Injury in Infants and Children,* 25 AM J FORENSIC MED PATHOL 89, 94 (2004) (referencing biomechanical studies using models, computer simulations, and animals to support these findings); Chris Van Ee et al, *Child ATD Reconstruction of a Fatal Pediatric Fall,* Proc ASME (2009).

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It is true that child abuse cannot be studied by actually abusing children; in fact, this is true of many areas of inquiry. Instead, there are avenues of experimentation that allow researchers to model injury scenarios without actually injuring human beings. These experimental methods are used widely, and the effects can be seen in our daily lives. Researchers can develop safer helmets without causing real human head injury. Researchers can improve safety equipment in automobiles without actually subjecting humans to car crashes. None of this experimental equipment accurately recreates every single intricacy of the human body, nor does every experiment answer every question. But that does not mean this experimentation is meaningless or unreliable. Instead, biomechanical experimentation seeks to measure physical properties of an injury scenario, like force, acceleration, and so on.

Biomechanical engineers in child abuse cases typically seek to examine an injury scenario using known thresholds for injury to assess whether a proposed injury scenario could produce force and acceleration that meets or exceeds the threshold for injury. Engineers do this in a variety of ways, including using anthropomorphic test instruments ("crash test dummies"), animal models, computer models, and mathematical models. Ann-Christine Duhaime et al, *The Shaken Baby Syndrome: A Clinical, Pathological and Biomechanical Study*, 66 J NEUROSURGERY 409, 414 (1987); Michael T. Prange et al, *Anthropomorphic Simulations of Falls, Shakes, and Inflicted Impacts in Infants*, 99 J NEUROSURGERY 143, 149 (2003); W. Goldsmith & J. Plunkett, *A Biomechanical Analysis of the Causes of Traumatic Brain Injury in*

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Infants and Children, 25 AM . FORENSIC MED PATHOL 89, 94 (2004) (referencing biomechanical studies using models, computer simulations, and animals to support these findings). Engineers may also recreate known fatal events, like witnessed and videotaped injury scenarios, and study those recreations. Chris Van Ee et al, *Child ATD Reconstruction of a Fatal Pediatric Fall*, Proc ASME (2009).

When the different models are combined, they have significant agreement. For example, when we look at a biofidelic dummy, results of that experimentation are in line with what has been captured on videotape, and when we recreate a videotaped fall with a dummy, the forces are what we might expect. So, while we may not be able to say with certainty whether shaking causes these findings, it is wrong to claim that they cannot be caused by accident because there are videotaped, recreated, and reliably witnessed accidents that have caused the same findings.

Courts have held not only that biomechanical evidence has something valuable to add to a criminal trial, but that it can be critical to effective representation in a case. For example, in one case, where trial counsel failed to present expert biomechanical testimony to rebut the government's theory as to the cause of swelling in one-year-old victim's brain, this failure amounted to deficient performance; although the government's witness initially theorized that victim's cerebral edema resulted from shaken baby syndrome, the theory of causation changed to a repetitive-soft-impact theory prior to trial. Though counsel knew of this change, he nevertheless did not ask his own biomechanics expert to investigate repetitive-soft-impact theory or perform any calculations to determine its viability, and further failed to cross-

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examine adequately the government's experts regarding their theory of causation. *See Spurgeon v State*, 298 So 3d 726 (Fl 2d DCA 2020).

The only rejoinder seems to be that biomechanics cannot fully reproduce the intricacies of the infant brain. But that is not the primary issue here, much as it is not in other biomechanical experimentation. Test equipment cannot reproduce the intricacies of the human body, but it is still used routinely to assess the effects of force and acceleration on bodies, with accurate results. That is because of the difference in expertise between engineers and physicians. Biomechanics cannot resolve all questions about the way an infant brain would react to trauma; however, the biomechanical data shows that shaking is an unlikely mechanism for causing the injuries often attributed to it and that accidents can meet the threshold for similar injuries. Medicine has offered ipse dixit in response. Therefore, it would be wrong for physicians to ignore the engineering data and insist that the medical findings in this case were caused by shaking or abuse without acknowledging the other possible options.

II. This Court should clarify the use of medical opinion evidence in determining causation.

Courts have held that it is not enough to show that a person was exposed to something that is known to cause harm. *Bowers v Norfolk S Corp*, 537 FSupp2d 1343, 1377 (MD Ga 2007). There must be a causative nexus between the harm and the exposure, and where that relationship is unsupported by publication, peer review, clinical trials, and so on, causation is not established; it is not enough to claim to have "ruled out" other causes. *McClain v Metabolife Int'l*, 401 F3d 1233 (11th Cir 2005).

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It is even less adequate to claim that an unwitnessed, unverified event—with dubious connections to the harm—*did* occur and *did* cause the harm. The government's burden is not met by merely showing a person *could have* been exposed to something that might cause harm. The government must prove beyond a reasonable doubt that someone *was* exposed to something that *did* cause harm. And it is not enough to make the claim without accompanying data. The only available data in Ms. Lemons' case shows that the claims made by the government are unreliable at best. The United States Court of Appeals for the Fifth Circuit held the following regarding claims that lack supporting evidence:

> This opinion simply lacks the foundation and reliability necessary to support expert testimony. As an unsupported opinion, it does not serve the purposes for which it is offered, that is, objectively to assist the jury in arriving at its verdict. We do not hold, of course, that admissibility of an expert opinion depends upon the expert disproving or discrediting every possible cause other than the one espoused by him. Here, however, the expert] has admitted that [the plaintiff's] symptoms could have numerous causes and, without support save [the plaintiff's] oral history, simply picks the cause that is most advantageous to [the plaintiff's] claim. Indeed, [the expert's] testimony is no more than [the plaintiff's] testimony dressed up and sanctified as the opinion of an expert. Without more than credentials and a subjective opinion, an expert's testimony that "it is so" is not admissible. The district court properly excluded and granted summary judgment for Dow. [*Viterbo v Dow Chem Co*, 826 F2d 420, 424 (5th Cir 1987).]

In this case, the government claims that Nakita Lemons was murdered by shaking or some other unspecified abuse by her parent, Ms. Lemons. It is true that abuse can cause significant—even fatal—injury to an infant. The mere fact that abuse can cause the findings present in Nakita does not prove that she was abused or, if she was abused, the identity of the abuser, much as the mere existence of cancer does not

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prove that any particular individual suffers from that disease. Instead, it is necessary to show exposure to a particular harm and a nexus between the harm and the patient's medical findings. In this case, the government can show neither that Nakita was exposed to abuse nor that she experienced her symptoms as a result of that abuse. The *Bowers and McLain* courts required the showing of 1) the harm, 2) exposure to the thing alleged to have caused the harm, and 3) a nexus between the exposure and the harm; here, the government has shown the medical condition only and assumed the other factors without proving them.

III. This Court should clarify the difference between medical data and confession data.

The Innocence Project has ably analyzed the problems with the confession evidence in its brief; we will therefore not do so here. We do note, however, that the statement of a witness cannot chance the physical or medical evidence in a case. Some scholars now suggest that medical examiners should not include this extraneous evidence in their medical decision-making; juries can evaluate it for themselves. Keith A. Findley & Dean A. Strang, *Ending Manner-of-Death Testimony and Other Opinion Determinations of Crime*, Univ of Wisconsin Legal Studies Research Paper No. 1737, Duquesne University Law Review, Forthcoming. Importantly, medical research on abuse has accepted confession data as true without evaluating the process taken to obtain it. *See, e.g., Catherine* Adamsbaum et al, *Abusive Head Trauma: Judicial Admissions Highlight Violent and Repetitive Shaking*, 126 PEDIATRICS 546 (2010); Suzanne P. et al, *Analysis of Perpetrator Admissions to Inflicted Traumatic Brain Injury in Children*, 158 ARCH PEDIATR ADOLESC Med 454

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(2004); Matthieu Vinchon et al, *Confessed Abuse Versus Witnessed Accidents in Infants: Comparison of Clinical, Radiological and Ophthalmological Data in Corroborated Cases*, 26 CHILDS NERV SYST 637 (2010).

While witness statements can certainly be useful in the diagnosis and treatment of disease, it is used for a different purpose in this case and others like it: it is used when direct medical evidence is absent, often in situations where a manner of death would otherwise be characterized as unknown. Statements of witnesses cannot change the medical facts of a case.

Interpretation of objective data has been shown to change when analysts are given information about suspect statements and/or confessions. Itiel E. Dror & Greg Hampikian, *Subjectivity and Bias in Forensic DNA Mixture Interpretation*. 51 SCI JUSTICE 204 (2011). There is no reason to assume that physicians are any different. Doctors are well-known to suffer from bias, as all human beings do. Brian D. Smedley, et al, eds. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Institute of Medicine (US) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care Washington (DC): National Academies Press (US); 2003.

As the confession evidence in this case appears to have been integrated with the medical opinions, it cannot now be separated from it and treated as independent verification of the medical opinions. It was, therefore, incorrect for the court below to conclude that the confession separately validated the medical evidence and would have separately influenced the jury when in reality, the evidence was intertwined.

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This Court should clarify that witness statements are not necessarily independent from the medical conclusions.

CONCLUSION

As an organization with an interest in sound forensic science and a commitment to reducing and reversing wrongful convictions, we urge this Court to accept Ms. Lemons' case and clarify these outstanding questions.

Respectfully submitted,

Dated: 03/29/2022

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PROOF OF SERVICE

The undersigned certifies that a copy of the foregoing was served on the attorneys of record, and, if required, all parties in the above case on March 29, 2022, by mailing same to them at their respective addresses as disclosed by the pleading of record with postage fully prepaid by US First Class Mail or by ___ Fax ___ Hand Delivery ___ Express Mail _X__ Other (MiFile).

/s/ KIM BARRUS
Kim Barrus