Michigan Supreme Court
Lansing, Michigan

OPINION

FILED July 25, 2024

STATE OF MICHIGAN

SUPREME COURT

PEOPLE OF THE STATE OF MICHIGAN,

Plaintiff-Appellee,

v No. 163939

MILTON LEE LEMONS,

Defendant-Appellant.

BEFORE THE ENTIRE BENCH

CAVANAGH, J.

In 2005, defendant's infant daughter died, and defendant, who was accused of shaking the baby to death, was convicted of first-degree felony murder. In 2017, she filed a successive motion for relief from judgment, arguing that new evidence undermined the prosecution's theory that the child's cause of death was shaken baby syndrome. Following several evidentiary hearings, the trial court concluded that defendant's proposed expert testimony was inadmissible and denied defendant relief. We hold that the trial court abused

its discretion when it ruled defendant's expert testimony inadmissible under MRE 702. If this expert testimony were presented at a retrial, we conclude that a different result would be probable. See *People v Cress*, 468 Mich 678, 692; 664 NW2d 174 (2003). We therefore reverse and remand to the trial court for a new trial.

I. FACTS

Nakita Lemons was the youngest child of defendant and Lori Lemons. Although there were no complications during Nakita's birth, she experienced difficulty breathing when she was one week old. At trial, Lori explained that Nakita "started gasping" and started "to turn colors," and her airways needed to be suctioned with a bulb syringe. When she was approximately one month old, defendant was home alone with Nakita and called Lori to report that Nakita was having another "gasping" episode. After the second episode, Nakita's parents learned that she was allergic to milk, so they switched her formula to one with a soy base and "after that she was fine."

On October 10, 2006, defendant was the sole caregiver of 11-week-old Nakita and her toddler-aged brother after Lori left for work around 2:30 p.m. A few hours later, defendant went to a neighbor's house to ask for help. According to the neighbor, defendant said that Nakita was choking, and the neighbor observed formula pouring out of the baby's mouth. Defendant asked the neighbor to hold the baby while she called 911. However, defendant called Lori instead. The neighbor told defendant to call 911, but after calling Lori, defendant next called her mother-in-law. Finally, defendant took the baby from the neighbor and the neighbor called 911. Defendant's mother-in-law arrived and attempted to administer CPR. Shortly thereafter, paramedics arrived, but Nakita was unresponsive.

Nakita was transported to a nearby hospital and then airlifted to a children's hospital where she died the next morning.

Forensic pathologist Dr. Bader Cassin, then the Washtenaw County Medical Examiner, performed Nakita's autopsy. He found no signs of external trauma. An x-ray revealed a small fracture at the top of Nakita's right acromion (shoulder), which Dr. Cassin characterized as an unusual fracture that was likely caused by trauma. His internal examination of Nakita revealed "brain swelling with blood on the brain surfaces as well as in the nerve sheaf of both eyes" and retinal hemorrhages. Dr. Cassin testified that this combination of findings, in the absence of other findings, is called shaken baby syndrome (SBS).[1] At trial, Dr. Cassin described the cause of SBS:

> It is understood in our field that shaking or rapid oscillation of the head of a child, which in fact, happens because the child's neck muscles at this age are insufficient to control a shaking back and forth, causes the brain to follow the shaking motions of the head whipping back and forth, but slightly behind it. And so the brain, the soft brain, is striking the internal surfaces of the skull.
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> At which time, it begins to swell, which is what a brain does when it is abused in this way, and the surface vessels that bridge between the internal skull surface and brain surface, are tearing. These are small bridging veins, and they deposit a surface of blood on the brain top. And at the same time, there is a stretching of some of the nerves of the brain.[2]

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[1] As the Court of Appeals explained, the " 'triad' of findings," which are typically associated with a diagnosis of shaken baby syndrome, include "subdural hemorrhaging, retinal hemorrhaging, and some form of encephalopathic presentation." *People v Lemons*, unpublished per curiam opinion of the Court of Appeals, issued November 18, 2021 (Docket No. 348277), p 3. Although he did not use the term "triad," this appears to be what Dr. Cassin was referring to when he explained that subdural hemorrhage, retinal hemorrhage, and a swollen brain were "essential findings" in diagnosing SBS.

[2] See also National Institute of Neurological Disorders and Stroke, *Shaken Baby Syndrome* <https://www.ninds.nih.gov/health-information/disorders/shaken-baby-syndrome> (accessed

Dr. Cassin testified that the immediate visible symptoms of SBS would include vomiting and rapid loss of consciousness.

The day after Nakita died, police officers arrested defendant and interviewed her at the police station. There is no transcript or recording of this interview. At trial, Detective Sergeant John Williams of the Wayne Police Department testified that defendant initially explained that on the day of the incident, she had fed, burped, and put Nakita to bed around 5:50 p.m. Shortly after, defendant went into Nakita's room and noticed that she was having trouble breathing. Defendant said that she went next door to ask the neighbor to call 911 and then began performing CPR. According to Detective Williams, defendant commented that "[she] didn't know if [she] shook her to[o] hard when [she] was trying to wake her up."[3] Detective Williams explained that, at that point, he confronted defendant with the autopsy results, which indicated that Nakita had died as a result of shaking. Defendant got "very quiet" and then provided a new version of events. This version of events was memorialized in a handwritten statement signed by defendant, which read in relevant part:

> On October 10th, 2005, my wife left for work at 2:30 p.m., which I dreaded because I didn't like to be left alone with [Nakita]. At four p.m., I fed my son and laid him down for a nap. About 4:40 p.m., [Nakita] was in her swing fussing at this time. About 5:34 p.m., I fed her a bottle and laid her down. At about 6:20, my son started fussing and then she started crying also. I went

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January 10, 2024) [https://perma.cc/WD4D-TRBV] ("[SBS] is a type of brain injury that happens when a baby or young child is shaken violently. When this happens, the brain can bounce back and forth against the skull which can cause bleeding, bruising, and swelling.").

[3] The dissent contends that, almost immediately after the event, defendant conveyed a fear to her wife that "Nakita's injuries were the result of shaking the child." While this is true, context is important. Defendant's wife testified that defendant was concerned that Nakita's condition was caused when defendant "shook her awake *because she wasn't responding*." (Emphasis added.)

> into the room to get him out, but picked her up instead. She wouldn't stop crying and he was still crying too. So I shook her three or four times to get her to be quiet. She stopped crying and started spitting up formula, but was unresponsive.

On a scale from 1 to 10, defendant rated the severity of the shaking at a seven. Defendant explained to the detective that she was feeling "very angry" and "depressed" while shaking Nakita but had only meant to "quiet her up."

Defendant did not testify at trial or call any witnesses. Following the bench trial, the trial court found defendant guilty of first-degree felony murder, MCL 750.316(1)(b) (predicated on first-degree child abuse). Defendant was sentenced to a mandatory term of life in prison without the possibility of parole.

In 2017, defendant filed a successive motion[4] for relief from judgment on the basis of new evidence. See MCR 6.502(G)(2)(b). According to defendant, expert reports and scientific evidence presented in the motion undermined the inculpatory evidence at trial, such that there was no longer any "credible evidence that shaking caused Nakita Lemons's death." The trial court held a lengthy evidentiary hearing, spanning several months, in which both the defense and the prosecution presented testimony from numerous expert witnesses.

Dr. Cassin, who had testified at trial for the prosecution, testified at the evidentiary hearing that he had changed his mind about Nakita's diagnosis. At the time of trial, when he saw the "triad" of symptoms in a deceased infant, he would diagnose SBS in the absence of other obvious causes of death. Dr. Cassin explained that he no longer believed that the

[4] Defendant unsuccessfully filed two previous motions for relief from judgment in January 2010 and July 2010. She did not appeal the trial court's denials of those motions.

triad of findings was exclusively diagnostic of SBS. In addition, Dr. Cassin testified that biomechanical scientists had "demonstrated that the forces in shaking are insufficient to produce such injury." He would now characterize Nakita's manner of death as "indeterminate," meaning it could have been natural, accidental, or homicidal. He agreed that choking was a plausible cause of Nakita's death, but he also agreed that trauma or homicide could not be ruled out. He did not believe that Nakita's shoulder fracture was necessarily indicative of abuse, because it could have occurred during the autopsy or during resuscitation efforts.

In an affidavit attached to defendant's motion for new trial, Dr. John Galaznik, a pediatrician, opined that Nakita had "experienced a choking/aspiration event, which prevented adequate oxygenation of the blood resulting in a brain-lethal period of hypoxia[5] and a cardiac arrest." In his opinion, the available evidence did "not support an allegation that abusive shaking was the primary mechanism of injury." At the evidentiary hearing, Dr. Galaznik testified that a diagnosis of abusive shaking based on the triad of symptoms was not "supported in the clinical literature or in the experimental literature." In addition, Dr. Galaznik testified there was no evidence that Nakita had suffered a neck injury, which he would expect to observe, based on biomechanical research, if a child was shaken to the point of neurological injury. He also noted the relatively small amount of subdural blood in Nakita's head, explaining that he would expect a more significant amount to be present

[5] "Hypoxia" occurs "when an organ experiences oxygen delivery that is insufficient to meet the metabolic needs of the tissue." Lacerte, Hays Shapshak, and Mesfin, *Hypoxic Brain Injury* (Treasure Island, FL: StatPearls Publishing, January 27, 2023), available at <https://www.ncbi.nlm.nih.gov/books/NBK537310/> (accessed January 10, 2024) [https://perma.cc/8MSU-CHZ2].

if a bridging vein on the brain was ruptured through abusive shaking. In his opinion, a choking event was a more likely cause of the child's death because choking could lead to a brain-lethal period of hypoxia and, followed by subsequent resuscitation attempts, could have caused Nakita's symptoms. He opined that Nakita's shoulder fracture might not have been a fracture at all or could have been inflicted accidentally.

In another affidavit attached to defendant's motion for relief from judgment, Dr. George Nichols, a forensic pathologist, concluded that Dr. Cassin's SBS diagnosis had no support in evidence or sound medical literature. He did not believe that shaking had caused Nakita's death, "given the questions regarding whether shaking is even capable of producing her injuries, and especially because of the complete absence of a neck or spinal injury." Instead, he believed that Nakita's death was caused by "anoxia[6] due to airway obstruction, with subsequent cardio-respiratory arrest and prolonged CPR causing HIE [hypoxic ischemic encephalopathy[7]]." At the evidentiary hearing, Dr. Nichols testified that the triad of findings (retinal hemorrhaging, subdural hematoma, brain swelling) was previously "an almost religious canon," meaning that if the triad findings were present, then a child would be diagnosed with SBS. However, he no longer believed that shaking was the only possible cause of the triad. He agreed that a child could die from shaking, but in the two cases he had seen where a child had died from shaking, the child had also

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[6] Anoxia refers to the complete lack of oxygen delivery to an organ. Lacerte, Hays Shapshak, and Mesfin, *Hypoxic Brain Injury*. Anoxia and hypoxia are similar terms and may sometimes be used interchangeably. See *id*.

[7] HIE is a brain injury caused by a lack of blood flow and oxygen to the brain. Massachusetts General Hospital, *Hypoxic Ischemic Encephalopathy: Causes and Symptoms* <https://massgeneral.org/children/hypoxic-ischemic-encephalopathy> (accessed January 10, 2024) [https://perma.cc/TA54-8HE9].

suffered a neck injury. He again opined that Nakita's symptoms were a result of "hypoxia" caused by "dysphagic choking."

Dr. Patrick Barnes, a pediatric radiologist and neuroradiologist, discussed the history of SBS. He said that in his early training he was taught that the triad of symptoms was proof that a baby was shaken, but he later came to question that training. He said that he used biomechanical studies in his work as a radiologist. Dr. Barnes testified that babies who have difficulty feeding can choke, and this was a common mechanism of apnea respiratory arrest followed by cardiac arrest. Dr. Barnes also testified that the type of fracture to the acromion that Nakita suffered was not necessarily moderately or highly specific for abuse, particularly in light of knowledge about bone fragility disorders and the possibility of accidental fractures from resuscitation measures. He opined that there was evidence that Nakita had rickets, or severe vitamin D deficiency, which could explain the fracture and could have caused breathing problems.

The prosecution also called several expert witnesses. Dr. Jeffrey Jentzen, the Washtenaw County Medical Examiner at the time of the evidentiary hearing, testified that a majority of forensic pathologists continued to consider SBS a plausible and acceptable diagnosis for a subset of abusive head trauma (AHT) injury. He agreed that there was disagreement in the medical community regarding the reliability of the SBS diagnosis but clarified that this disagreement was with a minority of forensic pathologists. According to Dr. Jentzen, biomechanical studies had not been able to adequately determine the mechanism of injury, and the ideal model to study the effects of shaking on infants had not yet been developed. He testified that no research had been able to disprove that severe shaking of an infant can and does cause death. Dr. Jentzen said he would have diagnosed

SBS in the instant case and that there was nothing in the emergency-room report that would support a finding that the infant choked. Dr. Jentzen testified that the autopsy findings were consistent with defendant's statement that she shook Nakita three or four times.

Dr. Peter Strouse, a pediatric radiologist, testified that the acromion fracture in Nakita's shoulder was very rare in infants and young children and was highly specific for child abuse. He did not think it was caused by resuscitation efforts and did not see evidence that the child had rickets.

Dr. Daniel Davis, a forensic pathologist and medical examiner, testified about the mechanism of injury when an infant is shaken, explaining that "the brain rotates in the head . . . ." He explained that he was able to conclude that an infant's brain rotates during shaking by using biofidelic and computer models of an infant's head. Although he relied on biomechanical models to reach his conclusions, he admitted that there were "problems with relying on biomechanical models," noting that a "legitimate criticism [is] that [a model] is not a baby's head." He further noted that much of the research was based on animal studies that had been "scaled up for humans." According to Dr. Davis, it was possible for shaking to cause subdural hemorrhages and retinal hemorrhages without causing catastrophic neck injury. He opined that choking could not have caused Nakita's death. After reviewing Nakita's autopsy and associated reports, he did not doubt that her cause of death was SBS.

Dr. Cindy Christian, a child abuse pediatrician, testified that the weight of medical literature supported the diagnosis of SBS. She explained that a medical diagnosis was based on taking a history, performing an examination, and looking for injury, not simply on the presence of the triad. She testified that an overwhelming number of doctors

surveyed recognized SBS or AHT as a valid diagnosis. Doctors who did not recognize SBS—like defendant's proposed experts—presented "fringe theories" and "fringe opinions." She did not believe that Nakita's injuries could have been caused by dysphagic choking. She said that babies who experience HIE do not manifest clinically significant subdural hemorrhages. She opined that an acromion fracture is an "unusual fracture" that is "strongly associated with child abuse." She also did not see evidence of rickets. She believed that defendant's confession supported the diagnosis of SBS and could not conclude that there was any other possible nontraumatic explanation for Nakita's death.

In addition, Dr. Christian explained that she worked with biomechanical engineers who studied modeling around SBS and AHT; however, she agreed that there were "problems" with claims made by biomechanical engineers who purported to disprove SBS. These problems included a lack of data that shows the "actual injury threshold of tissue to know what injury one might or might not expect from certain forces," the lack of a "perfect biofidelic model of an infant," and that some studies concluding that a baby cannot be shaken without catastrophic neck failure were "fundamentally flawed."

The defense then called Dr. Chris Van Ee, a biomechanical engineer, as a rebuttal witness. Dr. Van Ee agreed that shaking could injure or kill an infant. That said, according to Dr. Van Ee, biomechanical research demonstrated "good reasons to question [whether] the angular accelerations produced in shaking will give rise to ripping of bridge veins." Biomechanical studies demonstrated that it is "unlikely" that shaking could "give rise to [the] injuries [associated with SBS] without injury to the neck or the chest[.]" Dr. Van Ee agreed that biomechanics relied on animal studies, physical modeling, computational modeling, and cadaver studies in addition to "real world" data, such as what happens to

human bodies in a car accident or a fall. Dr. Van Ee acknowledged that biofidelic models used in biomechanical research were not "perfect" or "identical to an infant."

The defense also called Dr. Roland Auer, a neuropathologist, in rebuttal. He had not been provided any information about the specifics of the case. He testified that subdural hemorrhaging can be caused by hypoxia and that hypoxia can be brought on by choking.

Although the trial court concluded that defendant satisfied the procedural requirements of MCR 6.502(G)(2), the trial court denied defendant's motion for relief from judgment, holding that all defendant's proffered new evidence was inadmissible under MRE 702. Defendant filed a delayed application for leave to appeal, which the Court of Appeals denied. *People v Lemons*, unpublished order of the Court of Appeals, entered July 22, 2019 (Docket No. 348277). Defendant then applied for leave to appeal in this Court. In lieu of granting leave to appeal, this Court remanded defendant's case to the Court of Appeals as on leave granted. *People v Lemons*, 505 Mich 1084 (2020).

On remand, the Court of Appeals held that the trial court abused its discretion when it concluded that defense expert evidence discrediting the validity of the SBS diagnosis and use of the "triad" as a diagnostic tool was inadmissible. *People v Lemons*, unpublished per curiam opinion of the Court of Appeals, issued November 18, 2021 (Docket No. 348277), p 9. The Court of Appeals also concluded that the trial court abused its discretion in rejecting defense expert evidence that Nakita's death could have been caused by choking on formula and subsequent resuscitation. *Id*. at 8. However, the Court of Appeals concluded that it was not an abuse of discretion for the trial court to exclude Dr. Van Ee's expert biomechanical testimony. *Id*. at 6-7. Although the trial court erred in finding some of defendant's proposed evidence inadmissible, the Court of Appeals ultimately affirmed

the trial court's order denying defendant's motion for relief from judgment because the panel concluded that there was no reasonable probability of a different outcome on retrial even if the improperly excluded evidence was admitted. *Id*. at 11. Defendant again sought leave to appeal in this Court, and we ordered oral argument on the application, directing the parties to address

> whether the Court of Appeals erred in holding that: (1) the Wayne Circuit Court did not abuse its discretion by concluding that the biomechanical engineering evidence and testimony was inadmissible, or by excluding alternate causation theories that purportedly lacked scientific or factual support; (2) the Wayne Circuit Court correctly denied the defendant relief despite its erroneous decision to exclude the defense experts' opinions regarding the validity of SBS diagnoses, reliance on the triad as a diagnostic tool, and the possibility of choking as an alternative cause of death; or (3) the new evidence presented by the defendant was insufficient to create a reasonable probability of a different outcome on retrial and warrant relief under *People v Cress*, 468 Mich 678, 692 (2003). [*People v Lemons*, 510 Mich 946, 946 (2022).]

We now address these issues in turn.

II. BIOMECHANICAL EVIDENCE

A. RELEVANT STANDARDS OF EVIDENCE ADMISSIBILITY

"This Court reviews for an abuse of discretion a circuit court's decision to admit or exclude evidence." *People v Kowalski*, 492 Mich 106, 119; 821 NW2d 14 (2012) (opinion by MARY BETH KELLY, J.). Questions of law underlying evidentiary rulings are reviewed de novo. *Id*.

In order to be admissible, expert testimony must satisfy the prerequisites of MRE 702, which provided at all times relevant to this case[8]:

> If the court determines that scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise if (1) the testimony is based on sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

"A court considering whether to admit expert testimony under MRE 702 acts as a gatekeeper and has a fundamental duty to ensure that the proffered expert testimony is both relevant and reliable." *Kowalski*, 492 Mich at 120. "[T]he proponent of evidence bears the burden of establishing relevance and admissibility." *Gilbert v DaimlerChrysler Corp*, 470 Mich 749, 781; 685 NW2d 391 (2004) (quotation marks and citation omitted).

As it relates to reliability, the focus of the MRE 702 inquiry "must be solely on principles and methodology, not on the conclusions that they generate." *Daubert v Merrell Dow Pharm, Inc*, 509 US 579, 595; 113 S Ct 2786; 125 L Ed 2d 469 (1993).[9] That said, it is not enough that the expert's opinion "rests on data viewed as legitimate in the context of a particular area of expertise." *Gilbert*, 470 Mich at 782. Instead, "[t]he proponent must

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[8] This Court recently adopted stylistic changes to MRE 702, effective January 1, 2024. 512 Mich ___ (2023).

[9] "This Court has stated that MRE 702 incorporates the standards of reliability that the United States Supreme Court described to interpret the equivalent federal rule of evidence in [*Daubert*]." *Edry v Adelman*, 486 Mich 634, 639; 786 NW2d 567 (2010). Accordingly, we may look to federal cases interpreting FRE 702 for guidance. That said, as discussed elsewhere, such authority is not binding on this Court's interpretation of the Michigan Rules of Evidence.

also show that any opinion based on those data expresses conclusions reached through reliable principles and methodology." *Id*. Importantly, however, it is not the duty of the trial court to "search for absolute truth, to admit only uncontested evidence, or to resolve genuine scientific disputes." *People v Unger*, 278 Mich App 210, 217; 749 NW2d 272 (2008) (quotation marks and citation omitted); see also *Karlo v Pittsburgh Glass Works, LLC*, 849 F3d 61, 81 (CA 3, 2017) ("The test of admissibility is not whether a particular scientific opinion has the best foundation, or even whether the opinion is supported by the best methodology or unassailable research.") (quotation marks and citation omitted). Instead, "[w]hen evaluating the reliability of a scientific theory or technique, courts consider certain factors, including but not limited to whether the theory has been or can be tested, whether it has been published and peer-reviewed, its level of general acceptance, and its rate of error if known." *Kowalski*, 492 Mich at 131 (opinion by MARY BETH KELLY, J.).

In addition, courts must ensure that evidence is relevant. Evidence is relevant when it will "assist the trier of fact to understand the evidence or to determine a fact in issue . . . ." *Id*. at 121 (quotation marks and citation omitted). In the context of expert evidence, relevance is sometimes referred to as "fit": The trial court must "ensure the expert's testimony is 'sufficiently tied to the facts of the case,' so that it 'fits' the dispute and will assist the trier of fact." *UGI Sunbury LLC v A Permanent Easement*, 949 F3d 825, 832 (CA 3, 2020), quoting *Daubert*, 509 US at 591. " 'Fit' is not always obvious, and scientific validity for one purpose is not necessarily scientific validity for other, unrelated purposes." *Daubert*, 509 US at 591.

B. ADMISSIBILITY OF BIOMECHANICAL TESTIMONY

Both the trial court and the Court of Appeals concluded that biomechanical-engineering testimony presented at the evidentiary hearing was inadmissible as it relates to SBS. We disagree. "Biomechanics is the study of forces acting on and generated within the body and of the effects of these forces on the tissues, fluids, or materials used for diagnosis, treatment, or research purposes."[10] As one court has recently explained, SBS is a "multidisciplinary diagnosis based on the theory that vigorously shaking an infant . . . creates . . . great rotational acceleration and deceleration forces that result in a constellation of symptoms that may not manifest externally." *State v Nieves*, 476 NJ Super 609, 652; 302 A3d 595 (App Div, 2023). Therefore, the SBS hypothesis is inherently "grounded in biomechanical principles." *Id*. at 653.

As summarized previously, many of the experts called at the evidentiary hearing—both for the defense and for the prosecution—discussed biomechanical principles to either confirm or dispel their theories about SBS and whether shaking caused Nakita's injuries. Many candidly admitted that they were not experts in biomechanics. Therefore, on rebuttal, defendant called biomechanical engineer, Dr. Chris Van Ee, to testify. The gist of his testimony was that, in his expert opinion, there are "good reasons," grounded in biomechanical science, to conclude that shaking is insufficient to produce the accelerations

[10] National Research Council and Institute of Medicine Panel on Musculoskeletal Disorders and the Workplace, *Musculoskeletal Disorders and the Workplace: Lower Back and Upper Extremities* (Washington, DC: National Academies Press, 2001), p 219, available at <https://www.ncbi.nlm.nih.gov/books/NBK222440/pdf/Bookshelf_NBK222440.pdf> (accessed January 18, 2024) [https://perma.cc/62PC-BALE].

necessary to produce injuries typically associated with SBS without also causing significant injuries to the neck.

The trial court ruled that Dr. Van Ee's testimony was inadmissible.[11] According to the trial court, there was " 'too great an analytical gap between the data and the opinion proffered.' " Quoting *Gen Electric Co v Joiner*, 522 US 136, 146; 118 S Ct 512; 139 L Ed 2d 508 (1997). As acknowledged by Dr. Van Ee, biomechanical studies are unable to replicate the precise mechanics of the forces that cause SBS. Biomechanical engineers must rely on computer modeling, biofidelic modeling, or testing done on small animals. Therefore, the trial court concluded that this evidence was inadmissible, reasoning, "[s]imply put, biomechanical studies are not presently able to replicate the exact number and degree of injury to the brain that would occur as a result of Shaken Baby Syndrome."

The Court of Appeals affirmed, concluding that the *Joiner* case cited by the trial court was "particularly persuasive." *Lemons*, unpub op at 6. The panel reasoned that "[w]hile the biomechanical research and studies may very well involve legitimate scientific methods and reasoning," the data relied on came from modeling, cadaver studies, and other mechanisms of injury other than shaking. *Id*. Therefore, the defense failed to "establish that principles derived from this research can be reliably applied to alleged SBS cases." *Id*. at 6-7. Accordingly, the panel concluded that the trial court's decision to exclude the biomechanical evidence was not an abuse of discretion. *Id*. at 7.

We disagree. The trial court stepped beyond its role as gatekeeper of relevant and reliable information, see MRE 702 and *Kowalski*, 492 Mich at 120, and instead acted as

[11] As the Court of Appeals noted, this ruling also presumably rendered any of the other expert testimony that relied on biomechanical studies and literature inadmissible as well.

the final arbiter of the correctness of Dr. Van Ee's conclusions. Dr. Van Ee's testimony satisfied the requirements of MRE 702. He was a qualified expert in the field of biomechanical engineering. His testimony regarding the biomechanical mechanism of SBS would assist the trier of fact in ascertaining a fact at issue—whether Nakita died from injuries caused by abusive shaking. Biomechanical engineering is a legitimate field of scientific study and Dr. Van Ee's testimony was "based on sufficient facts or data" and was "the product of reliable principles and methods." MRE 702. The question, therefore, is whether Dr. Van Ee was able to take those principles and methods and reliably apply them to the facts of this case. The lower courts, relying on *Joiner*, 522 US at 146, concluded there was "too great an analytical gap between the data and the opinion proffered."

In *Joiner*, the respondent brought a personal injury lawsuit, arguing that he developed lung cancer after being exposed to polychlorinated biphenyls (PCBs) during his employment. *Joiner*, 522 US at 139. In support of his claim, he sought to present experts who would testify that PCBs were a cause or contributing factor in his development of cancer. *Id*. at 140, 143. These experts relied on animal studies in support of their opinions. *Id*. at 143-144. The federal district court held that such testimony was inadmissible, concluding that the studies involved infant mice who were injected with "massive doses" of PCBs, and those mice developed one specific type of cancer. *Id*. at 144. The respondent, on the other hand, an adult man, had lesser exposure to PCBs in lesser concentrations and developed an entirely different type of cancer. *Id*. In other words, the animal studies relied upon were "seemingly far-removed" from the facts of the respondent's case. *Id*. The respondent's experts also relied on four epidemiological studies that the district court found were insufficient to support the experts' opinions. *Id*. at 144-145. One study's authors

were unwilling to conclude that PCB exposure caused cancer, another study failed to find a statistically significant link between lung cancer deaths and PCBs, and a third and fourth study were not even about PCB exposure. *Id*. at 145-146.

The United States Supreme Court affirmed. As for the animal studies, they were "so dissimilar to the facts presented in [the respondent's] litigation that it was not an abuse of discretion for the District Court to have rejected the experts' reliance on them." *Id*. at 144-145. In regard to the epidemiological studies, the respondent argued that the district court had erroneously focused on the conclusions reached by the experts, contrary to the guidance set forth in *Daubert*. *Id*. at 146. The Supreme Court disagreed, explaining that "conclusions and methodology are not entirely distinct from one another." *Id*. "[N]othing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert." *Id*. "A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered." *Id*. Accordingly, the Supreme Court concluded that the district court did not abuse its discretion in excluding the respondent's expert testimony. *Id*. at 146-147.

Joiner does not support the lower courts' conclusions in this case.[12] There is an appreciable difference between the expert testimony that was excluded in *Joiner*, given its

[12] We also caution against overreliance on *Joiner*, 522 US 136. To begin, *Joiner* is only persuasive, not binding, authority on our interpretation of the Michigan Rules of Evidence. *People v VanderVliet*, 444 Mich 52, 60 n 7; 508 NW2d 114 (1993) (noting that federal caselaw concerning the Federal Rules of Evidence may be "helpful" or "persuasive"). Also, the focus of the Supreme Court in *Joiner* was the proper standard of review, not the substantive admissibility question. *Joiner*, 522 US at 138-139 ("We granted certiorari in

tenuous connection to the facts of that case, and the testimony at issue here. In *Joiner*, the respondent sought to introduce expert testimony about experiments done on infant mice injected with chemicals who went on to develop one type of cancer; but the respondent's chemical exposure was significantly less, and he developed a different type of cancer. It is not hard to understand why the mice-related studies were "far removed" from explaining how respondent came to develop lung cancer. Similarly, epidemiological studies relied on by the experts in *Joiner* either did not make the link between PCBs and cancer or did not discuss PCBs at all. In a case in which the respondent was attempting to associate a specific chemical to his cancer diagnosis, this link was crucial.

Here, Dr. Van Ee's testimony was not "far removed" or missing a connecting link between data, methodology, and conclusion. Rather, it was based on studies specifically designed to test the effects of abusive shaking on infants, utilized various models to test the hypotheses, and specifically concluded that shaking without serious injury to the neck could not produce symptoms associated with SBS. This is a far cry from the types of extrapolations the experts in *Joiner* needed to make to try and fit their underlying data to the facts.

The lower courts concluded that the gap between the data Dr. Van Ee relied on and the conclusions he reached was too wide because biomechanical studies cannot perfectly replicate injuries an infant would sustain from shaking. However, neither the scientific method nor MRE 702 require that sort of perfection. As the Supreme Court has stated, "it would be unreasonable to conclude that the subject of scientific testimony must be 'known'

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this case to determine what standard an appellate court should apply in reviewing a trial court's decision to admit or exclude expert testimony under [*Daubert*].").

to a certainty" because "arguably, there are no certainties in science." *Daubert*, 509 US at 590. The MRE 702 inquiry is necessarily flexible. *Kowalski*, 492 Mich at 120. In the realm of the biomechanical evidence underlying SBS, there can never be a *perfectly* replicated model of a shaken infant for obvious ethical reasons. In other words, there will always be at least some gap between the data and the conclusions reached. This cannot and does not prohibit a qualified expert from testifying, on the basis of reliable principles and methodologies, about what can be extrapolated from various imperfect modeling about how an infant's body reacts to shaking. This is not the sort of ipse dixit or "subjective belief or unsupported speculation" that the MRE 702 inquiry aims to keep from the jury. *Daubert*, 509 US at 590.

The prosecution points out what it perceives as "distinct flaws" in the biomechanical studies relied upon by defendant's experts. But none of these flaws are of the type that would render this expert testimony inadmissible under MRE 702. The job of the courts is to act as gatekeeper, ensuring that expert testimony employs "the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." *Kumho Tire Co, Ltd v Carmichael*, 526 US 137, 152; 119 S Ct 1167; 143 L Ed 2d 238 (1999). The MRE 702 inquiry "does not impose on judges either the obligation or the authority to become amateur scientists." *In re Joint Eastern & Southern Dist Asbestos Litigation*, 52 F3d 1124, 1137 (CA 2, 1995) (quotation marks, citation, and brackets omitted). Dr. Van Ee's testimony was based on several studies that are widely accepted in the biomechanical community. It is not the trial court's duty to decide the ultimate correctness of conclusions reached on the basis of data derived from scientifically valid principles. *Unger*, 278 Mich App at 220 (holding that when conclusions are reached using "standard methods," the expert's

credibility is a question for the jury). Any limitations in the conclusions that can be drawn from biomechanical studies as applied to the facts of this case go to its weight, not admissibility. *People v Gambrell*, 429 Mich 401, 408; 415 NW2d 202 (1987) ("Gaps or weaknesses in the witness' expertise are a fit subject for cross-examination, and go to the weight of his testimony, not its admissibility.").

There is nothing inherently problematic about presenting to a jury expert testimony in biomechanics. Such evidence is presented in a broad swath of cases across the country. *Commonwealth v Robinson*, 103 Mass App 361; 219 NE3d 326 (2023) (admitting biomechanical evidence in a child abuse prosecution); *Nieves*, 476 NJ Super 609 (admitting biomechanical evidence in an SBS/AHT case); *Nabors Well Servs, Ltd v Romero*, 508 SW3d 512, 531 (Tex App, 2016) ("Biomechanical experts are commonly designated when a [litigant] wish[es] to prove that a particular kind of injury might or might not result from an auto collision at a particular speed."); *Moore v Ford Motor Co*, 332 SW3d 749, 769 (Mo, 2011) (holding that a biomechanical engineer was qualified to testify about the "effect of forces acting on a person's body"). Michigan courts have recognized the admissibility of such testimony as well. See, e.g., *Lopez v Gen Motors Corp*, 224 Mich App 618, 635, 636; 569 NW2d 861 (1997); *Unger*, 278 Mich App at 227-228, 247; *People v Hawkins*, ___ Mich App ___; ___ NW3d ___ (2023) (Docket No. 365076). We fail to understand why there is no "analytical gap" between expert opinion testimony and biofidelic and computer models in cases involving car crashes or product liability, but when those same

models are relied on by experts in cases involving SBS, there is an insurmountable analytical gap between the models and the experts' testimony.[13]

As is evident from the briefing received by the Court, a segment of the medical community takes significant issue with biomechanical research on SBS. But, just as a biomechanical engineer may not testify about medical causation outside of their expertise, the medical community is not the judge of the validity of biomechanical research, nor is it the sole relevant expert community with respect to SBS. We find the position that biomechanics—the study of forces acting on and generated within the human body—is divorceable from a diagnosis of *shaken* baby syndrome to be untenable. Although we do not state a bright-line rule permitting biomechanical evidence in all SBS cases, in this case, "[a]lthough clearly not universally accepted," Dr. Van Ee's "opinion is certainly objective, rational, and based on sound and trustworthy scientific literature." *Chapin v A & L Parts, Inc*, 274 Mich App 122, 140; 732 NW2d 578 (2007). It also "fit" the facts in dispute in this case and would assist the trier of fact in determining whether the prosecution could prove beyond a reasonable doubt that Nakita's cause of death was SBS. *Daubert*, 509 US at 591. We therefore reverse the Court of Appeals and hold that the trial court abused its discretion by misapplying MRE 702 and ordering that biomechanical evidence was inadmissible in this case.

[13] The irony of one the prosecution's own experts, Dr. Daniel Davis, presenting a computer model demonstrating his hypothesis concerning rotational forces within an infant's head when shaken, juxtaposed with the prosecutor's argument that similar biomechanical evidence should be inadmissible when presented by the defense, is not lost on this Court.

III. ENTITLEMENT TO RELIEF UNDER MCR 6.502 AND MCR 6.508 AND *CRESS*

Criminal defendants are generally limited to "one and only one motion for relief from judgment" with regard to a conviction. MCR 6.502(G)(1). However, a successive motion for relief from judgment may be filed if it is based on, relevant here, "a claim of new evidence that was not discovered before the first such motion was filed[.]" MCR 6.502(G)(2)(b). The trial court concluded that Dr. Cassin's changed testimony constituted new evidence for purposes of MCR 6.502(G). The prosecution does not dispute this. Accordingly, defendant has overcome the procedural bar in MCR 6.502(G).

Moving to entitlement to relief, defendant has the burden of demonstrating "good cause for failure to raise such grounds on appeal or in the prior motion," MCR 6.508(D)(3)(a), and "actual prejudice from the alleged irregularities that support the claim for relief," MCR 6.508(D)(3)(b). In this case, that means that "but for the alleged error, the defendant would have had a reasonably likely chance of acquittal[.]" MCR 6.508(D)(3)(b)(i)(A).

Under *Cress*, 468 Mich at 692, a defendant who seeks a new trial on the basis of newly discovered evidence must prove that "(1) the evidence itself, not merely its materiality, was newly discovered; (2) the newly discovered evidence was not cumulative; (3) the party could not, using reasonable diligence, have discovered and produced the evidence at trial; and (4) the new evidence makes a different result probable on retrial."[14] (Quotation marks and citations omitted.) When assessing the probability of a different

[14] The first three prongs of *Cress* relate to MCR 6.508(D)(3)(a)'s requirement that a defendant must establish "good cause," while the final prong of *Cress* relates to MCR 6.508(D)(3)(b)'s requirement that a defendant must demonstrate "actual prejudice."

result on retrial, the court must not only take into account the evidence presented at the original trial, but also evidence that would be presented at a new trial. *People v Johnson*, 502 Mich 541, 571; 918 NW2d 676 (2018).[15]

As the Court of Appeals explained, Dr. Cassin's testimony—that his opinions on SBS had changed and he would no longer characterize Nakita's manner of death as homicide—satisfies the first three prongs of *Cress*. First, his testimony is newly discovered. *People v Rao*, 491 Mich 271, 281; 815 NW2d 105 (2012) ("Evidence is newly discovered if it can be shown to have been unknown to the defendant or his counsel at the time of trial.") (quotation marks, citation, and brackets omitted). Defendant's trial took place in 2006, and Dr. Cassin's changed opinion came to light in 2017. Second, because it is different from the testimony provided at trial, it is clearly not cumulative. Third, defendant could not have discovered this evidence at the time of trial because it did not exist. Accordingly, defendant satisfies prongs 1 through 3 of *Cress*.[16]

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[15] Our dissenting colleague argues that 6.500 motions are "highly disfavored in Michigan criminal jurisprudence" and stresses the importance of the finality of convictions. We agree that motions for new trial are generally looked upon with disfavor and that finality is an important component of our criminal justice system. That said, while finality important, so is ensuring that rights are safeguarded in our criminal justice system, that justice is done, and that the rule of law is upheld. No one benefits when a wrongful conviction is allowed to stand. In *People v Rao*, 491 Mich 271, 280; 815 NW2d 105 (2012), this Court explained that where a defendant with new evidence can overcome the hurdles imposed by *Cress*, this strikes the correct "balance between upholding the finality of judgments and unsettling judgments in the unusual case in which justice under the law requires a new trial." Because we conclude that defendant has carried her burden under *Cress*, finality can no longer be our sole focus.

[16] Because Dr. Cassin's testimony satisfies the first three prongs of the *Cress* test, we need not decide whether other proposed defense expert testimony would also satisfy these prongs. Regardless, their testimony can be considered as it relates to *Cress*'s final prong.

Our focus, therefore, is on whether "the new evidence makes a different result probable on retrial." *Johnson*, 502 Mich at 566 (quotation marks and citation omitted). The trial court and the Court of Appeals concluded that it would not. However, in light of the conclusion that most of defendant's proffered expert testimony would be admissible and because *all* evidence that would be presented at a new trial must be considered when deciding whether new evidence would make a different result probable, we conclude that defendant has satisfied all four prongs of *Cress*.

On retrial, we assume that the prosecution would present the original autopsy findings, which concluded that Nakita's manner of death was a homicide, and the cause was SBS.[17] The prosecution could also call the various experts presented during the evidentiary hearing to testify about the validity of the SBS diagnosis and their beliefs that Nakita's injuries were consistent with that diagnosis. The prosecution is also likely to present circumstantial evidence that could support consciousness of guilt, such as defendant's perceived reluctance to call 911 and her decision to instead call her wife and mother-in-law. Finally, the prosecution would undoubtedly present defendant's confession

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See *Johnson*, 502 Mich at 566-571 (discussing all evidence that would be submitted at retrial).

[17] Although Dr. Cassin authored the original autopsy, he was no longer employed as the Washtenaw County Medical Examiner at the time of trial. According to Mich Admin Code, R 325.3266(2)(c)(ii), Dr. Cassin, as "[t]he physician who certified to the cause of death," could request to amend the cause or manner of death. However, it appears there is no procedure by which a medical examiner, now Dr. Jentzen, is required to entertain such a request. See *Heller v DeJong*, unpublished per curiam opinion of the Court of Appeals, issued May 21, 2019 (Docket No. 345164). In any event, that Dr. Cassin no longer speaks for the Washtenaw County Medical Examiner's Office does not render his changed medical opinion irrelevant.

to police in which she admitted to shaking Nakita, at a level of seven on a scale of severity from 1 to 10, in order to "quiet her up." On this evidence, a jury could very well find defendant guilty beyond a reasonable doubt of first-degree felony murder a second time.[18]

However, at a new trial defendant could present the changed testimony of Dr. Cassin. The trial court concluded that Dr. Cassin's proffered testimony was vague, speculative, and regarded it with the suspicion generally afforded to lay recantation testimony. We echo the concerns of the Court of Appeals in regard to the trial court's characterization of Dr. Cassin's testimony. Assuming a trial court might generally approach lay recantation testimony with suspicion, see *Johnson*, 502 Mich at 578, this general approach is less persuasive when applied to the expert testimony at issue in this case. As the panel recognized, Dr. Cassin testified that he changed his professional opinion over time because of scientific developments. There was no evidence that this change had anything to do with defendant or that Dr. Cassin's testimony was in any way improperly motivated for defendant's benefit.[19] The trial court also faulted Dr. Cassin for failing to cite a specific article that had changed his opinion and zeroed in on a factual inaccuracy in his testimony that did not bear on his ultimate conclusion. We interpret these findings as a credibility determination. This was in error as it is clear that Dr. Cassin's testimony was not "patently incredible." *Id*. at 568. So long as a reasonable juror could find the testimony

[18] Contrary to the dissent's position, the trial court's factual findings are not "as a matter of law . . . final and controlling" in light of the new evidence presented. Were that the case, there would be no need for a mechanism for criminal defendants to seek a new trial on the basis of new evidence.

[19] Moreover, it is worth noting that Dr. Cassin was originally an expert witness for the state, not defendant. An argument could be made that Dr. Cassin would actually have a motive *not* to change his testimony under these circumstances.

credible on retrial, the evidence's impact at a retrial may be considered. See *id*. at 571. Dr. Cassin's testimony that Nakita's manner of death was indeterminate, while not foreclosing the possibility that her death was a homicide, would leave open the possibility for a fact-finder on retrial to conclude that Nakita's death was natural or accidental.

In addition, unlike at the first trial,[20] at retrial defendant could present evidence concerning the alleged controversy in the medical community regarding the SBS diagnosis. The trial court excluded this evidence, finding that the only "credible" evidence presented confirmed that SBS is a widely accepted diagnosis in the medical community and that the opinions of the defense experts were "outliers, not generally accepted in the medical community . . . ." As the Court of Appeals held, this was an abuse of discretion. The defense experts opined that other conditions could cause the triad of symptoms and questioned the scientific quality of the literature regarding the diagnostic accuracy of SBS based on the triad.[21] They cited published articles, reports, and studies in support of their

[20] Because we conclude that defendant is entitled to a new trial under *Cress*, we need not address whether her trial attorney was ineffective for failing to challenge the validity of the SBS diagnosis at trial. We simply note our prior observation that in an SBS case "where there is no victim who can provide an account, no eyewitness, no corroborative physical evidence and no apparent motive to kill, the expert *is* the case." *People v Ackley*, 497 Mich 381, 397; 870 NW2d 858 (2015) (quotation marks, citation, and ellipsis omitted). When the prosecution presents an expert to supply a narrative of the defendant's guilt, it may, depending on the circumstances, be ineffective assistance of counsel for an attorney not to counter that narrative with their own expert testimony. *Id*.

[21] The dissent insists that SBS is not simply diagnosed through a "mechanical process by which the boxes of certain symptoms are checked." While this may be generally true, it ignores Dr. Cassin's testimony—the doctor whose testimony was presented at trial—about how *he* diagnosed SBS in this very case. Dr. Cassin explained at the evidentiary hearing that when he saw the "triad" of symptoms, absent some other obvious cause of death, he would diagnose SBS, suggesting that his diagnostic process at the time *was* based on a mechanical process.

opinions. As the panel recognized, proponents of the SBS diagnosis as well as experts such as those presented by defendant, who disagree with or are skeptical of the SBS diagnosis, rely on the same sources of data. *Lemons*, unpub op at 7. They simply reach different conclusions by attaching different interpretations to that information. *Id*. These divergences are a matter of weight, not admissibility. See *Bouverette v Westinghouse Electric Corp*, 245 Mich App 391, 401; 628 NW2d 86 (2001). As the panel concluded, "[t]he extensive expert testimony offered in this case and [the] plethora of authority cited below make it clear that there is a genuine dispute regarding SBS and the diagnostic significance of the triad, and it was not for the trial court to decide which view ought to be credited." *Lemons*, unpub op at 7. If on retrial a jury credited the defense experts' testimony that SBS was not a valid or applicable diagnosis in this case,[22] it would undermine the prosecution's theory of what caused Nakita's death.

Defendant could also present evidence at retrial consistent with the theory that Nakita's cause of death was dysphagic choking followed by hypoxic-ischemic brain injury (HIE). The trial court concluded that this evidence was inadmissible because the theory was "not supported by the vast majority of medical experts and represents an opinion not generally accepted in the medical community." However, again, the Court of Appeals correctly disagreed and concluded that this was an abuse of discretion. The trial court appeared to be "attempting to assess which of the competing views regarding HIE was correct." *Id*. at 8. The trial court should have focused on the reliability of the underlying

[22] This includes Dr. Van Ee's testimony that biomechanical research indicates that SBS cannot occur without significant neck injury—something that the record does not indicate Nakita suffered prior to her death.

scientific methods, not on attempting to resolve the apparent dispute within the medical community. "The trial court could not accept the opinions of the prosecution's experts that were premised on traditionally accepted medical research and evidence as reasonable and admissible, while rejecting competing opinions involving the same methodologies as unreliable merely because the defense experts' views represented a minority opinion within the medical community." *Id*. If on retrial a jury believed that Nakita's cause of death could have been caused by HIE, this would also undermine the prosecution's theory of the case.

In sum, at retrial, defendant could call Dr. Cassin to testify about his changed opinion regarding Nakita's cause of death as well as several expert witnesses who would testify that SBS is a questionable diagnosis, that Nakita's injuries were *not* consistent with abusive shaking, and who would provide the jury with a potential alternate cause of death. In rejecting defendant's claim for relief under *Cress*, the Court of Appeals relied heavily on her confession. But if a fact-finder believes the defense experts' testimony that SBS cannot occur without an accompanying catastrophic neck injury, then the jury might conclude that defendant's confession—obtained only after she was told that Nakita died from shaking—was false. As we have recognized elsewhere, suspects presented with seemingly incontrovertible physical evidence of their guilt may confess falsely to ameliorate their current conditions. See *People v Stewart*, 512 Mich 472, 499; 999 NW2d 717 (2023). And while, as the Court of Appeals noted, defendant's actions prior to Nakita's death could easily be construed as indicating consciousness of guilt, *Lemons*, unpub op at 11, in light of the new evidence, a jury might also view defendant's actions as those of a frantic and panicked parent. These are questions properly left to the jury. Taken together, we conclude that defendant has presented enough evidence to demonstrate that a different

result on retrial is "probable." *Cress*, 468 Mich at 692. That is, not that the chance of acquittal is a mere possibility, but instead, there is a reasonably probable likelihood that a jury would have a reasonable doubt as to defendant's guilt.[23] Therefore, she is entitled to a new trial.

IV. CONCLUSION

We conclude that the trial court abused its discretion by deeming defendant's proposed expert testimony inadmissible. We further conclude that defendant has overcome the procedural threshold of MCR 6.502(G) and has established "good cause" and "actual prejudice" as required by MCR 6.508(D)(3) by demonstrating all four factors of *Cress*, 468 Mich at 692. We, therefore, reverse and remand for a new trial.

Megan K. Cavanagh
Elizabeth T. Clement
Richard H. Bernstein
Elizabeth M. Welch
Kyra H. Bolden

[23] The dissent finds it difficult to comprehend how a different result is probable "when the very fact-finder in defendant's original [bench] trial expressly concluded otherwise." However, when considering whether a different result is probable, the trial court is not the ultimate fact-finder because, should a motion for relief from judgment be granted, the case is remanded for retrial. *Johnson*, 502 Mich at 567. On remand, a defendant can elect to proceed with a jury trial. See *People v Hamm*, 100 Mich App 429, 435; 298 NW2d 896 (1980); *United States v Lee*, 539 F2d 606, 609 (CA 6, 1976).

S T A T E O F M I C H I G A N

SUPREME COURT

PEOPLE OF THE STATE OF MICHIGAN,

Plaintiff-Appellee,

v No. 163939

MILTON LEE LEMONS,

Defendant-Appellant.

ZAHRA, J. (*dissenting*).

Nearly twenty years ago, defendant was convicted by a trier of fact of first-degree murder. Defendant admitted to violently shaking an infant child in an act of anger, depression, and a loss of control. The child died after exhibiting numerous physical symptoms widely understood by practicing medical professionals to be the result of abuse and shaking. Defendant's conviction was affirmed by the Court of Appeals and, in 2008, this Court denied leave to appeal. Defendant subsequently filed a motion for relief from judgment in the trial court, which was denied by the trial court in 2010 and was not appealed. In today's decision, this Court sets aside defendant's conviction. The Court reverses the trial court's decision to deny a successive motion for relief from judgment filed in 2016, concluding that defendant has met the heavy burden of demonstrating that new evidence makes acquittal on retrial likely. In so doing, the Court also concludes that the trial court abused its discretion both in denying the successive motion for relief from judgment and in excluding defendant's new evidence as scientifically unreliable. The conclusions of this Court are not justified. There simply is no basis in fact or law to

overturn defendant's murder conviction, which is supported by an extensive body of medical and record evidence.

Motions for relief from judgment are highly disfavored in Michigan criminal jurisprudence and depend in large part on findings of fact and a review of evidence left to the sound discretion of trial courts. Further, MRE 702 imposes "an obligation on the trial court to ensure that any expert testimony admitted at trial is reliable."[1] The rule "mandates a searching inquiry, not just of the data underlying expert testimony, but also of the manner in which the expert interprets and extrapolates from those data."[2] This Court has warned, "[w]hile the exercise of this gatekeeper role is within a [trial] court's discretion, a trial judge may neither 'abandon' this obligation nor 'perform the function inadequately.' "[3] Notwithstanding the gatekeeping function conducted by the trial court and the significant deference afforded trial courts on motions for relief from judgment, a majority of this Court concludes the trial court abused its discretion when it deemed testimony from defendant's putative experts inadmissible and also abused its discretion when it denied defendant's motion for relief from judgment. I strongly disagree.

At the heart of this case, defendant argues that the diagnosis of death by shaking an infant is not a valid diagnosis and that she (defendant is a biological male who now uses feminine pronouns) scientifically could not have killed Nakita as a result of the intense shaking she admittedly inflicted on the child. Leagues of pediatric institutes and

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[1] *Gilbert v DaimlerChrysler Corp*, 470 Mich 749, 780; 685 NW2d 391 (2004).

[2] *Id*. at 782.

[3] *Id*. at 780 (citation omitted).

organizations resoundingly reject defendant's anti-scientific claim as a clever manipulation of evolving medical terminology, produced almost entirely for legal arguments in a courtroom. Professionals who research and practice pediatric medicine, and diagnose children who are killed because of shaking, overwhelmingly state that defendant's claims are outside the realm of objectively demonstrable science.

Although defendant and the witnesses she presented below speculated on several different mechanisms of injury to Nakita, including the administration of CPR, rickets, and vaccines, defendant's novel claim primarily focuses on a theory that Nakita died because of inadvertent choking on food or formula. Yet in the hundreds of pages of exhibits and evidence presented in this highly fact-specific case, not one of defendant's experts can point to a single proven instance in which the physical injuries like those observed on Nakita resulted from a choking incident. Sadly, infant deaths due to choking, drowning, or similar means of cutting blood flow off from the brain are not rare. Thus, the total dearth of observed medical occurrence in line with defendant's theory is absolutely damning.

The result in this case is an injustice to the family of the victim and society at large who have accepted and relied upon a valid criminal conviction for almost 20 years. It also is a disservice to Michigan's criminal justice system, which necessarily relies upon finality after appellate review to effectively function and protect the public. Respect for society's judgment of guilt, expressed in the form of a criminal conviction, and the attendant significance of personal accountability, rehabilitation, and reconciliation, will be

increasingly substituted in the state of Michigan with denial of responsibility and the hope of perpetual litigation. That is not what our law commands.[4]

[4] In reversing the Court of Appeals and granting defendant relief, this Court continues its campaign of setting aside convictions and undermining the effectiveness of criminal punishment. This is done in pursuit of trial proceedings that are perfect in the eyes of this Court, an institution far removed and disconnected from the reality of trial courts and our criminal justice system. Neither the Michigan nor United States Constitutions guarantees a perfect trial. Rather, our law guarantees an accused a fair trial, and our criminal justice system effectively operates to ensure fairness to the defendant, the victim, and society as a whole. See *Burton v United States*, 391 US 123, 135; 88 S Ct 1620; 20 L Ed 2d 476 (1968) (" 'A defendant is entitled to a fair trial but not a perfect one.' "), quoting *Lutwak v United States*, 344 US 604, 619; 73 S Ct 481; 97 L Ed 593 (1953); *People v Bahoda*, 448 Mich 261, 292 n 64; 531 NW2d 659 (1995) ("Defendant is only entitled to a fair trial, not a perfect one."); *People v Miller*, 482 Mich 540, 559-560; 759 NW2d 850 (2008). Notwithstanding these basic principles, in the past three terms, a majority of this Court has effectuated monumental and legally unsubstantiated changes in Michigan criminal law that tilt heavily, if not universally, in favor of criminal defendants. These changes have come at the expense and to the detriment of victims and the people of Michigan. See, e.g., *People v Gafken*, 510 Mich 503; 990 NW2d 826 (2022) (reversing a trial court's evidentiary decision and a unanimous Court of Appeals opinion and vacating a depraved-heart murder conviction on the basis of a duress defense never previously recognized in American jurisprudence); *People v Yarbrough*, 511 Mich 252; 999 NW2d 372 (2023) (reversing a trial court decision on the administration of voir dire, reversing a unanimous Court of Appeals opinion, and vacating a conviction for a 20-hour rape and physical abuse of a woman, including pinching her with pliers and hitting her with a hammer; concluding that the denial of multiple opportunities for the defendant to use peremptory challenges, although nonconstitutional, was unreviewable structural error in conflict with the overwhelming body of other state and federal law); *People v Posey*, 512 Mich 317; 1 NW3d 101 (2023) (overruling trial court and Court of Appeals decisions and holding for the first time that the federal Due Process Clause requires court exclusion of in-court identifications of the defendant as the perpetrator of crimes simply because the defendant sits at defense counsel's table during defendant's trial; threatening the viability of significant numbers of prosecutions and in conflict with centuries of practice and an overwhelming body of federal caselaw); *People v Guyton*, 511 Mich 291; 999 NW2d 393 (2023) (reversing a trial court's discretionary decision and a unanimous Court of Appeals opinion and vacating a guilty plea for a coordinated armed robbery of a restaurant as "involuntary and unknowing" because the defendant was not guilty of a separate crime for which she was charged but *not* convicted, despite the defendant receiving a within-guidelines sentence calculated without any consideration of the other charge, the exact bargain the defendant agreed to when pleading guilty); *People v Stewart*, 512 Mich 472; 999 NW2d 717 (2023) (reversing

the fact-based determination of a highly experienced trial judge that a confession was provided under the defendant's free will, reversing a unanimous Court of Appeals decision, and vacating a conviction for serial armed robbery which resulted in multiple shoot-outs in the streets of Detroit and an innocent bystander's death); *People v Yeager*, 511 Mich 478; 999 NW2d 490 (2023) (reversing a conviction for first-degree murder after the defendant unloaded several rounds of a handgun on her unarmed ex-boyfriend who was driving by a public gas station, after the defendant followed the victim in a car and waited at the gas station to meet the victim, in the context of domestic violence on the part of the victim; reasoning that failing to request a voluntary manslaughter instruction for heat of passion, instead of a self-defense theory, was equivalent to the defendant having no counsel at all); *People v Parks*, 510 Mich 225; 987 NW2d 161 (2022) (reversing a trial court's sentencing decision and a unanimous Court of Appeals opinion and vacating a conviction of first-degree premeditated murder for the killing of an innocent victim who was parked at a convenience store; holding for the first time in Michigan jurisprudence that a life sentence without the possibility of parole for an adult, 18-year-old offender constitutes "cruel or unusual punishment"); *People v Stovall*, 510 Mich 301, 359-360; 987 NW2d 85 (2022) (ZAHRA, J., dissenting) (explaining how the Court read into the Michigan Constitution "the astounding proclamation that our trial courts no longer have any discretion to sentence a juvenile convicted of second-degree murder to life *with the possibility of parole*" despite the violence or cruelty of the crime or the incorrigibility of the defendant; noting that in *People v Taylor*, 510 Mich 112; 987 NW2d 132 (2022), a "bare majority" also "conjure[d] a presumption against life without parole for juveniles"; rewriting a finely balanced statute on the topic and "drastically limit[ing] the discretion sentencing courts have traditionally held to impose a sentence"; and recognizing that in *People v Boykin*, 510 Mich 171; 987 NW2d 58 (2022), the majority required "trial courts to consider the mitigating qualities of youth when sentencing a defendant to a term of years under [applicable statutes] despite no constitutional, statutory, or precedential basis to do so," thereby "invad[ing] the role of the Legislature" and ignoring careful policy choices made by the actual, elected Legislature).

These cases are extraordinary, creative, and unprecedented expansions of criminal law, all of which undermine Michigan's longstanding public policy in favor of the finality of criminal judgments. See *People v Carpentier*, 446 Mich 19, 29; 521 NW2d 195 (1994) ("[B]oth the Michigan judiciary singularly, and the citizenry whose collective rights and protections it is obligated to protect, have a compelling interest in championing the finality of criminal judgments."); *Edwards v Vannoy*, 593 US 255, 263; 141 S Ct 1547; 209 L Ed 2d 651 (2021) (explaining that "the principle of finality" is "essential to the operation of our criminal justice system") (quotation marks and citation omitted); *Mackey v United States*, 401 US 667, 691; 91 S Ct 1160; 28 L Ed 2d 404 (1971) (Harlan, J., concurring in the judgment) ("No one, not criminal defendants, not the judicial system, not society as a whole is benefited by a judgment providing a man shall tentatively go to jail today, but

For the foregoing reasons, I dissent.

I. DEFENDANT'S TRIAL AND CONVICTION FOR THE MURDER OF HER DAUGHTER

The following is a full description of the facts, as provided in the record and as accepted by the trier of fact. In reviewing a request for new trial, this Court has no authority to override or question the reasonable factual findings of a trier of fact.[5] On October 10, 2005, defendant, a healthcare professional, was left to care for her two-and-a-half-month-

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tomorrow and every day thereafter his continued incarceration shall be subject to fresh litigation on issues already resolved.").

[5] *People v Lemmon*, 456 Mich 625, 642-646; 576 NW2d 129 (1998) (explaining that "issues of witness credibility are for the jury [trier of fact], and the trial court [on a request for new trial] may not substitute its view of . . . credibility," and emphasizing that granting a new trial is not warranted when the findings of fact are "reasonable" and an individual could "naturally and fairly come to [the] conclusions") (quotation marks and citation omitted); *People v McSwain*, 259 Mich App 654, 681; 676 NW2d 236 (2003) ("It is well established that . . . we review a trial court's findings of fact supporting its ruling [on a motion for relief from judgment] for clear error."); *United States v Burks*, 974 F3d 622, 625 (CA 6, 2020) (stating that only in "extraordinary circumstances, when the verdict exceeds the bounds of reasonableness, should the district court order a new trial," and "simply because different inferences could have been drawn or because other results are more reasonable" does not justify overturning trier-of-fact determinations) (quotation marks and citations omitted); *Whitehead v Bond,* 680 F3d 919, 928 (CA 7, 2012) (a court on a request for new trial can overturn factual determinations by the trier of fact only when "no rational jury could have rendered the verdict") (quotation marks and citations omitted); 58 Am Jur 2d, New Trial, § 264 (February 2024 update) ("A new trial should not be granted because of a mere conflict in the testimony or because the judge on the same facts would have arrived at a different conclusion.").

Defendant moved for a new trial as a result of alleged newly discovered evidence, a claim which is governed by the motion for new trial standard most prominently stated in *People v Cress*, 468 Mich 678, 691; 664 NW2d 174 (2003). In Michigan, motions for new trial are governed by MCR 6.431 until the defendant's time to appeal expires. At that time, MCR Subchapter 6.500 provides the procedural vehicle for such motions. See also *People v Rogers*, 335 Mich App 172, 192-194; 966 NW2d 181 (2020) (collecting sources and explaining the relevant procedure).

old daughter, Nakita Lemons. During the evening while her wife was working, defendant went to a neighbor's home and stated that Nakita was no longer breathing. The neighbor immediately told defendant to call 911. Defendant refused to do so and instead called her wife and stated that Nakita was not breathing. Again, the neighbor told defendant to call 911 and instead, defendant called her mother-in-law. The neighbor, yet again, told defendant to call 911. Yet again, defendant refused and claimed she could take care of the child by performing CPR. At this point, the neighbor took it upon herself to call 911, and paramedics quickly arrived. Both the mother-in-law and the paramedics attempted to perform CPR but the child was nonresponsive. After emergency life support measures, the child remained alive with faint vital signs. Nakita was eventually airlifted to C. S. Mott Children's Hospital at the University of Michigan. The following morning, Nakita was pronounced dead.

Nakita's mother provided uncontradicted testimony that almost immediately after the event, defendant stated a fear that Nakita's injuries were the result of shaking the child.[6] The following day, police arrived at defendant's house. Defendant's immediate reaction was to back "into the darkness" of the house and away from the sight of police.

[6] According to Nakita's mother's testimony, defendant asserted at the hospital where Nakita was in critical condition that "I hope it' s not because I shook her to wake her up." The mother reiterated that defendant feared that Nakita's injuries were "because [defendant] shook her." As stated below, the first reason defendant offered for shaking the child was that it was in response to Nakita not breathing. Defendant soon abandoned that explanation upon further questioning by police. Instead, defendant stated that she lost control in response to the cries of her children and violently shook Nakita in an act of depression and anger. The trial court expressly credited the latter explanation and sequence of events, as recounted by defendant.

Defendant was soon arrested and ultimately questioned by police.[7] Initially, defendant stated that Nakita was healthy and placed to bed without issue. Defendant was allegedly awoken by her son banging on the walls because Nakita was not breathing, apparently without forewarning. At that time defendant shook the child, although defendant was worried that she had shaken the baby too hard.

Upon further discussion and questioning with police, defendant retracted the initial story and provided a different sequence of events. Defendant stated:

> At about 6:20, my son started fussing and then [Nakita] started crying also. I went into the room to get him out, but picked her up instead. *She wouldn't stop crying and he was still crying too. So I shook her three or four times to get her to be quiet*. She stopped crying and started spitting up formula, but was unresponsive. [Emphasis added.]

Defendant continued as follows in response to a series of direct questions from the interviewing police officer:

> [*Police*:] On a scale of one to ten, ten being shaking her very hard, how hard did you shake Nakita?
>
> [*Defendant*:] *Seven*.
>
> [*Police*:] What was Nakita's head doing as you shook her[?]
>
> [*Defendant*:] Back and forth. I went blank. I just wanted her to stop crying. . . .
>
> [*Police*:] How did you feel when you were shaking her?
>
> [*Defendant*:] *Very angry, depressed*. It was a combination of things. . . .

[7] Defendant was informed of her *Miranda* rights and there is no dispute before us that defendant's statements are admissible under *Miranda*. See *Miranda v Arizona*, 384 US 436; 86 S Ct 1602; 16 L Ed 2d 694 (1966).

[*Police*:] What did you intend to do when you shook her?

[*Defendant*:] To quiet her up.

* * *

[*Police*:] Do you know shaking an infant can be fatal[?]

[*Defendant*:] Yes. I've seen it on TV and heard about it.

[*Police*:] And you're [sic] statement you said after you shook her, she was unresponsive. What did you mean[?]

[*Defendant*:] She was *not saying anything with her head to the side and milk was coming out of her mouth*.

[*Police*:] Why didn't you tell anyone what happened?

[*Defendant*:] *I didn't want anyone to be disappointed in me*.[8]

Thus, instead of carefully and safely placing the child to bed as first claimed, defendant provided a description that pieced together tragic acts of sadness, depression, and anger. Defendant, overwhelmed with the behavior and cries of the children, attempted to quiet Nakita by violently shaking her. Almost immediately after doing so, the child became nonresponsive. No substantive record of an alternative narrative or description of defendant's actions was provided at trial. And the trier of fact, as the final authority on questions of fact, expressly credited the version of events defendant admitted to the police:

> We do know that ten week old Nakita was left in the custody of her father, the defendant[,] when . . . the mother . . . went to work. And as the defendant indicated in his statement to the police, he dreaded being left alone with the

[8] Emphasis added. In the transcript, the first letter of each response was lower case. For ease of reading, the first letters have been capitalized. Other non-substantive formatting changes have also been made for ease of reading. The correct spelling of the child's name, Nakita, is used in these quotations and throughout the opinion.

child.[9] And the reason he dreaded being left alone with the child is that *he simply could not cope with the child crying*.

> And [defendant] indicated in this case that his son, his two-year old son was crying, he indicated that then ten week old Nakita was crying. He went into the deal with that particular issue, and when he went in there to deal with that, . . . first, he tried to feed Nakita with a bottle. In another portion of his statement he indicated that he had the baby in his lap. He was holding the baby and the baby was crying. And he indicated that *he could not get the baby to stop crying*. And then [defendant] indicated that he *shook the baby three or four times until the baby stopped crying*.
>
> [According to defendant's own statements that] formula was being spit up out of the baby's mouth and . . . [her] breathing became very shallow . . . [after defendant] had shaken the baby violently repeatedly.
>
> * * *
>
> [Defendant] acknowledged that . . . the baby did not stop crying. He was depressed at the fact that he could not get the baby to stop crying. . . .
>
> * * *
>
> . . . The child was shaken by the defendant's own admission three or four times, and as he said on a scale of 1 to 10, with 10 being the most violent, it was a seven. *So that there was substantial violence used to shake the child*.[10]

Defendant's own statements and these express findings of fact were corroborated by other testimony. The mother indicated that when she left the child with defendant the day of the incident, the child was more "fussy," discontent, and more attention-seeking than normal. Defendant's mother-in-law similarly corroborated that defendant "couldn't handle . . . crying [children]. He just couldn't handle the crying. He would turn the radio up and if that didn't help, . . . [h]e would call and just say I can't take the crying." These statements were in addition to evidence of defendant's conduct, including repeatedly acting

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[9] At the time of trial, defendant used male pronouns.

[10] Emphasis added.

to avoid involvement with police or other authorities, refusing 911 emergency services to assist her child who was in obviously critical medical condition, and having an immediately evasive response when police arrived to her home to investigate. Despite telling her wife privately that she was concerned her shaking had caused the child's injuries, defendant attempted to provide a materially distinct exculpatory narrative to the police. Based on defendant's contemporaneous retraction of that account and the express trier-of-fact findings, the account defendant initially attempted to provide to the authorities was false. Thus, the overall record overwhelmingly supports the conclusions of the trier of fact: that defendant repeatedly and violently shook Nakita in an act of frustration and depression to stop the child from crying and that the child became nonresponsive thereafter. Despite having the opportunity to present available fact witnesses if there were any plausible dispute over the sequence of events, defendant introduced no other witnesses that contradicted the record of defendant's actions. Instead, after the prosecution's case-in-chief, defense counsel consolidated a motion for directed verdict with the closing arguments for the defense.

In addition to the testimony provided as to the series of events, medical records demonstrated that Nakita suffered subdural hemorrhaging (bleeding in the internal surface region of the brain), retinal hemorrhaging, optic nerve sheath hemorrhages (bleeding in and around the eye), brain swelling and encephalopathy (brain dysfunction, likely working in conjunction with lack of blood flow to the brain), scrapes, and a broken shoulder. Further, the trier of fact expressly acknowledged and accepted these undisputed physical symptoms that Nakita experienced. These medical findings, together in conjunction, are

hallmarks of child abuse and specifically death by shaking. It is this interpretation of Nakita's symptoms that defendant disputes in the instant appeal.

During the bench trial, defendant pressed various theories of exculpation, noting the child's digestive issues with milk, which were corrected weeks prior without major incident. In addition, defendant emphasized in thorough cross-examination that physical symptoms exhibited in Nakita could be the result of nonintentional injury. But defendant significantly focused her arguments on a theory of accidental death in her confessed shaking of the child, attempting to undermine the *mens rea* of the charged offenses. The trial court sitting as the trier of fact, after reciting the well-established facts on the record including that defendant was a licensed medical professional, found that defendant knowingly created a very high risk of harm to the child. As the trial court explained, "[i]f you went out to a shopping mall and asked people at random, what do you think [would happen] if you violently shook a ten week old infant three or four times? . . . I think it's a matter of common knowledge [that the child might get seriously hurt], and it is certainly something that someone who works in the health care profession should in fact know." In August 2005, defendant was convicted of first-degree felony murder and first-degree child abuse.

II. POST-CONVICTION PROCEEDINGS TO VACATE DEFENDANT'S CONVICTION

Defendant filed an appeal, challenging the legal basis for the convictions. Defendant did not challenge the accepted medical findings that subdural hemorrhaging, retinal hemorrhaging, brain swelling, and a broken shoulder together provide strong indications of child abuse. Instead, defendant claimed that although she "admitted to

shaking the baby," she "did not intend to harm [Nakita]."[11] Further, defendant argued that the evidence only showed that defendant shook Nakita "to quiet her down," not to cause serious physical harm.[12] Both arguments were rejected. In 2010, defendant filed a motion for relief from judgment, which was also rejected.

In 2016, now over ten years after defendant was tried and convicted, and after defendant both appealed her conviction and filed a prior motion for relief from judgment, defendant filed a successive motion for relief from judgment. Defendant now alleges that "new evidence" in the field of pediatric science shows that abuse or shaking did not medically cause the conditions observed from Nakita's body. According to defendant, the available scientific evidence illustrates that subdural hemorrhaging, retinal hemorrhaging, and brain swelling and encephalopathy are not medically demonstrative of shaking or child abuse.[13] The trial court, who presided as the finder of fact in the initial bench trial, concluded that the substantial majority of defendant's new evidence was unreliable, well outside accepted medical science, and inadequate for admission in a courtroom. Examining the available record and giving proper consideration to the facts found at trial, including the sequence of events admitted by defendant and credited by the finder of fact, the trial court concluded that defendant failed to show that an acquittal would result with

[11] *People v Lemons*, unpublished per curiam opinion of the Court of Appeals, issued February 26, 2008 (Docket No. 273058), p 4.

[12] *Id*.

[13] Among many other similar claims, defendant asserted in the motion that "shaking could not have caused [Nakita's] injuries" under new medical science.

the newly discovered evidence.[14] Defendant appealed this decision, and in an unpublished and unanimous opinion, the Court of Appeals affirmed.

III. HIGHLY LIMITED SCOPE OF APPELLATE REVIEW

Motions for relief from judgment seeking a new trial are reviewed for an abuse of discretion.[15] Reversing a jury conviction, in this case almost 20 years after the conviction, is an extraordinary request that is strongly disfavored in the law.[16] This is because

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[14] Defendant waived the right to a jury trial and agreed to a bench trial. The trial judge who heard and weighed the evidence at trial also heard the successive motion for a new trial and presided over the evidentiary hearing on defendant's claim of new evidence. The finder of fact determined that the new expert testimony presented by defendant was unreliable. As such, it is difficult to comprehend how defendant has satisfied the high burden of showing that a different result on retrial is probable when the very fact-finder in defendant's original trial expressly concluded otherwise. This is not to say that a jury trial is unavailable to defendant upon retrial. See *ante* at 30 n 23 (discussing defendant's right to a jury trial upon retrial in the context of a motion for new trial). It is merely to emphasize the extraordinary nature of this Court's holding that the trial judge abused its discretion in concluding that a different result would not be probable based on newly discovered evidence when that same trial judge was the trier of fact in the initial trial.

[15] *Cress*, 468 Mich at 691 (adopting standards from motions for new trial).

[16] *People v Rao*, 491 Mich 271, 279-280; 815 NW2d 105 (2012) (explaining that such motions are " 'looked upon with disfavor,' " are " 'few and far between,' " and are denied "absent unusual circumstances," quoting *Webert v Maser*, 247 Mich 245, 246; 225 NW 635 (1929); *United States v Kamel*, 965 F2d 484, 490 (CA 7, 1992) ("[C]ourts exercise great caution in setting aside a verdict reached after fully-conducted proceedings; this is particularly appropriate when, as here, the action has been tried before a jury.") (quotation marks and citation omitted); *United States v Seago*, 930 F2d 482, 488 (CA 6, 1991) ("Motions for a new trial based on newly discovered evidence should be granted with caution."); *United States v Campa*, 459 F3d 1121, 1151 (CA 11, 2006) (" 'Motions for a new trial based on newly discovered evidence are highly disfavored . . . and should be granted only with great caution.' ") (citation omitted); 58 Am Jur 2d, New Trial, § 293 (February 2024 update) ("The test for whether a motion for a new trial based on newly discovered evidence in a criminal case should be granted is stringent. Such a motion should be granted with caution and only in a clear case, or only in exceptional circumstances, and then only when the requirements for a new trial on the ground of newly discovered evidence are strictly met. Motions for new trial based on newly discovered evidence thus

reversing a settled verdict from the trier of fact undermines societal reliance on and respect for criminal judgments, including by significantly upsetting the expectations and recognition of affected third parties, victims, and the defendant. Thus, without substantial justification, granting such motions undermines the rule of law and public respect for judicial proceedings.[17] The defendant has a considerable burden. She must show that "the new evidence makes a different result *probable* on retrial."[18] Judicial restraint and humility

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are awarded with great reluctance."); 66 CJS, New Trial, § 160, p 280 ("Newly discovered evidence may provide the basis for granting a new trial, subject to the discretion of the trial court, but newly discovered evidence is not a favored ground for granting a new trial, and the motions are looked on with disfavor, viewed with caution, and subject to close scrutiny.").

[17] *Rao*, 491 Mich at 280 (collecting sources and explaining that such motions are not favored because "the policy of the law is to require of parties care, diligence, and vigilance in securing and presenting evidence" and "the principle of finality . . . is essential to the operation of our criminal justice system") (quotation marks, citations, and brackets omitted); *Kamel*, 965 F2d at 490 (stating the "importance accorded to considerations of repose, regularity of decision-making and conservation of scarce judicial resources"); 58 Am Jur 2d, New Trial, § 293 (February 2024 update) (emphasizing the "need for finality" and the "preservation of the integrity of criminal judgments"); see *People v Auerbach*, 176 Mich 23; 141 NW 869 (1913) (reiterating the presumption of validity and regularity over a century ago); *Custis v United States*, 511 US 485, 497; 114 S Ct 1732; 128 L Ed 2d 517 (1994) ("[I]nroads on the concept of finality tend to undermine confidence in the integrity of our procedures and inevitably delay and impair the orderly administration of justice."); *Carpentier*, 446 Mich at 29; *Vannoy*, 593 US at 263; *Mackey*, 401 US at 691 (Harlan, J., concurring in part).

[18] *Cress*, 468 Mich at 692 (emphasis added); MCR 6.508(D)(2) (discussing permitted claims that allege "new evidence would make a different result probable on retrial"); 58 Am Jur 2d, New Trial, § 295 (February 2024 update) ("In the evaluation of whether the newly discovered evidence warrants a new trial, the test employed thus is not simply whether another jury might return a different verdict, but whether the new evidence is so material that it ought to produce a verdict different from that rendered at trial."); 66 CJS, New Trial, § 171 (May 2024 update) ("The newly discovered evidence must not merely relate to the cause of the case; it must be significant, strong and convincing, compelling, important, vital to the issues, and go to the heart of factual issues, and not collateral issues."); *United States v Kelly*, 539 F3d 172, 182 (CA 3, 2008) (emphasizing the "heavy

are paramount when reviewing such fact-specific decisions on a cold appellate record.[19] As the United States Court of Appeals for the Seventh Circuit aptly restated these long-established principles in the context of newly discovered evidence, "appellate courts are additionally wary of second-guessing the judge and jury."[20]

The majority opinion neither examines the full record nor provides material analysis on the Court of Appeals' ultimate conclusion that even if portions of defendant's "new" evidence were presented to the jury, defendant failed to prove that such evidence would make a different result *probable* under an abuse of discretion standard.[21] The Court of

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burden" on the defendant); see also notes 15-17 and 19 of this opinion (discussing in greater detail the heavy burden on defendant).

[19] *June Med Servs LLC v Russo*, 591 US 299, 358; 140 S Ct 2103; 207 L Ed 2d 566 (2020) (Roberts, C.J., concurring), overruled on other grounds by *Dobbs v Jackson Women's Health Org*, 597 US 215; 142 S Ct 2228; 213 L Ed 2d 545 (2022), quoting *Taglieri v Monasky*, 907 F3d 404, 408 (CA 6, 2018) ("While we largely read briefs for a living, [trial courts] largely assess the credibility of parties and witnesses for a living.").

[20] *Kamel*, 965 F2d at 490; see also 58 Am Jur 2d, New Trial, § 294 (February 2024 update) ("A trial court is afforded a substantial, or unusually broad, or a wide range of discretion in determining whether newly discovered evidence warrants the grant of a new trial, and this is because that court is uniquely positioned and qualified to assess the credibility of the new evidence, and to appraise the reliability of the original trial and the proposed evidence's impact upon it. It also is because newly discovered evidence in a criminal case can arise in a multiplicity of circumstances with widely differing significance."); notes 15-19 of this opinion.

[21] The majority opinion embraces portions of the Court of Appeals' *reasoning* concerning admission of expert testimony on a "controversy" within the medical community regarding the general diagnosis of shaken children and the evidence that Nakita's cause of death might have been dysphagic choking followed by hypoxic-ischemic brain injury. But even assuming such evidence passed scrutiny under MRE 702, the majority opinion fails to offer any reasoning why this evidence overcomes the extensive proofs presented in this case, which included a credited admission that defendant violently shook Nakita and an unexplained broken shoulder, such that it is an abuse of discretion for the trial court not to conclude that a different result is probable on retrial.

Appeals' conclusion affirmed the trial court's discretionary decision to deny the request for a new trial, and that is the central holding that this Court is asked to review.

The majority opinion erroneously proceeds as if relief is provided upon the *possibility* that a fact-finder *might*, in a new trial, find this new evidence sufficient to negate defendant's guilt. This flies in the face of the long-accepted standard of review applicable to such proceedings. The defendant must prove more than that a different result is merely possible on retrial or that a reasonable juror might come to a different conclusion if the case were reviewed de novo; the defendant must establish, weighing the full record and respecting trier-of-fact and trial court findings, that a different result is *probable* on retrial. And the Court must defer to the trial court's wide discretion on that question. Simply put, there are multiple levels of deference that all weigh heavily against the requested relief. The majority opinion ignores these exceedingly high burdens and instead reviews this case as if it were reviewing the motion in the first instance as a trial court, or as if it were reviewing, for instance, pretrial motions to bind over the defendant, to advance an affirmative defense, or to obtain summary disposition in the civil context.[22] This basic

[22] See, e.g., *People v Justice (After Remand)*, 454 Mich 334, 344; 562 NW2d 652 (1997) (explaining that a defendant is bound over when there is "evidence sufficient to cause a person of ordinary prudence and caution to conscientiously entertain a reasonable belief of the accused's guilt") (quotation marks and citations omitted); *People v Dupree*, 486 Mich 693, 709-710; 788 NW2d 399 (2010) (reasoning that to state an affirmative defense, a defendant needs to produce evidence "from which a jury could conclude that the elements necessary to establish [the defense] exist"); *West v Gen Motors*, 469 Mich 177, 183; 665 NW2d 468 (2003) ("A genuine issue of material fact exists when the record, giving the benefit of reasonable doubt to the opposing party, leaves open an issue upon which reasonable minds might differ."). Furthermore, it bears repeating that under an abuse of discretion standard, this Court should not reverse the trial court for a "mere difference in judicial opinion . . . ." See *People v Johnson*, 502 Mich 541, 564; 918 NW2d 676 (2018).

error constitutes a significant departure from the traditional presumptions, deference, and burdens at the heart of proper appellate review of trial court orders that deny requests for new trials.

IV. DEFENDANT'S NEW CLAIM THAT MEDICAL SCIENCE DOES NOT SUPPORT A CONCLUSION OF DEATH BY SHAKING

To obtain the relief afforded in the majority opinion, the defendant must overcome a heavy burden and prove that the record as a whole makes it probable defendant would be found not guilty. We have long required trial courts to make threshold determinations that opinions proffered by a proposed expert witness are tested, reviewed, and accepted within the purported field of expertise.[23] The trial court performed that role thoroughly and competently in this case, and the trial court's conclusions that the testimony offered by defendant's purported experts would be excluded on retrial ought not be disturbed. Even if admissible, in line with the findings of the trial court and finder of fact on the inadequacy of defendant's case, the available record, supplemented by the purported new evidence, is wholly inadequate to justify reversal of defendant's convictions. The trial court's refusal to reverse defendant's conviction below does not even approach an abuse of discretion, which requires an outcome that is not "reasonable and principled."[24]

Rather, reversal is only warranted when the "trial court's decision falls outside the range of reasonable and principled outcomes." *Id*. (quotation marks and citation omitted).

[23] *Gilbert*, 470 Mich at 780-781 (describing the development of court review of the admission of expert testimony and the vital role of the court as a "gatekeeper"), citing *Daubert v Merrell Dow Pharm, Inc*, 509 US 579; 113 S Ct 2786; 125 L Ed 2d 469 (1993).

[24] *People v Babcock*, 469 Mich 247, 269; 666 NW2d 231 (2003); see also note 20 of this opinion (emphasizing the especially broad discretion provided to trial courts in reviewing requests for new trials due to newly discovered evidence).

On defendant's direct appeal and in her initial motion for relief from judgment, defendant never questioned or challenged the factual findings of the trier of fact as to the series of events and occurrences that led up to Nakita's death. As an appellate court, we must defer to the trier of fact's factual determinations,[25] and in reviewing a motion for new trial, we have no authority to question or overturn reasonable findings of fact made at trial.[26] Therefore, the findings that defendant was left alone to care for Nakita and her brother, that defendant had serious difficulty coping with and controlling the emotions and demands of upset children, that defendant violently shook Nakita in an act of depression and anger to stop the child from crying, and that the child then became nonresponsive after the shaking are not only well supported by the record (and admitted to by defendant) but also corroborated by evidence admitted during trial and observed firsthand by the trial court. Thus, as a matter of law, these reasonable factual findings are final and controlling in this successive motion for relief from judgment.[27] There is no indication that defendant was prevented from raising factual disputes as to the course of events, for which she was

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[25] *Ligon v Detroit*, 276 Mich App 120, 124; 739 NW2d 900 (2007) ("Following a bench trial, we review for clear error the trial court's factual findings and review de novo its conclusions of law."); *People v Thomas*, 387 Mich 368, 372; 197 NW2d 51 (1972) ("As we have frequently held: 'The trial judge saw and heard the witnesses and he was in a far better position than is this Court to determine their credibility.' "), quoting *People v Szymanski*, 321 Mich 248, 254; 32 NW2d 451 (1948); see also *McSwain*, 259 Mich App at 681 ("It is well established that . . . we review a trial court's findings of fact supporting its ruling [on a motion for relief from judgment] for clear error.").

[26] See note 5 of this opinion (discussing the standard for factual findings at trial when reviewing a motion for new trial).

[27] A new claim cannot be raised in a successive motion for relief from judgment that either was previously raised and resolved or was not raised without good cause and prejudice. MCR 6.508(D)(2) and (3).

present and actively involved, in her past challenges to her conviction, such as by introducing new sworn statements from herself indicating that she was not present or did not shake the child or by questioning neighbors or Nakita's mother at trial to provide a contrary account. Furthermore, there is no indication that defendant was prevented from raising the physiological realities of Nakita's medical examination after she became nonresponsive. There is no allegation or claim that defendant was precluded from challenging the findings of subdural hemorrhaging, retinal hemorrhaging, optic nerve sheath hemorrhages, brain swelling and encephalopathy, scrapes, and a broken shoulder in prior proceedings, whether due to antiquated science, ineffective assistance of counsel, or other reasons. Thus, these medical conclusions are final and controlling.[28]

The only "new evidence" defendant has presented allegedly justifying a new trial is a claim that the findings of subdural hemorrhaging, retinal hemorrhaging, and brain

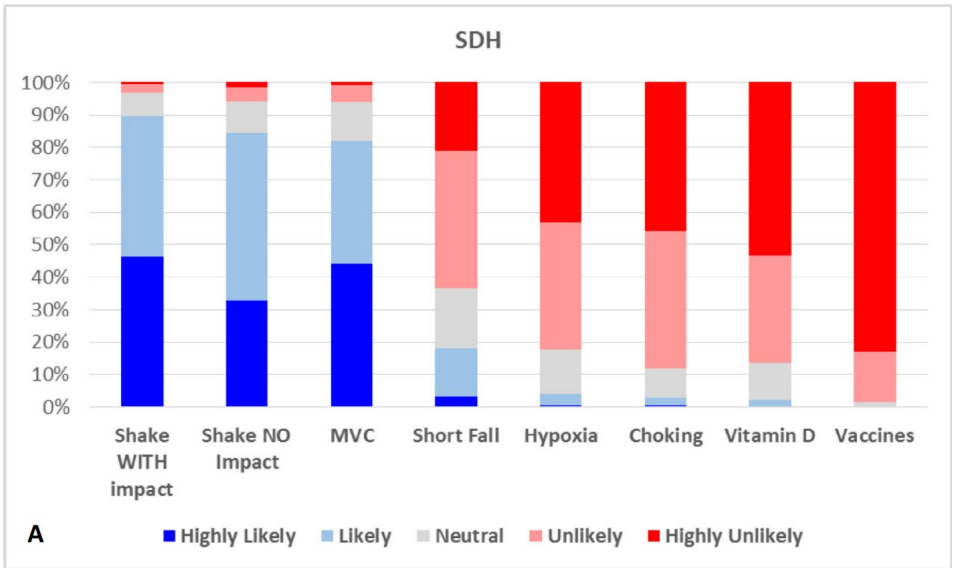
[28] It is entirely unclear whether the majority opinion contests the established standard of review as to the sequence of events of Nakita's death and her physical symptoms, or whether the majority opinion is referring to the medical cause of death *given the accepted physical symptoms*. See *ante* at 25 n 17. The latter category concerning the medical cause of death is subject to dispute in this appeal, but under a highly deferential standard of review in favor of the criminal judgment. The former categories of facts are simply not subject to dispute after a trial, multiple prior proceedings, a significant evidentiary record, and lack of party development. Not once in any of the briefing before this Court does defendant dispute that Nakita did in fact experience subdural hemorrhaging, retinal hemorrhaging, optic nerve sheath hemorrhages, brain swelling and encephalopathy, scrapes, and a broken shoulder. Similarly, there is no new evidence on the observed and admitted sequence of events leading up to Nakita's death, which were relied upon and credited by the trier of fact, that could not have been discovered previously. Defendant had the opportunity to contest those facts at trial, on direct appeal, and in her first motion for relief from judgment. There is absolutely no indication that defendant was barred or prevented from doing so. Those are *factual determinations* established at the time of trial based on substantial and largely undisputed medical records and testimony. Defendant does not focus this appeal on those facts, opting instead to dispute the medical science and *interpretation* of the facts underlying Nakita's death.

swelling and encephalopathy do not scientifically support the conclusion that Nakita died from shaking. Defendant objects to the medical *interpretations* of the accepted and heretofore uncontested narrative of events and physiological findings relating to Nakita's injuries. No record or claim has been made, or could be made, challenging the factual sequence of events leading up to Nakita's death or the child's medical conditions confirmed at the time of her death.

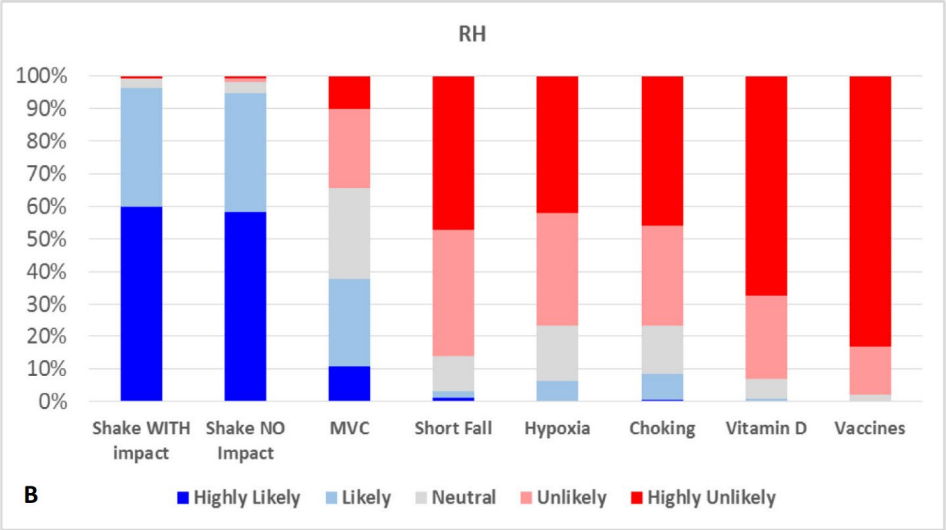
That leaves defendant's relatively novel theory in the area of child abuse that the physical symptoms of subdural hemorrhaging, retinal hemorrhaging, and brain swelling and encephalopathy, referred to in courtroom settings as a diagnostic "triad," are not demonstrative or medically significant indicators of child shaking, referred to medically as abusive head trauma (AHT). Instead, defendant asserts under her claim of new medical science that those symptoms support the conclusion the child choked on substances like formula and thereafter died as a result of a loss of blood flow, given that there is no evidence of a fall or traumatic impact other than shaking in this case. As the trial court and numerous professionals who actually practice in the field of pediatric medicine stated on the record during the evidentiary hearing below, defendant's assertions have been roundly rejected by the relevant and practicing medical community. The theory falls decisively outside accepted medical science currently available to the court and public.

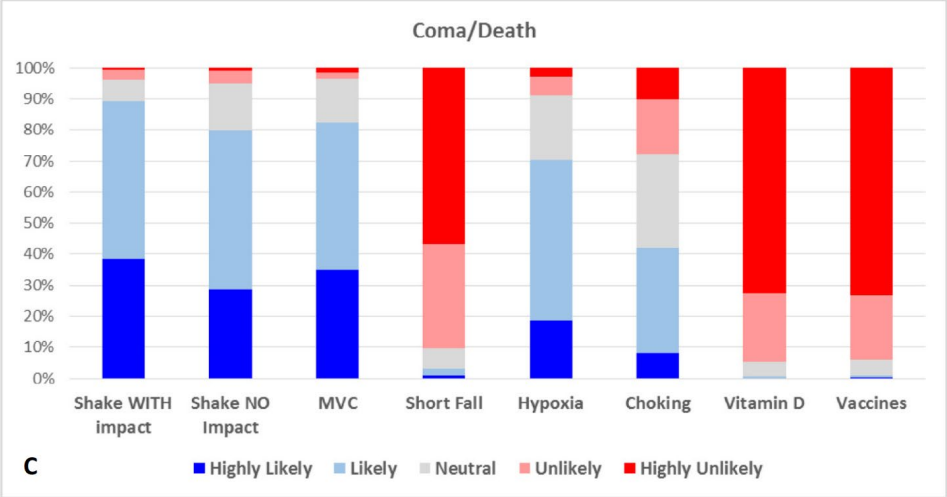
Below are charts developed from one of the leading medical journals in pediatric science, The Journal of Pediatrics, which describe a survey of 628 multidisciplinary physicians with specialties in the departments most commonly involved in suspected AHT cases from 10 leading children's hospitals who specialize in pediatric treatment, as well as

medical examiners' offices and coroners' offices.[29] The charts describe survey respondents' opinions regarding the likelihood that a child will have (1) subdural hemorrhaging (SDH); (2) retinal hemorrhaging (RH); and (3) coma or death as a result of various actions like shaking, motor vehicle collisions (MVC), or choking (the allegation made by defendant in this case).



[29] Narang et al, *Acceptance of Shaken Baby Syndrome and Abusive Head Trauma as Medical Diagnoses*, The Journal of Pediatrics, Vol. 177 (July 2016), p 276, available to download at <https://www.jpeds.com/article/S0022-3476%2816%2930402-4/fulltext> (accessed April 30, 2024).





In addition to these striking findings regarding the opinions of practicing experts as to causal mechanisms, the study concluded that, out of 628 physicians, 607 believed that shaken-baby syndrome (SBS) or AHT was a valid diagnosis. Of the six physicians who indicated that AHT was not a valid diagnosis, five indicated that shaking was likely or highly likely to cause subdural hemorrhaging and retinal hemorrhaging in a small child. Therefore, at the outset, it is apparent that defendant's medical claims are almost universally rejected by professionals who specialize in areas "with the greatest likelihood

of evaluating and treating pediatric traumatic brain injury."[30] Her theories are an extreme outlier from current medical science.

This is supported by numerous statements by leading organizations of pediatric medicine, who have repeatedly described in unambiguous terms the medical consensus on child abuse and serious child harm due to shaking. The American Academy of Pediatrics (the Academy), the largest professional organization for pediatric physicians in the United States, wrote an amicus brief supporting the prosecution's position in this case and also issued a consensus statement as guidance for physicians, reiterating the scientific support for child injury by shaking. In the medical consensus statement, the Academy "affirm[ed] the dangers and harms of shaking infants, continue[d] to embrace the 'shaken baby syndrome' diagnosis as a valid subset of the AHT diagnosis, and encourage[d] pediatric practitioners to educate community stakeholders when necessary."[31] It reiterated that subdural hemorrhaging and retinal hemorrhaging are more common in abusive injuries than in accidental injuries.[32] Further, theories that shaking can cause serious injury only if there exists catastrophic neck fracture or injury are not based in literature, clinical research, or proven cases of child abuse.[33]

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[30] *Id*. at 277.

[31] Narang et al, *Abusive Head Trauma in Infants and Children*, Pediatrics, Vol. 145, No. 4 (April 2020), available at <https://publications.aap.org/pediatrics/article/145/4/e20200203/36936/Abusive-Head-Trauma-in-Infants-and-Children> (accessed April 30, 2024) [https://perma.cc/5M2M-R2KE].

[32] *Id*.

[33] *Id*.

A consensus statement published in Pediatric Radiology is even more direct:

> There is *no controversy* concerning the medical validity of the existence of AHT, with multiple components including subdural hematoma, intracranial and spinal changes, complex retinal hemorrhages, and rib and other fractures that are inconsistent with the provided mechanism of trauma. The workup must exclude medical diseases that can mimic AHT. However, the courtroom has become a forum for speculative theories that cannot be reconciled with generally accepted medical literature. There is no reliable medical evidence that the following processes are causative in the constellation of injuries of AHT: cerebral sinovenous thrombosis, hypoxic–ischemic injury, lumbar puncture or *dysphagic choking/vomiting*. [Emphasis added.][34]

The statement is endorsed by a massive coalition of international organizations at the top of child medicine:

- American Academy of Pediatrics
- Michigan Chapter of the American Academy of Pediatrics
- American Professional Society on the Abuse of Children
- Society for Pediatric Radiology
- American Association for Pediatric Ophthalmology & Strabismus
- The Ray E. Helfer Society
- National Children's Alliance
- Executive Committee of the American College of Radiology
- European Society of Paediatric Radiology
- American Society of Pediatric Neuroradiology

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[34] Choudhary et al, Abstract, *Consensus Statement On Abusive Head Trauma in Infants and Young Children*, Pediatric Radiology, Vol. 48, No. 8 (August 2018), available to download at <https://www.pubmed.ncbi.nlm.nih.gov/29796797> (accessed April 29, 2024).

- European Society of Neuroradiology
- Swedish Paediatric Society
- Norwegian Pediatric Association
- Japanese Pediatric Society
- Sociedad Latino Americana de Radiología Pediátrica
- Société Francophone d'imagerie Pédiatrique et Prénatale
- Asian and Oceanic Society for Paediatric Radiology
- Australian and New Zealand Society for Paediatric Radiology[35]

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[35] *Id*.; Choudhary et al, *Consensus Statement On Abusive Head Trauma: Additional Endorsements*, letter to the editor published in Pediatric Radiology, Vol. 49, p 421 (2019), available at <https://link.springer.com/article/10.1007/s00247-019-04342-3> (accessed July 17, 2024) [https://perma.cc/4HBS-N3QX]; Amicus Brief of the American Academy of Pediatrics et al. (February 9, 2023), p 15 (stating that "Amici Medical Societies" endorse the statement).

Although the sources and research will not be provided in detail, the following total amount of research has been conducted, resulting in support for the diagnosis of AHT with significant findings of subdural hemorrhaging and retinal hemorrhaging: two medical treatises solely on AHT, 14 chapters in medical child abuse texts, 700 peer-reviewed articles, 8 systemic reviews, 15 controlled trials, and thousands of case reports. Narang, *A Daubert Analysis of Abusive Head Trauma/Shaken Baby Syndrome*, 11 Hous J Health L & Pol'y 505, 539-541 (2011) (collecting sources and noting the total lack of studies demonstrating a *lack* of connection between abuse and the identified symptoms). Under the recognized medical understanding, approximately 85% of child abuse victims with AHT have retinal hemorrhaging and 92% have subdural hemorrhaging. *Consensus Statement*, Pediatric Radiology, Vol. 48, No. 8. See also, e.g., Maguire et al, *Which Clinical Features Distinguish Inflicted From Non-Inflicted Brain Injury?: A Systematic Review*, 94 Archives of Disease in Childhood 860 (2009), available at <https://adc.bmj.com/content/archdischild/94/11/860.full.pdf> [https://perma.cc/RHS2-6JT5] (focusing on retinal hemorrhaging); Kivlin et al, *Shaken Baby Syndrome*, 107 Ophthalmology 1246 (July 2000) (same); Bradford, Choudhary & Dias, *Serial Neuroimaging In Infants With Abusive Head Trauma: Timing Abusive Injuries*, 12 J Neurosurgery: Pediatrics 110 (August 2013), available at <https://www.thejns.org/pediatrics/view/journals/j-neurosurg-pediatr/12/2/article-p110.xml?tab_body=fulltext> (accessed April 29, 2024) (discussing neuroimaging abnormalities, including subdural hemorrhaging, following AHT);

These and other consensus statements of current medical knowledge emphasize that diagnosing a cause of death or injury for an infant is not a defined, mechanical process by which the boxes of certain symptoms are checked. Pediatric science and medical science generally require consideration of all available facts and evidence and a conclusion as to whether abuse, including abuse through shaking, is the cause of an injury. The presence of subdural hemorrhaging, retinal hemorrhaging, and brain swelling and encephalopathy, when found together, support a finding of child abuse including shaking. Current scientific knowledge demonstrates that, when these findings are added to other evidence such as witness statements and other physical evidence of abuse, a conclusion that a child was killed or injured by shaking is fully justified.[36] There has been presented no evidence in

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Matschke et al, *Nonaccidental Head Injury is the Most Common Cause of Subdural Bleeding In Infants <1 Year of Age*, Pediatrics, Vol. 124, No. 6 (2009) (focusing on subdural hemorrhaging). As the American Academy of Pediatrics explained in a research publication, "[l]ike [subdural hemorrhaging], robust literature supports the association of severe [retinal hemorrhaging] and AHT, and although there are medical diseases that can rarely lead to extensive [retinal hemorrhaging], there is *no* published literature that refutes the association of severe RH and AHT." American Academy of Pediatrics, *Understanding Abusive Head Trauma in Infants and Children* (June 2015), p 5 (citations omitted; emphasis added), available at <https://njcainc.org/wp-content/uploads/2019/10/FINAL-Understanding-AHT-In-Infants-and-Children-AAP-Resource-6-15.pdf> [https://perma.cc/L3UC-4M3Q].

[36] As a statement from the European Society of Paediatric Radiology and the Society of Pediatric Radiology indicates, physicians do not "diagnose *the triad*—which is a lawyer-created name for a constellation of medical findings that may have multiple generally possible causes but that in any specific case helps physicians who treat and diagnose infants and children to determine the most medically plausible explanation for head trauma injuries." Saunders et al, *Throwing The Baby Out With The Bath Water—Response to the Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU) Report on Traumatic Shaking*, 47 Pediatric Radiology 1386, 1386 (2017), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5608779/pdf/247_2017_Article_3932.pdf> [https://perma.cc/TT46-J4AL]. Instead, "[a]lthough findings that include subdural hematoma, retinal hemorrhages, and various forms of brain symptoms (encephalopathy)

this record that contradicts the fundamental case-specific nature of the diagnostic process in recognized science, which relies on the totality of the available clinical evidence in analyzing medical causation.

But this is not a case where the infant fell or there was a large physical collision like a car accident where there is a potential for alternative traumatic force applied to the child. And this is not a case where there is evidence or allegations that defendant or another individual struck the child, which would place the resulting death into another subcategory of AHT that does not involve shaking. Instead, this is a case where the available factual record exhaustively supports, as confirmed by trier-of-fact findings, that defendant violently shook (7/10 force) her two-and-a-half-month old daughter to stop the child from crying, that the child became nonresponsive thereafter, and that defendant illustrated

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would be sufficient for any physician to consider abuse, in most papers dealing with this topic (and all cases in clinical practice), an abuse diagnosis relies upon careful review of all available data, often including data identified and assessed by a dedicated multidisciplinary team, a constellation of imaging findings in the brain, bones, neck, spine and abdomen, fundoscopic findings, interviews with caregivers, forensic data (including postmortem studies), the presence of additional or previous injuries to the child or siblings, the presence of other malicious injury (e.g., burns, bite marks) and exclusion of underlying diseases and accidental injury." *Id*. at 1386-1387; accord *Abusive Head Trauma in Infants and Children*, Pediatrics, Vol. 145, No. 4 ("As with any other diagnosis, pediatric practitioners have a responsibility to formulate a thorough differential diagnosis when presented with a patient with findings suggestive of AHT and to consider the possibility of abuse early in that process, with the understanding that a final medical diagnosis of AHT is made only after consideration of all the available clinical data."); *Consensus Statement*, Pediatric Radiology, Vol. 48, No. 8 ("Efforts to create doubt about AHT include the deliberate mischaracterization and replacement of the complex and multifaceted diagnostic process by a near-mechanical determination based on the 'triad'—the findings of subdural hemorrhage, retinal hemorrhage and encephalopathy."); *Understanding Abusive Head Trauma*, p 7 ("The diagnosis of AHT is made following detailed medical examinations and testing and is not made automatically on the basis of the presence of these 3 findings, nor can it be excluded if 1 or more of these elements is missing.").

repeated evasive behaviors demonstrative of guilt, including giving a false statement to police. Thus, the record affirmatively shows that defendant *did in fact shake the child*. Despite the false and misleading characterizations offered by defendant and the majority opinion, this is not a theoretical case in which the cause of death is based entirely on the "mere" presence of subdural hemorrhaging, retinal hemorrhaging, and brain swelling and encephalopathy, which on their own provide strong indications of injury by shaking. Accordingly, cases that lack an admission or other testimony and evidence that severe shaking occurred are completely inapplicable to the case at hand.

Through the testimony of six putative experts, defendant presented many theories and presumptions to explain away Nakita's shaking, defendant's admission and behaviors, and the child's medical examination, without defendant being culpable for murder. But the trial court acted well within its discretion in rejecting the opinion of these experts as supporting vacation of defendant's conviction.

Dr. John Galaznik stopped practicing any form of pediatrics in 1980; before then he practiced only general pediatrics. After ceasing pediatric practice, he worked for the following decades at a university treating college students and then retired. At the hearing, no clinical experience with child abuse or recent practice with modern child abuse medicine was established. Dr. George Nichols practiced as a medical examiner roughly 20 years ago and since has primarily worked in the legal field as a criminal defense consultant. Dr. Patrick Barnes was a neuroradiologist who lacked proof of certification as a pediatric radiologist but is a member of the Society for Pediatric Radiology. Dr. Bader Cassin was a medical examiner formerly employed at the Washtenaw County Medical Examiner's Office. Chris Van Ee was a biomechanical engineer with no medical experience, expertise,

or training. And Dr. Ronald Auer was a Canadian neuropathologist who performed autopsies and offered testimony relating to allegations of false convictions but had no clinical or research experience with child abuse, AHT, or SBS.

Armed with the various statements of these experts, defendant advanced a series of dubious and highly questionable claims as to the medical facts of this case, which were all ultimately rejected by the trial court. A particularly misleading argument is that SBS as a term has been largely discontinued in medical parlance. The assertion proves far too much. The record demonstrates that the leading institution supporting the transition from the term SBS to the term AHT was the American Academy of Pediatrics, an institution that vociferously rejects defendant's claims as lacking any basis in medical science. Dr. Cindy Christian[37] testified at the evidentiary hearing on defendant's successive motion for relief from judgment that the Academy began to advocate for a shift in terminology when diagnosing child abuse because the prevalent term at the time, shaken-baby syndrome, did not fully capture all the forms of abusive violence that could be inflicted on a child. For instance, "[s]ometimes abused children simply have skull fractures, but they have [no] other evidence of abuse. They don't have any int[ra]cranial [subdural] bleeding. There's no subdural hemorrhage or bleeding inside of their heads, but they sustained blunt impact injury to their heads." Thus, the Academy advocated for use of the term "abusive head trauma" "because there are multiple ways that infants are abused . . . ." Plainly, this did not mean that violently shaking a baby is not a serious health risk that can potentially cause

[37] Dr. Christian had been a practicing child abuse pediatrician since 1989, employed at the Children's Hospital of Philadelphia and the University of Pennsylvania, and was the immediate past chair of the American Academy of Pediatrics Child Abuse and Neglect Committee.

death and severe injury in small children. By changing terminology to allow practitioners to use a broader term to describe physical abuse of infants, the Academy did "not say that [it] does not believe in shaken baby syndrome" or that it is "abandoning the importance of shaking as a mechanism." To the contrary, "[s]haking is an important mechanism by which infants are injured, and . . . shaking has the potential to cause subdural hemorrhages, retinal hemorrhages, and significant brain injury." This testimony and history of the development of the terms SBS and AHT were not disputed with record evidence in the hearing below and were expressly deemed credible by the trial court.[38] As an appellate court with no firsthand observation of the relevant witnesses and facts, we cannot overturn these well-supported factual determinations.[39]

Thus, defendant's claim, echoed through the majority opinion, that somehow death or injury by shaking is debunked, discredited, or subject to serious scientific questioning is a claim resoundingly rejected in pediatric medicine, the *actual* field of science most

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[38] As the trial court explained below, "[t]he credible post-conviction evidentiary hearing evidence indicated Shaken Baby Syndrome is a subset of the diagnosis of abusive head trauma." Abusive head trauma in all its forms "has been established and recognized by numerous well-respected medical organizations." There remains a "widespread acceptance of Shaken Baby Syndrome as a valid medical diagnosis."

[39] *McSwain*, 259 Mich App at 681 ("It is well established that . . . we review a trial court's findings of fact supporting its ruling [on a motion for relief from judgment] for clear error."); *Cress*, 468 Mich at 694 (stating that an appellate court is prohibited from "substituting its judicial opinion regarding . . . credibility [and valuation of witness testimony] for that of the trial court"); *In re Miller*, 433 Mich 331, 337; 445 NW2d 161 (1989) (explaining that the clearly erroneous standard for findings of fact must provide deference to the trial court and its "special opportunity . . . to judge the credibility of the witnesses who appeared before it"); *June Med Servs LLC*, 591 US at 358 (Roberts, C.J., concurring) ("While we largely read briefs for a living, [trial courts] largely assess the credibility of parties and witnesses for a living.").

pertinent to these proceedings. Further, defendant's antiscientific theory carefully weaves through semantic distinctions, claiming that SBS has been discarded and moved into disuse. But, as presented in the record and in express statements by the trial court, that is not because the process of shaking is not a form of child abuse, shaking cannot cause serious harm to children, or certain physiological symptoms, when considered in totality with the facts of a case, do not justify a finding of death by shaking. Instead, SBS as a common term reflecting child abuse has been replaced with AHT because AHT is broader and allows physicians to describe other forms of violent abuse, such as blunt force trauma. SBS is no longer the preferred term in modern medicine, but severe shaking still causes serious harm in infants and children, as it always has. Notwithstanding defendant's attempt to exploit terminology, no one, especially those who care for infants, should be misled as to the actual medical science: shaking is a widely accepted cause of death and serious injury in small children.

Defendant's case and the majority opinion also have a serious problem explaining Nakita's broken shoulder bone (acromion). The medical record, as presented and accepted by the trial court below, is clear: when combined with other indicators of child abuse, a broken shoulder in a small infant with no evidence or history of physical strikes or falls is highly demonstrative of injury by severe shaking.[40] And there is no alternative medical

[40] Dr. Peter Strouse was a pediatric radiologist with decades of clinical practice in the observation of child abuse and the director of pediatric radiology at C. S. Mott Children's Hospital at the University of Michigan. Dr. Strouse testified below that "[f]ractures of the acromion process in young children and infants are very rare. It's considered an injury that's of high specificity for child abuse because it's rarely seen outside of the setting of child abuse." Together with other physical findings such as retinal hemorrhaging, a broken acromion is "very consistent with child abuse." Dr. Jeffrey Jentzen, the Washtenaw County Medical Examiner, similarly testified that autopsy findings, including the broken

explanation for Nakita's broken shoulder in this case, which in combination with the diagnoses of subdural hemorrhaging, retinal hemorrhaging, brain swelling and encephalopathy, and defendant's admission that she shook Nakita, points decisively toward a determination of death by shaking.

Defendant's and her experts' futile attempts to explain how Nakita could have broken her shoulder outside of defendant's confessed shaking of the child lack any scientific or factual foundation. Dr. Cassin indicated that the broken bone could have been the result of the autopsy or manipulation of the body after the autopsy. Because there was no evidence or basis in scientific expertise, evidence, or research, let alone the record, that supported this conclusion, the trial court exercised its discretion to categorically exclude

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acromion, would be "very consistent" with shaking. Dr. Daniel Davis, another physician experienced in child abuse, made the same observation, as did Dr. Christian, who reiterated that acromion fractures are "strongly associated with child abuse." See also *Consensus Statement*, Pediatric Radiology, Vol. 48, No. 8 ("No single injury is diagnostic of AHT. A compilation of injuries most often including [subdural hemorrhaging], complex retinal hemorrhage and/or retinoschisis, *rib, metaphyseal or other fractures* and soft-tissue injury leads to the diagnosis.") (emphasis added); *Abusive Head Trauma in Infants and Children*, Pediatrics, Vol. 145, No. 4 (noting the importance of skeletal examination and explaining that "occult fractures can occur in up to 42% of [AHT] cases"); *Throwing The Baby Out*, 47 Pediatric Radiology at 1386-1387 (stating that "a constellation of imaging findings in the brain, *bones*, neck, spine and abdomen, fundoscopic findings, interviews with caregivers, forensic data (including postmortem studies), *the presence of additional or previous injuries to the child* or siblings, the presence of other malicious injury (e.g., burns, bite marks) and exclusion of underlying diseases and accidental injury" all help in the diagnosis of AHT) (emphasis added).

As the trial court accurately found, describing the factual record below, "the acromion fracture in the infant's shoulder" was an "important item[] of evidence for the experts and this court to evaluate" in a finding of death by shaking. See note 39 of this opinion (describing the deference this Court must provide to trial courts).

it.[41] As the trial court explained, the acromion fracture was present when "Nakita . . . was alive" after being taken to the hospital. Dr. Cassin also stated that "he can't rule out" that the victim's broken shoulder was caused by vaccines or a reaction to vaccines. Those findings also have no basis in the record or medical science, and they too were excluded. Further, Dr. Galaznik and Dr. Barnes testified that the broken shoulder could have been caused by EMS. With no foundation or support in scientific evidence for the claim that emergency actions, such as CPR, could cause a broken acromion, the trial court categorically disregarded that testimony. Dr. Barnes also indicated that the Nakita could have had rickets, often associated with vitamin D deficiency, which could have caused

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[41] Michigan Rule of Evidence 702 provides:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:
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> (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
>
> (b) the testimony is based on sufficient facts or data;
>
> (c) the testimony is the product of reliable principles and methods; and
>
> (d) the expert has reliably applied the principles and methods to the facts of the case.

See also *Elher v Misra*, 499 Mich 11, 22; 878 NW2d 790 (2016) ("MRE 702 incorporates the standards of reliability that the United States Supreme Court articulated in [*Daubert*] in order to interpret the equivalent federal rule of evidence."); see also *People v Lukity*, 460 Mich 484, 488; 596 NW2d 607 (1999) ("The decision whether to admit evidence is within the trial court's discretion; this Court only reverses such decisions where there is an abuse of discretion."). The trial court rightfully excluded this testimony as unreliable in supporting facts, methods, and application. MRE 702(b) through (d).

fragile bones. The trial court noted that there was little observable evidence in the record that would support a conclusion that Nakita had rickets, which had never before been diagnosed, and that claim too was disregarded. None of those decisions are contested by defendant, and this Court has no authority to override them.

Thus, defendant was left with no viable scientific explanation for Nakita's broken shoulder, which in conjunction with her other physiological characteristics, is highly demonstrative of child abuse under the record established in this case. Neither defendant nor the majority opinion offer any explanation for Nakita's broken shoulder outside of violent shaking that is supported by recognized medical science.

Confronting this wave of physical evidence, on-point testimony from defendant herself and those around her at the time of Nakita's death, and the trial court's express factual findings that defendant violently shook Nakita, defendant and her experts resort to indirect yet bare opposition to established medical consensus. Such a shallow presentation of "expert" proofs lacks the foundation necessary to provide admissible testimony. The trial court must apply MRE 702 to make a threshold determination that the opinions offered by the putative expert are based on adequate science and fact. Defendant failed to meet this threshold.

The only two defense experts who reviewed Nakita's file that had any modern experience in treating or clinically responding to child abuse, Dr. Barnes (upon reciting his medically baseless theory on CPR and rickets) and Dr. Cassin (upon leaving open the medically baseless theory of autopsy and vaccine injuries), testified only that it is a *possibility* that Nakita died from a cause other than violent shaking. Merely stating that one cause of death is possible, in the face of volumes of established medical science

indicating that physiological traits support another cause, which is confirmed to have occurred by in-court testimony and consistent with findings of the trier of fact, is an extraordinarily weak basis for an appellate court to grant a successive motion for relief from judgment and overturn a conviction almost two decades old.

It is defendant's burden to present evidence to the trial court demonstrating that a different result is probable, despite the established findings of fact and the contrary evidence presented at the hearing.[42] Notably, four other doctors with decades of clinical experience in pediatric-abuse response, including the director of pediatric radiology at C. S. Mott Children's Hospital at the University of Michigan, the Washtenaw County Medical Examiner, and the immediate past chair of the American Academy of Pediatrics Child Abuse and Neglect Committee, confirmed that Nakita was killed as a result of violent shaking after a thorough review of the records in this case. As the trial court explained, mere "equivocal testimony" as to the cause of death from Dr. Cassin, combined with credible contrary determinations of death by shaking, suspect assertions such as acromion fractures by autopsy, and a lack of citation to accepted scientific studies, did not justify a conclusion that a different result would occur on retrial. The same is true of the opinions offered by Dr. Barnes, whose equivocal testimony, in conjunction with incredible theories of injury based on rickets and EMS activity, does not come close to the credible statements and massive medical record in support of injury by shaking.

[42] See note 18.

Two other defense witnesses, Dr. Galaznik and Dr. Nichols (who provided medically baseless and inadmissible testimony on other topics),[43] had no clinical experience treating and responding to child abuse in recent decades. However, they claimed affirmatively that Nakita's death could not have resulted from shaking. Yet mere assertions by individuals qualified as experts cannot alone justify admission or even a factual determination of credibility.[44]

Defendant notes that Dr. Cassin, the original medical examiner who performed Nakita's autopsy and opined that Nakita died from abusive shaking, has since changed his opinion on cause of death from homicide to uncertain. But Dr. Cassin no longer works for the Washtenaw County Medical Examiner's Office and has no legal authority to speak for it. Dr. Jentzen, the current Washtenaw County Medical Examiner who would be called to the stand on behalf of official medical authorities on retrial, stated on the record that the evidence supports the conclusion of death by shaking.[45] Nakita's official cause of death

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[43] Both these purported experts offered unrelated testimony on subdural hemorrhaging that the trial court found was "without any data support or any scientific research substantiating their opinion." Dr. Galaznik also concurred with Dr. Barnes in the conclusion that Nakita's broken shoulder could have been caused by CPR, which the trial court similarly found was lacking in any evidentiary or medical basis. Neither of those conclusions was challenged by defendant, and none of those witness statements lend credibility to their conclusions as purported experts.

[44] See note 41 of this opinion; *Gilbert*, 470 Mich at 783 ("[N]othing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert.") (quotation marks and citation omitted; alteration in *Gilbert*); *Surman v Surman*, 277 Mich App 287, 308; 745 NW2d 802 (2007) (explaining the well-established standard that a witness must be qualified as an expert separately from any inquiry into their reliability or applicability in the case); MRE 702.

[45] The law vests governmental authority in medical examinations and determinations on cause of death with the *county's medical examiner*. There is no indication in available

was and remains homicide. The trial court expressly considered Dr. Cassin's testimony but ultimately found it to be insufficient to merit the relief sought by defendant. It found that Dr Cassin's testimony failed to cite available studies or scientific research for his change of opinion, provided other noncredible assertions of medical science, conflicted with credible and accepted medical observation, and acknowledged homicide as a real possibility. The trial court weighed competing evidence as to Dr. Cassin, made credibility determinations, and made findings of fact to conclude that his testimony did not support relief. There is no basis for this Court to overturn those determinations.[46]

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statutes, and no citation in law from any of the parties, that the word of a former employee of the medical examiner's office controls the official investigation, pronouncement, and conclusion of the county's medical examiner. See MCL 52.201(1) (stating that counties "appoint a county medical examiner" who must be replaced if the office is vacated); MCL 52.201c(1) ("The *county medical examiner* is in charge of the office of the county medical examiner . . . .") (emphasis added); MCL 52.202(1) ("A *county medical examiner* or deputy county medical examiner shall investigate the cause and manner of death . . . .") (emphasis added); MCL 52.205a (same in the context of child deaths). The Washtenaw County Medical Examiner's Office concluded that Nakita's cause of death was homicide, and that remains true today. Dr. Cassin is not employed by the Washtenaw County Medical Examiner. His equivocal statement, made over a decade after the trial and without citation to medical evidence, is not binding on the Washtenaw County Medical Examiner's office and is by no means an alteration of the accepted cause of death from that government office.

[46] The majority opinion places special reliance on Dr. Cassin's testimony, largely passing over the fact that he has no unique authority to speak on the basis of Nakita's death given that he stands merely as the *former* Washtenaw County Medical Examiner. See *ante* at 26-27 & nn 19, 21; note 45 of this opinion. There is overwhelming record evidence supporting the diagnosis of death by shaking, presented in no small part through extensive medical testimony from leading and credible pediatric experts. Notably, much of this substantial medical evidence and testimony supporting the conviction was not provided at the time of trial but would be available on retrial. This case may indeed be different if Dr. Cassin's statements were the only evidence available on the interpretation of Nakita's death in the motion for new trial and Dr. Cassin backed his statements with support from pediatric medicine. Yet Dr. Cassin's equivocal testimony below was deemed noncredible by the trial court below, given the lack of evidentiary support backing his opinions, including the changed diagnosis and the medically baseless claim that an autopsy caused Nakita's broken

Defendant further claims that scientific studies demonstrate that a child can experience subdural hemorrhaging, retinal hemorrhaging, and brain swelling and encephalopathy together as a result of incidental choking on formula. Putting aside the fact that those symptoms, as explained above, are thoroughly recognized in modern science as supporting a finding of child abuse, including child abuse by shaking, defendant claims that this shows that Nakita's death was purely incidental and unrelated to her shaking. The problem for defendant is that it was clearly within the discretion of the trial court to conclude that this position is unsupported by available and recognized scientific understanding.

The primary physical mechanism for injury under defendant's theory is hypoxic-ischemic encephalopathy, or lack of blood flow to the brain with corresponding swelling or other brain deformity. As noted above, it is accepted medical science that encephalopathy and brain swelling (specifically hypoxic-ischemic encephalopathy), when combined with other recognized physical conditions of child abuse and relevant case-specific facts, strongly support a finding of injury by shaking. It is also undisputed that hypoxic-ischemic encephalopathy occurs when blood flow is cut off to the brain in a wide variety of other instances, including asphyxiation, drowning, and cardiac arrest.[47] But as

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shoulder. Given the total dearth of evidentiary support for much of Dr. Cassin's relevant testimony and the extensive body of research and medicine contradicting his positions, this conclusion from the trial court cannot be disturbed on appeal. See notes 39 and 15-20 of this opinion (describing the deference to the trial court's review of the record and the extraordinarily high burden for overturning on appeal a trial court's decision to deny a motion for new trial).

[47] Dr. Christian explained in undisputed testimony that in the practice of pediatric emergency treatment, physicians "see lots of babies who come in . . . for those problems." Cases include drowning in bathtubs or by accidental smothering. Dr. Jentzen reiterated

with all medical science, simply because a symptom *could occur* in another circumstance if other evidence of physiological indications are not present does not mean that the primary and widely accepted explanation for the symptom in specific instances is incorrect. Bloody noses from dry air are an everyday occurrence, and yet they can also occur as a result of brain tumors in certain circumstances. "[D]ysphagic choking/vomiting" is widely rejected as being a medical cause of the accepted indicators of child abuse when seen together: subdural hemorrhaging, retinal hemorrhaging, and brain swelling and encephalopathy.[48] Less than 3% of medical professionals that practice in specialties "with the greatest likelihood of evaluating and treating pediatric traumatic brain injury" concluded that subdural hemorrhaging, alone, is probable as a result of choking.[49] Less

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that "we have known and documented hypoxic episodes to the brain ever since the shaken baby was first determined by the evidence of brain swelling, which is indicative of lack of oxygen to the brain, which is the final mechanism of all injuries to the brain." See also *Understanding Abusive Head Trauma*, p 6 ("Hypoxic ischemic encephalopathy [HIE], injury to the brain caused by lack of oxygen and blood flow to the brain, is a common feature of AHT and is largely responsible for the poor outcomes of victims. . . . Potential causes of HIE in infants and children include birth asphyxia, accidental or intentional trauma or suffocation, infection, metabolic disease, congenital anomalies, drowning, and choking.").

[48] *Consensus Statement*, Pediatric Radiology, Vol. 48, No. 8 (agreed upon by the 18 leading pediatric organizations in the world). Dr. Christian testified that in her decades of treatment of infants suffering from cut-off airflow and hypoxic-ischemic encephalopathy, she has not seen clinically significant "on our scan subdural hemorrhages." Dr. Davis and Dr. Jentzen concurrently testified, as credible witnesses according to the trial court, "there are situations where infants and children can aspirate [as a result of choking], but they don't end up with a subdural hematoma as a result of it. . . . [T]here are different phenomena."

[49] *Acceptance of Shaken Baby Syndrome and Abusive Head Trauma as Medical Diagnoses*, The Journal of Pediatrics, pp 276-277.

than 10% concluded that retinal hemorrhaging, alone, is probable as a result of choking.[50] And accepted medical evidence of infants who experience those symptoms together with brain swelling and encephalopathy as a result of choking is nonexistent. This infinitesimal chance is even more remote when an unexplained broken shoulder and admitted violent shaking by a caregiver are considered. The absence of such medical evidence is stunning given that death by loss of blood flow unrelated to child abuse is by no means uncommon in pediatric emergency medicine.

Sticking solely to subdural hemorrhaging, defendant and her experts tried vigorously to produce any medical evidence that the symptom is plausible in the absence of evidence of child abuse. More specifically, defendant attempted to show that subdural hemorrhaging can be caused by choking, a non-abusive event. Defense expert Dr. Nichols cited the study conducted by fellow defense experts, Dr. Galaznik and Dr. Barnes.[51] That study examined a single case in which the authors believed a child may have experienced subdural hemorrhaging and retinal hemorrhaging because of choking, rather than due to abusive injury. The authors asserted that the death was consistent with a choking-type acute life-threatening event (ALTE), which is a general term for unexplained injuries to an infant associated in certain cases with choking.[52] Yet that study has been roundly rejected

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[50] *Id*.

[51] Barnes et al, *Infant Acute Life-Threatening Event—Dysphagic Choking Versus Nonaccidental Injury*, Seminars in Pediatric Neurology, Vol. 17, No. 1, pp 7-11 (March 2010).

[52] "ALTE" typically refers to an "apparent life-threatening event," but the authors in the Barnes study used the term "acute life-threatening event." See, e.g., Tieder et al, Clinical Practice Guideline, *Brief Resolved Unexplained Events (Formerly Apparent Life-Threatening Events) and Evaluation of Lower-Risk Infants*, Pediatrics, Vol. 137,

as incomplete, unreliable, and unacceptable in medical science. Numerous serious concerns have been raised about this single case study. There was a substantial conflict of interest that was not acknowledged in the study: the authors, including both Dr. Galaznik and Dr. Barnes, were witnesses in the case for the criminal defendant. The medical examiner and at least one of the treating physicians concluded that the child was killed by child abuse, specifically shaking,[53] and ultimately, the jury rejected Dr. Galaznik's and Dr. Barnes's assertion that the child may have died due to accidental choking. Thus, after a legally recognized and full adjudication of fact on the cause of death, the child was determined to have actually died from child abuse. And finally, the study excluded scientifically pertinent facts, including the fact that the child at issue had a healing rib fracture, which together with other medical records was highly indicative of abuse.[54] Thus,

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No. 5 (May 2016), available at <https://publications.aap.org/pediatrics/article/137/5/e20160590/52195/Brief-Resolved-Unexplained-Events-Formerly?autologincheck=redirected> (accessed May 1, 2024) [https://perma.cc/F2KM-YKKL]. The medical terminology has changed from ALTE to "brief resolved unexplained event" (BRUE). *Consensus Statement*, Pediatric Radiology, Vol. 48, No. 8 ("ALTE . . . has been replaced with the new terminology 'brief resolved unexplained events.' "); see also Bonkowsky et al, *Death, Child Abuse, and Adverse Neurological Outcome of Infants After an Apparent Life-Threatening Event*, Pediatrics, Vol. 122, No. 1 (July 2008) (stating various observed results of infants with ALTE and noting the potential crossover of ALTE with child abuse).

[53] Edwards, *Mimics of Child Abuse: Can Choking Explain Abusive Head Trauma?*, 35 J of Forensic & Legal Med 33, 35 (2015).

[54] Dr. Christian explained these basic failings of the study in testimony eventually credited by the trial court. As described by Dr. Christian, "the authors knew that trauma was the diagnosis in [the] case" and "omitted the fact that the baby had a healing rib fracture . . . ." By selectively leaving out that fundamental information, the authors were "dishonest" and the study lacking in scientific validity. The trial court was well within its discretion when it accepted Dr. Christain's explanation and rejected as scientifically unreliable the Barnes study. See also *Consensus Statement*, Pediatric Radiology, Vol. 48, No. 8; *Mimics of Child*

the study failed to include known and highly material evidence that would substantially affect the outcome, included an undisclosed conflict of interest, and has no credibility in the scientific community. The consensus paper joined by 18 leading pediatric institutes around the world even saw fit to expressly mention the Barnes study, noting the "lack[] [of a] proper evidence base and . . . [the] use of inaccurate information to support speculative explanations."[55] It is hard to imagine a study with a greater lack of scientific support. The trial court was fully within its discretion to reject such wholesale and unreliable speculation and in any event, severely downgrade its value and credibility.[56]

Abuse, 35 J of Forensic & Legal Med 33 (critiquing in detail the Barnes study as wholly inadequate as a legitimate medical source).

[55] *Consensus Statement*, Pediatric Radiology, Vol. 48, No. 8 (citations omitted).

[56] Excluding from the data set highly relevant information that is widely understood within the scientific community to materially affect the ultimate result is by no means the hallmark of reliable science. Neither defendant nor the defense experts themselves provide any argument that selectively excluding highly relevant information is a reliable methodology. When data has been selectively released that fails to disclose significant information observed in the record, the study can be subject to far less replicability and testing, deprives the study of effective error rates, and falls outside generally accepted methods. See *Daubert*, 509 US at 593-594 (noting the importance of studies that can be subject to "testing" and can be "falsified," "error rate," and the utilization of established professional standards to control operation; emphasizing that a "technique which has been able to attract only minimal support within the community . . . may properly be viewed with skepticism") (quotation marks and citation omitted); *Kumho Tire Co, Ltd v Carmichael*, 526 US 137, 154-155; 119 S Ct 1167; 143 L Ed 2d 238 (1999) (noting the lack of replicability in a theory that was applied in an idiosyncratic manner by an expert, notwithstanding substantial counterevidence available on the record, the lack of reliability in the ability to produce relevant analysis when applying this theory, and the lack of use of that methodology in the general expert community); *Manpower, Inc v Ins Co of Pennsylvania*, 732 F3d 796, 808-809 (CA 7 2013) (distinguishing between reasonable disagreements on the *accuracy* or *value* of information from the use of limited data sets that have no basis in reliably produced science), citing *Stollings v Ryobi Tech*, 725 F3d 753, 766 (CA 7, 2013). If scientists can selectively exclude significant and known information from their studies that does not support the given conclusion, the reliability of scientific research would be

Furthermore, putting aside the significant methodological infirmities of the study and its rejection by the broad consensus of pediatric-abuse experts, the theory runs into a wave of counterevidence as to ALTE specifically. Numerous studies have attempted to replicate findings showing that ALTE without abuse symptoms produces similar physical results as AHT; there is a total dearth of resulting evidence. An article in Pediatric Emergency Care examined 108 babies with ALTE; none was found to have retinal hemorrhaging.[57] Another study examined a wide selection of 170 babies with subdural hemorrhaging.[58] It found that babies with ALTE were not less likely to have other signs of child abuse than children without ALTE, as would be the case if ALTE alone caused subdural hemorrhaging without abuse as Dr. Galaznik and Dr. Barnes theorize.[59] Babies with ALTE with subdural hemorrhaging were five times more likely to have signs of

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massively reduced; *Daubert* and Rule 702 would have materially limited continued value given the apparent perverse incentive such an allowance would create. See MRE 702 (requiring "sufficient facts or data" and "reliable principles and methods" for expert testimony).

The trial court concluded that the study was not admissible as reliable scientific evidence. That decision was well within the wide discretion of the trial court, to which we are obliged to defer. *People v Layher*, 464 Mich 756, 765; 631 NW2d 281 (2001) (noting the trial court's "wide discretion" in resolving an evidentiary dispute); *Hardyman v Norfolk & Western R Co*, 243 F3d 255, 267 (CA 6, 2001) (reiterating a trial court's "wide latitude" in resolving the admission of expert testimony); *Salem v United States Lines Co*, 370 US 31, 35; 82 S Ct 1119; 8 L Ed 2d 313 (1962) ("[T]he trial judge has broad discretion in the matter of the admission or exclusion of expert evidence . . . .").

[57] Curcoy et al, *Retinal Hemorrhages and Apparent Life-Threatening Events*, Pediatric Emergency Care, Vol. 26, No. 2 (February 2010).

[58] Hansen et al, *Evaluation of the Hypothesis That Choking/ALTE May Mimic Abusive Head Trauma*, Acad Pediatrics, Vol. 17, No. 4 (May-June 2017).

[59] *Id*.

abuse.[60] Ten babies were identified as having choking-type ALTE history, and all ten had suspicious head injuries indicative of abuse.[61] Multiple other studies have been conducted of other conditions affecting oxygen flow to the brain with severe coughing and vomiting, and those studies have found zero children with the retinal hemorrhaging found in child abuse cases.[62] Outside of the flawed and repudiated study by Dr. Galaznik and Dr. Barnes, there has been no evidence presented in this record of a single child who had a record of choking or similar event, without evidence of child abuse, that produced the constellation of physical symptoms routinely found in shaken-baby cases. Nor would any such evidence of the mere existence of such medical phenomena undermine the overwhelming medical record of the presence of those symptoms in cases of child abuse and child shaking.

Defendant and her experts also point to three studies primarily conducted by Marta Cohen and Irene Scheimberg that were designed to show that hypoxic-ischemic encephalopathy and subdural hemorrhaging (not even considering retinal hemorrhaging)

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[60] *Id*.

[61] *Id*. See also Byard et al, *Lack of Evidence for a Causal Relationship Between Hypoxic-Ischemic Encephalopathy and Subdural Hemorrhage in Fetal Life, Infancy, and Early Childhood*, Pediatric & Developmental Pathology, Vol. 10, No. 5 (September-October 2007) (examining 82 fetuses, infants and toddlers with hypoxic-ischemic encephalopathy from purported medical causes, including choking, and finding none had subdural hemorrhaging).

[62] Herr et al, *Does Valsalva Retinopathy Occur in Infants? An Initial Investigation in Infants with Vomiting Caused By Pyloric Stenosis*, Pediatrics, Vol. 113, No. 6 (June 2004) (reviewing 100 infants with hypertrophic pyloric stenosis); Curcoy et al, *Is Pertussis in Infants a Potential Cause of Retinal Haemorrhages?* 97 Archives of Disease in Childhood 239 (2012) (considering 35 infants with pertussis); *Consensus Statement*, Pediatric Radiology, Vol. 48, No. 8 ("These prospective studies underline the fact that while the cough/dysphagic choking/vomiting theory is supported by no recent solid evidence base, there are strong prospective studies providing evidence that refutes these theories.").

are correlated.[63] Of course, the mere presence of a correlation proves nothing as to causation and does not in any way negate the widely understood medical knowledge on the topic. There is no dispute that subdural hemorrhaging and hypoxic-ischemic encephalopathy can occur at the same time; in fact, the presence of both with retinal hemorrhaging provides strong support for child abuse. Further, as noted above, hypoxic-ischemic encephalopathy can occur in a plethora of medical incidents, from drowning to heart attacks. The mere fact that hypoxic-ischemic encephalopathy and subdural hemorrhaging can occur together neither: (1) disproves or negates the recognized medical

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[63] Cohen's research was a follow-up to a theory paper proposed by the British neuropathologist J. F. Geddes. Geddes published several research papers that demonstrated subdural hemorrhaging, retinal hemorrhaging, and hypoxia were commonly found in cases of AHT, in line with the overwhelming body of medical evidence. Geddes et al, *Neuropathology of Inflicted Head Injury in Children: I. Patterns of Brain Damage*, 124 Brain 1290 (2001), available to download at <https://pubmed.ncbi.nlm.nih.gov/11408324/> (accessed May 2, 2024) [https://perma.cc/Q2YQ-VULS]; Geddes et al, *Neuropathology of Inflicted Head injury in Children: II. Microscopic Brain Injury in Infants*, 124 Brain 1299 (2001), available to download at <https://pubmed.ncbi.nlm.nih.gov/11408325/> (accessed May 2, 2024) [https://perma.cc/N7MS-LMH9]. Subsequently, Geddes published a third paper that demonstrated, among a population of almost entirely fetuses and neonates (9 of 50 were infants), that nontraumatic deaths were associated with hypoxia and forms of brain bleeding inapplicable to this case. Geddes et al, *Dural Haemorrhage in Non-Traumatic Infant Deaths: Does It Explain the Bleeding in 'Shaken Baby Syndrome'?*, Neuropathology & Applied Neurobiology, Vol. 29, No. 1 (February 2003). The study found no statistically significant association between hypoxia and that form of brain bleeding, and in fact, only a single fetus was found to have subdural hemorrhaging (not one infant had the symptom). As explained below and noted by Geddes, brain bleeding in fetuses and neonates is not uncommon. See note 66 of this opinion. No observations on retinal hemorrhaging were provided. From this data, Geddes and her coauthors then *theorized* that infant children *could* experience subdural hemorrhaging from non-traumatic hypoxia. No data in the Geddes studies actually provided or indicated such a result. Geddes merely observed a potential theory that could be demonstrated in *further research*. As explained in the hearing below, Geddes herself stated that this study was never intended to support causation in a courtroom.

fact that subdural hemorrhaging, retinal hemorrhaging, and encephalopathy together with unexplained broken bones are highly indicative of abuse; nor (2) proves that *incidental choking* results in subdural hemorrhaging, retinal hemorrhaging, and encephalopathy, or does so on any routine basis. Focusing solely on hypoxic-ischemic encephalopathy, there is overwhelming medical evidence that non-abusive hypoxic-ischemic encephalopathy occurs without subdural hemorrhaging, such as when an infant dies of choking or asphyxiation.[64] Thus, hypoxic-ischemic encephalopathy occurs without subdural hemorrhaging (e.g., in choking) and occurs with subdural hemorrhaging (e.g., in shaking). Further, "traumatic AHT can be present without hypoxia, and AHT with hypoxic injury

[64] Rao, Carty & Pierce, *The Acute Reversal Sign: Comparison of Medical and Non-Accidental Injury Patients*, Clinical Radiology, Vol. 54, No. 8 (August 1999) (examining cases of hypoxic-ischemic encephalopathy with unexplained, nonaccidental injury (abuse) and those with known medical cause; concluding that *all* babies examined with abuse had subdural hemorrhaging and *none* of the babies with medical causes had subdural hemorrhaging); *Lack of Evidence for a Causal Relationship*, Pediatric & Developmental Pathology, Vol. 10, No. 5 (examining 82 fetuses, infants, and toddlers with hypoxic-ischemic encephalopathy from purported medical causes and finding none had subdural hemorrhaging); Hurley et al, *Is There a Causal Relationship Between the Hypoxia–Ischaemia Associated with Cardiorespiratory Arrest and Subdural Haematomas? An Observational Study*, 83 Brit J of Radiology 736 (2010), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3473414/pdf/bjr-83-736.pdf> (accessed May 2, 2024) [https://perma.cc/2TQQ-QW5Y] (examining 50 cases of infant cardiac arrest, tied with hypoxic-ischemic encephalopathy, and concluding none had clinically significant subdural hemorrhaging); *Evaluation of the Hypothesis*, Acad Pediatrics, Vol. 17, No. 4 (finding that the ten cases of choking-related ALTE with subdural hemorrhaging involved other head injuries emblematic of child abuse); Punt et al, *The 'Unified Hypothesis' of Geddes et al. Is Not Supported By the Data*, Pediatric Rehabilitation, Vol. 7, No. 3 (2004) (noting flaws in using some correlation data to prove a causative link between hypoxic-ischemic encephalopathy and subdural hemorrhaging). The undisputed testimony of Dr. Christian, Dr. Davis, and Dr. Jentzen demonstrated that, in their practices, choking and asphyxiated babies are frequently seen in emergency settings and subdural hemorrhaging is not clinically apparent.

can coexist with other clinical findings such as visceral or skeletal injuries [broken bones] and paraspinal soft-tissue injuries supporting the diagnosis of AHT."[65] Correlation studies add no material value to this case or a determination of defendant's guilt.

The trial court correctly identified further problems with the Cohen studies cited by defendant. The vast majority of the study subjects were fetuses and neonates (children less than four weeks old), and undisputed medical evidence presented below indicates that fetuses and neonates frequently experience distinct and medically apparent symptoms of subdural hemorrhaging, such as through the birthing process.[66] Fetuses and neonates are physiologically distinct from infants more than two months old, yet one Cohen study included only fetuses and neonates (who were selected because they had encephalopathy and brain bleeding) and another study included both neonates and infants but did not disclose the methods researchers used to select their subjects. Both studies failed to include any specified findings as to older infants, and no error rates that could assist researchers in determining their applicability outside of inapplicable cohorts were included.[67] The third

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[65] *Consensus Statement*, Pediatric Radiology, Vol. 48, No. 8 (joined by 18 of the leading pediatric science institutes around the world, expressly rejecting any material medical value for child abuse response in Cohen's findings).

[66] As Dr. Christian explained in undisputed testimony, this cohort of subjects "commonly have some subdural hemorrhage usually a-symptomatic usually right in the back of their head from the trauma of birth." See also *A Daubert Analysis of Abusive Head Trauma/Shaken Baby Syndrome*, 11 Hous J Health L & Pol'y, pp 562-563 & n 396 (collecting sources, including Geddes, and explaining that brain bleeding, including subdural hemorrhaging, is commonly found in fetuses and neonates).

[67] Cohen & Scheimberg, *Evidence of Occurrence of Intradural and Subdural Hemorrhage in the Perinatal and Neonatal Period in the Context of Hypoxic Ischemic Encephalopathy: An Observational Study From Two Referral Institutions in the United Kingdom*, Pediatric & Developmental Pathology, Vol. 12, No. 3 (May-June 2009); Cohen, Sprigg & Whitby, *Subdural Hemorrhage, Intradural Hemorrhage and Hypoxia in the Pediatric and*

study separated age groups and included error rates but noted that the infants included in the study were materially less likely to have both hypoxic-ischemic encephalopathy and subdural hemorrhaging than fetuses and neonates. No explanation as to cause of death was provided in any of the studies which would allow independent researchers to confirm the results,[68] but the third study stated categorically that, in the authors' view, the deaths were from "natural causes."[69] Significantly, none of the studies provided analysis or explanation of infants who died from choking or asphyxiation, the issue in this case. Further, Cohen's findings are routinely discounted in the field of pediatric response to AHT and child abuse.[70]

Perinatal Post Mortem: Are They Related? An Observational Study Combining the use of Post Mortem Pathology and Magnetic Resonance Imaging, Forensic Sci Int'l, Vol. 200, Nos. 1-3 (July 2010).

[68] Given the amount of hypoxic-ischemic encephalopathy found in Cohen's subjects, a subsequent review explained that Cohen's results suggest she was examining a "highly selected cohort" of very sick subjects. *Is There A Causal Relationship*, 83 Brit J Radiology, p 742.

[69] Cohen & Scheimberg, *Nontraumatic Intradural and Subdural Hemorrhage and Hypoxic Ischemic Encephalopathy in Fetuses, Infants, and Children up to Three Years of Age: Analysis of Two Audits of 636 Cases From Two Referral Centers in the United Kingdom*, Pediatric & Developmental Pathology, Vol. 16, No. 3 (May-June 2013).

It is by no means unheard of that infants have subdural hemorrhaging as a result of highly case-specific and unique disease, such as "premature infants with overwhelming septus," as Dr. Christian explained in uncontested testimony below. None of those diseases were identified in the medical analysis at trial here nor are in any way a part of defendant's current appeal. Instead, defendant's claim is that Nakita's physiological characteristics were the result of choking on formula, not violent shaking.

[70] See notes 64 and 65 of this opinion (describing the overwhelming medical evidence contradicting Cohen and concluding that subdural hemorrhage does not occur with non-abusive hypoxic-ischemic encephalopathy, such as might occur with choking or

Outlier studies on correlation, examining an area of science distinct and inapplicable to the case at hand, do not support the extraordinary conclusion that the injuries inflicted on Nakita did not come from defendant's violent shaking. There remains no evidence of children experiencing subdural hemorrhaging, retinal hemorrhaging, and encephalopathy because of choking, and none of the Cohen studies undermines or negates the established medical understanding that those symptoms, when found together, are caused by shaking. In conjunction with the serious methodological concerns found in at least two of the studies, the trial court was well within its discretion to exclude defendant's experts from using these correlative and unrelated studies to make the massive intellectual leap that the physical symptoms exhibited by Nakita supported choking and not severe shaking.[71] Even

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asphyxiation; stating the medical consensus rejecting the material medical value of Cohen's studies in the treatment and diagnosis of child abuse).

[71] See, e.g., *Gen Electric Co v Joiner*, 522 US 136, 143-146; 118 S Ct 512; 139 L Ed 2d 508 (1997) (finding inadmissible: testing on animals of the exact circumstances at issue in the case and not just computer models; studies on the exact injury for the same population that merely asserted correlation and clarified their limited application outside of the context of the findings in the context of the actual chemical exposure at issue; and studies that failed to tailor their findings to the specific method of alleged causation at issue); *Gilbert*, 470 Mich 749 (adopting the *Joiner* test from federal law); *Rosen v Ciba-Geigy Corp*, 78 F3d 316, 319-320 (CA 7, 1996) (stating that, even with studies demonstrating that nicotine causes coronary artery disease, the conclusion that nicotine causes heart attacks, a related but distinct medical observation, could not be admissible; noting that "the courtroom is not the place for scientific guesswork, even of the inspired sort . . . [l]aw lags science; it does not lead it"); *Tamraz v Lincoln Electric Co*, 620 F3d 665, 670 (CA 6, 2010) (explaining that scientific, expert testimony that a certain source cause Parkinson's was based on studies theorizing a potential connection not derived from the actual subjects and actual causes observed, which conflicted with the studies actually examining Parkinson's in medical environments, was "plausible" and "may even be right," but was not admissible to show causation for the patient at issue); *Kelley v American Heyer-Schulte Corp*, 957 F Supp 873, 882 (WD Tex, 1997) (explaining in the context of analogous speculative correlation of medical results that "this is a bit like saying that if a person has a scratchy throat, runny nose, and a nasty cough, that person has a cold; if, on the otherhand, that

if these studies were considered, they are of very limited value given the overwhelming body of accepted medical knowledge to the contrary, especially when there is a recognized finding (and caregiver admission) of violent shaking and an unexplained broken shoulder. Finally, defendant and her experts rely upon biomechanical studies to claim that subdural hemorrhaging, retinal hemorrhaging, and encephalopathy without more cannot justify a finding of abuse. The trial court acted well within its discretion when it rejected these studies. Some biomechanical studies have predicted that there would be greater neck injuries because of shaking.[72] Defendant uses this to assert that Nakita could not have died from shaking because there were not apparent or catastrophic injuries to her neck. However, in making these predictions, the models did not use data of human children or infants, but monkeys and adults. Notably, the data as to those monkeys and adults did not include any findings that serious neck injury was required as to monkeys and adults; they are rudimentary extrapolations from their bodies to the projected physiology of infants. No data or evidence from actual infants was used in providing the theoretical predictions in

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person has a scratchy throat, runny nose, nasty cough, and wears a watch, they have a watch-induced cold"); *CW ex rel Wood v Textron, Inc*, 807 F3d 827, 835-836 (CA 7, 2015) (noting the stark intellectual deficiencies in relying upon correlations, even with *the actual alleged* cause as opposed to a mere derivative diagnosis such as this case, when the studies do not examine, exclude, or otherwise analyze alternative causes as relevant to the patients at issue); *Barber v United Airlines Inc*, 17 F Appx 433, 437 (CA 7, 2001) (an expert that selectively chooses "testimony and . . . data that suit his theory and ignored other [material] portions" does not provide admissible testimony).

[72] See, e.g., Ommaya, Goldsmith & Thibault, *Biomechanics and Neuropathology of Adult and Paediatric Head Injury*, Brit J of Neurosurgery, Vol. 16, No. 3 (2002); see also *Abusive Head Trauma in Infants and Children*, Pediatrics, Vol. 145, No. 4 ("Some authors have postulated that evidence of significant cervical spine injury was a necessary finding before infant brain injury could be attributed to exclusive shaking events.").

the software models.[73] This in and of itself puts those models in serious doubt as applied in this case, especially when they are in direct conflict with established understanding in the actual field of medicine, based on observations of actual children who have been subject to abuse.

Notably, it is not in dispute that otherwise unobserved stress and injury to the neck can be detected with modern MRI technology in a child subject to abusive shaking.[74]

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[73] Defendant's sole expert on biomechanics, Mr. Van Ee, was an engineer with no medical experience, expertise, or training. Mr. Van Ee explained that the biomechanical study he relied upon was based on "primates or monkeys" placed in a seat for a front-end car collision. In fact, Mr. Van Ee testified, and the trial court expressly credited, that the biomechanical studies do not stand in for a scientific determination on "the myriad and complicated injuries the brain may suffer." Beyond this reality, defendant's experts relied primarily on two biomechanical studies. One study misstated the amount of force used to shake an infant by 10x. See Margulies et al, *Shaken Baby Syndrome: A Flawed Biomechanical Analysis*, Forensic Sci Int'l, Vol. 164, Nos. 1-3 (December 2006). In the other study, the author documented a case of shaken-adult syndrome (where the adult unsurprisingly exhibited brain trauma with retinal and subdural hemorrhaging) and used a computer scaling formula to theoretically project the amount of force needed to inflict similar injuries on an infant. *Biomechanics and Neuropathology of Adult and Paediatric Head Injury*, Brit J of Neurosurgery, Vol. 16, No. 3. In so doing, the authors acknowledged the study's limitations in projecting actual injuries for humans with very different brains and development levels. The authors disclaimed any assertion that their findings established causation and instead called for additional research.

[74] As the American Academy of Pediatrics explained in its policy statement, biomechanical studies questioned whether "shaking events alone [could] generate sufficient forces to induce a variety of infant brain injuries . . . ." *Abusive Head Trauma in Infants and Children*, Pediatrics, Vol. 145, No. 4. Yet studies from the actual, expert field of medicine have found that when children are abused from shaking some injuries may be detected in the neck area through improved "radiologic imaging" such as modern MRIs. The need for readily observable "bony, soft-tissue, or spinal cord injury" is not supported by medical evidence, and such biomechanical studies implying otherwise have "limitations and fall short of a precise representation of the complex pathophysiology of the human infant." *Id*.; see also *Consensus Statement*, Pediatric Radiology, Vol. 48, No. 8 (international consensus statement indicating that "[t]he differences in intrinsic material properties of the infant skull, brain, cerebrospinal fluid (CSF) and blood vessels versus an adult human or primate were not considered [in biomechanical research], nor were the effects of repeated injury");

Prange et al, *Anthropomorphic Simulations of Falls, Shakes, and Inflicted Impacts in Infants*, 99 J Neurosurgery 143, 149 (2003) ("These injury projections should be interpreted with caution, because differences in species, age, material properties, geometry, and direction make scaling experimental angular acceleration and velocity measurements to infants problematic when based on differences in brain mass alone."); Lindberg et al, *The "New Science" of Abusive Head Trauma*, 2 Int'l J on Child Maltreatment 1, 9 (2019), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7500486/> [https://perma.cc/V7CH-4M7E] (explaining that "[w]ith 80-100 million neurons, layers of brain of different densities, and a non-spherical shape, the human brain is over simplified when reduced to a simple point or shape" and that "[r]epetitive shaking can result in translational movement in 3 dimensions, as well as spinning and shear forces, simultaneously"); Gill et al, *Fatal Head Injury in Children Younger Than 2 Years in New York City and an Overview of the Shaken Baby Syndrome*, 133 Archives of Pathology & Laboratory Med 619 (April 2009), available to download at <https://pubmed.ncbi.nlm.nih.gov/19391663/> (accessed May 3, 2024) (discussing in detail the available science on neck injury, stating that ligament strains at times appear but noting the common lack of noticeable fracture and restating findings of the sample where not one shaken child had a catastrophic injury to the spinal cord). As Dr. Jentzen explained at the hearing below, studies speculated that "there should be some injury in the neck," and "there is now evidence [of] injury in the neck" detected in cases of violent shaking in recognized pediatric medicine. The extraordinary biomechanical attacks on the physical possibility of shaking as a mechanism of injury were fruitless. Dr. Davis reiterated this recognized medical understanding that "soft tissue injuries . . . have only been evidenced lately as people do MRIs," and in the observed treatment of abused children, "fracture or obvious separations" in the neck rarely occur. Similarly, Dr. Christian explained that MRI can now detect "ligamented injury or soft tissue injury" in the neck, which was not observable through x-ray at the time of Nakita's death. The defense's assertions that biomechanical studies disprove the possibility of death by shaking conflicts "with what doctors see over and over and over again on a daily, weekly, monthly, [and] annual basis[.]"

None of defendant's experts contested the accepted medical understanding that soft-tissue and ligament-based injuries are the neck injuries recognized in cases of shaken infants, and those injuries are inapplicable in this case because the death occurred prior to modern use of MRI technology. And not one study based on research and treatment of actual children that is available or is cited indicates, in conflict with accepted AHT diagnoses, that catastrophic neck injury is prevalent, let alone a necessary prerequisite in cases of infant shaking.

However, an MRI was not performed for Nakita's case in 2005; therefore, such findings from highly intensive modern imagery have no application in this case, and in no way alter the accepted diagnosis of AHT with physiological observation of Nakita's body.[75]

Moreover, computer models, based on theoretical simulations using the physiology of adults and monkeys with no support from the wider medical community, simply cannot support a conclusion that Nakita died from choking (a separate theory lacking in any substantial scientific basis) rather than the violent shaking defendant admittedly inflicted on her. Computer scientists neither treat nor have any specialized knowledge about critically injured children. Doctors do.[76] It is thus a shockingly impermissible leap in logic to conclude, as did some of defendant's experts, that defendant's violent shaking did not kill Nakita. Based on overwhelming pediatric research and in-court testimony, the trial court made findings of fact that the theoretical computer models extrapolated from data on monkeys in car accidents and shaken adults were not demonstrative of medically observed infant physiology. The claims from defendant's experts that the accepted knowledge of

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[75] Defendant's position has the support of General Motors, the automobile company, that saw fit to file an amicus brief in this case. Yet biomechanical studies in the field of car accidents have nothing to do with biomechanical studies on shaken infants at odds with accepted medical science in the relevant field. General Motors, which of course has no authority or expertise in the field of medicine, fails to cite a single case where it has attempted to introduce biomechanical studies to claim that a diagnosis, accepted and observed by an entire field of medical experts, is physiologically incorrect.

[76] As Dr. Christian accurately summarized from the available medical science in pediatric abuse, the theories produced by computer engineer models with non-analogous data conflict "with what doctors see over and over and over again on a daily, weekly, monthly, [and] annual basis." The trial court credited such testimony, explaining the common acceptance and observation of AHT and the fact that cited computer models "are not presently able to replicate the exact number and degree of injury to the brain that would occur" because of the violent shaking of an infant.

the pediatric medical community is in fact incorrect, and moreover, that the specific facts of *this case* are not supportive of death from shaking based on biomechanical computer models are significant and scientifically unreliable oversteps.[77] The trial court was well within its discretion to exclude such evidence to the extent it was used by defense experts to negate Nakita's diagnosis, and in any event, the studies have little to no material value in the field of medical analysis in the physiological examination of this infant child for abuse. This Court's reliance on such studies to take the extraordinary step of overturning the discretionary rulings of the trial court and the conclusions of the trier of fact is medically and legally baseless.

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[77] See, e.g., note 71 of this opinion. In this case of child homicide, the passing quip in the majority opinion that the prosecution holds an "ironic" position on biomechanical studies is not only inapt and irrelevant to the analysis, it also betrays a lack of understanding of the record. One prosecutorial expert, Dr. Davis, described a demonstrative test he performed with a *physical molding* of an infant's brain to physically illustrate the rotational effect inflicted on a child when shaken. Dr. Davis expressly stated that he was not providing expert biomechanical testimony. He continued to explain, in line with a massive body of supporting evidence and testimony, that "theoretical biomechanical models" were based on "calculations" from inapplicable animal studies without examining the unique physiological characteristics of the brain. The biomechanical studies, therefore, were not "legitimize[d]" science for use in the medical field of pediatric abuse; no medically substantiated "controversy" existed over the diagnosis of AHT. He then continued to exhaustively explain common symptoms and physiological attributes of shaken children, relying upon his extensive real-world experience examining abused children, and he thoroughly examined the scans, reports, and other evidence available in Nakita's case. Based on Nakita's physical symptoms and the record in this case, Dr. Davis concluded that the cause of death was homicide by shaking. Defendant never moved to exclude Dr. Davis's testimony in full or part as scientifically unreliable, and no such issue was appealed even if raised. There has been no opportunity for the prosecution to respond to a description of its position as "ironic." Therefore, this gratuitous statement in the majority opinion is not only incorrect as a matter of fact and record, but also is entirely irrelevant to the legal judgments below.

V. CONCLUSION

Defendant admitted, and the trier of fact found, that defendant violently shook Nakita in an act of frustration, anger, and depression. The child became nonresponsive and fell into critical medical condition. Defendant then took a series of evasive steps to avoid the authorities and emergency services, and went so far as to tell the police a false story of what occurred to lead investigators away from the truth. Examination of Nakita's body demonstrated that she had subdural hemorrhaging, retinal hemorrhaging, brain swelling, and a broken shoulder totally unexplained by any nontraumatic sources. Under well-established medical science, mountains of dedicated research, and decades of experience from expert professionals tasked with treating child abuse, those physiological observations occur because of child abuse and severe shaking, to which defendant admitted.

Yet this Court relies on extraordinarily suspect evidence in this highly fact-specific case to reverse discretionary findings on evidence from a highly experienced trial court, reverse that same trial court on a disfavored and discretionary motion for relief from judgment, reverse a unanimous (and unpublished) Court of Appeals decision, and overturn an almost 20-year-old conviction for the murder of a child. In the process, the majority opinion gives life to the theory advanced by defendant that subdural hemorrhaging, retinal hemorrhaging, and brain swelling do not occur as a result of severe shaking of an infant, that AHT and SBS are discredited medical diagnoses, and that Nakita's physical symptoms resulted from choking on formula. Those conclusions have absolutely no support in medical science. In the hundreds of pages of medical records provided to this Court, not one recognized case was provided of a child experiencing subdural hemorrhaging, retinal

hemorrhaging, and brain swelling as result of choking, let alone a case with those symptoms *and* a proven occurrence of violent shaking and an unexplained broken shoulder. The trial court's refusal to vacate defendant's conviction based on the extraordinarily weak evidence presented below does not even approach an abuse of the trial court's wide discretion. To the contrary, the diligence, attention to detail, and thoughtful consideration the trial court gave to this matter should be lauded as an exemplary display of how a trial court should function. Given the significant burden placed on defendant to obtain appellate reversal of her convictions, this Court's decision is no less than a miscarriage of justice.

With today's post hoc reversal of the trier of fact's decision, the ability to effectively prosecute defendant again is by no means a given.[78] The lack of public accountability and adjudication of defendant's guilt will be a detriment to society at large, the families affected, defendant, and most importantly, Nakita Lemons. For the foregoing reasons, I dissent.

Brian K. Zahra
David F. Viviano

[78] It is unrealistic to believe the prosecution preserved the evidence and kept tabs on the trial witnesses who have long since moved on with their lives. After almost two decades, it is very possible that witnesses who provided invaluable testimony at trial are no longer locatable, willing, and able to again testify to their recollections and observations. It is also highly plausible that the physical evidence presented at trial so long ago has been spoiled, lost, or otherwise compromised.