
STATE OF MONTANA

Plaintiff and Appellee,

v.

KATHERINE ANNE PROCTOR,

Defendant and Appellant.

BRIEF OF *AMICUS CURIAE* THE INNOCENCE NETWORK

On Appeal from the Montana First Judicial District Court, Lewis and
Clark County, the Honorable Kathy Seeley, Presiding

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INTERESTS OF AMICUS CURIAE

Amicus curiae the Innocence Network (the Network) is an association of independent organizations dedicated to providing pro bono legal and/or investigative services to prisoners for whom evidence discovered post-conviction can provide conclusive proof of innocence. The current president of the Innocence Network is Anna Vasquez of the Texas Innocence Project. The 71 current members of the Network represent hundreds of prisoners with innocence claims in 50 states, the District of Columbia, and Puerto Rico, as well as Argentina, Australia, Brazil, Canada, Ireland, Israel, Italy, Japan, the Netherlands, Taiwan, and the United Kingdom. The Innocence Network and its members are also dedicated to improving the accuracy and reliability of the criminal justice system in future cases. Drawing on the lessons from cases in which the system convicted innocent persons, the Network advocates study and reform designed to enhance the truth-seeking functions of the criminal justice system to ensure that future wrongful convictions are prevented.

STATEMENT OF FACTS AND PROCEDURAL HISTORY

Amicus adopts and incorporates the statement of facts and procedural history as set forth in the brief submitted by Appellant, Ms. Proctor, on December 16, 2024, to the Montana Supreme Court.

STANDARD OF REVIEW

Mont R. Evid. 702 requires proposed expert testimony to be grounded in reliable scientific foundation. *State v. Clifford*, 2005 MT 219, ¶218, 328 Mont. 300, 121 P.3d 489. Evidentiary rulings, and rulings on motions for new trials, are generally reviewed for an abuse of discretion. *State v. Pelletier*, 2020 MT 249 ¶ 12, 401 Mont. 454, 473 P.3d 991; *State v. Reinert*, 2018 MT 111, ¶ 12, 391 Mont. 263, 419 P.3d 662.

SUMMARY OF THE ARGUMENT

Mont R. Evid. 702 requires that scientific evidence offered through expert opinion must be reliable. The expert's conclusion that the symptoms found in this present case—a large hypoxic ischemic injury, a small subdural hemorrhage in the cerebellar, and hemorrhages in the eyes—are evidence that the baby was physically shaken is not based on a reliable scientific field of study. Therefore, the expert testimony presented by the State violated Mont R. Evid. 702, and the District

Court abused its discretion in denying the Proctor’s motion to prohibit this testimony from being presented before the jury.

BACKGROUND ON SHAKEN BABY SYNDROME

Shaken Baby Syndrome (“SBS”), or Abusive Head Trauma (“AHT”), is the hypothesis that a child who exhibits a specific triad¹ of symptoms, those being subdural hematoma or hemorrhage (bleeding in the brain); retinal hemorrhage (bleeding in the eye); and encephalopathy (neurological impairment), has been abused by intentional physical shaking. Proponents of SBS/AHT make this diagnosis largely based on this “triad” of factors. However, these factors are not standardized, and so can be used to support a finding of abusive shaking in an ad hoc and unsupported manner. Additionally, a review of the available research and data reveals no reliable scientific study validating the hypothesis that shaking, alone, causes the findings often associated with it.² Rather, accidents can and do cause all of these

¹ We understand that some providers now claim that they do not use this triad of medical findings to diagnose SBS/AHT. However, the reality remains that the core features of the determination remain the triad, which remains critically important, even if not always alone determinative.

² Swedish Agency for Health Technology Assessment and Assessment of Social Services, *Traumatic Shaking: The Role of the Triad in Medical Investigations of Suspected Traumatic Shaking* (2018) [hereinafter SBU Assessment] <<https://www.sbu.se/255e>> (accessed Feb 9, 2023) (concluding, after a systematic review of the relevant literature, that there is “limited scientific evidence that the triad and therefore its components can be associated with traumatic shaking (low quality evidence)” and “insufficient scientific evidence on which to assess the diagnostic accuracy of the triad in identifying traumatic shaking (very low quality evidence).”).

medical findings, as can a wide variety of nontraumatic medical conditions, including genetic disorders, bleeding disorders, infection, and choking.

The work of the Innocence Network, the Center for Integrity in Forensic Sciences, Inc., and other organizations has demonstrated that, beginning in the 1970s, parents and caregivers have repeatedly been wrongfully convicted of child abuse and homicide based on expert testimony regarding SBS or AHT. To date, there have been thirty-six³ documented exonerations of innocent caregivers who were wrongfully convicted of causing the death of a child by “shaking.” This number, shocking in its own right, is likely an undercount of SBS/AHT wrongful convictions; many overturned convictions in this area are not counted as true “exonerations” for a variety of reasons, including that individuals accused of crimes are often enticed into plea agreements to avoid the uncertainty of trial.⁴ Moreover, there are many other cases in which individuals have been wrongfully convicted based on a theory of

³ See National Registry of Exonerations (NRE), detailed view of Shaken Baby Syndrome exonerations, available at: <https://www.law.umich.edu/special/exoneration/Pages/detailist.aspx?View=%7BF6AF6EDDB-5A68-4F8F-8A52-2C61F5BF9EA7%7D&FilterField1=Group&FilterValue1=SBS>

⁴ See, e.g. Pinellas daycare owner once convicted in baby’s death set free after guilty plea, Tampa Bay Times, October 15, 2021, *available at* <https://www.tampabay.com/news/crime/2021/10/15/pinellas-daycare-owner-once-convicted-in-babys-death-set-free-after-guilty-plea/>

SBS/AHT but, due to the passage of time and procedural barriers in post-conviction litigation, have not yet been able to attain justice.

SBS/AHT is one of the most, if not the most, controversial issues in forensic medicine.⁵ The debate is not limited to legal spheres, but is the subject of discussion in medical journals,⁶ government meetings,⁷ and books.⁸ Far from being limited to the legal consequences of determinations of abuse, the controversy extends to diagnostic accuracy and even to the pathophysiology of the medical signs themselves.⁹ In other words, physicians and scientists are engaged in discussions not only about diagnosis, but about how and why the medical findings often

⁵ Patrick D. Barnes, Ethical Issues in Imaging Nonaccidental Injury: Child Abuse, 13 Topics in Magnetic Resonance Imaging 85, 85 (2002) (“One of the most controversial areas of nonaccidental injury is the medical diagnosis of inflicted central nervous system injury and its impact on medical, social, and legal outcomes for children and families.”)

⁶ Carole A. Jenny, Gina Bertocci, Tsuguhiro Fukuda, Nagarajan Rangarajan, & Tariq Shams, Biomechanical Response of the Infant Head to Shaking: An Experimental Investigation, 34 J.Neurotrauma 1, 1 (2017) (“Controversy exists regarding whether violent shaking is harmful to infants in the absence of impact.”)

⁷ Carole E. Nicholson, Preface to AM. Acad. of Pediatrics, Inflicted Childhood Neurotrauma ix (Robert M. Reece & Carol E. Nicholson eds., 2003) (publishing the conference proceedings). (“Because there is very little scientific experimental or descriptive work [on SBS], the pathophysiology remains obscure, and the relationship to mechanics even cloudier What we need is science—research and evidence that just isn't there right now.”)

⁸ Randy Papetti, The Forensic Unreliability Of The Shaken Baby Syndrome (2018), Jan E. Leestma, Forensic Neuropath. (3d ed. 2014).

⁹ Paul Gerber & Kathryn Coffman, Nonaccidental head trauma in infants, 23 Childs Nerv. Syst. 499, 505 (2007) (“Nonaccidental head trauma in infants is the leading cause of infant death from injury. The high rate of repeated abuse makes identification of potential cases crucial. The underlying biomechanics of injury in this syndrome and the purported sequelae of accidental and nonaccidental trauma remain controversial.”);

associated with shaking and other abusive injuries occur in the first place.

The debate is not, nor has it ever been, about whether people abuse children or whether child abuse is wrong. Sadly, children do suffer abuse at the hands of their caretakers. But correctly diagnosing abuse versus accidental injury or disease-related symptomology is critical to protecting children and their caretakers. Improving the diagnosis of child abuse and the literature supporting that diagnosis can only be helpful to children and families, despite hyperbolic claims that serious scientific scrutiny will threaten public health and safety.

Instead, the debate, at its core, is about what the science supports and what the research shows. This area of scientific inquiry seeks to understand whether a physician, when confronted with ambiguous medical findings that have myriad causes, can make a reliable determination that child abuse occurred. As the science currently stands, the answer appears to be that a physician *cannot* reliably do this, both because the medical findings long attributed to abuse have many other causes and because biomechanical studies have

demonstrated that it is unclear in the first place whether shaking alone is capable of producing those findings.

THE CHANGING CONSENSUS ON SBS AND RESULTING COURT REVERSALS

The SBS/AHT diagnosis, once thought to be a reliable means of identifying abuse, is no longer regarded as a reliable method. The current understanding of SBS/AHT reflects “widespread, if not universal, agreement that the presence of the triad alone – or its individual components – is not enough to diagnose abuse. *See* Keith Findley et al., *Shaken Baby Syndrome, Abusive Head Trauma, and Actual Innocence: Getting it Right*, 12 Hous. J. Health L. & Pol’y 209 (2012) at 213. Accidental trauma, other than shaking, is now recognized as a possible cause of triad injuries, but the level of force required is unclear. *See* Deborah Tuerkheimer, *Flawed Convictions: “Shaken Baby Syndrome” and the Inertia of Justice* (Oxford University Press 2014) at 22.

Courts throughout the country “have ordered new trials in SBS/AHT cases based on the shifting science, either because the science is newly discovered, or because counsel was ineffective for failing to use it at trial, or because the defense was otherwise denied resources

needed to challenge the medical evidence[.]” Keith Findley & D. Michael Risinger, *The Science and Law Underlying Post-Conviction Challenges to Shaken Baby Syndrome Convictions: A Response to Professor Imwinkelried*, 48 Seton Hall L. Rev. 1209, 1220-21 (2018) at 1226 n.58. For example, in 2014, a federal district court granted relief to a daycare worker who was convicted of killing a child who was in her sole custody, based upon the State’s experts’ opinions that the child died from “abuse or baby shaking.” *Del Prete v. Thompson*, (N.D. ILL. 2014) 10 F. Supp. 3d 907, 958. Significantly, in granting relief based on the new science that undermined the State’s experts’ cause of death determination, the court reasoned that the new science “arguably suggest[s] that a claim of shaken baby syndrome is more *an article of faith than a proposition of science*.” *Id.* at 957 n.10 (emphasis added). Similarly, in *Allison v. State*, an Alaska appeals court vacated a conviction based on an AHT hypothesis where excluded evidence showed that the child’s death could have resulted from natural causes. (Alaska Ct. App. 2019), 448 P.3d 266, 275. In *Vanek v. Wofford*, a California federal court granted habeas relief from a conviction based on an AHT diagnosis, and the court noted, “[t]he triad of signs and

symptoms” do not necessarily indicate “violent shaking.” No. CV-14-4427-BRO-KK, (C.D. Cal. Mar. 5, 2015), 2015 U.S. Dist. LEXIS 200328. The court acknowledged that the child may have “suffered from a pre-existing medical condition that may have been present from birth.” *Id.* In *People v. Bailey*, a New York trial court ordered a new trial for an accused convicted of abuse based on an AHT diagnosis, which was affirmed by the Supreme Court of New York, Appellate Division, Fourth Department on appeal. The court acknowledged that “there has been a compelling and consequential shift in mainstream medical opinion . . . as to the causes of the types of trauma that [the child] exhibited,” and ordered a new trial for a defendant convicted of abuse on the basis of an AHT diagnosis. (App. Div.), 2024 NY Slip Op 05842, 232 A.D.3d 1031. See also *Hanson v. Baker*, (9th Cir. 2019), 766 F. App’x 501, 504; *Ex Parte Henderson*, (Tex. Crim. App. 2012), 384 S.W.3d 833, 833–34; *State v. Edmunds*, WI App 33, 308 Wis. 2d 374, 391–92.

Significantly, in a recent decision, an appellate court in New Jersey upheld the trial court’s decision precluding the State’s proffered SBS/AHT testimony, finding that “the lack of biomechanical support renders the theory scientifically unreliable,” *State v. Nieves* (Super. Ct.

App. Div. 2023), 476 N.J. Super. 609, 654, 302 A.3d 595, 621. This Court should likewise find that the State's expert's testimony was improperly admitted in this case because it was not reliable.

ARGUMENT

I. The scientific analysis provided by the State's expert witness was not reliable.

Prior to trial, on March 4, 2022, Proctor filed a Motion in Limine that sought to exclude from trial any testimony regarding the diagnosis of shaken baby syndrome or abusive head trauma. The court then heard testimony from the state's proposed expert witness during a hearing held on August 26, 2022. During this hearing, the State's expert stated the following:

“So [when] you see unexplained brain bleed, unexplained swelling, and retinal hemorrhages, abusive head trauma needs to be in the differential and it should be fairly high in the differential.”

(8/26/22 Tr. at 78.) When asked what forces the doctor believe caused the baby's brain and eye injuries, the same expert replied:

“I don't know what caused it. I know that it was acceleration/deceleration, and rotational inertial forces by the injuries she had... so that's what my opinion would be, that it would be abusive head trauma.”

(8/26/22 Tr. at 86.)

It is clear from the expert's testimony that she believed that if a baby shows hemorrhaging in the brain and eyes, as was seen here, that baby had suffered SBS/AHT. Additionally, although doctors had discovered that the baby had rib fractures, the expert stated abusive head trauma could be diagnosed even without the presence of rib injuries, any bruises, or any scrapes. (8/26/22 Tr. at 88.)

Scientific understanding is dynamic and ever-changing. Although courts have admitted evidence related to SBS/AHT in the past, the current scientific consensus rejects the opinion, offered by the State of Montana's expert here, that the presence of hemorrhages in an infant's brain and eyes must be the result of physical shaking. This consensus rejecting the "SBS triad" has been increasingly recognized by courts around the country that have undertaken the necessary examination of the current state of the science on this subject. In light of the invalidity of SBS/AHT diagnoses based on this symptomology, Amicus submits that the State's expert based her testimony on scientific evidence that is not reliable and therefore did not meet the requisite evidentiary standards of Montana Rules of Evidence 702.

II. Expert evidence has a disproportionate impact on jurors, and the Court has duty to exclude discredited forensic evidence.

“Expert evidence can be both powerful and quite misleading because of the difficulty in evaluating it.” *See* Jack B. Weinstein, *Rule 702 of the Federal Rules of Evidence Is Sound: It Should Not Be Amended*, 138 F.R.D. 631, 632 (1991). The power of flawed forensics to mislead juries has been echoed by numerous scholars and studies. *See* Richard H. Underwood, *Evaluating Scientific and Forensic Evidence*, 24 Am. J. Trial Advoc. 149, 166 (2000); *See also* Tom Tyler, *Viewing CSI and the Threshold of Guilt: Managing Truth and Justice in Reality and Fiction*, 115 Yale L.J. 1050, 1068 (2006) (“[W]idespread evidence . . . [indicates] people already overestimate the probative value of scientific evidence.”). As one study put it, “jurors in this country often accept state forensic testimony as if each prosecution is the NASA scientist who first put man on the moon.” *See* Mark A. Godsey & Marie Alao, *She Blinded Me with Science: Wrongful Convictions and the “Reverse CSI Effect”*, 17 Tex. Wesleyan L. Rev. 481, 495 (2011).

The Supreme Court (and many other courts) have similarly cautioned about the outsized influence of “scientific” evidence. *Daubert*

v. Merrell Dow Pharms., Inc., 509 U.S. 579, 595 (1993) (explaining “[e]xpert evidence can be both powerful and quite misleading because of the difficulty in evaluating it”); *United States v. Frazier*, (11th Cir. 2004), 387 F.3d 1244, 1263 (“[E]xpert testimony may be assigned talismanic significance in the eyes of lay jurors.”). Likewise, Maryland courts have expressly cautioned that expert testimony can unduly shape jurors’ perceptions in criminal trials. In *Clemons v. State*, (2006) 392 Md. 339, for example, the Court of Appeals warned: “[l]ay jurors tend to give considerable weight to ‘scientific’ evidence when presented by ‘experts’ with impressive credentials.” *Id.* at 372 (alteration in original); see also *Rochkind v. Stevenson*, (2020) 471 Md. 1, 236 A.3d 630 (vacating conviction based upon forensic evidence that did not meet its revised admissibility criteria).

Expert forensic evidence is a powerful tool in criminal prosecutions. The Court must act as a gatekeeper to preclude the introduction of faulty or unreliable scientific analysis. AHT/SBS diagnoses, like other similar forensic disciplines that have since been discredited, lead to wrongful convictions. Therefore, this Court should exclude such prejudicial evidence from trial before a jury.

III. The District Court abused its discretion by denying Proctor's motion in limine to exclude the State's expert's testimony regarding SBS/AHT.

In Montana, an expert's reliability is tested in three ways under Mont R. Evid. 702: (1) whether the expert field is reliable, (2) whether the expert is qualified, and (3) whether the qualified expert reliably applied the reliable field to the facts. *Harris v. Hanson*, 2009 MT 13, 349 Mont. 29, 201 P.3d 151. In the present case, the expert's testimony should have been excluded because it fails the first and third prongs of this analysis.

Examples of fields of study that Montana has accepted as scientifically reliable include neurology, physical therapy, and handwriting analysis. *McClue v. Safeco Ins. Co.*, 2015 MT 222, 380 Mont. 204, 354 P.3d 604, *Cleveland v. Ward*, 2016 MT 10, 382 Mont. 118, 364 P.3d 1250, *State v. Clifford*, 2005 MT 219, 328 Mont. 300, 121 P.3d 489. However, Montana has found preliminary breath tests used for detecting the presence of alcohol to be unreliable. *State v. Strizich*, (1997), 286 Mont. 1, 952 P.2d 1365 (overruled on other grounds). This was due to the fact that there was a whole laundry list of

factors that could go wrong during the field use of a preliminary breath test. *Id.*, at 16.

Scientific methodology is based on generating hypotheses and testing them to see if they can be falsified. It would be infeasible, not to mention immoral, to knowingly subject children to shaking to see the outcomes, and thus determine whether the SBS/AHT hypothesis is reliable. Therefore, SBS/AHT test results are not available. However, in the absence of testing, peer review and assessment are the best basis for determining the reliability of a theory.

As discussed earlier in this brief, myriad literature published on this topic has demonstrated that far from being a widely accepted theory, SBS/AHT diagnoses are fraught with controversy. The current assessments of the SBS/AHT hypothesis by the scientific community do not provide our courts with assurance of its reliability. Therefore, the state's expert fails the first prong of Montana's evidentiary test.

Additionally, the State's qualified expert did not reliably apply the reliable field to the facts, failing the third prong of the test. First and foremost, the expert could not satisfy this requirement because the field itself is not reliable. In addition, the expert's testimony lacked any

acknowledgment regarding modern advancements in the field of study that question the reliability of this diagnosis. Moreover, the expert did not consider other possible causes for the baby's symptoms. As documented in Appellant's opening brief, these potential causes include: thrombosis (the formation of blood clots inside blood vessels), vitamin D deficiency (which the baby was found to have), or Covid exposure. Just as the examining doctor failed to rule out the possibility of these alternative causes, the state's expert failed to provide an adequate explanation as to why SBS/AHT was the definite cause of the symptoms, not one of these alternative possibilities.

In light of the significant aforementioned flaws apparent in the theory, amicus submits that the district court abused its discretion when it denied Proctor's motion to exclude expert testimony based on SBS/AHT because this field of study and the State's testimony in this case are not reliable.

CONCLUSION

To ensure adequate remedies for wrongful convictions based on unreliable forensic evidence regarding SBS/AHT diagnoses, amicus respectfully urges this Court to grant Appellant relief and, in so doing,

hold that medical diagnoses based Shaken Baby Syndrome and/or Abusive Head Trauma are not sufficiently reliable to be considered admissible evidence under Mont R. Evid. 702.

Respectfully submitted this 13th day of January, 2024.

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CERTIFICATE OF COMPLIANCE

Pursuant to Rule 11 of the Montana Rules of Appellate Procedure, I certify that this primary brief is printed with a proportionately spaced Century Schoolbook text typeface of 14 points; is double-spaced except for footnotes and for quoted and indented material; and the word count calculated by Microsoft Word is 3,374, excluding Table of Contents, Table of Authorities, Certificate of Service, Certificate of Compliance, and Appendices.

/s/ *Karl Pitcher*
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CERTIFICATE OF SERVICE

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