Sharpening the Tools of an Adequate Defense: Providing for the Appointment of Experts for Indigent Defendants in Child Death Cases Under Ake v. Oklahoma

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Sharpening the Tools of an Adequate Defense: Providing for the Appointment of Experts for Indigent Defendants in Child Death Cases Under Ake v. Oklahoma

LAUREL GILBERT*

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I. INTRODUCTION

In 2004, Kenneth Marsh walked out of state prison a free man for the first time in twenty-one years. In 1983, a two-year-old boy died while in Marsh’s care. When a hospital pathologist concluded in the boy’s autopsy report that his death was a homicide caused by head injuries, the State prosecuted Marsh. A jury subsequently convicted Marsh of second-degree murder and sentenced him to fifteen years to life in prison. Marsh maintained, through an unsuccessful appeal and petition for a writ of habeas corpus, that the boy accidentally fell and hit his head while Marsh was in the next room. In 2003, when Marsh filed a second petition for a writ of habeas corpus in which experts questioned the accuracy of the autopsy report, the San Diego district attorney had an independent forensic pathologist review the autopsy report. The pathologist could not conclude beyond a reasonable doubt that the

3. Chisun Lee et al., The Child Cases, PROPUBLICA (June 27, 2011, 11:00 PM), http://www.propublica.org/special/the-child-cases. Before reviewing the boy’s autopsy report, police believed his death was an accident. Id.
4. Id.
5. Alexandra Gross, Kenneth Marsh, NAT’L REGISTRY EXONERATIONS, http://www.law.umich.edu/special/exoneration/Pages/casedetail.aspx?caseid=3407 (last visited July 15, 2013). A writ of habeas corpus is a common law remedy that grants a person restrained of liberty, such as a prisoner, an opportunity to request a hearing to determine the legality of the detention. 39 C.J.S. Habeas Corpus § 6 (2012). In a habeas corpus proceeding, the court decides whether the detention violates the prisoner’s constitutional rights and orders the prisoner’s release if the imprisonment is deemed illegal. Id.
6. Lee et al., supra note 3.
child’s injuries indicated abuse.8 Accordingly, at the district attorney’s request, the court granted Marsh’s petition and set aside his conviction.9

Kenneth Marsh’s story of an innocent man suffering through more than twenty years in prison is not an aberration.10 In June 2011, a report by ProPublica, National Public Radio, and PBS’s Frontline identified twenty-three U.S. and Canadian cases where forensic experts helped exonerate defendants falsely accused or convicted of killing a child.11 In each case, as in Marsh’s, a state expert’s determination of the child’s cause of death played a key role in charging or convicting the defendant.12 Yet in each case, subsequent review by different experts revealed that the forensic evidence forming the basis for the defendant’s charges or conviction was biased or flawed.13 These cases therefore demonstrate a

8. Id.
10. According to the Innocence Project, since 1989, DNA testing has exonerated 310 individuals of crimes postconviction in the United States. Facts on Post-Conviction DNA Exonerations, INNOCENCE PROJECT, http://www.innocenceproject.org/Content/Facts_on_PostConviction_DNA_Exonerations.php (last visited July 15, 2013). These innocent individuals served, on average, more than thirteen years in prison before exoneration. Id. Exonerations by DNA testing form only part of the picture; in the most comprehensive compilation of recent U.S. exonerations currently available, researchers identified 340 total exonerations in the United States between 1989 and 2003. Samuel R. Gross et al., Exonerations in the United States, 1989 Through 2003, 95 J. CRIM. L. & CRIMINOLOGY 523, 525 (2005). The exonerated individuals each spent an average of more than ten years in prison for crimes they did not commit; eighty percent of the exonerees spent at least five years in prison. Id. at 524. The study’s researchers also concluded that “no doubt thousands . . . of defendants] have been falsely convicted of serious crimes but have not been exonerated.” Id. at 527. One recent study provided empirical support for an estimated wrongful conviction rate of 3%-5% in capital rape-murders. D. Michael Risinger, Innocents Convicted: An Empirically Justified Factual Wrongful Conviction Rate, 97 J. CRIM. L. & CRIMINOLOGY 761, 780 (2007). These cases undermine the fundamental principle upon which the American criminal justice system is built: “[I]t is better that ten guilty persons escape, than that one innocent suffer.” 4 WILLIAM BLACKSTONE, COMMENTARIES *352. Although Blackstone’s ten-to-one ratio is the original and best known iteration of the tradeoff society should allow between letting guilty men go free and imprisoning innocent men, American legal academics and practitioners have advocated that it is preferable to allow anywhere from one to one hundred guilty men go free than to imprison one innocent man. See Alexander Volokh, Guilty Men, 146 U. PA. L. REV. 173, 175 (1997).
11. Lee et al., supra note 3.
12. Id.
13. Id.
trend in which unsound prosecutorial forensic evidence contributes to convicting innocent people of crimes based on children’s deaths.14

Although the failures of forensic evidence are not limited to child death cases15—it is increasingly clear that courts in fact admit flawed forensic science in many prosecutions16—these failures are particularly

14. Edward Schumacher-Matos, Child Death Cases: Proving a Trend, NPR OMBUDSMAN BLOG (July 28, 2011, 5:51 PM), http://www.npr.org/blogs/ombudsman/2011/07/29/138719187/child-abuse-cases-proving-a-trend?ft=1&f=1370252. According to the ProPublica, National Public Radio, and Frontline PBS reporting team, determining the frequency with which courts overturn child death convictions was impossible due to the lack of information available on how many child death cases the Government prosecutes nationally each year. Id. After reviewing cases and interviewing judges, prosecutors, defense attorneys, child advocates, forensic pathologists, and other medical experts, the reporting team was nevertheless convinced that a “troubling trend” of wrongful convictions based on faulty forensic evidence in child death cases is afoot. Id.

15. The use of fraudulent, flawed, or misleading forensic science played a role in 57% of the first 200 postconviction exonerations of innocent defendants based on DNA testing. Brandon L. Garrett, Judging Innocence, 108 COLUM. L. REV. 55, 75–76 (2008). The exonerated convictions involved rape, murder, or both rape and murder. Id. at 73–74. Similarly, a 2009 study of 137 DNA exonerees’ trials that included testimony by a forensic analyst for the prosecution revealed that prosecutorial forensic experts presented invalid testimony in 60% of the trials. Brandon L. Garrett & Peter J. Neufeld, Invalid Forensic Science Testimony and Wrongful Convictions, 95 VA. L. REV. 1, 9 (2009). The invalid testimony generally involved either the misuse of empirical population data or an overstatement of the probative value of forensic evidence. Id. This testimony contributed to wrongful convictions for rape, murder, and attempted murder. Id. at 13.

significant in such cases. Because cases involving a child’s death generally proceed on only two pieces of evidence: (1) whose care the child was in at the time of death and (2) a forensic expert’s determination of the cause of the child’s death, the prosecution’s forensic evidence has particular weight in these cases. As a result, the risk of wrongful child death convictions based on flawed forensic science is particularly high.

Wrongful convictions like those occurring in child death cases undermine the success of the U.S. criminal justice system. A central goal of the criminal justice system is protecting the innocent accused from erroneous conviction and punishment. Several cornerstones of the American adversary criminal trial system reflect this goal, including (1) the prosecution’s burden of proving a defendant’s guilt beyond a reasonable
doubt;20 (2) jury instructions presuming a criminal defendant innocent until proven guilty;21 (3) the prosecution’s duty to disclose exculpatory evidence to the defendant;22 and (4) the requirement of a unanimous jury verdict.23 The Supreme Court has incorporated into its constitutional criminal law jurisprudence society’s determination that it is far worse to convict an innocent man than to let a guilty man go free, recognizing the

20. See In re Winship, 397 U.S. 358, 363 (1970) (“The reasonable-doubt standard plays a vital role in the American scheme of criminal procedure. It is a prime instrument for reducing the risk of convictions resting on factual error.”). American courts have imposed a “proof beyond a reasonable doubt” burden of persuasion on the prosecution since as early as the nation’s founding. Id. at 361. Lower courts widely required this burden of proof, and the Supreme Court routinely assumed the Constitution required it, even before the Court explicitly held in 1970 that the Due Process Clause requires it. Id. at 362, 364. In Santosky v. Kramer, the Supreme Court described this standard of proof as “designed to exclude as nearly as possible the likelihood of an erroneous judgment” and as reflecting a judgment that individuals’ interest in the denial of their liberty or life and society’s interest in avoiding erroneous convictions together require that “society impos[e] almost the entire risk of error upon itself.” 455 U.S. 745, 755 (1982) (quoting Addington v. Texas, 441 U.S. 418, 424 (1979)).

21. See Coffin v. United States, 156 U.S. 432, 453 (1895) (“The principle that there is a presumption of innocence in favor of the accused is the undoubted law, axiomatic and elementary, and its enforcement lies at the foundation of the administration of our criminal law.”). English common law borrowed the presumption of the innocence of the criminal accused from Roman law, which influenced the American courts to build the presumption into their criminal system. Id. at 454–56. In Taylor v. Kentucky, the Supreme Court affirmed the importance of the presumption as a safeguard against convicting the innocent that is distinct from the prosecution’s burden of proof. 436 U.S. 478, 483–86 (1978). The Court recognized that a jury instruction on the presumption of innocence is a valuable way of impressing on the jury the importance of defendants’ right to have their guilt or innocence determined solely based on evidence introduced at trial. Id.

22. Brady v. Maryland, 373 U.S. 83, 87 (1963). In Brady v. Maryland, the Supreme Court held that the State violated a capital murder defendant’s due process rights when it suppressed a third party’s confession to the murder from the defendant’s trial. Id. at 84–86. Allowing the prosecution to suppress exculpatory evidence would violate a defendant’s right to due process by preventing the accused from having a fair trial, and “[s]ociety wins not only when the guilty are convicted but when criminal trials are fair; our system of the administration of justice suffers when any accused is treated unfairly.” Id. at 87.

23. See Apodaca v. Oregon, 406 U.S. 404, 407–08 (1972) (describing how the unanimous verdict requirement arose during the Middle Ages and became an accepted feature of jury trials by American courts by the eighteenth century). Despite the history of the unanimous jury verdict requirement for criminal convictions, the Sixth Amendment right to trial by jury, made applicable to the states by the Fourteenth Amendment, does not require a unanimous verdict for all criminal convictions. Id. at 406. Further, the Supreme Court held in Johnson v. Louisiana that the Due Process Clause of the U.S. Constitution also does not require a unanimous verdict in criminal cases. 406 U.S. 356, 363 (1972). However, a unanimous jury verdict is required for a conviction in federal felony trials under Federal Rule of Criminal Procedure 31. Fed. R. Crim. P. 31(a). Most states also require a unanimous jury verdict in felony convictions. See Emil J. Bove III, Note, Preserving the Value of Unanimous Criminal Jury Verdicts in Anti-Deadlock Instructions, 97 GEO. L.J. 251, 259 (2008).
This jurisprudence reflects the Court and public’s conception of the American criminal justice system as a scheme of truth-seeking that ostensibly skewers the risk of error toward the prosecution.25

Despite the U.S. justice system’s purported protections of the innocent accused, cases involving a child’s death put innocent defendants at risk of wrongful conviction due to courts’ ready admission of prosecutorial forensic evidence that may be invalid, unreliable, or misleading and the defendant’s lack of a fair opportunity to rebut such evidence. The current standards governing the admissibility of scientific evidence—Federal Rules of Evidence 702 and 703 and the Supreme Court’s interpretation of those rules in Daubert v. Merrell Dow Pharmaceuticals, Inc.26—enhance the need for defense access to forensic experts to challenge the prosecution’s forensic evidence in child death cases. Yet the limited reach of the Supreme Court’s decision in Ake v. Oklahoma,27 prescribing when the state must provide indigent defendants with expert witnesses, is insufficient to provide indigent defendants reliable access to these experts.

This Comment proposes that because of ongoing concerns regarding the reliability and validity of forensic science in the United States, the Due Process Clause constitutionally mandates the appointment of forensic experts for indigent defendants in criminal cases arising out of a child’s death if the prosecution relies on forensic evidence.28 Part II of this

24. See Janet C. Hoeffel, The Gender Gap: Revealing Inequities in Admission of Social Science Evidence in Criminal Cases, 24 U. ARK. LITTLE ROCK L. REV. 41, 73 (2001). A verdict is “just and fair” if the Government did not have an advantage over the defendant during trial, despite the State’s power and vast resources, which constitutional criminal procedure jurisprudence seeks to balance by providing the defendant with the necessary tools of an adequate defense. Id. at 73 n.187.


28. The accuracy and reliability of the American forensic sciences as a whole have come under attack in recent years, culminating in a 2009 study by the National Academy of Sciences (NAS), which identified concerns about the scientific validity of forensic methods, forensic laboratory errors, and the intentional manipulation of forensic evidence. See Beth A. Riffe, Comment, The Aftermath of Melendez: Highlighting the Need for Accreditation-Based Rules of Admissibility for Forensic Evidence, 27 T.M. COOLEY L. REV. 165, 167–68 (2010). The NAS identified a number of major flaws in the U.S. forensic science system and made a series of recommendations to improve the overall validity and reliability of forensic science in America. See discussion infra Part II.A.
Comment provides an overview of the current law governing the admissibility of forensic expert testimony in criminal cases and explains why these admissibility standards create a need for the appointment of defense forensic experts to protect the rights of criminal defendants. Part III then discusses Due Process Clause jurisprudence on the necessity of appointing defense experts in criminal cases and the absence of an established right to state-funded defense experts for indigent defendants. In light of criminal defendants’ lack of access to state-appointed experts, Part IV examines child death cases wherein the prosecution relied on forensic experts to establish the child’s cause of death and explores the unique ways in which access to defense experts is critical to building an adequate defense in these cases. In Part V, I conclude that in the unique context of child death cases built on prosecutorial forensic evidence, due process mandates the appointment of defense experts for defendants who cannot afford to hire them.

II. THE DAUBERT STANDARD FOR THE ADMISSION OF FORENSIC EVIDENCE CREATES A CRITICAL ROLE FOR DEFENSE EXPERTS

The admission of expert trial testimony is limited to testimony that will help jurors accurately determine what happened in a case. Under the Federal Rules of Evidence, a witness may be qualified to testify as an expert on knowledge, skill, experience, training, or education.

29. Evidence law embraces the view that trials function as a way to resolve the search for truth; it also generally exists to limit the admission of evidence to that which helps the jury correctly decide the facts of a case. CHRISTOPHER B. MUELLER & LAIRD C. KIRKPATRICK, EVIDENCE UNDER THE RULES: TEXT, CASES, AND PROBLEMS 1 (7th ed. 2011).

30. FED. R. EVID. 702. This lenient standard does not require any specific specialization or certification. MUELLER & KIRKPATRICK, supra note 29, at 619. Further, an expert may be qualified to testify as an expert witness by fulfilling any one of these five factors. See, e.g., United States v. Majors, 196 F.3d 1206, 1215 (11th Cir. 1999) (holding financial analyst for the Federal Bureau of Investigation qualified to testify as expert on amount of business fraud despite lack of certification or advanced degree); Thomas v. Newton Int’l Enters., 42 F.3d 1266, 1269–70 (9th Cir. 1994) (concluding that lifetime longshore worker with no formal education was qualified to testify as expert about safety of uncovered manhole in vessel); United States v. Johnson, 28 F.3d 1487, 1496 (8th Cir. 1994) (approving of gang member and drug dealer as qualified to testify as expert on drug trafficking based on experience); Lavespere v. Niagara Mach. & Tool Works, Inc., 910 F.2d 167, 176 (5th Cir. 1990) (holding engineering professor qualified to testify as expert on safety of press brake design despite lack of practical experience designing such a system); DaSilva v. Am. Brands, Inc., 845 F.2d 356, 361 (1st Cir. 1988) (concluding that mechanical engineer was qualified to testify as expert about safety design of industrial machine despite lack of practical experience with the specific machine); United States v. Hoffman, 832 F.2d 1299, 1310 (1st Cir. 1987) (holding Drug
Expert witnesses so qualified may testify as long as their specialized knowledge will assist the trier of fact to understand the evidence presented or to determine a fact in issue. The expert’s testimony must rely on sufficient facts or data, must be the product of reliable principles and methods, and must reliably apply those principles and methods to the facts of the case. Furthermore, expert witnesses may testify regarding opinions based on inadmissible facts or data if experts in their field reasonably rely on those types of facts to form opinions. The Federal Rules of Evidence therefore permit expert witnesses wider latitude to offer opinions than lay witnesses, who may offer opinions based only on firsthand knowledge or observation.

In 1993, the Supreme Court in Daubert announced the proper standard for trial courts to apply to determine the admissibility of scientific expert testimony under Federal Rules of Evidence 702 and 703. The Court held that scientific testimony is admissible only if it is reliable and relevant to the case, creating a “gatekeeping” role for trial judges over scientific testimony. The Court identified a nonexhaustive list of factors trial judges

Enforcement Agency agent qualified to testify as expert on meaning of drug slang based on practical experience in drug investigations); Knight v. Otis Elevator Co., 596 F.2d 84, 88 (3d Cir. 1979) (agreeing that engineering professor was qualified to testify as expert on safety of elevator control buttons without having background in the design and manufacturing of elevators). The trial judge decides whether a witness is qualified to testify as an expert. United States v. Chang, 207 F.3d 1169, 1172 (9th Cir. 2000).

FED. R. EVID. 702. The “trier of fact” is either the jury in a jury trial or the judge in a bench trial. BLACK’S LAW DICTIONARY 671 (9th ed. 2009).

FED. R. EVID. 703. Under this Rule, courts admit expert testimony based on a wide range of otherwise inadmissible documents or other pieces of evidence. See, e.g., United States v. Pablo, 696 F.3d 1280, 1289–93 (10th Cir. 2012) (DNA analysis by other expert); United States v. Genser, 582 F.2d 292, 298 (3d Cir. 1978) (government tax audit); United States v. Shields, 573 F.2d 18, 21–22 (10th Cir. 1978) (handwriting sample); United States v. Golden, 532 F.2d 1244, 1247 (9th Cir. 1976) (opinions of other experts); United States v. Hollman, 541 F.2d 196, 200 (8th Cir. 1976) (laboratory reports).

FED. R. EVID. 701.


Id. The Supreme Court read the Federal Rules of Evidence as superseding the dominant standard courts used to determine the admissibility of scientific evidence, the “general acceptance” test. Id. at 587–88. In 1923, in Frye v. United States, the Court of Appeals for the District of Columbia looked to whether a systolic blood pressure deception test had gained general acceptance in its scientific field to determine if it should admit testimony on the test’s results at trial. Id. at 585–86 (citing Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923)). At the time the Court decided Daubert, a
should consider to determine whether the theory or technique underlying scientific testimony is relevant and reliable, including (1) whether the theory or technique can be and has been tested; (2) whether it has been subject to peer review or publication; (3) its known or potential rate of error and the existence and maintenance of standards controlling its operation; and (4) whether it is generally accepted in the scientific community to which the expert belongs.37

The Supreme Court refined this admissibility standard in two subsequent decisions. In General Electric Co. v. Joiner, the Court established that trial judges have broad discretion to decide the admissibility of scientific evidence based on the Daubert factors.38 The Court instructed appellate courts to review Daubert-based admissibility decisions deferentially and to overturn the trial court’s evidentiary decision only if the trial court majority of courts followed the Frye test and admitted scientific evidence generally accepted in its field. Id. at 585. The Court’s decision in Daubert came against a backdrop of heightened scrutiny of U.S. forensic sciences by both the community and the public at large. See Joseph L. Peterson & Anna S. Leggett, The Evolution of Forensic Science: Progress amid the Pitfalls, 36 STETSON L. REV. 621, 635–40 (2007). The exoneration of numerous prisoners through DNA testing brought the unreliability of forensic evidence routinely used in criminal trials to the media and the public’s attention. Id. at 637. In 1991, Peter W. Huber’s high-profile book, Galileo’s Revenge: Junk Science in the Courtroom, called for the legal system to reassess the standards of admissibility for scientific evidence in light of mounting proof that courts regularly admitted unreliable science at trial. Id. at 638–39 (citing Peter W. Huber, GALILEO’S REVENGE: JUNK SCIENCE IN THE COURTROOM (1991)). Huber’s book specifically discussed the controversy over whether Merrell Dow Pharmaceuticals’ drug Bendectin caused birth defects that ultimately led to the lawsuit in Daubert and called for a stricter standard for admitting scientific evidence into court. Id. at 639.

37. Daubert, 509 U.S. at 593–94. In its decision, the Supreme Court “struck a compromise” between assigning judges or the scientific community the sole role of determining which scientific methods are valid. Jay P. Kesan, Note, An Autopsy of Scientific Evidence in a Post-Daubert World, 84 GEO. L.J. 1985, 2000 (1996). Although the Court assigned the ultimate determination of whether scientific evidence is reliable to trial court judges, the Daubert standard incorporates the scientific community’s opinion into the judge’s admissibility determination by way of the “general acceptance” and “peer review/publication” factors. See id. Commentators argue that the decision, intended to settle the “junk science” debate, failed to provide courts with a standard approach for determining the admissibility of scientific evidence. Id. at 1997, 2000; see also Craig Lee Montz, Trial Judges as Scientific Gatekeepers After Daubert, Joiner, Kumho Tire, and Amended Rule 702: Is Anyone Still Seriously Buying This?, 33 UWLA L. REV. 87, 89 (2001) (“In sum, the dilemma is that Daubert is both more and less restrictive of expert testimony.”); Adam J. Siegel, Note, Setting Limits on Judicial Scientific, Technical, and Other Specialized Fact-Finding in the New Millennium, 86 CORNELL L. REV. 167, 179–80 (2000) (“As evidenced by many post-Daubert decisions, the courts had a difficult time interpreting and applying the gatekeeping mandate in an appropriate and consistent fashion.”).

abused its discretion in reaching the decision. 39 Second, in *Kumho Tire Co. v. Carmichael*, the Court confirmed that the *Daubert* standard applies to all expert testimony. 40 Accordingly, the *Daubert* standard governs both civil and criminal cases. 41 In response to these cases, in 2000, Congress amended Federal Rule of Evidence 702 to incorporate the Supreme Court’s holdings. 42 The amended rule requires the trial court to decide whether proffered expert testimony is "reliable and helpful" when determining its admissibility. 43 The following subparts examine how

39. *Id.*
41. *See id.; see also Lee Richard Goebes, The Equality Principle Revisited: The Relationship of Daubert v. Merrell Dow Pharmaceuticals to Ake v. Oklahoma, 15 CAP. DEF. J. 1, 35 (2002) (explaining that despite an explicit Supreme Court holding applying the *Daubert* standard to civil cases, courts implicitly recognize that the standard does apply to criminal cases).* *Daubert* was a civil case wherein two minors and their parents sued the marketers of a prescription drug for birth defects allegedly caused by the plaintiffs’ mothers’ ingestion of the drug. 509 U.S. at 582. However, the Court based its holding in *Daubert* on its interpretation of the Federal Rules of Evidence, *id.* at 587, which apply in both civil and criminal cases and proceedings, *Fed. R. Evid.* 702 advisory committee’s note.
42. *Fed. R. Evid.* 702 advisory committee’s note.
courts apply the Daubert standard in criminal cases and how Daubert has affected the reliability of scientific evidence admitted in criminal trials.

A. Failures To Screen Unreliable or Invalid Forensic Evidence

The Daubert standard has failed to guide courts to exclude unreliable forensic science from criminal trials. Daubert’s creation of a gatekeeping role for trial judges requires them to apply its factors rigorously to screen all scientific evidence for reliability.44 Although courts apply the same standard to screen prosecution and defense expert evidence, as discussed below, the prosecution is far more likely to introduce forensic evidence, and thus the failure to screen such evidence rigorously results primarily in the admission of flawed scientific evidence offered by the prosecution in criminal cases.46

For example, recent reviews of DNA exonerations indicate that trial courts are continuing to admit invalid forensic evidence.47 A review of eighty-six DNA exonerations revealed that forensic science testing errors contributed to 63% of the wrongful convictions studied and that false or misleading testimony by prosecutorial forensic experts contributed to 27% of those convictions.48 Similarly, a recent study of 200 DNA exonerations found that faulty forensic evidence formed the basis of 57% of exonerees’ convictions.49 Despite evidence that forensic science is contributing to erroneous convictions, Daubert has led to “remarkably little research on the accuracy of traditional forensic sciences.”50

This trend is not limited to DNA exonerations. In a comprehensive study of 340 exonerations in the United States between 1989 and 2003,
researchers found that forensic scientists committed perjury while testifying for the Government in twenty-four cases. In addition to perjured testimony, courts admitted testimony based on forged fingerprints, faked autopsies, and false laboratory reports. If the Daubert standard operated as the exacting test the Supreme Court envisioned, courts properly applying its factors to scrutinize forensic evidence closely would catch such flagrant errors.

Three examples of ongoing biased and incompetent testimony by leading U.S. forensic expert witnesses highlight how courts have failed to screen out misconduct and ineptitude by government expert witnesses. First, in 1993, the Supreme Court of Appeals of West Virginia determined that the former head serologist of the West Virginia State Police crime laboratory, Fred Zain, falsified test results in criminal prosecutions in as many as 134 cases between 1979 and 1989. Second, in 1992, Texas pathologist Ralph Erdmann was convicted of faking autopsies after his testimony helped prosecutors obtain at least twenty death penalty convictions. Finally, anthropology professor Dr. Louise Robbins testified in multiple murder cases about a method of foot comparisons she used to match footprints found at a crime scene with a defendant’s shoes. She stood alone as the only forensic expert on record to identify the foot comparison method as a valid scientific technique. Despite the fact that no empirical testing or published findings supported Robbins’s method and that other experts criticized the method’s lack of a scientific foundation, the court permitted Robbins to testify about the method in multiple cases involving a possible death sentence.

51. Gross et al., supra note 10, at 543.
55. Id. at 457–58.
56. Id. at 458.
57. Id. at 459–60. A court rejected Robbins’s testimony in just one case based on her own admission that no other experts in the anthropological community employed her method of shoeprint identification or similar techniques. People v. Ferguson, 526 N.E.2d 525, 531 (Ill. App. Ct. 1988). Courts rejected Robbins’s shoeprint method of comparison only when a national panel of 135 anthropologists and lawyers confirmed the method as unreliable. Giannelli, supra note 54, at 461 & n.128.
In addition to admitting false testimony under *Daubert*, courts admit evidence based on suspect forensic methods despite *Daubert*’s focus on reliable scientific bases. A particularly glaring example of the admission of flawed forensic science in criminal trials under *Daubert* is the pervasive use of comparative bullet lead analysis prior to 2005. Courts allowed experts to testify in approximately 2500 criminal cases spanning more than thirty years that using this technique, they could match a bullet found at a crime scene to a specific batch of lead, manufacturer, or even box of ammunition, despite the method’s lack of credibility. Courts routinely admitted such testimony even though few published studies on the technique existed, which should have raised concerns given *Daubert*’s emphasis on the value of peer review and falsifiability in evaluating scientific reliability. Courts did not question the validity of the technique, despite its lack of empirical support, until 2004 when the National Research Council concluded that available data did not support expert testimony linking crime bullets to a particular source.

Similarly, courts routinely admit unreliable prosecutorial evidence from forensic dentists attributing bite marks on a victim’s body to a particular person. After a California Court of Appeal accepted testimony by a forensic dentist linking an “exceptionally well defined human bite mark” on a victim’s skin to the defendant’s highly irregular teeth in *People v. Marx*, courts in a large number of states began accepting bite mark testimony “whenever a person displaying apparent credentials” would testify. Courts continue to admit such evidence under the *Daubert* standard, relying on pre-*Daubert* precedent as support that bite mark identifications are reliable and valid, rather than closely examining the evidence as *Daubert* purports to require.

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58. See Giannelli, *supra* note 52, at 199–203. Comparative bullet lead analysis allows analysts to compare bullet lead fragments from a crime scene with bullets found in a suspect’s possession. *Id.* at 200.
61. See *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 593 (1993) (“But submission to the scrutiny of the scientific community is a component of ‘good science,’ in part because it increases the likelihood that substantive flaws in methodology will be detected.”).
63. *Id.* at 200.
64. *Id.* at 201.
66. *Id.* at 138–39. Courts regularly point to other courts’ acceptance of bite mark identification testimony to establish its reliability. *Id.* Under this circular logic, one court accepts the method as reliable based on other court decisions; its decision then becomes the basis of subsequent decisions holding the method reliable, without an examination of its actual validity. See *id.;* see also *Brooks v. State, 98-KA-00322-SCT*
identifications ignore a notable lack of published research establishing when forensic dentists can reliably make such identifications. In fact, data from proficiency tests and other studies indicate that false-positive error rates for bite mark identifications run as high as 64%. These factors should lead courts applying Daubert to exclude bite mark identifications as unreliable, but without pressure from defendants, courts do not use the Daubert factors to scrutinize evidence based on forensic methods they routinely admitted under pre-Daubert standards.

These examples demonstrate how systemic flaws in the U.S. forensic science system compound the failure of the Daubert standard to screen out unreliable prosecutorial forensic evidence. American forensic science currently lacks quality assurance protocols, accreditation standards, and technical procedure standardization. In response to increasing concerns over the validity of U.S. forensic science, in 2009, Congress commissioned the National Research Council’s National Academy of Sciences (NAS) to undertake a study to identify the improvements needed in forensic science. The NAS concluded that the forensic science system has “serious problems” that can only be solved by a national commitment to overhaul its current structure. The problems are largely attributable to the United States’ current lack of national standards regulating forensic pathology. Notably, there is no uniform certification of forensic practitioners between states, most jurisdictions do not require forensic practitioner certification, and most forensic science disciplines do not have

(*) 54 (Miss. 1999) (Smith, J., concurring) (listing cases from thirty-one states approving of bite mark evidence as admissible scientific evidence to prove its reliability). Despite the bite mark identification method’s lack of empirical support, some courts go so far as to take judicial notice of its reliability, meaning that the prosecution is not required to offer any evidence establishing the method as reliable for the court to accept its admissibility. See, e.g., State v. Richards, 804 P.2d 109, 111 (Ariz. Ct. App. 1990); People v. Marsh, 441 N.W.2d 33, 36 (Mich. Ct. App. 1989); State v. Armstrong, 369 S.E.2d 870, 877 (W. Va. 1988).

66. Risinger, supra note 64, at 142.


68. Giannelli, supra note 52, at 211–14.


70. Id. at xx.

71. NAS REPORT, supra note 69, at 7.
mandatory certification programs. Additionally, there are few peer-reviewed published studies establishing the scientific validity of many common interpretations of forensic evidence offered in criminal prosecutions, especially testimony that purports to match evidence to a specific individual. Accordingly, judges who do not closely screen forensic evidence rely on a flawed system to establish the reliability of scientific methods used by expert witnesses.

Thus, the shortcomings of U.S. forensic sciences exacerbate the Daubert standard’s key problem: its reliance on judges to make scientific reliability assessments they have no expertise to make. By taking the question of the reliability of scientific evidence from the scientific community and giving it to the trial court judge as gatekeeper, the Daubert standard requires judges, who have no background or training in evaluating complex scientific evidence or its bases, to appraise scientific or technical knowledge. As a result, research indicates that judges have trouble interpreting and applying the technical Daubert factors. A survey of 400 state trial court judges who make admissibility decisions utilizing the Daubert standard revealed that only 6% of judges had a true

72. Id. at 6–7. The lack of formal standards governing forensic science should trouble courts under Daubert’s instruction that courts consider “the existence and maintenance of standards controlling the [scientific] technique’s operation” in determining its reliability. Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 594 (1993).
73. NAS REPORT, supra note 69, at 8. Many techniques used by forensic experts to testify about “matching” a specimen to a particular individual are too imprecise to accurately identify a specific individual. Id. at 7–8. To address these deficiencies and improve the reliability of forensic sciences in the United States, the NAS made a series of recommendations, including the adoption of uniform and enforceable best practices, mandatory certification and accreditation programs, increases in staffing within existing crime laboratories and medical examiners’ offices, and upgrades to organization structures. Id. at 15. The NAS also recommended that forensic disciplines utilizing matching characteristics develop “rigorous protocols to guide these subjective interpretations and pursue equally rigorous research and evaluation programs.” Id. at 8. In 2009, in Melendez-Díaz v. Massachusetts, the Supreme Court cited the NAS report for the proposition that forensic testing is not immune from manipulation by the prosecution given the oversight of a majority of forensic labs by law enforcement. 557 U.S. 305, 318 (2009). The Court concluded that, given the demonstrated fallibility of forensic science, introducing a lab report against a defendant without giving the defendant a chance to cross-examine the person who prepared the report violated the defendant’s confrontation rights under the Sixth Amendment. Id. at 318–21. This case demonstrates how the NAS’s findings could potentially have a large influence on the use of forensic evidence in criminal prosecutions.
understanding of falsifiability and only 4% clearly understood error rate—two key factors of the Daubert analysis. Further, the majority of judges did not recognize or acknowledge their lack of understanding about what Daubert’s guidelines mean or how to apply them, indicating that judges believe they understand the requirements of Daubert better than they actually do.

Judges’ demonstrated limited understanding of scientific concepts leads to troubling questions about whether judges are able to use the Daubert criteria to make accurate assessments of the reliability of proffered scientific evidence. These implications are particularly troubling considering that Daubert’s underlying rationale, that scientific or technical testimony not filtered for reliability should not influence lay fact finders, depends on the assumption that trial judges are better suited to assess scientific testimony than are average lay jurors. In fact, as the following subpart demonstrates, judges’ limited ability to make highly technical reliability assessments leads judges to allow a significant amount of prosecutorial forensic evidence to pass to the jury unfiltered.

B. Pro-Prosecution Bias

The high percentage of scientific evidence found admissible when proffered by prosecutors compared with scientific evidence proffered by defendants illustrates courts’ failure to apply Daubert to screen prosecutorial forensic evidence carefully. In the five and one-half years following Daubert, trial courts admitted testimony by 95.8% of prosecution experts compared with just 7.8% of defense experts. Furthermore, in published opinions dealing with Daubert challenges to the reliability of expert evidence, federal district courts denied eleven out of twelve

76. Gatowski et al., supra note 75, at 444–47. This study appears to confirm the fears of Chief Justice Rehnquist in his dissenting opinion in Daubert, in which he expressed apprehension that judges would struggle to define the concept of “falsifiability” and hesitated to impose on trial judges the obligation to become amateur scientists in order to perform their gatekeeping role. Daubert, 509 U.S. at 600–01 (Rehnquist, C.J., dissenting).
77. Gatowski et al., supra note 75, at 452.
78. Id. at 453.
defense challenges to the admission of government expert evidence and once admitted the challenged evidence on a restricted basis.\textsuperscript{81} The prosecution, however, prevailed in two-thirds of its challenges to defense proffers of expert evidence.\textsuperscript{82} Similarly, in published state court decisions, the prosecution prevailed in 76\% of defense challenges to government-proffered expert evidence and three-fourths of prosecutorial challenges to defense expertise.\textsuperscript{83} The NAS similarly concluded from reviewing reported opinions that trial judges rarely exclude expert testimony offered by prosecutors.\textsuperscript{84} The unequal treatment of the admission of scientific evidence continues on the appellate level. In 120 federal appellate court opinions reviewing the trial court’s admission of prosecution expert evidence under Daubert, the prosecution prevailed in sixty-one out of sixty-seven challenges to its experts.\textsuperscript{85} The appellate court reversed a defendant’s conviction because of unreliable prosecution expert evidence in only one of the six successful defense appeals.\textsuperscript{86} Defense challenges based on the improper exclusion of defense witnesses were similarly unsuccessful: of fifty-four challenges, the criminal defendant lost forty-four.\textsuperscript{87} Overall, the appellate courts found defense-proffered expert testimony to be properly excluded in 83\% of cases but found government-proffered expert testimony to be properly

\textsuperscript{81.} Risinger, supra note 64, at 109. Although one might argue that defense challenges to the admission of prosecutorial expert evidence at trial are unsuccessful because they have no merit and challenge infallible prosecution evidence, the study’s author actually found that more commonly, defendants failed to raise attacks on even the weakest kinds of common forensic testimony offered by the prosecution. \textit{Id.} at 135.

\textsuperscript{82.} \textit{Id.} at 110. The prosecution initiated a significantly higher number of challenges than the defense: researchers located forty-two opinions involving prosecution challenges to proffered defense expert evidence in federal court and only twelve opinions involving defense challenges to proffered prosecution expert evidence. \textit{Id.} at 109. The prosecution prevailed in twenty-eight of its challenges. \textit{Id.} at 110.

\textsuperscript{83.} \textit{Id.} at 111.

\textsuperscript{84.} NAS REPORT, supra note 69, at 11. Obtaining a clear picture of exactly how trial courts handle Daubert admissibility questions in criminal cases is difficult due to a lack of published evidentiary opinions. \textit{Id.} However, the NAS concluded that the discrepancy in admission rates of prosecutorial and defense expert evidence under Daubert reflected prosecutors’ advantage over defendants in accessing expert witnesses. \textit{Id.} In contrast, in civil cases, where plaintiffs and defendants are more likely to have equal access to expert witnesses, the NAS found the admission rate of plaintiff and defendant expert evidence more balanced. \textit{Id.}

\textsuperscript{85.} Risinger, supra note 64, at 105.

\textsuperscript{86.} \textit{Id.} Of the five remaining successful defense appeals, one involved the district court’s failure to conduct a Daubert hearing at all, three involved errors in the witness testifying beyond the scope of the witness’s expertise—each of which was held to be harmless error—and one involved the failure of an expert to apply valid methods to the factual conditions of the case dependably. \textit{Id.} at 105–06.

\textsuperscript{87.} \textit{Id.} at 106.
excluded as unreliable only once. In sum, the Daubert standard has had almost no effect on the admission rate of forensic evidence proffered by the prosecution in criminal cases.

The prosecution’s superior access to forensic science and expert witnesses partially explains the prosecution’s relative success in getting expert evidence admitted at trial. The police oversee 79% of crime laboratories, and most labs examine only evidence submitted by the prosecution. In contrast, defense counsel attempting to retain an expert to perform forensic testing must (1) gain the prosecutor’s approval or court’s authorization to access the evidence in order to test it and (2) either find a laboratory to conduct the testing or get a court order to perform testing in the government’s laboratories. In addition to making forensic testing inaccessible to criminal defendants, this system encourages a pro-prosecutorial bias created by forensic scientists’ close working relationship with law enforcement. This bias leads forensic scientists at police-led laboratories to view themselves “not as neutral fact-finders, but as ‘police in lab coats’” and to seek test results that match the prosecution’s goals. Under this system, the potential for prosecution experts to

88. Id. at 108. The NAS again echoed these findings when it concluded that reported opinions suggest appellate courts routinely deny defense appeals contesting the trial court’s admission of the prosecution’s expert evidence. NAS REPORT, supra note 69, at 11. Interestingly, appellate courts also appeared more willing to overturn trial court decisions on the admissibility of expert evidence in civil cases than in criminal cases. Id.

89. Risinger, supra note 64, at 149 (“Expertise proffered by the prosecution in criminal cases has been largely insulated from any change in pre-Daubert standards or approach.”).

90. Findley, supra note 25, at 906.

91. Giannelli, supra note 54, at 470 (citing Joseph L. Peterson et al., The Capabilities, Uses, and Effects of the Nation's Criminalistic Laboratories, 30 J. FORENSIC SCI. 10, 11–13 (1985)).

92. Findley, supra note 25, at 907.

93. Id. at 906; see also Giannelli, supra note 54, at 470 (“Considering the professional relationship between crime labs and police departments, pro-prosecution bias in forensic science is not surprising.”).

94. J. Herbie DiFonzo, The Crimes of Crime Labs, 34 Hofstra L. Rev. 1, 4 (2005). One factor contributing to expert witness pro-prosecution bias is the secretive nature of the prosecution’s pretrial preparation of the witness. Bennett L. Gershman, Misuse of Scientific Evidence by Prosecutors, 28 Okla. City U. L. Rev. 17, 30–31 (2003). Second, prosecutors create a demand for biased witnesses by seeking out experts who will support their theories. Id. at 31. Commentators suggest that prosecutors deliberately exploit witnesses’ biases by eliciting opinions they know are “erroneous, unscientific, and implausible.” Id. at 32. Third, the law enforcement agency that oversees
abuse forensic evidence is high, and courts that admit prosecutorial forensic science indiscriminately are likely to admit flawed forensic evidence.95

**C. Limitations of the Indigent Criminal Defense System**

Indigent criminal defendants’ lack of resources also contributes to the admission of unreliable prosecutorial expert evidence and its prejudicial effect. In *Daubert*, the Court predicted that if courts applied the factors to admit “shaky but admissible evidence,” the adversarial system’s conventional devices, including “vigorous” cross-examination and the presentation of contrary evidence, would safeguard defendants from the potential prejudice of such evidence.96 However, this optimistic faith in the adversarial system ignores the reality that legal services for indigent defendants—the majority of criminal defendants—are seriously underfunded.97 This underfunding contributes to the failure of criminal defendants to succeed in challenging prosecution expert evidence or in admitting their own.98 The key consequence of the lack of public criminal defense funding is the difficulty or inability to hire defense experts.99 In criminal trials involving forensic evidence, “[t]he fact that the crime lab has ultimate control over both where to dedicate lab resources and how to economically and professionally reward forensic examiners. Craig M. Cooley, *Forensic Science and Capital Punishment Reform: An “Intellectually Honest” Assessment*, 17 GEO. MASON U. C.R. L.J. 299, 374–75 (2007). The pro-prosecution bias of forensic scientists may not be the only bias leading courts to admit more prosecution expert evidence than defense evidence. Scholars argue that judges also demonstrate pro-prosecution bias, presuming that most defendants are guilty rather than innocent, which leads them to evaluate prosecutorial expert evidence more favorably. Donald E. Shelton, *Forensic Science Evidence and Judicial Bias in Criminal Cases*, JUDGES’ J., Summer 2010, at 18, 23–24.

95. Even forensic examiners who consciously strive to remain neutral despite the pressure to please prosecutors may in fact fall victim to unconscious bias. Cooley, supra note 94, at 378–79. Because many forensic methods depend on subjective evaluation of test results, examiners are susceptible to the “observer effect” phenomenon, under which individuals’ wants or expectations unconsciously influence their perceptions of an event or situation, leading the individuals to perceive test results that conform to the prosecution’s expectations. Id. at 379.


98. Findley, supra note 25, at 897.

99. Id. at 930.
[the defense] may lack adequate resources with which to fully develop its case is a constant problem.”

The Daubert Court’s reliance on the adversarial system to safeguard defendants from the jury’s reliance on erroneous science thus fails without defense access to expert assistance.

Limited defense access to expert resources undermines defense lawyers’ ability to mount an adequate challenge to prosecutorial experts. Generally, defense counsel does not have the necessary scientific knowledge base to challenge invalid prosecution expert testimony successfully, so the inability to consult an expert to prepare that challenge may be fatal. Further, the criminal defense bar is largely unorganized compared with the cohesive nature of government prosecutorial systems, which are better suited to share information and anticipate scientific issues that may arise in a trial. This disparity gives prosecutors the advantages of a shared knowledge base on forensic issues and the assistance of specialized units with expertise in forensics, while defense attorneys litigate forensic challenges with limited experience in trying scientific issues and little guidance from peers. The success of civil defendants in challenging plaintiff expert evidence under Daubert highlights that underfunding contributes to criminal defendants’ relatively low success in challenging prosecutorial expert evidence; research suggests that civil defendants, who presumably have greater financial resources to access expert assistance, win their Daubert challenges most of the time.

103. Id. (citing Garrett & Neufeld, supra note 15, at 33, 34).
104. Findley, supra note 25, at 931.
105. Id. Many public defender systems are organized at the county level, if at all, and even statewide public defender systems are less centralized than prosecutorial systems. Id. Additionally, most public defender systems assign member attorneys to cases on an as-needed basis, without regard for any special expertise or experience of the attorney. Id.
106. Cooley & Oberfield, supra note 16, at 290–92; see also Developments in the Law—Confronting the New Challenges of Scientific Evidence, 108 HARV. L. REV. 1481, 1529 (1995) (“Unlike parties in civil cases, defendants in criminal cases often lack the financial resources to hire their own experts.”). This creates the “paradox” that in civil
Defendants’ lack of expert resources thus leads to a “systemic failure” by the criminal defense bar to litigate seriously issues regarding the scientific validity of prosecutorial expert evidence.107 This failure results in courts admitting prosecution forensic evidence that may be misleading or unreliable.108 Because considerable evidence suggests that juries implicitly trust expert testimony,109 the admission of dubious scientific evidence by prosecutors translates into a higher likelihood of false convictions.110 In short, the adversarial process for the admission of cases, where only money is at stake, courts apply a more stringent standard for the admission of expert evidence than in criminal cases, where a defendant’s life or liberty is at stake. Cooley & Oberfield, supra note 16, at 290–92. For a discussion of how courts apply the Daubert standard in various civil cases, see generally Norman D. Bates & Danielle A. Frank, Premises Security Experts and Admissibility Considerations Under Daubert and Kumho: A Revised Standard, 15 SUFFOLK J. TRIAL & APP. ADVOC. 179 (2010); David E. Bernstein, Keeping Junk Science Out of Asbestos Litigation, 31 PEPP. L. REV. 11 (2003); Neal C. Stout & Peter A. Valberg, Bayes’ Law, Sequential Uncertainties, and Evidence of Causation in Toxic Tort Cases, 38 U. MICH. J.L. REFORM 781 (2005); Wendy Michelle Ertmer, Note, Just What the Doctor Ordered: The Admissibility of Differential Diagnosis in Pharmaceutical Product Litigation, 56 VAND. L. REV. 1227 (2003); Amanda Hungerford, Note, Back to Basics: Courts’ Treatment of Agency Animal Studies After Daubert, 110 COLUM. L. REV. 70 (2010); and Matthew W. Swinehart, Note, Remedying Daubert’s Inadequacy in Evaluating the Admissibility of Scientific Models Used in Environmental-Tort Litigation, 86 TEX. L. REV. 1281 (2008). 107. Risinger, supra note 64, at 135. 108. Jabbar, supra note 102, at 2047. I do not mean to suggest that the State intentionally offers misleading or unreliable evidence; rather, research increasingly shows that the forensic methods utilized in American criminal trials in general are unreliable or unsubstantiated, see supra notes 69–73, but courts’ admission of significantly more prosecutorial than defense forensic evidence suggests that the prosecution is most often presenting these methods. 109. Jabbar, supra note 102, at 2047–48. Scholars dub the public’s expectation that parties will present forensic evidence the “CSI effect” and the idealistic view juries have toward the reliability of scientific testimony the “reverse CSI effect,” due to expectations formed through watching modern-day forensic crime shows. Id. at 2048–49. The CSI effect misleads jurors, who are not knowledgeable about the limitations of forensic science in the courtroom, into basing verdicts nearly exclusively on forensic evidence, ignoring corroborating or contradicting evidence. DiFonzo, supra note 94, at 2. For a further discussion of the CSI effect and its consequences, see Simon A. Cole & Rachel Dioso-Villa, Investigating the ‘CSI Effect’ Effect: Media and Litigation Crisis in Criminal Law, 61 STAN. L. REV. 1335 (2009); Craig M. Cooley, The CSI Effect: Its Impact and Potential Concerns, 41 NEW ENG. L. REV. 471 (2007); Jessica D. Gabel, Forensiphilia: Is Public Fascination with Forensic Science a Love Affair or Fatal Attraction?, 36 NEW ENG. J. ON CRIM. & CIV. CONFINEMENT 233 (2010); Tamara F. Lawson, Before the Verdict and Beyond the Verdict: The CSI Infection Within Modern Criminal Jury Trials, 41 LOY. U. CHI. L.J. 119 (2009); and Donald E. Shelton, Juror Expectations for Scientific Evidence in Criminal Cases: Perceptions and Reality About the “CSI Effect” Myth, 27 T.M. COOLEY L. REV. 1 (2010). 110. See Mark A. Godsey & Marie Alou, She Blinded Me with Science: Wrongful Convictions and the “Reverse CSI-Effect,” 17 TEX. WESLEYAN L. REV. 481, 494–98 (2011) (citing Ryan Widmer To Get New Murder Trial, WLWT.COM (July 22, 2009,
scientific evidence established by *Daubert* is “not suited to the task of finding ‘scientific truth’” in criminal trials in light of the disparity in resources between the prosecution and the defense to develop expert evidence.\textsuperscript{111}

### III. INDIGENT DEFENDANTS ARE NOT ASSURED ACCESS TO FORENSIC EXPERTS UNDER CURRENT DUE PROCESS JURISPRUDENCE

Experts are an indispensable part of a party’s case in criminal trials utilizing the *Daubert* standard. Constitutional jurisprudence has evolved in recent years to provide indigent criminal defendants with access to publically funded experts in limited cases. Despite this progress, courts retain discretion to appoint or withhold expert assistance in the majority of cases and are reluctant to appoint an expert unless the defendant can clearly show that the case falls into the narrow scenario confronted in *Ake v. Oklahoma*, where a psychiatric defense expert’s opinion was indispensable to a capital murder defendant’s insanity defense.\textsuperscript{112}

#### A. Fundamental Fairness Doctrine

The Due Process Clause of the U.S. Constitution provides that “[n]o person shall . . . be deprived of life, liberty, or property, without due process of law.”\textsuperscript{113} The Constitution extends this due process requirement to the states through the Fourteenth Amendment.\textsuperscript{114} The Supreme Court interprets the Due Process Clause as guaranteeing fundamental fairness in criminal proceedings by requiring the Government to take proactive steps to ensure that indigent defendants have a fair opportunity to present their defenses.\textsuperscript{115} The fundamental fairness guarantee provides that the Government cannot...
deny a defendant “the opportunity to participate meaningfully in a judicial proceeding in which his liberty is at stake” because of poverty.\footnote{116}{Id. Under this reading of the Due Process Clause, the Supreme Court announced a number of criminal procedure decisions that shaped the contours of modern-day criminal trials. \textit{See, e.g.}, \textit{Strickland v. Washington}, 466 U.S. 668, 686 (1984) (Government must ensure that the assistance of appointed counsel is effective); \textit{Peters v. Kiff}, 407 U.S. 493, 497 (1972) (prosecution barred from racial discrimination when selecting jury); \textit{Brady v. Maryland}, 373 U.S. 83, 87 (1963) (State must share exculpatory evidence with the accused); \textit{Gideon v. Wainwright}, 372 U.S. 335, 344–45 (1963) (Government must appoint counsel to assist an indigent defendant at trial); \textit{Napue v. Illinois}, 360 U.S. 264, 269 (1959) (State cannot allow its witnesses to testify falsely about the compensation they received in exchange for testifying); \textit{Roviaro v. United States}, 353 U.S. 53, 60–61 (1957) (Government must disclose the identity of an informant if it is relevant and helpful to the defense or essential to a fair trial); \textit{Griffin v. Illinois}, 351 U.S. 12, 18–19 (1956) (Government must provide a trial transcript to an indigent defendant if one is necessary to a defendant’s appeal); \textit{cf. Rivero v. Illinois}, 556 U.S. 148, 162 (2009) (trial judge’s good-faith error in denying defendant’s peremptory challenge to a prospective juror did not make the trial fundamentally unfair); \textit{Montana v. Egelhoff}, 518 U.S. 37, 51 (1996) (State can prohibit a defendant from presenting evidence on voluntary intoxication to negate required mental state of crime).}

A criminal trial is fundamentally unfair if an indigent defendant does not have access to the “raw materials integral to the building of an effective defense.”\footnote{117}{\textit{Ake}, 470 U.S. at 77. The Court’s fundamental fairness jurisprudence focuses on providing indigent defendants with “[m]eaningful access to justice.” \textit{Id.}} Further, the State must provide such materials to defendants who cannot afford them.\footnote{118}{\textit{Id. The State is obligated to provide indigent defendants with only the tools necessary to provide defendants an adequate opportunity to present their claims—not any and all tools in “the legal arsenal that may be privately retained” by a wealthy defendant. \textit{Ross v. Moffitt}, 417 U.S. 600, 616 (1974). For example, the Government does not have to appoint counsel for indigent defendants in discretionary state appeals or state collateral proceedings after defendants have exhausted direct appellate review. \textit{Pennsylvania v. Finley}, 481 U.S. 551, 556 (1987); \textit{Ross}, 417 U.S. at 616.} Courts utilize the three-factor balancing test the Supreme Court delineated in \textit{Mathews v. Eldridge} to determine what raw materials are necessary to an adequate defense.\footnote{119}{\textit{424 U.S. 319, 334–35 (1976).}} Using this test, the court weighs (1) the private interest at stake in the proceeding; (2) the Government’s interest affected by the Government providing the defense tool; and (3) the probable value of the defense tool and the risk of an erroneous deprivation of the individual’s affected interest if the Government does not provide the defense tool.\footnote{120}{\textit{Ake}, 470 U.S. at 77.}

\section*{B. Defense Experts Are Integral to an Adequate Defense}

In \textit{Ake v. Oklahoma}, the Court applied this balancing test to determine whether the State violated the defendant’s due process rights when it
denied him the appointment of a psychiatrist to help establish an insanity defense to a capital murder charge.121 The Court found the defendant’s interest in the accuracy of a criminal proceeding “almost uniquely compelling” and the risk of erroneous deprivation of the defendant’s life or liberty “extremely high” without the assistance of a psychiatrist.122 The Court viewed the Government’s economic interest in not providing a defense expert insubstantial in comparison, especially because the State’s competing interest in the accuracy and fairness of its criminal adjudications weakens its economic concern.123 The Court therefore held that states are required to assure a defendant access to a psychiatrist to conduct an examination and assist in the preparation of the defense when the defendant demonstrates that the defendant’s sanity at the time of the offense will be a significant factor at trial.124

Although the Court’s narrow holding in Ake v. Oklahoma established that due process requires the State to appoint defense experts in some cases—specifically in a capital case in which the defendant’s mental state is significant to the trial outcome—state and lower federal courts struggle to define its scope and reach.125 One of the key questions courts must confront is whether they should read Ake as requiring states to appoint defense experts other than psychiatrists.126 The Court had the opportunity to address this question in Caldwell v. Mississippi, wherein

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121. Id. at 78–82. The defendant requested a state-funded psychiatrist to perform an evaluation and to assist defense counsel in developing an insanity defense after the defendant exhibited odd behavior and signs of psychosis. Id. at 71–72. After the trial court denied Ake’s request, a jury found Ake guilty of two counts of murder and sentenced him to death. Id. at 73. Ake did not call a single expert witness to help develop his insanity defense at trial or to present evidence mitigating the prosecution’s claim that he was a danger to society at the sentencing phase. Id. In fact, not a single witness for the defense or the prosecution testified about the defendant’s mental state at the time of the offense. Id. at 72. Regardless, the Oklahoma Court of Criminal Appeals affirmed Ake’s conviction and rejected his argument that the State had a responsibility to provide him with the assistance of a psychiatrist because he could not afford one. Id. at 73.

122. Id. at 78, 82.

123. Id. at 79.

124. Id. at 83.


126. Id. at 18. Lower courts have also contemplated whether the Ake decision extends to noncapital cases, what threshold showing a defendant must make for appointment of an expert to be required, whether that showing need be made ex parte to prevent the defense from revealing its trial strategy to the prosecution, and whether the appointed expert must be part of the defense team or can be a neutral expert whose findings are shared with the prosecution. LAFAVE ET AL., supra note 19, at 604–06.
an indigent defendant convicted of capital murder argued that the trial court violated his due process rights by denying his requests for the appointment of a criminal investigator, a fingerprint expert, and a ballistics expert. The Court found that the defendant’s “undeveloped assertions” that such experts would help his defense did not meet the requisite showing of need to entitle him to appointed assistance as a matter of federal constitutional law and abstained from deciding “what if any showing would have entitled a defendant to the assistance of the type here sought.” This language left open the question of whether due process ever requires the appointment of forensic experts and if so, under what conditions. In 2006, the Supreme Court declined to clarify when and to what extent indigent defendants are entitled to appointed forensic experts when it denied certiorari in Moore v. State, refusing to review whether the State’s denial of a defendant’s request for a DNA expert to help him defend murder charges violated the defendant’s due process rights.

C. Courts Fail To Universally Provide for the Appointment of Forensic Experts for Indigent Defendants

Lower courts have reached different conclusions regarding when the Due Process Clause requires the appointment of forensic experts. A majority of jurisdictions have concluded that the right to expert assistance recognized in Ake is not limited to assistance from psychiatrists. In some cases, courts have applied Ake to require states to appoint forensic experts, including ballistics experts, DNA experts, forensic dentists, ...
fingerprint and shoe print experts, and forensic pathologists to determine cause of death.

However, these cases do not establish a universally recognized constitutional right to the assistance of forensic experts for indigent defendants. Recently, in *Babick v. Berghuis*, the Sixth Circuit recognized that whether the Supreme Court’s decision in *Ake* extends to nonpsychiatric experts remains an open question. The Fourth Circuit, Fifth Circuit, Eleventh Circuit, and multiple federal district courts have similarly concluded that *Ake* does not clearly require the appointment of defense experts outside of the psychiatric context. Likewise, some states, including Oklahoma and Virginia, refuse to read *Ake* as requiring the appointment of nonpsychiatric experts.

Even in jurisdictions that recognize that *Ake* may provide criminal defendants with a constitutional right to the assistance of a defense expert v. State, 612 So. 2d 381, 393 (Miss. 1992); Taylor v. State, 939 S.W.2d 148, 153 (Tex. Crim. App. 1996) (en banc).


There is no principled way to distinguish between psychiatric and nonpsychiatric experts. The question in each case must be not what field of science or expert knowledge is involved, but rather how important the scientific issue is in the case, and how much help a defense expert could have given. 835 F.2d 1240, 1243 (8th Cir. 1987).

137. See 1 CRIMINAL PRACTICE MANUAL § 10:10 (2012), available at Westlaw CRPMAN.

138. 620 F.3d 571, 579 (6th Cir. 2010).


other than a psychiatrist, defendants are not assured the right to a forensic expert in any given case. In fact, research suggests that trial courts take a “restrictive approach” in appointing experts to indigent defendants. Many courts interpret *Ake* to require the appointment of a defense expert only after the defendant proves there is a reasonable probability that the requested expert would assist the defense and that denying the expert’s assistance would result in a fundamentally unfair trial. Forcing defendants to make this showing deprives them of expert assistance in cases in which it is integral to their defenses in two ways. First, the high “fundamentally unfair” threshold disadvantages defendants because it requires them to prove fundamental unfairness in a trial that has not yet occurred. Second, the requirement that a defendant show a reasonable probability that the expert would assist the defense requires the defendant to prove what the requested expert would say and do if appointed. However, without access to such an expert, the defendant has no way of learning what evidence the expert could provide that would be helpful at trial. The requisite factual showing therefore places defendants in a “Catch-22,” where without access to an expert, the

141. See Goebes, *supra* note 41, at 25 (“As illustrated by the Oregon and Virginia statutes, the right to expert assistance . . . varies greatly from state to state and may vary in important ways from the right to expert assistance guaranteed by *Ake*.”).


143. Jennifer M. Allen, *Free for All a Free for All: The Supreme Court’s Abdication of Duty in Failing To Establish Standards for Indigent Defense*, 27 LAW & INEQ. 365, 389–90 (2009). This test originated in *Moore v. Kemp*, wherein the Eleventh Circuit interpreted the Supreme Court’s decisions in *Ake* and *Caldwell* to require defendants to demonstrate “something more than a mere possibility of assistance from a requested expert” and formulated the test to define what showing the defendant must make to obtain the requested assistance. 809 F.2d 702, 712 (11th Cir. 1987).

144. Allen, *supra* note 143, at 390. This standard requires the defendant “to show that his or her trial will go or would have gone differently but for inadequate assistance,” despite the fact that the defendant cannot yet know what would happen at trial. *Id.*


146. *Id.* at 379.
defendant cannot make the showing required to obtain expert assistance.\textsuperscript{147} Thus, defendants may be unable to make the requisite threshold showing to obtain expert assistance even though such assistance is integral to their defenses.\textsuperscript{148}

Accordingly, courts’ current interpretation of \textit{Ake} does not assure indigent criminal defendants the constitutional right to the assistance of a forensic expert, even when the prosecution relies heavily on forensic evidence, which is when defendants need such assistance the most. Supreme Court clarification is necessary to ensure the protection of defendants’ fundamental rights.

\section*{IV. Cases Arising Out of a Child’s Death Uniquely Require Access to Experts for Criminal Defendants}

Although the shortcomings of the \textit{Daubert} standard, coupled with indigent defendants’ lack of access to forensic experts, may lead to wrongful convictions in other criminal cases,\textsuperscript{149} certain properties of child death cases make the admission of flawed forensic science most damaging in these cases, necessitating the Supreme Court’s recognition that the State must provide defense experts to indigent defendants in such cases. First, 

\begin{itemize}
  \item \textsuperscript{147} Id. (citing Moore, 809 F.2d at 742 (Johnson, J., concurring in part and dissenting in part)).
  \item \textsuperscript{148} Id. at 380 (theorizing that the factual showing requirement undermines \textit{Ake}’s aim of providing indigent defendants with expert assistance when needed by shifting the burden of proving an unfair trial to the defendant).
\end{itemize}
like all murder cases, the stakes in child death cases are high as the offense is commonly punishable by life in prison or the death penalty. However, apart from other murder cases, child death cases carry the unique social stigma of labeling the defendant a “child killer.” Because of the uniquely devastating nature of the sudden and unexpected death of a child, the stigma accompanying child death accusations can follow the wrongfully accused long after exoneration. The nature of child death investigations, which are likely to revolve around one of two suspects, also heightens their stakes. The accused killer is often a parent, meaning that false accusations have the potential to tear a family apart. Authorities are likely to remove the parent’s other children from the parent’s care until the case is resolved, which can take years, even if the parent defendant

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151. Goudge, supra note 17, at 4.
155. Id. at 3.
is innocent. Meanwhile, the children have to face “the horror that the parent they love is suspected of killing a brother or sister.” Moreover, questions over the parent’s guilt may permanently divide a family struggling to find answers. Alternatively, when a caregiver or babysitter is accused, the suspect is often young, and fighting the accusation often changes the course of the suspect’s life, even if the suspect avoids conviction.

Second, forensic evidence in child death cases is uniquely important in that the prosecution often builds its case on the only two pieces of evidence available: (1) the last person in contact with the child preceding the child’s death and (2) a forensic pathologist or other medical expert’s determination of the cause of death. Adult murders tend to occur in public places, where witnesses may be available, and involve weapons that leave distinct wounds. In contrast, children most often die from injuries caused without a weapon and in the privacy of a home, leaving little additional evidence for the prosecution to build its case on or for the defense to use to dispute expert testimony. Because symptoms of child abuse can mirror innocent causes of death, such as preexisting medical conditions, it is not always clear when a child dies that a crime even occurred. Therefore, the forensic expert’s cause of death...
determination becomes critical to whether a suspect is charged or convicted.\textsuperscript{164} Thus, the testimony of prosecution expert witnesses plays a larger role in these cases than in cases involving other forms of evidence, and the admission of misleading prosecutorial expert testimony is correspondingly more likely to lead to wrongful convictions because of its increased weight.\textsuperscript{165}

Finally, two factors make the possibility of error in cause of death determinations higher in child death cases than in other murder cases.\textsuperscript{166} First, determining the cause of an infant or young child’s death presents particular challenges because of the differences in bodily functions of physically mature adults and physically developing children.\textsuperscript{167} Therefore, it is difficult for forensic or medical examiners that do not specialize in pediatrics to detect subtle signs of trauma or illness.\textsuperscript{168} Second, the community’s sense of outrage and urgent need to understand what happened in a child’s death\textsuperscript{169} can increase the pressure on experts to find an answer, leading to a mindset of approaching every child death as “homicide until proven otherwise.”\textsuperscript{170} This social pressure adds to the preexisting relationship between medical examiners and law enforcement to reinforce pro-prosecutorial bias.\textsuperscript{171}

The unique challenges presented by child death cases intersect with the Daubert standard’s failure to screen out misleading prosecution expert testimony without adequate defense challenges, resulting in wrongful convictions. Four categories of child death cases illustrate how the admission of unsubstantiated medical expert testimony under Daubert leads to wrongful convictions: (1) Shaken Baby Syndrome (SBS), (2) bite mark identification, (3) asphyxiation, and (4) examiner bias or incompetence.

an uncorroborated, alleged accident, often a fall.” (quoting Barry Wilkins, Head Injury—Abuse or Accident?, 76 ARCHIVES DISEASE CHILDHOOD 393, 393 (1997))).

\textsuperscript{164} Goude, supra note 17, at 4.

\textsuperscript{165} Molly Gena, Comment, Shaken Baby Syndrome: Medical Uncertainty Casts Doubt on Convictions, 2007 WIS. L. REV. 701, 705–06 (concluding that infant deaths can lead to homicide convictions of innocent people based solely on medical opinions and the fact that the accused was with the baby when it became fatally ill).

\textsuperscript{166} See Thompson et al., supra note 18.

\textsuperscript{167} Id.

\textsuperscript{168} Id.

\textsuperscript{169} See supra note 152 and accompanying text.

\textsuperscript{170} Thompson et al., supra note 18; see also Ramsey, supra note 163, at 2 (describing child death cases as creating a “highly-charged atmosphere where emotions and the personal agendas of the purported experts can run roughshod over logic, science, and the law”); Daniel G. Orenstein, Comment, Shaken to the Core: Emerging Scientific Opinion and Post-Conviction Relief in Cases of Shaken Baby Syndrome, 42 ARIZ. ST. L.J. 1305, 1305 (2011) (“A child is dead. Justice demands an explanation, someone to hold responsible for the loss of an innocent life.”).

\textsuperscript{171} See supra notes 90–95 and accompanying text.
leading to false findings of abuse. In these cases, access to defense experts would have allowed the defendants to better challenge the prosecution’s flawed forensic evidence that led to their convictions.

A. Shaken Baby Syndrome

Cases involving SBS illustrate the prejudicial role forensic testimony plays against criminal defendants in child death cases. SBS first emerged in the scientific community in 1972 when medical experts characterized the presence of three injuries in an infant as a unique triad of symptoms: (1) bleeding between the middle layer and the outermost or innermost layer of the brain, (2) retinal bleeding of the eyes caused by a ruptured blood vessel, and (3) brain swelling. Researchers concluded that these symptoms could only result from someone violently shaking an infant back and forth and termed them SBS. Over the next thirty years, hundreds to thousands of criminal prosecutions proceeded on this theory, many resulting in convictions.


173. Gena, supra note 165, at 707. The medical terms for the symptoms of SBS are (1) a subdural or subarachnoid hematoma, (2) retinal hemorrhaging, and (3) brain swelling. Id. Pediatric radiologist Dr. John Caffey developed the modern theory of SBS in the early 1970s when he reviewed twenty-seven cases in which a caretaker or eyewitnesses confirmed that someone shook an infant before its death. Edward J. Imwinkelried, Shaken Baby Syndrome: A Genuine Battle of the Scientific (And Non-Scientific) Experts, 46 CRIM. L. BULL. 156, 164 (2010). Dr. Caffey concluded from these cases that manual shaking of an infant is the common primary cause of SBS’s three symptoms. Id. at 165.


The SBS diagnosis is a powerful tool for the prosecution. The classic SBS diagnosis holds that a severely shaken child immediately displays signs of trauma, including unconsciousness. Experts testifying on SBS theory can therefore effectively “time stamp” the child’s injuries and incriminate the last adult who was in contact with the child as the perpetrator of the child’s injuries. Accordingly, SBS expert testimony establishes nearly the entire case for the prosecution: “timing the injury determines the identity of the perpetrator, and the high level of force required establishes both causation and the mens rea of at least recklessness.”

However, recent research indicates that despite its widespread acceptance, SBS testimony may lack a valid scientific basis. In the mid- to late-1990s, doctors subjected SBS theory to heightened scrutiny because of a widespread shift in how medical professionals derive their research. A comprehensive effort to examine the science underlying SBS revealed that published literature on SBS contained inadequate scientific evidence to support any firm conclusion on whether human shaking actually causes the triad of symptoms. Recent studies indicate that preexisting validity. See, e.g., Dabbs v. State, 518 So. 2d 825, 826–27 (Ala. Crim. App. 1987); Jones v. State, 439 S.E.2d 645, 647 (Ga. 1994); People v. Rader, 651 N.E.2d 258, 260 (Ill. App. Ct. 1995); State v. Olson, 435 N.W.2d 530, 531–32 (Minn. 1989); State v. Wojcik, 472 N.W.2d 732, 734 (Neb. 1991); State v. Weeks, 582 N.E.2d 614, 619 (Ohio Ct. App. 1998); State v. Lopez, 412 S.E.2d 390, 393 (S.C. 1991); State v. Rundle, 500 N.W.2d 916, 918 (Wis. 1993); see also Joseph D. Hatina, Note, Shaken Baby Syndrome: Who Are the True Experts?, 46 CLEV. ST. L. REV. 557, 575–76 (1998) (discussing legal acceptance of SBS without close examination of the theory). SBS gained the American media and public’s attention in the trial of Louise Woodward, a British nanny convicted of murder by a jury for allegedly shaking an eight-month-old boy in her care. See Commonwealth v. Woodward, 694 N.E.2d 1277, 1281 (Mass. 1998). The trial judge reduced Woodward’s conviction to involuntary manslaughter based on lack of malice and sentenced her to 279 days in prison, which she had already served while awaiting trial and action on her postconviction motion for postjudgment relief. Id. Lawmakers responded to the Woodward case by passing legislation to prevent SBS. Gena, supra note 165, at 710.

176. Imwinkelried, supra note 173, at 167–68.
177. Id. at 168 (citing Ramsey, supra note 163, at 11–12).
178. Orenstein, supra note 170, at 1311. Mens rea is the mental state that expresses the intent necessary for any given act to be classified as a crime and is usually an essential element of any criminal offense. 21 AM. JUR. 2D CRIMINAL LAW § 117 (2d ed. 2008).
179. Tuerkheimer, supra note 175, at 12.
180. Id. (citing Mark Donohoe, Evidence-Based Medicine and Shaken Baby Syndrome: Part I: Literature Review, 1966–1998, 24 AM. J. FORENSIC MED. & PATHOLOGY 239, 239 (2003)); see also State v. Edmunds, 2008 WI App 33, ¶ 23, 308 Wis. 2d 374, 746 N.W.2d 590, 598–99 (stating that “there has been a shift in mainstream medical opinion” as to the causes of the symptoms of SBS); Imwinkelried, supra note 173, at 162 (noting that the proposition that shaking by an adult can cause an infant’s brain to experience the amount of force necessary to produce the purported symptoms of SBS “is
conditions, short falls, or accidental injuries can cause these symptoms, and biomechanical research casts further doubt on the SBS diagnosis by suggesting that shaking a baby at the force necessary to inflict the triad of injuries associated with SBS would cause detectable head or neck injuries. Additionally, recent research undermines the reliability of testimony time stamping a child’s injuries, as studies indicate that infants might have a lucid interval after suffering an injury, making it difficult or impossible to precisely pinpoint the time of injury.

Nonetheless, advances in SBS research have not led courts to reexamine the reliability of SBS testimony. Criticisms within the medical and scientific community over the validity of SBS theory and the empirical flaws of its research basis should raise questions about its admissibility under Daubert, including whether it is generally accepted and whether it has passed empirical testing. However, recent trial court decisions rejected defense arguments that SBS testimony may not be reliable because it is not generally accepted in the medical community, that reliable scientific methods do not form its basis, and that its error rate is unknown. In fact, most courts continue to admit SBS testimony routinely, relying on its previous general acceptance in the medical community and its wide acceptance by other trial courts to establish its validity.

Despite defendants’ general lack of success challenging the validity of SBS, a recent landmark appellate case demonstrates how defense experts can effectively defend SBS claims by the prosecution. In 2008, in State v. Edmunds, the Wisconsin Court of Appeals became the first court to recognize that a prosecution’s expert testimony on SBS may have
prejudiced a defendant’s conviction. A jury convicted Audrey Edmunds of first-degree reckless homicide in 1997 after the prosecution’s medical experts testified that SBS caused a seven-month-old child’s death and that the child’s injuries occurred while Edmunds was the sole person watching her. Edmunds petitioned for a new trial and presented testimony from six medical experts explaining the debate in the scientific community over the validity of SBS. The court concluded that the emergence of a “legitimate and scientific dispute within the medical community” constituted newly discovered evidence, which created a reasonable probability that jurors would have reasonable doubts about Edmunds’s guilt if they heard both sides of the SBS dispute. The State of Wisconsin declined to retry Edmunds and released her from prison after she served ten years and 352 days.

Although Edmunds’s release is a positive indication of the potential for postconviction relief for individuals wrongly accused of killing a child through SBS, it does not signal that courts will reexamine the admissibility of SBS testimony at the trial court level. As the court’s holding makes clear, the admission of defense expert testimony challenging SBS at trial could have prevented Edmunds’s wrongful conviction. The ability of the defense to present an alternative, innocent explanation for a child’s injuries to counter the prosecution’s SBS testimony decreases the prejudicial value of SBS testimony and the likelihood of a wrongful conviction. Yet this “battle of the experts” is unlikely to occur given the inadequate resources of defendants. Instead, trial courts are likely to continue to admit the prosecution’s expert testimony on SBS with few challenges from the defense, even fewer of which will be successful. Based on the prejudicial nature of this testimony, wrongful SBS-based

187. Tuerkheimer, supra note 175, at 50 (describing State v. Edmunds as “a remarkable opinion without judicial precedent”).
188. Edmunds, 746 N.W.2d at 592–93.
189. Id. at 593.
190. Id. at 599.
192. But see Grant v. Warden, No. TSRCV030004233S, 2008 WL 2447272, at *15 (Conn. June 4, 2008) (denying writ of habeas corpus petition of defendant convicted of reckless manslaughter in the first degree based on prosecution’s expert testimony concluding that four-month-old baby left in defendant’s care died of SBS and rejecting defendant’s claim that SBS is not recognized in the scientific community as “unsubstantiated and wholly without merit”).
193. Edmunds, 746 N.W.2d at 599.
195. Id. at 200.
196. See supra notes 96–111 and accompanying text.
convictions are likely to continue under the Daubert standard unless defendants have access to experts who can dispute it.197

B. Bite Mark Identification Evidence

A second category of cases demonstrating the need for the appointment of defense experts in child death cases to counter invalid prosecution forensic evidence are those involving bite mark identifications.198 Courts routinely admit bite mark identification testimony under Daubert despite its lack of empirical support and potentially high rate of error.199 This evidence, although “lacking theoretical or empirical foundations . . . . enables forensic scientists to draw bold, definitive conclusions that can make or break cases.”200

Brooks v. State201 and Brewer v. State202 demonstrate the highly prejudicial effect bite mark identification testimony has in cases involving a child’s death. In January 1992, a jury convicted Levon Brooks of murdering a three-year-old girl.203 The court sentenced him to life in prison.204 In his appeal, Brooks challenged the trial court’s admission of the prosecution’s expert testimony of Dr. Michael West, a forensic odontologist who testified that an allegedly human bite mark found on the child eliminated everyone except Brooks as a suspect.205 Brooks argued that bite mark evidence is unreliable because no guidelines exist for how to match bite marks to an individual.206 The Mississippi Supreme Court rejected this argument and affirmed Brooks’s conviction, holding that bite mark identification is affirmatively admissible in Mississippi.207

197. Without evidence of the controversy surrounding SBS before it, a jury essentially has to disbelieve the State’s medical experts to have a reasonable doubt about a defendant’s guilt. See Edmunds, 746 N.W.2d at 599. Given the jury’s tendency to trust medical expert testimony implicitly, this is unlikely to occur. See Jabbar, supra note 102, at 2047–48.
198. See supra notes 63–67 and accompanying text.
199. See supra notes 66–67 and accompanying text.
201. 98-KA-00322-SCT (Miss. 1999).
203. Brooks, 98-KA-00322-SCT at ¶¶ 1, 27.
204. Id. at ¶ 1.
205. Id. at ¶¶ 9–12.
206. Id. at ¶ 14. Dr. Steven Hayne, the medical examiner who performed the autopsy, relied heavily on Dr. West’s opinion to conclude in his autopsy report that the girl’s death was a homicide. See id. at ¶ 9.
207. Id. at ¶¶ 11, 51.
In a dissenting opinion, Justice McRae criticized the court’s “apparent willingness to allow West to testify to anything and everything” as “expedient for prosecutors but . . . harmful to the criminal justice system.”

A forensic pathologist asked to review the case by the Innocence Project, a national litigation and public policy organization, concluded that there was no scientific basis for West’s conclusion that the victim’s marks were human bite marks, let alone caused by Brooks. Yet the court did not exonerate Brooks for the murder until a third party, Justin Albert Johnson, confessed to the murder in 2008. The State then released Brooks, sixteen years after he entered prison for a murder he did not commit.

Similarly, in 2002, the Mississippi Supreme Court relied on Brooks v. State to reject Kennedy Brewer’s motion for a new trial. Brewer claimed that newly discovered evidence undermined the reliability of testimony Dr. West gave in his capital murder trial. In Brewer’s trial, Dr. West testified that bite marks found on the body of a three-year-old girl matched Brewer’s teeth. In his motion for a new trial, Brewer introduced a study from the American Board of Forensic Odontology,

208. Id. at ¶ 67 (McRae, J., dissenting).
210. Lee et al., supra note 3. Marks resembling bite marks often occur after death by decomposition or aquatic wildlife where, as here, the victim’s body was found in a body of water. Id. Justice McRae’s dissent hints at similar conclusions by other experts who were “unwilling to testify that the marks could only be bite marks and not something else.” Brooks, 98-KA-00322-SCT at ¶ 59 (McRae, J., dissenting).
211. Lee et al., supra note 3.
212. Id.
214. Id. at ¶ 6, 23. The prosecution called Dr. West to testify as a bite mark expert in both Brooks’s and Brewer’s cases. Id.; Brooks, 98-KA-00322-SCT at ¶ 9–12.
which outlined the shortcomings of bite mark evidence and its high error rate. The court found it “highly inappropriate to overrule well-established precedent” based on this as-of-yet unpublished study, despite the questions it should have raised about the admissibility of bite mark identification evidence under Daubert. In 2008, when Justin Albert Johnson—the same person who committed the murder that Brooks was convicted of—confessed to the murder for which Brewer was serving a life sentence, Brewer was also freed after spending sixteen years in prison.

Both cases demonstrate how a defense forensic expert could have challenged Dr. West’s claims at a pretrial Daubert admissibility hearing or at trial. These cases demonstrate that without a strong defense attack on such evidence, judges are reluctant to scrutinize routinely admitted scientific evidence like bite mark identifications, even in high-stakes cases involving a child’s death. Additionally, courts’ unwillingness to overturn precedent makes it unlikely that defendants can successfully challenge the admissibility of bite mark evidence on appeal. Wrongful convictions will thus continue to result from flawed bite mark evidence if defendants do not have access to experts who can help them build a successful attack on such evidence.

C. Asphyxiation

Defense experts are also necessary to confront misleading prosecutorial evidence in cases involving asphyxiation. Even compared with other child death cases, determining exactly how the death of a child occurred

216. Id. at ¶ 23.
217. Id. at ¶ 25. The court granted Brewer an evidentiary hearing to prove that newly discovered DNA evidence warranted a new trial. Id. at ¶ 28. He spent another five years in prison awaiting a second trial. Lee et al., supra note 3.
218. Lee et al., supra note 3. Law enforcement originally suspected Johnson of the three-year-old’s murder but instead focused on Brewer as a suspect based on Dr. West’s bite mark finding. Id. This is an example of how the admission of misleading forensic evidence in cases involving a child death bears another heavy cost on society: a killer goes unpunished or remains free to kill again. Goudge, supra note 17, at 4.
220. See supra note 65 and accompanying text.
when the child dies from a lack of oxygen is notoriously difficult. The lack of certainty in these cases increases the potential for abuse if courts admit potentially prejudicial prosecutorial expert testimony without an opposing defense expert view.

Ex parte Briggs demonstrates the necessity for defense challenges to the admission of expert testimony on the cause of a child’s death when the child dies from a lack of oxygen. Dr. Patricia Moore, the associate medical examiner of a Texas hospital, concluded that the death of Brandy Del Briggs’s two-month-old son was a homicide. The State charged Del Briggs with first-degree injury to a child based partially on Dr. Moore’s autopsy report. Del Briggs pleaded guilty after her lawyer advised her that she could not afford to hire defense medical experts for her trial. Four years later, a new county chief medical examiner amended the infant’s autopsy report after failing to find signs


222. Id.; see also Catherine L. Goldenberg, Comment, Sudden Infant Death Syndrome as a Mask for Murder: Investigating and Prosecuting Infanticide, 28 SW. U. L. REV. 599, 623 (1999) (noting that no single characteristic or finding is dispositive of homicide).

223. Goldenberg, supra note 222, at 601 (quoting DORLAND’S ILLUSTRATED MEDICAL DICTIONARY 1644–45 (27th ed. 1988)). Autopsies cannot distinguish between SIDS and a homicide, and although certain findings can suggest homicide, it is difficult to determine the cause of death with certainty when there are no overt signs of abuse. Id. at 607. Additionally, these cases are further complicated by the “rule of three,” a general rule medical experts follow when if three or more child deaths occur in one family with no known disease or trauma, the cause of the third and any subsequent deaths is considered homicide based solely on the earlier two deaths. See State v. Ward, 138 S.W.3d 245, 257 (Tenn. Crim. App. 2003). The theory essentially allows experts to classify a child’s death as a homicide without any distinct evidence of abuse. Id. Further, given the nature of the circumstances involved, medical experts cannot test this theory with normal research methods, and the scientific community disagrees on whether the rule of three is a valid theory. Id. at 270–71. Based on these limitations, at least one appellate court held the rule of three inadmissible under the Daubert standard because of its unreliability. Id. at 271.


225. Id. at 460; see also Lee et al., supra note 3 (identifying Dr. Moore as the medical examiner who made this conclusion).

226. Id. at 463. Del Briggs’s grand jury testimony and failed polygraph examination also contributed to her indictment. Id.

227. Id.
of trauma. Based on significant evidence of a known breathing problem and hospital tubing error, the examiner concluded that the boy’s cause of death was undetermined. Del Briggs petitioned for a writ of habeas corpus and elicited five experts to testify that her son’s death was not a homicide. These experts based their testimony on a review of the child’s medical records, not scientific or medical advances, suggesting that Del Briggs would have presented a compelling defense at trial had she been able to afford it. Because of these expert opinions and the revised autopsy conclusions, the Texas Court of Criminal Appeals granted Del Briggs’s writ of habeas corpus and vacated the judgment against her in 2003, after she served nearly four years in prison.

Although Del Briggs succeeded in her postconviction challenge, postconviction defense challenges to erroneous cause of death determinations do not always succeed even when the expert revises the expert’s own conclusion after trial. For example, in Robbins v. State, the Texas Court of Criminal Appeals refused to grant a new trial to a defendant convicted of murder based on an autopsy report by Dr. Moore, the same doctor who testified in Briggs. At Neal Robbins’s trial for the capital murder of his girlfriend’s seventeen-month-old child, Dr. Moore testified that the child’s death was murder by asphyxiation. The jury convicted Robbins, and the court sentenced him to life in prison. In 2007, the county deputy chief examiner reevaluated Dr. Moore’s autopsy findings and concluded that Dr. Moore’s observations did not support a finding of asphyxiation, thereby amending the report to state an

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228. Id. at 460.
229. Id. at 460–61.
230. Id. at 462–63. These experts largely agreed that Del Briggs’s son died from natural causes and that hospital error likely caused the bruising identified in the autopsy report as a sign of intentional injury. Id.
231. Id. at 470. In fact, the court held that Del Briggs’s counsel performed ineffectively, partially because he did not request a state-funded expert under Ake, and indicated that the trial court would have been obligated to grant such a request because the cause of death was “a crucial issue.” Id. at 468. This case thus demonstrates the importance of the proper application of Ake to establish cause of death in child death cases hinging on forensic evidence.
232. Id. at 470.
234. Id. at 450. Dr. Moore also excluded SIDS as a potential cause of death based on the child’s age and “story.” Id.
235. Id. at 448.
undetermined cause of death. Despite receiving a letter from Dr. Moore recanting her own opinion that the child’s death was a homicide, the court upheld Robbins’s conviction. As these cases demonstrate, the lack of defense access to forensic experts and inability to mount successful challenges to invalid prosecution evidence can be costly in cases where the child’s cause of death is especially difficult to determine.

D. Expert Bias or Incompetency

In the absence of strong defense challenges, courts also fail to apply Daubert to screen out false or biased expert testimony from child death prosecutions. For example, in 2008, Ontario conducted an official judicial inquiry into charges that one of its leading performers of pediatric autopsies and prominent expert witnesses, Dr. Charles Smith, erred in a number of cases and confirmed that the allegation of widespread error in Dr. Smith’s work was true. The findings demonstrate that forensic pediatric investigations are particularly prone to mistakes if the expert performing them is not competent. As discussed above, the flawed forensic dental work by Dr. Michael West and flawed autopsy work by Dr. Patricia Moore in cases of child asphyxiation also demonstrate

236. Id. at 453–54.
237. Id. at 454, 460. The court rejected Robbins’s argument that Dr. Moore’s trial testimony was false, despite Dr. Moore’s recantation, because Dr. Moore could not conclusively exclude her original opinion as a possible cause of death and because Dr. Moore did not testify to false facts at trial. Id. at 460, 462. It therefore reversed the trial court’s conclusion that Robbins’s verdict was obtained by “admittedly false testimony that was unsupported by objective facts and pathological findings and not based on sufficient expertise or scientific validity.” Id. at 460 (internal quotation marks omitted).
238. See supra Part II.A.
239. GUDGE, supra note 17, at 5–6. Justice Goudge concluded that Ontario’s pediatric forensic pathology system was systematically flawed because it lacked oversight and recommended that the province adopt strict standards to govern how forensic pathologists conduct child autopsies. Id. Justice Goudge’s recommended standards included formal training and certification requirements for pathologists, requirements for review of a child’s relevant medical records before pathologists make a cause of death determination, and a system for the review of autopsy findings by other medical experts. Id. The similarity between the Canadian and U.S. cases involving the prosecution of innocent individuals for the death of a child suggests pediatric forensic pathology in the United States may suffer from the same problems plaguing Ontario. Elements common to the Canadian prosecutions, based on Dr. Smith’s work, and U.S. prosecutions include failure to consult specialists in childhood injuries or illnesses, failure to review relevant medical records, and bias based on the pathologist working closely with the prosecution and law enforcement. Thompson et al., supra note 18.
240. See supra notes 163–68 and accompanying text.
241. See supra Part IV.B.
242. See supra Part IV.C.
the danger the admission of one-sided forensic evidence can pose in child death cases.

Additional cases further demonstrate how incompetence by prosecutorial medical experts contributes to wrongful convictions when the defense cannot capably challenge their opinions. In two cases in St. Petersburg, Florida, medical examinations led by Dr. Joan Wood ruled a seven-month-old girl’s and two-month-old boy’s deaths homicides by child abuse.243 The prosecution for both homicides focused on the children’s fathers: John Peel pleaded no contest to a manslaughter charge arising from his son’s death while maintaining his innocence, and David Long faced murder charges for his daughter’s death.244 When Dr. Jon Thogmartin replaced Dr. Wood as county medical examiner, he reviewed both autopsy reports, finding no evidence supporting Dr. Wood’s conclusions.245 Prosecutors subsequently asked a judge to vacate Peel’s conviction after he spent four years in prison.246 The prosecution also dropped all charges against Long.247

As county medical examiner for eighteen years, Dr. Wood conducted more than 5600 autopsies and testified in hundreds of murder trials.248 She lost her medical license after changing the cause of death determination in a high-profile murder, and the county closely scrutinized her past work after her resignation.249 Dr. Wood’s work in Long’s case most strongly suggests incompetence or bias; she determined that Long’s daughter died of SBS, although four pathologists, including Dr. Thogmartin, concluded that the baby died of pneumonia.250 When reviewing Dr. Wood’s work in child homicide cases, Dr. Thogmartin concluded that Dr. Wood’s erroneous findings were a result of a “prosecutorial bias,” a “‘go get him’ kind of thing.”251

243. Lee et al., supra note 3.
244. Id.
245. Id.
246. Id.
247. Id.
249. Id.
250. Id.
251. Id.
Similarly, the case of Kenneth Marsh also demonstrates how costly an erroneous conclusion by experts can be.\textsuperscript{252} In Marsh’s case, the State’s experts conclusively ruled out accidental death as a possible explanation for the death of Marsh’s girlfriend’s son.\textsuperscript{253} An independent review of the facts surrounding the child’s death led a Florida-based independent expert to conclude that he could not determine that child abuse caused the boy’s death beyond a reasonable doubt or beyond a reasonable degree of medical certainty.\textsuperscript{254} Conversely, all state witnesses, who worked closely with law enforcement on the case, testified beyond a reasonable certainty to the existence of child abuse.\textsuperscript{255} The fact that an independent medical examiner easily reached a different conclusion from the same data suggests prosecutorial bias may have played a role in the conclusions formed by the State’s experts.\textsuperscript{256}

In each case, a simple review by a second forensic expert revealed errors in how the prosecutor’s expert determined the cause of the child’s death, reinforcing how powerfully the lack of defense access to medical experts shortchanges criminal defendants.\textsuperscript{257} In all cases, an autopsy review by a qualified expert could have saved the defendants years in prison and the stigma of the accusation of killing their own—or a loved one’s—child.

V. THE DUE PROCESS CLAUSE REQUIRES THE APPOINTMENT OF DEFENSE EXPERTS IN CHILD DEATH CASES TO PROTECT THE RIGHTS OF INDIGENT DEFENDANTS

The Daubert standard does not protect innocent criminal defendants from facing flawed, prejudicial expert testimony in child death cases. Because the Daubert standard relies on judges to determine when scientific evidence is reliable enough to serve as a basis for the jury’s fact-finding, even though judges do not have the expertise necessary to make those determinations, courts are admitting the “shaky” evidence the Supreme

\textsuperscript{252.} See supra notes 1–9 and accompanying text.
\textsuperscript{255.} Marsh, 2007 WL 173864, at *1.
\textsuperscript{256.} See id. at *2.
\textsuperscript{257.} Importantly, in each case, advances in science or new evidence did not undermine the original examiner’s autopsy findings; the findings were simply determined to be erroneous by a later medical examiner who reviewed the same evidence as the original examiner. See Lee et al., supra note 3. Defense access to experts at the time of trial thus could have protected the defendants by allowing them to present the shortcomings of the prosecution’s forensic evidence to the jury.
Court anticipated Daubert might lead them to admit. However, the battle of the experts the Court envisioned in Daubert, which would presumably protect defendants from the prejudicial effects of unreliable evidence, has not materialized because of the widespread lack of defense access to forensic experts and the defense bar’s corresponding inability to mount successful attacks on unreliable prosecutorial expert testimony. The Daubert standard’s reliance on the presentation of defense evidence to “safeguard” defendants thus makes the assistance of a defense expert to help develop and present that evidence a necessary and “basic tool[] of an adequate defense or appeal” when the prosecution relies on forensic evidence to form its case. This is especially true in child death cases where the prosecution relies on an expert’s conclusion about the cause of the child’s death to establish its case. Because the Due Process Clause requires the Government to provide tools to indigent defendants who cannot afford them, the Constitution mandates that the State provide for the appointment of defense experts for indigent defendants in these child death cases.

258. See supra Part II.
259. See supra Part II.C. In theory, the defense’s ability to attack a forensic expert’s credibility on cross-examination and to present its own expert evidence undermining the prosecution’s “shaky” expert evidence would be sufficient to protect prosecutorial expert testimony from unfairly prejudicing the jury’s decision, but as Lee Richard Goebes deduced, “Absent the adversarial testing assumed by Daubert, the Daubert standard collapses and fails. The prosecution, supported by state-sponsored expert witnesses, is able to present the trial court with a one-sided case for admission.” Goebes, supra note 41, at 40. For a discussion of how a true battle of the experts involving fully developed expert testimony from both the prosecution and the defense increases a jury’s truth-seeking ability in the context of forensic evidence, see Imwinkelried, supra note 173, at 199–200; see also Jennifer L. Mnookin, Fingerprint Evidence in an Age of DNA Profiling, 67 BROOK. L. REV. 13, 70 (2001) (concluding that a battle of the experts would have revealed weaknesses in proffered prosecution expert testimony on fingerprinting if defendants had access to experts earlier); John Devlin, Comment, Genetics and Justice: An Indigent Defendant’s Right to DNA Expert Assistance, 1998 U. CHI. LEGAL F. 395, 420 (1998) (“Although many commentators fear the expense and confusion of a ‘battle of the experts,’ allowing the jury to hear two adversarial opinions probably comes closest to producing truth in the DNA context.”).
261. See supra Part IV.
262. See Ake, 470 U.S. at 77.
The fundamental fairness three-factor balancing test the Supreme Court applied in *Ake* compels this result. In the narrow scenario of child death cases in which the defendant demonstrates that the cause of the child’s death will be a significant factor at trial, the three factors are similar to the factors in *Ake*, in which the defendant demonstrated that his mental state at the time of the offense would be a significant factor at trial. In both cases, the defendant’s “private interest in the accuracy of a criminal proceeding that places” the defendant’s “life or liberty at risk is almost uniquely compelling.” The State’s interest that will be affected if it must provide defendants with access to experts is also the same; although its economic concerns weigh against recognizing the right to assistance, the State’s competing interest in fair and accurate criminal adjudications tempers that concern. Lastly, in both scenarios, the risk of an erroneous deprivation of the defendant’s liberty is extremely high if the State denies the requested assistance. In *Ake*, the potential for psychiatrists to disagree over the defendant’s mental condition based on his symptoms meant that a defense psychiatrist’s opinion was “crucial” to the jury’s accurate determination of the issue of the defendant’s mental state. Similarly, here, medical experts often disagree over what a child’s symptoms indicate about the cause of death. The jury can make a “sensible determination” on the ultimate question of how the child died only if the court allows the defendant to present a competing opinion. Accordingly, in child death cases, as in *Ake*, “the State’s interest in its fisc must yield,” and refusing to provide indigent criminal defendants with access to forensic

263. The three factors are (1) the private interest that will be affected by the State’s action against the individual; (2) the governmental interest affected if the safeguard is provided; and (3) the probable value of substitute procedural safeguards sought and the risk of an erroneous deprivation of the private interest affected if those safeguards are not provided. *Id.* (citing Mathews v. Eldridge, 424 U.S. 319, 335 (1976)).

264. *Id.* at 83.

265. *Id.* at 78.

266. *Id.* at 79. Limiting the constitutional right to the assistance of a forensic defense expert to child death cases in which the prosecution relies on forensic evidence to form its case against the defendant also limits the economic burden on the State.

267. *Id.* at 82.

268. *Id.* at 81–82.

269. See supra Part IV (describing cases in which forensic experts disagreed on a child’s cause of death after reviewing the same evidence).

270. *Ake*, 470 U.S. at 82. As in *Ake*, the risk of error from denying defendants the requested assistance is highest when the issue of how the child died is actually in question. *Id.* Accordingly, in child death cases, the defendant may be required to make an ex parte showing to the trial court that cause of death is likely to be a significant factor to have a forensic expert appointed. See *id.* at 82–83. Appointing experts only when the defendant can make this showing will prevent the State from wasting fiscal resources on appointing defense experts who have no “probable value” at trial. *Id.* at 82.

271. *Id.* at 83.
experts is fundamentally unfair, as it deprives defendants of the integral material of an effective defense. 272 Ensuring that indigent defendants have the necessary tool of expert assistance to build their defenses will prevent wrongful convictions based on flawed evidence from occurring. 273

VI. CONCLUSION

In sum, under due process jurisprudence following Ake v. Oklahoma, state appointment of defense expert witnesses to indigent defendants is constitutionally required in child death cases that rely on forensic evidence. 274 Therefore, the Supreme Court should explicitly recognize that its reasoning in Ake equally applies to child death cases so that trial courts do not have the discretion to reject defense requests for forensic experts. 275 Recognizing that defense experts are a fundamental tool to an adequate defense in child death cases will even the playing field by allowing both sides to present evidence to the jury on the key issue of cause of death. 276 The jury can then make an informed decision about what happened in a case, rather than base its decision on one-sided expert testimony that may be flawed or biased. 277 This result serves the U.S. criminal justice system’s goals of providing fair trials, determining truth, and preventing the wrongful conviction of innocent defendants. 278 If American society still accepts that “it is better that ten guilty persons escape, than that one innocent suffer,” 279 our justice system cannot afford to leave indigent defendants in child death cases unprotected from the flawed or unreliable one-sided forensic evidence currently admitted to form the basis of their convictions.

272. Id. at 77.
273. See supra Part IV.
274. See supra Part V.
275. See supra Part III.C.
276. See supra Part II.
277. See supra Part II.
278. See supra notes 19–25 and accompanying text.
279. BLACKSTONE, supra note 10, at *352.