WR-63,081-03
COURT OF CRIMINAL APPEALS
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IN THE

TEXAS COURT OF CRIMINAL APPEALS

FOLLOWING REMAND TO
3RD DISTRICT COURT, ANDERSON COUNTY, TEXAS

EX PARTE ROBERT LESLIE ROBERSON III, APPLICANT	)	Trial Cause No. 26,162-A Writ Cause No. WR-63,081-03

APPLICANT'S MOTION TO DENY DEFERENCE TO HABEAS COURT'S FINDINGS OF FACT AND CONCLUSIONS OF LAW AND TO REJECT ITS ADVERSE RECOMMENDATION AND MOTION FOR ORAL ARGUMENT AND ADDITIONAL BRIEFING IN THIS COURT

Subsequent Writ Application under Articles 11.073 and 11.071 of the Texas Code of Criminal Procedure

Gretchen S. Sween,
Counsel of Record
(State Bar No. 24041996)
SWEEN LAW
P.O. Box 5083
Austin, TX 78763-5083
gsweenlaw@gmail.com
Phone: (214) 557.5779

Jason Fulton
(State Bar No. 24040936)
DIAMOND MCCARTHY LLP
Tower at Cityplace
2711 N. Haskell Ave., Suite 3100
Dallas, Texas 75204
jfulton@diamondmccarthy.com
Phone: (214) 389-5300

Attorneys for Robert Leslie Roberson III, Applicant

Oral Argument Requested

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CITATION GUIDE

The following abbreviations are used below in citing the record:

- "RR" refers to the Reporter's Record from trial;
- "CR" refers to the Clerk's Record;
- "EHRR" refers to the Reporter's Record for the evidentiary hearing held in this cause;
- "SX" refers to an exhibit admitted into evidence by the State at trial;
- "DX" refers to an exhibit admitted into evidence by the defense at trial;
- "APPX" refers to an exhibit admitted or offered into evidence during this habeas proceeding by the Applicant; and
- "RX" refers to an exhibit admitted or offered into evidence during this habeas proceeding by the Respondent/State.

The number in front of the abbreviation refers to the volume number; the number following the abbreviation refers to the page number or range.

OVERVIEW

During Mr. Roberson's 2003 trial in Palestine, Texas, the State argued that his two-year-old daughter, Nikki Curtis, had died from the intentional infliction of violent shaking and battery that it attributed to Mr. Roberson pursuant to a hypothesis then known as "Shaken Baby Syndrome" aka "Shaken Impact Syndrome" aka "SBS." The SBS hypothesis is a diagnosis based on the theory that three medical findings, sometimes referred to as the "triad"—(i) subdural bleeding, (ii) cerebral edema aka brain swelling, and (iii) retinal hemorrhage—can support the inference that abusive shaking/impact occurred. This hypothesis assumes that inflicted trauma caused the medical symptoms and that the effect of that trauma would have been apparent immediately and therefore was necessarily inflicted by the person who had physical custody of the child when the symptoms surfaced.

After significant problems with the tenets of the SBS hypothesis started to reach the larger medical community, the American Pediatric Association, in 2009, abandoned the SBS name and directed doctors to instead use the broader, undefined term "Abusive Head Trauma" aka "AHT." But the name change did not resolve the bigger problem that became increasingly evident over time: no evidence-based research supports the SBS/AHT hypothesis.

The habeas court below has recommended denying Mr. Roberson relief based, in part, on the belief that, because "AHT" is still a box doctors can check on

insurance forms and because some doctors still believe in the legitimacy of the discredited SBS/AHT hypothesis,[1] the science conveyed to the jury during Mr. Roberson's trial has not changed. That position cannot be squared with the plain language of, the legislative intent behind, or this Court's interpretation of Article 11.073. Nor can that position be squared with the voluminous evidence adduced below of how and when the relevant science changed, how testimony seemingly offered by qualified medical experts at trial is indefensible today, and how significant, evidence-based explanations account for Nikki's collapse, all developed for the first time in this post-conviction proceeding. That new evidence ***completely debunks the notion that Nikki's death was a homicide***.

Mr. Roberson consistently denied any intent to harm Nikki. When pressed for an explanation by medical staff and law enforcement at the time of Nikki's collapse, he repeatedly reported that he did not know what had happened except that he had been awakened by a cry at some point and found her on the floor at the foot of the bed with a small amount of blood on her mouth. He cleaned up her mouth and kept her up for a while; then they both fell back to sleep. A few hours later, Mr. Roberson woke up to find Nikki unconscious and turning blue. That is when he grabbed her

[1] This perception is analogous to suggesting that bloodletting to reduce fever is a sound medical practice because doctors continued to do it even after some members of the medical community started to recognize that this ancient practice was not grounded in science. *See, e.g.*, https://www.history.com/news/a-brief-history-of-bloodletting (last visited Feb. 21, 2022).

face and shook her to try to revive her. APPX7. That "admission," plus a rush-to-judgment based on his flat affect,[2] salacious and baseless sexual abuse allegations, and a child abuse expert's insistence that Nikki's death could only be explained by SBS, led to his arrest. A hasty autopsy followed. The medical examiner saw a large volume of subdural blood, assumed that the blood was caused by trauma, assumed the trauma had to have been inflicted, and claimed that the blood was caused by "blunt force injuries." But subsequent science has demonstrated that "blunt force"—in the form of shaking or impact—does not cause retinal hemorrhage. Retinal hemorrhage is caused by brain swelling, which is caused by oxygen-deprivation.

In 2016, this Court remanded this case to the trial court in a near-unanimous[3] decision after finding that the threshold requirements of both Articles 11.073 and 11.071 section 5 of the Texas Code of Criminal Procedure had been satisfied and ordering further factual development related to all four of Mr. Roberson's claims, including his claim of Actual Innocence. *Ex parte Roberson*, No. WR-63,081-03 (Tex. Crim. App. June 16, 2016) (not designated for publication).[4]

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[2] It was unknown at the time that Mr. Roberson has autism. Evidence of the nature of this disorder, how it affects the "normal" display of emotion, and the support for diagnosing Mr. Roberson with autism was developed at length in this proceeding. *See* **EXHIBIT A** at 226-236.

[3] The only dissenter was former judge Larry Meyer, who dissented without explanation.

[4] When this habeas proceeding was initiated, it was clear that there was a tremendous difference between the scientific testimony regarding cause of death provided at trial versus the current understanding of SBS/AHT. But because of addition scientific advances in the interim and the discovery made possible by this proceeding, during the evidentiary hearing, Mr. Roberson was able to offer an entirely different, evidence-based explanation for Nikki's death, thereby proving his Actual Innocence, not just exposing a wrongful conviction.

After counsel for the State initially opposed having *any* evidentiary hearing, the Honorable Deborah Evans,[5] concluded that the remand order from this Court meant that an evidentiary hearing was necessary. However, after an evidentiary hearing was finally conducted, the habeas court seems to have misapprehended the purpose of the proceeding. Instead of considering the vast body of new evidence demonstrating how the science used to obtain Mr. Roberson's conviction has ***changed***, the habeas court disregarded all of that evidence and instead reached conclusions that rely primary on the very trial testimony that was challenged in this proceeding as incompatible with current scientific understanding. *See* Findings of Fact and Conclusions of Law ("FFCL") ¶¶19, 21-37, 40-41, 64-67, 77-88 (relying on the trial testimony of the State's causation experts and local Palestine doctors and nurses).

Applicant's ability to present his new evidence was delayed multiple times—including a considerable delay occasioned by the production of long-suppressed, ***entirely exculpatory*** radiological CAT (aka "CT") scans of the decedent's head, disclosed to Applicant for the first time during the opening day of the evidentiary hearing in August 2018.[6] Those scans, as interpreted by the ***only*** radiologist retained

[5] Judge Evans presides over the 87th district court. She presided in this proceeding because her colleague, the current judge of the 3rd district court, the Honorable Mark Calhoun, was one of the lead prosecutors in Mr. Roberson's 2003 trial.

[6] After the CAT scans resurfaced, instead of arranging to have proper reproductions of the scans made, an investigator for the State took the original x-rays to a copy machine in Tyler. That did not work. Finding and retaining a company capable of making accurate reproductions of the

in the case, show a single impact site at the back right of Nikki's head, corresponding external tissue swelling, internal brain swelling, and a small amount of subdural bleeding when the scan was made the morning of January 31, 2002, soon after Mr. Roberson brought Nikki to the Palestine Regional Hospital.

The long-suppressed CAT scans show that the medical examiner's insistence that, during the autopsy, she had seen evidence of "multiple impact sites" to Nikki's head was **false**. In this proceeding, the medical examiner (Dr. Jill Urban) admitted that she never looked at the CAT scans—in 2002 or any time thereafter. This disqualifying admission alone should have compelled the habeas court to reject Dr. Urban's position that this case involves a homicide.[7] Instead, the habeas court, following the State's lead, has clung to Dr. Urban's patently incorrect conclusion as a basis for denying habeas relief.

In addition to the exculpatory CAT scans that Dr. Urban never even looked at, Mr. Roberson adduced copious new evidence establishing that Dr. Urban's method and conclusions were wholly unreliable. Dr. Urban's incorrect conclusions

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CAT scans fell to Applicant's counsel. Applicant's counsel thereafter retained a qualified radiologist to review the scans so that other experts could rely on the results. APPX93. There is no indication in the record that the State ever consulted with a radiologist but instead relied on the medical examiner who had never bothered to look at the CAT scans at the time of the autopsy or thereafter.

[7] Dr. Urban's opinions were further undermined by her insistence that she did *not* tell the jury that Nikki's injuries had been caused, at least in part, by shaking; the trial transcript plainly shows that she relied on the tenets of "Shaken Baby Syndrome" in testifying to the jury and opined that the bleeding under the scalp had been caused by shaking.

about cause and manner of death are just one part of an autopsy that does not withstand scrutiny, as attested to by far more experienced pathologists Drs. Harry Bonnell, Janice Ophoven, Carl Wigren, and Roland Auer. The latter, Dr. Auer, is a neuropathologist who is both a medical doctor and a Ph.D. scientist and who testified at length about how Dr. Urban misinterpreted blood found in the subdural space at autopsy as "impact sites" when the only impact site was the one captured in the CAT scan with an associated external "goose egg" that was not even serious enough to have caused a skull fracture, but was consistent with the report of a short fall provided by Mr. Roberson when he brought Nikki to the hospital.

Dr. Auer also explained how the small amount of subdural blood visible in the CAT scan became the large volume of subdural blood that Dr. Urban saw when she looked under Nikki's scalp two days later during the autopsy. Nikki ceased breathing and was not revived until after her brain had already become "nonperfused" aka brain dead, which only takes 10-12 minutes. 8EHRR62. When her heart was resuscitated, blood was pumping toward the brain but could not enter it. Moreover, she was given epinephrine and other pressure-inducing drugs in the hospital that caused massive leakage of blood vessels "everywhere in the dura," the result of which was later misconstrued as proof of trauma. Yet there was no fatal trauma—inflicted or otherwise. 8EHRR103-105. Based on Dr. Auer's research, which began in 2013, he recognized that the condition observed inside Nikki's head

at autopsy was caused by "hypoxic ischemia" not shaking or "blows" to the head, as Dr. Urban surmised. Hypoxic ischemia is brain swelling caused by oxygen deprivation that then causes subdural bleeding and retinal hemorrhage as part of a chain reaction.

Even more, Dr. Auer, by examining the original autopsy tissue slides in his lab, determined *why* Nikki had stopped breathing. He inventoried her lengthy history of unresolved infections and breathing apnea dating back to a few days after her birth. Then he explained the evidence he had found in Nikki's lung tissue demonstrating that, at the time of her collapse, she was very sick with interstitial viral pneumonia (distinct from bronchial or ventilator pneumonia). This fact was not discovered at the time of Nikki's death in 2002 and was certainly not disclosed to the jury. Likewise, it was not disclosed to the jury that, when Nikki was brought to the ER and then to her pediatrician a few days before her collapse, she was overly medicated by well-meaning, but misguided, doctors who had sent her home although her temperature had been measured at 104.5 degrees. That day, even though she was assessed with a respiratory infection, she was given prescriptions for codeine (which metabolizes into morphine) and a triple dose of Phenergan aka "promethazine," that *now* contains an FDA "Black Box Warning" against prescribing this drug to children of Nikki's age and condition.

Only because of the investigation of a post-conviction forensic pathologist, Dr. Carl Wigren, were these pieces first put together. Dr. Wigren, building on the pre-filing work of Dr. Bonnell[8] and on Dr. Wigren's independent review of the original autopsy slides, recognized the problem of the missing CAT scans. He found it quite odd that not one, not two, but three sets of CAT scans of Nikki's head were not in the autopsy file and seemed to have disappeared entirely. When some of those CAT scans mysteriously resurfaced in the middle of this proceeding, Dr. Wigren recognized and acted upon the need to consult with a radiologist. Dr. Wigren, having observed signs of pneumonia in Nikki's lung tissues, also turned to Dr. Auer, a neuropathologist with special expertise in recognizing interstitial viral pneumonia and in assessing how oxygen-deprivation and head trauma each affect the brain.

None of the copious new evidence about the flaws in Dr. Urban's methodology and conclusions, or the entirely new evidence regarding cause of death, or the evidence demonstrating how scientific understanding has changed is found in the habeas court's FFCL. That new evidence, amassed during a 9-day evidentiary hearing, is found in an 11-volume Reporter's Record that Applicant urges this Court to review.

[8] Before the evidentiary hearing was convened, Dr. Bonnell retired and moved to Belize. However, his sworn report was admitted into evidence. APPX1.

Applicant amassed overwhelming and unrebutted evidence that he is not only innocent, but that ***there was no homicide***. The tragic death of a child led to a rush to judgment back in 2002. No one considered how this child had long suffered from illness and unexplained breathing apnea and was in the throes of an unidentified respiratory infection for at least a week before her collapse. Moreover, no one in 2002-2003 could have considered advances in science in the years *since* trial, as developed in the evidentiary hearing. In short, the habeas court's "no new evidence" finding requires ignoring the habeas record, which it took Applicant nearly 300 pages to *summarize*. *See* **EXHIBIT A**, attached and incorporated here by reference.

State habeas courts are given discretion over the methods for developing and receiving evidence to resolve contested factual claims, *see, e.g.*, TEX. CODE CRIM. PROC. art. 11.071, § 9(a). But the fact-finding procedures must be adequate for reaching "reasonably correct results." *Ex parte Davila*, 530 S.W.2d 543, 545 (Tex. Crim. App. 1975) (citing *Townsend v. Sain*, 372 U.S. 293, 316 (1963)). This Court will ultimately decide this matter following a *de novo* review. *Ex parte Brandley*, 781 S.W.2d 886, 887-88 (Tex. Crim. App. 1989). In deciding whether to defer to the habeas court's findings, this Court must ask whether the findings are supported by the record. *Ex parte Adams*, 768 S.W.2d 281, 288 (Tex. Crim. App. 1989). Here, they are not. Nor were the fact-finding procedures "adequate for reaching reasonably correct results" in light of the habeas court's decision to ignore most of the vast new

evidentiary record. *Davila*, 530 S.W.2d at 545. The habeas court's FFCL reflect, *inter alia*, the following categorical errors:

(1) The basic premise of the habeas court's FFCL is that Applicant did not adduce any "new evidence," a premise that is indefensible when compared to the habeas record;

(2) The habeas court's FFCL rely almost exclusively on the State's hastily drafted proposed findings, which are contradicted by the actual habeas record and are otherwise erroneous or misleading;

(3) The habeas court's Conclusions of Law do not track the governing law or apply the law to any relevant facts.

In light of these significant errors, Applicant Roberson relies of this Court to conduct an independent review of the full record—including all evidence adduced for the first time in evidentiary hearing, resulting in a 11-volume Reporter's Record, including thousands of pages of exhibits and evidentiary proffers. Applicant respectfully asks that this Court consider the arguments presented below, explaining the significant mistakes of fact and law in the habeas court's FFCL. Then, if it would assist the Court, Applicant asks that the Court order the parties to submit further briefing and to appear for oral argument before setting the case for submission.

After engaging in an independent assessment of the habeas record, this Court will find that Mr. Roberson is Actually Innocent or, at the very least, is entitled to a new trial untainted by discredited science and false, highly prejudicial testimony.

BASIC PROCEDURAL AND FACTUAL BACKGROUND

The habeas court's FFCL include a skeletal procedural history and no factual background. *See, by contrast*, **EXHIBIT A** at pp. 2-55 (including a survey of all of the trial testimony challenged in this proceeding in light of contemporary scientific understanding and in light of new evidence regarding the cause of Nikki's death). At a minimum, the following information about the proceeding below is critical:

I. PRE-TRIAL

Even before the autopsy was performed on Mr. Roberson's two-year-old daughter Nikki, he was arrested and charged with causing her death. The assumption that a crime had occurred was based on judgments that Mr. Roberson (many years later diagnosed with autism) seemed "off" and the belief that Nikki's condition could not have been caused by a short fall; yet that was all he could tell them: that Nikki had fallen out of bed at some point in the night, unobserved. He was awakened by a strange cry and found her on the floor at the foot of a bed. What hospital staff did not know or investigate is that the "bed" was a mattress and set of box springs propped up on two layers of cinder blocks, a situation unfamiliar and precarious for a toddler who also happened to be very ill and heavily medicated before Mr. Roberson brought her to his house at the request of her maternal grandparents.

Palestine Regional staff observed swollen tissue ("bogginess") at the back of Nikki's skull and decided to shave her head. During the process, several nicks were

made to her scalp, which otherwise had minimal bruising beyond the impact site at the back right of her head where the "goose egg" was located and some light bruises on her face. APPX109; APPX93. The ER doctor, Dr. Konjoyan, who had seen Nikki two days before and sent her home with Phenergan prescriptions, initially feared he may have "missed something." 41RR68; *see also* 41RR77 ("When he told me, Dr. Konjoyan, I was standing beside him, he said, 'Oh, my God.' I mean that was his words to me, 'I just saw this child two days ago."). But based on the swollen tissue at the back of her head, he ordered a CAT scan. Upon seeing that scan, which was not admitted into evidence at trial, he concluded that Nikki's condition did not match the history of "possibly fall[ing] out of bed." 42RR83-84. Dr. Konjoyan saw swelling of the brain and a subdural hematoma and concluded that the injuries "did not result from a fall out of bed." 42RR85. He emphasized that the internal injuries could not be from a short fall: "[t]hat would basically be impossible[,]" "extremely implausible," "very implausible," "very unlikely." *Id.*

The presumption that Mr. Roberson was lying and thus guilty was quickly magnified when a local nurse, Andrea Sims, for unknown reasons, volunteered to do a sexual assault examination on the comatose two-year-old child. Thereafter, Sims, who had already contacted law enforcement, shared her view with officers and hospital staff that she saw "anal tears" on Nikki. 7EHRR11-12. This "sexual

component," along with some light bruising on Nikki's face, reenforced the perception that Nikki had been intentionally injured. 7EHRR13; 7EHRR31.

Photos taken by some unidentified person while Nikki was comatose and awaiting transportation by ambulance to Dallas show the hands of multiple people, without gloves, pulling at Nikki's naked buttocks looking for evidence of "tears." *See* SX21; SX22; *see also* 6EHRR105-106. Neither Sims nor anyone else on the Palestine ER staff had consulted Nikki's medical records, which show that the child had been to both the ER and her pediatrician a few days earlier, during which it had been reported that Nikki had had diarrhea and other symptoms, such as respiratory distress, for a week. APPX9. Nurse Sims interpreted small cracks in the skin around Nikki's anal region as "tears" that she attributed to "penetration," a belief that was also shared with personnel in a hospital in Dallas to which Nikki was transported and then with the medical examiner, Dr. Urban, who ultimately did the autopsy. 41RR130; APPX12.

The afternoon of January 31, 2002, Nikki was transported to Children's Medical Center in Dallas for further treatment. No record of what occurred during the 120-mile trip from Palestine to Dallas was preserved. But after Nikki arrived in Dallas, another set of CAT scans were made (also found in the courthouse basement 16 years after-the-fact). In Dallas, Nikki was subjected to extensive treatments including having high doses of epinephrine, vasopressin, dopamine, and heparin.

pumped into her system to increase blood circulation. It was also observed that she had a clotting disorder. A pressure monitor was surgically screwed into her skull to be able to monitor the high pressure inside her head arising from the internal brain swelling and increased volume of subdural blood. APPX11.

The next day, February 1, 2002, Dr. Janet Squires, a pediatrician who served as a "REACH"[9] consultant within Children's Medical Center in Dallas, prepared an affidavit that was sent to law enforcement in Palestine. APPX11; 42RR90. Dr. Squires' medical opinion was that: "**Massive rotational forces were the likely mechanism** to cause this brain injury, and the pattern is indicative of a **shaken impact syndrome**." APPX103 (emphasis added); *see also* APPX66. According to Dr. Squires' pre-arrest affidavit, Larry and Verna Bowman (maternal grandfather and step-grandmother)[10] had informed Dr. Squires that Nikki was "totally well" before she had been brought into the ER on January 31, 2002 by her father. APPX103.

Contrary to the report Dr. Squires had been given by the Bowmans, Nikki was far from "totally well" during the days before she was brought to the ER on January

[9] "REACH" stands for "Referral and Evaluation of At Risk Children." 42RR92.

[10] The Bowmans had been involved in a custody fight over Nikki for much of her life and had themselves been the subject of multiple CPS investigations at the time of Nikki's death. They were quick to blame Nikki's death on Mr. Roberson. Yet the Bowmans had asked that Mr. Roberson retrieve Nikki from their house the night before, around 9:30 PM, although she had been sick with 104.5 fever the day before. Seemingly, the Bowmans did not share with medical personnel any information about Nikki's recent respiratory infection or her long history of unresolved infections and breathing apnea. APPX9.

31, 2002. For instance, her temperature had been measured at 103.1 on January 28th and 104.5 degrees on January 29th; she had had extensive diarrhea, vomiting, a cough, and respiratory distress; she had been given aggressive medications including Phenergan, a drug that affects the central nervous system and now has a Black Box Warning against prescribing it to children Nikki's age; Imodium, a drug that can be life-threatening if the child has a serious gastrointestinal infection; and cough syrup with codeine, a narcotic. 3EHRR101-102; 4EHRR119-120. Nikki also had a history of many infections, including viral infections, and a condition that had caused her to stop breathing and turn blue on numerous occasions. 3EHRR103-105. *See also* **EXHIBIT A** at 13-29

Dr. Squires did not, however, purport to review any of Nikki's extensive medical history.[11]

The arrest warrant that cited Mr. Roberson for capital murder identified local nurse Andrea Sims, Nikki's step-grandmother Verna Bowman, police officers, and Dr. Janet Squires as having provided supporting evidence. APPX60. Dr. Squires' affidavit, submitted with the arrest warrant, included these additional medical opinions:

- "[The] diagnosis is massive brain injury. The only reasonable explanation is trauma. The medical findings fit a picture of **shaken impact syndrome**. There was **some flinging or shaking component which resulted in subdural**

[11] Applicant's Proposed FFCL describe the contents of Nikki's medical records, which Dr. Squires did not have and thus did not consider. **EXHIBIT A** at pp. 13-38.

hemorrhaging and diffuse brain injury. There was also **an area of impact in the right back of the head**."

- "After the trauma event, the child would have been very abnormal. **If the child was well at 10:30 PM on 1/30/02, it can be said the trauma event occurred after the time period.**"

- "The medical findings are **not consistent with the history of a fall from a bed**."

APPX60 (emphasis added).

The autopsy was performed the day after that, on February 2, 2002. APPX12. The medical examiner who performed the autopsy, Dr. Urban, concluded that the cause of death was "blunt force head injuries"[12] resulting from "homicide." Dr. Urban reached this conclusion the same day that she performed the autopsy before the results of testing she had requested were available. APPX99. Her autopsy report includes the following notations:

- "The neck is unremarkable"

- "The external genitalia, anus, and perineum are unremarkable"

- "Some head contusions"

- "no skull fractures"

- "no extremity fractures"

- Frenulum—"acute hemorrhage, edema, and acute and chronic inflammation"

[12] At trial, Dr. Urban claimed that these injuries could be caused by shaking or blows, and she could not separate how much of Nikki's death "was caused by shaking" and how much "was caused by the battering that she took." 43RR86.

- "extensive hemorrhage into subcutaneous fat"
- "retinal and perineural hemorrhage"

APPX12. In an entry describing Nikki's lungs, Dr. Urban included the following unexplained entry: "Interbronchial aggregates of neutrophils and macrophages." *Id.*

Lead detective Brian Wharton, who was in the hospital when Sims shared her views about "anal tears," agreed that no other evidence was ever adduced to support the sexual assault allegation other than Sims' claims, and Wharton admitted "I could not see what she was saying she saw." 7EHRR35. He assumed that the conversation about a sexual assault ended when the sexual assault kit later came back and "there was no evidence." 7EHRR35. He testified in this proceeding that he did not personally have confidence in the allegation that a sexual assault had been committed. 7EHRR36. Yet the State went forward with these allegations in reliance on Nurse Sims' claims and purported expertise, indicting Mr. Roberson for a distinct capital offense arising from the sexual assault allegation.

II. TRIAL

Throughout jury selection, the State specifically discussed "shaken baby syndrome" and invited potential jurors to consider just how "violent" the shaking would have to be to cause a child's death. *See, e.g.*, 7RR40; 7RR88-89; 8RR23-25; 19RR20-21; 19RR66-67. The State also emphasized with each potential juror that

the case involved a charge that the child had been killed in the course of a sexual assault. *See, e.g.*, 7RR25-27; 7RR67; 7RR75; 7RR127; 8RR10; 19RR22; 19RR57.

Defense counsel conceded that this was a "shaken baby" case and did not challenge the State's theory regarding cause of death during any phase of trial.

In its Opening Statement, the State sounded the theme of violent shaking and noted that medical experts would testify in support of the State's theory:

- "You'll hear about **her head popping back and forth as he was shaking her**. You'll also hear from experts, treating physicians, hospital staff, what their conclusions were."

- "You'll hear from Janet Squires, the treating physician at the Children's Medical Center. In fact, she's the Director of General Pediatrics at Children's Medical Center. Her diagnosis was massive brain injury and the only reasonable explanation was trauma and that the injuries sustained by Nikki were **wholly inconsistent with the version given by the defendant of Nikki falling off a bed and causing those injuries**. She found this area of impact to the back of the head that we talked about. Her opinion, be that Nikki died or rather was the victim of child physical abuse consistent with the picture of what they call **shaken impact syndrome**."

41RR53-55 (emphasis added).

The State's Opening Statement also invoked Nurse Sims, who purported to be a certified SANE who had found "anal tears":

> You'll hear from Andrea Sims who is a registered nurse and is also the SANE examiner, the Sexual Assault Examination Nurse, who performed a sexual assault examination on Nikki and found that he probably sexually assaulted her. She found anal tears on 2 year-old Nikki.

41RR54. The State presented Nurse Sims as a "certified" and highly qualified SANE. Yet that was not true. (It was established for the first time during this habeas proceeding that Sims offered opinions, under the guise of an expert, that are directly contrary to SANE training. *See* Section I.E below.) Nurse Sims was no minor witness. Her testimony spans 50 pages of the trial Reporter's Record and dominated the first day of the trial. 41RR101-151.

During trial, the State's theme of violent shaking was developed at length through State's expert Dr. Squires. This Q & A is but one example:

> Q. Okay. So let's talk about that. When you saw her, she wasn't going to live, and your diagnosis was massive brain injury and your only explanation was trauma. And medical findings is a picture of **shaken impact syndrome**. All right. It's a pretty significant diagnosis, doctor. Can *you* explain to us then what **shaken impact syndrome** is?
>
> A. There's a very well known, well described entity in children and it goes by several terms. Most of the lay public knows term **shaken baby syndrome**. And what, and if I may just for a minute, explain **shaken baby**. When one human being is much smaller than-- Let me say it this way. Children are uniquely at risk that if you take a child and you shake them, their **head will go back and forth** very forcefully and you know that you can cause major brain injury doing that. And one of the features is that you might not be able to see anything on the outside and have all these significant brain injury. And the reason babies are so prone to that, there's lots of reasons, but mainly it's because they're so small compared to how big whoever it is **shaking them**. In addition, their heads are big compared to their bodies, their neck muscles are weak, and they don't-- They're not conscious enough to protect their neck. In addition their brains have higher water content. So for all those reasons, shaken baby has been a well described entity. Now, some people think that with **shaken baby** that the most part of the damage is that they're

often shaken and then thrown against something. And at the time when the **head is moving back and forth** very, very vigorously and then all of a sudden it stops against something; that at that moment is probably when a lot of the damage is being done because **these shearing forces** actually go through the brain itself. There are some experts that think that you cannot kill a child by **just shaking alone**, but you have to-- And they call it **shaken impact**. So the term is about the same. I will say that most, when I would consider most of the experts do think that **shaking alone**, if done vigorously, will kill a child, but most children are **shaken and then thrown against something**. And it's in the whole context of the head being vigorously **shaken back and** forth and then slammed against-- It can be a mattress, so that maybe there's no signs of trauma at all and yet as that head is moving and then suddenly stops, those shear forces go through it and cause tremendous damage to the brain, deep in the brain.

Q. And in Nikki's case you did have-- you had dramatic evidence of an impact to the back of her head?

A. I would like to say, you know, one possibility is that the impact happened at a different time. I mean, you know, I can't, a hundred percent. What I know is that there was an impact because it was swollen. Clearly, the most likely thing was that there was an impact that had to-- But the actual brain injury, we do not feel is explained by a simple impact.

Q. All right. And the items we talked about, the subdural hemorrhages, the retinal hemorrhages, and the brain swelling; what are they indicative of?

A. Well, it is my opinion, my estimation after a consultation with all that there was some **component of shaking** that happened to explain all the deep brain injury out of proportion, I would say, to the injury to the skull and the back of the head. There had to have been something more than just impact. We see children fall out of windows and all sorts of things and we know what an impact injury looks like and when you see this much damage deep to the brain, then you see subdural blood.

> The reason subdural blood is so important is there are little blood vessels that go between the bone and the dura. And when you **shake a baby those blood vessels break** and you get blood over the top of the brain. So whenever we see lots of subdural blood, I don't mean localized right under a fracture, but all over, usually that's indicative of **this shaking**. And then the retinal hemorrhages are just further-- It's one more thing that really lets you know that those **eyes were being shaken and that the blood vessels broke**.
>
> Q. And then you've got some additional findings there. As far as the onset of symptoms with a child that's hurt this badly, is it a prolonged thing where it just develops hours and hours or how does that happen?
>
> A. It's a spectrum. Some **shaken babies** are very mild and people might not even realize it. Other children, if you **shake them hard enough** and you hurt them bad enough, they stop breathing immediately. So anything in-between. It is my assessment in this child that after the event that caused all this deep brain injury she would not have been normal. And any reasonable person would know that she wasn't normal. However, she could live for several hours and might not totally stop breathing long enough-- She certainly could live for hours after the event, but she would never have talked, walked, and been thought to be normal by anybody.

42RR105-109 (emphasis added).

Notably, Dr. Squires, who had seen at least one set of CAT scans taken of Nikki's head, did not agree with the State's suggestion that (1) there was evidence of multiple impacts or (2) that the single impact site was "dramatic." Dr. Squires even opined that the *one* minor impact may have "happened at a different time." *See id.*

According to Dr. Squires, violent shaking had caused the triad of internal head injuries (subdural blood, brain swelling, and retinal hemorrhage) that in turn were said to explain Nikki's death.

The theory that Nikki's death was caused by a *combination* of violent shaking and "multiple impacts" to the head was developed through medical examiner, Dr. Urban. Dr. Urban relied on her purported expertise as a forensic pathologist and her graphic autopsy photographs depicting minimal external bruises on Nikki and a large quantity of blood under Nikki's scalp, which Dr. Urban told the jury had been caused by inflicted trauma in the form of shaking and blows, two ways to inflict "blunt force injuries." She also testified that she saw "multiple impact sites" by reading the subdural blood. She did not mention the CAT scans that proved otherwise. *See, e.g.*:

- "Typically in a-- Especially in a child this age, blunt force can be caused both by-- well, by an impact to the head, so being struck with something or being struck against something. **Shaking also falls into this definition of blunt force** and when enough-- And although it doesn't seem like, you know, shaking is not necessarily striking a child, when you are-- When a child is say, **shaken hard enough, the brain is actually moving back and forth within, again, within the skull**, impacting the skull itself and that motion is enough to actually damage the brain." 43RR78-79.

- "The subarachnoid hemorrhage alone is not going to kill this child. Subdural hemorrhage alone, the subscalpular hemorrhage alone. You know, it's a small amount of blood loss. Again, these injuries themselves are not going to kill this child, but what is going to kill this child are the actual injuries to the brain. And so these other things, the subarachnoid hemorrhage and the subdural hemorrhage are markers that the brain is injured in this way. What actually happens is when **the brain is shook or struck hard enough** in cases such as you might find here, the actual nerves, the actual individual cells that make up the brain are injured. So those same cells that create our memories or tell our

> hearts to beat and remind our lungs to breathe are actually damaged and along with, when those cells are damaged like that we get the bleeding into the brain and we get the swelling or the edema." 43RR80-81.

Dr. Urban was asked to explain the seemingly counter-intuitive fact that Nikki could have this "degree of injury" inside her head without any fractures and with only minimal bruising. Dr. Urban opined that this was possible because of what happens when you shake a child with a "weak" neck:

> Q. All right. Then let me visit with you about this. In older children is it unusual to have this degree of injury and not have a bunch of broken bones? Neck injuries and things like that; is that unusual?
>
> A. No, it's not.
>
> Q. What's the reason?
>
> A. Well, in a child this age, the neck is actually fairly flexible and that's one of the reasons that blows to the head or **shaking is so dangerous** because the neck is not actually strong enough to support the head. And, you know, if you ever looked at a small child, their head is very large in proportion to the rest of their body. And so when the head is struck or, again, if the child is **shaken**, it's this very large object sitting on a fairly weak neck. And, you know, the weakness in the neck protects the neck from getting hurt, but it really just doesn't protect the head from getting hurt.

43RR82 (emphasis added).

In addition to Nurse Sims, other local hospital personnel all testified, dismissing the concept that a short fall or Nikki's recent illness could have anything to do with Nikki's condition. *See* **EXHIBIT A** at pp. 39-51.

The theme of violent shaking in combination with "multiple impacts" was then sounded repeatedly during the State's Closing Arguments, starting with a reminder that the defense had conceded that "this is a shaken baby case," thus, the jury was told, Nikki's death was "not accidental" and "[t]he story given by Mr. Roberson in his confession was not truthful." 46RR15. Counsel for the State at trial painted a picture of an imagined violent assault on Nikki, relying repeatedly on the testimony from the State's experts and the "science" they had provided to support the State's theory of guilt:

- "You heard from Dr. Squires in Dallas, Director of General Pediatrics at Children's Medical Center. And you heard her testimony that these were inflicted injuries consistent with **not just shaken baby syndrome**, this is not a child that was just shaken out of frustration, but **shaken impact syndrome**. This is **a child that not only was shaken, but was beaten about the head**. Child abuse, she ruled. You heard from Dr. Urban, the Medical Examiner. **Not just shaken, but blunt force injuries** to Nikki, received multiple blows to the head. Multiple blows to the head. Not just, 'I lost it,' you know, 'Please be quiet.' Sits her gently on the bed. But we're talking shaking and beating is what Nikki sustained." 46RR26.

- "Did he shake her? And you heard what that would do to her. It's like turning off a light switch. **Shake and it scrambles the brain and they're rendered in a state of unconsciousness** and you heard they will never be the same again. So does he throw her down again and start punching her? Or do we want to believe the other one? Maybe he punched her for a few times first and she wouldn't quit crying so he then he picked her up and shook her. Then she stopped crying." 46RR62.

- "You've seen the autopsy report. The experts agree. There's seven doctors that wrote off on it as homicide. Intentionally inflicted injuries is what they characterize it as. **Shaken impact syndrome**. Multiple blows to the head. Not

as 'I'm out of control.' It's an intentionally and knowingly produced injury." 46RR63.

- "And then, ladies and gentlemen, you heard the testimony from the doctors, that after this injury Nikki wouldn't have been normal. She would have been laying on the ground. She would have been ever been unable to walk, talk, conscious, unconscious, difficulty breathing, murmuring, gasping, gurgling, moaning, muffled cries is what he heard. And the last thing that she saw before he killed her was the hate in her dad's eye when **he was shaking her to death** is what she saw." 46RR66.

The trial record further shows that the State continued to refer to Nurse Sims and her sexual assault "findings" and continued to insist that Mr. Roberson had sexually abused his daughter in Closing Arguments, even after dropping the specific count in the indictment based on a sexual assault. The State, in its Closing, even sought to bolster Sims' false testimony with recourse to matters involving third parties not proven at trial and by minimizing the fact that neither Dr. Squires nor Dr. Urban had agreed with Sims' findings, *e.g.*:

- "You heard from Andrea Sims that there was a probable sexual assault. Not only was she the Sexual Assault Examination Nurse, but she was also a registered nurse that was working in the emergency room that day. She saw evidence of three anal tears. You heard her conclusion, probably sexual assault." 46RR21.

- "[Defense counsel] talked a lot about us abandoning the sexual assault of a child allegation. What he didn't tell you is that the law requires us to choose one or the other. You'll recall in voir dire we indicted under alternative theories of capital murder. The law says at the end of the State's case in chief we've got to pick, and we did, and now he wants to hold it against us." 46RR53-54.

- "The fact of the matter is, ladies and gentlemen, sexual assault of a child,

these type predators and abusive predators, also, whether they be physically or sexually, they don't require an audience. Typically they don't go out and do it enmasse so a lot of people can see and tell about it. Patricia Conklin didn't know her four daughters had been sexually assaulted. But now she's going to lay claim to what a great father Robert was." 46RR56.

- "The sexual assault. Did we just throw that out in bad faith? No. I want to talk about the evidence with regard to sexual assault. And it doesn't mean you can't consider it, as [defense counsel] said." 46RR58.

- "You heard from Andrea Sims who is the only one in this county, she's the SANE examiner, sexual assault nurse. She's the one who examines these kids. We have her cases all the time; Andrea Sims. She's the one and she looks and she performs that special examination to determine whether or not sexual assault took place and her conclusion was that more probably than not, it did. Probable sexual assault. That's in her findings. She talked about three anal tears. There's evidence there that Mr. Roberson sexually assaulted his daughter."

- "Dr. Squires, and I think her testimony was mischaracterized, she did mention that she also saw the tears. Now, she also mentioned the possibility that they could be healing over the time from when Andrea Sims saw the injuries to the time that she saw them."

- "You also heard Dr. Urban. I think her testimony was mischaracterized. She didn't see any anal tears. That's a given. But when we also asked the question, 'Doctor, just because you don't find any physical evidence does that necessarily-- does that rule out completely that the child's been sexually assaulted?' 'No. In fact, often times there's no evidence of physical trauma when a child has been sexually assaulted.' [Defense counsel] talked about how there was no semen found. Well, he only had five hours to clean it up before he decided to shimmy on down to the hospital. He had five hours. Is he going to leave that evidence laying around? . . . . And then coincidentally enough we have evidence of anal tears after that. There's evidence of sexual assault here. The fact of the matter is we had to choose. Now they want to hold that against us." 46RR58-61.

  Andrea Sims' claim regarding "anal tears" and her other false testimony

regarding sexual abuse dominated the State's Closing Arguments. Based on that testimony, along with the testimony of Palestine Regional staff dismissing the notion that a short fall could be relevant to Nikki's fatal condition or that Nikki's recent or long-term illnesses were relevant, and on the causation opinions of Dr. Squires and Dr. Urban, Mr. Roberson was convicted of capital murder. 46RR74-75. The punishment-phase began the next day. 47RR. The punishment-phase ended with the jurors answering the special issues such that Mr. Roberson was, on February 14, 2003, sentenced to death. 49RR.

III. POST CONVICTION

Immediately after Mr. Roberson was sentenced, his lead trial counsel was appointed to pursue a direct appeal and, at that lawyer's suggestion, the district court also appointed state habeas counsel. 49RR50. Former state habeas counsel filed an initial application under Article 11.071 on December 13, 2004. The application did not include claims related to the State's cause-of-death theory or ineffective assistance of counsel. No evidentiary hearing was held.

While the direct appeal and the initial state habeas application were pending, on August 8, 2005, this Court received a *pro se* document entitled "Notice of Desire to Raise Additional Habeas Corpus Claims."

On June 20, 2007, this Court affirmed Mr. Roberson's conviction and sentence on direct appeal. *Roberson v. State*, No. AP-74,671 (Tex. Crim. App. June 20, 2007) (not designated for publication).

On September 16, 2009, this Court denied all relief requested in the initial habeas application and dismissed the 2005 *pro se* filing as an unauthorized successive application. *Ex parte Roberson*, Nos. WR-63,081-01, WR-63,081-02, 2009 WL 2959738 (Tex. Crim. App. 2009) (unpublished).

On September 13, 2013, Article 11.073 of the Texas Code of Criminal Procedure took effect. Thereafter, Mr. Roberson obtained new federal counsel, appointed under the Criminal Justice Act (CJA). *Roberson v. Stephens*, No. 14-70033 (5th Cir. Mar. 14, 2016). New federal counsel approached the Texas Office of Capital and Forensic Writs (OCFW) about investigating a possible Article 11.073 challenge to the science that had been used to obtained Mr. Roberson's conviction and about pursuing a claim of Actual Innocence. The OCFW agreed to assume responsibility for representing Mr. Roberson in state court.[13] Meanwhile, the State had obtained a warrant setting a date to execute Mr. Roberson.

[13] At that time, Mr. Roberson's current counsel, Gretchen Sween, was employed by the OCFW as a Senior Postconviction Attorney and became his lead attorney. After Ms. Sween left the OCFW, to ensure continuity of counsel, the habeas court granted a motion, permitting the OCFW to withdraw and appointing undersigned as substitute counsel.

The current proceeding was initiated when a subsequent state habeas application was filed on Mr. Roberson's behalf on June 8, 2016 raising these claims:

- Claim One: New scientific evidence establishes by a preponderance of the evidence under Article 11.073 that Robert Roberson would not have been convicted.

- Claim Two: Because the State relied on false, misleading, and scientifically invalid testimony, Robert Roberson's right to due process under *Ex parte Chabot* and *Ex parte Chavez* was violated.

- Claim Three: Robert Roberson is entitled to habeas relief because he is **actually innocent**.

- Claim Four: Robert Roberson is entitled to habeas relief because his due process right to a fundamentally fair trial was violated by the State's introduction of false forensic science testimony that current science has exposed as false.

The application was supported by voluminous evidentiary proffers, including sworn reports from multiple experts (Dr. Bonnell, Dr. Ophoven, Dr. Plunkett, and Dr. Monson) and hundreds of pages of relevant medical, CPS, and other historical records.

This Court, in staying Mr. Roberson's execution and remanding his claims, had already performed its gate-keeping function, determining that the subsequent application "contains sufficient specific facts establishing" that a basis exists for raising claims not previously asserted in the applicant's prior application for habeas relief. This Court expressly found that all four of the claims "satisfy the requirements of Article 11.071 § 5."

After the remand order, the State filed an Answer. Attached to the Answer was a single affidavit from Dr. Urban, dated November 18, 2016. APPX100. Dr. Urban was the medical examiner who had performed the autopsy on Nikki Curtis on February 2, 2002 and who had, that same day, reached the conclusion that the manner of death was homicide without waiting for any test results. *See* APPX12; APPX101. In the 2016 affidavit, Dr. Urban denied having claimed that shaking caused Nikki's condition, contrary to Dr. Urban's trial testimony.

In an initial hearing following the remand, the habeas court decided, over the State's objection, to permit an evidentiary hearing before resolving Mr. Roberson's claims. After several intervening events, the evidentiary hearing was scheduled to commence on August 14, 2018.

In preparing for the evidentiary hearing in this matter, Mr. Roberson's counsel asked, and was granted leave, to review the District Attorney's trial file. Among the items that Mr. Roberson's counsel sought to find were missing CAT scans taken of Nikki at the time of her last hospitalizations.[14] After failing to find any CAT scans in the State's file, a discovery motion was filed on Mr. Roberson's behalf, and was presented to this Court on August 14, 2018. After the motion was presented, State's

[14] When contacted directly, Palestine Regional Medical Center, which took two of the three sets of head scans, reported that these images had been "destroyed." Children's Medical Center of Dallas, which took the third set, was also unable to locate the images.

counsel announced on the record that they had found no additional materials relevant to this case. The Court then granted the motion. 2EHRR18-20.

On August 14, 2018, Mr. Roberson began by offering numerous exhibits into evidence to which the State did not object; the Court admitted the following into evidence at that time: APPX1-APPX12; APPX14; APPX15; APPX18; APPX19; APPX37-APPX50; APPX60-APPX62; APPX66-APPX90; APPX99; APPX100; APPX103. The parties then presented Opening Statements, and the presentation of evidence began. 2EHRR21-49.

Later that same morning, it was put on the record that the new District Clerk had informed the habeas court and the parties that additional materials, previously unproduced to Mr. Roberson, had been found in a locked room in the courthouse basement. Among those additional materials were large envelopes that appeared to contain the original x-rays from the CAT scans that had long been missing. In light of this newly discovered, material evidence, Mr. Roberson made a motion to continue the evidentiary hearing, which was joined by the State. The habeas court granted the motion and agreed to adjourn so the CAT scans could be copied, produced to the parties, who could then pursue further due diligence. 2EHRR85-87.

Although these CAT scans were ultimately admitted into evidence and are ***exculpatory***, per the testimony of multiple experts, the CAT scans and what they reveal ***are not mentioned in the habeas court's FFCL***.

While waiting to obtain copies of the long-suppressed CAT scans, on-going efforts to obtain relevant information from the Dallas County crime lab aka Southwestern Institute of Forensic Sciences ("SWIFS") continued, particularly in light of advances in scientific understanding since the time of trial, including recent research conducted by neuropathologist Dr. Roland Auer that suggested Nikki's condition may have been caused by, or related to, the unexplained illness she had at the time of her death. 8EHRR13. Nikki's illness was not identified or addressed during the autopsy and was dismissed at trial as irrelevant. However, indications that Nikki had infected lungs are buried in the autopsy report, which includes these notations: "Sectioning of the lungs discloses a dark red-blue, moderately congested, slightly edematous parenchyma" and lungs have "Interbronchial aggregates of neutrophils and macrophages." APPX12. Macrophages are a sign of virus. The pediatrician who testified at trial acknowledged that his notes from January 31, 2002 stated that Nikki was "'free of illness'" at the time of her collapse, but "should have [stated] 'viral illness.'" 42RR13. But he also told the jury that her illness was not relevant to understanding her collapse. *Id.*

The habeas court granted an ex parte motion directing SWIFS to prepare and ship slides of lung tissue to Dr. Auer's laboratory so that he could apply new staining techniques to the lung tissue to better understand Nikki's condition at the time of her death. *See* Supp CR. However, SWIFS thereafter disclosed that, pursuant to its

"histology block policy," all of the biological materials collected during Nikki's autopsy had been destroyed after ten years (*i.e.*, circa 2012). 8EHRR170.

The parties were prepared to resume the presentation of evidence on May 11, 2020; but due to the COVID-19 pandemic, the hearing was again deferred. Eventually, the evidentiary hearing resumed on March 8, 2021, with some witnesses appearing via Zoom and some in person. 3EHRR-10EHRR. Among the numerous exhibits admitted into evidence and provided as demonstratives, were the original and digitized copies of the CAT head scans of Nikki Curtis that had been found on August 14, 2018 in the courthouse basement. APPX70; 3EHRR9-10. Although these CAT scans were admitted into evidence, interpreted by a radiologist whose report was relied on by multiple experts, and are ***exculpatory***, they are not mentioned in the habeas court's FFCL.

The presentation of evidence closed on March 17, 2021. 10EHRR246.

On October 28, 2021, while waiting for the Reporter's Record to be prepared, Applicant filed a Request that the Court Take Judicial Notice of Texas Proceeding Involving Similar Habeas Claims and Other Relevant Developments. In so doing, Applicant asked the habeas court to take judicial notice, *inter alia*, of another habeas corpus proceeding, arising under Article 11.073 of the Texas Code of Criminal Procedure, involving similar new science, due process, and actual innocence claims in which the State's child abuse expert at trial in *this* case, Dr. Janet Squires, had

provided an affidavit recanting some testimony supporting her "shaken baby/shaken impact syndrome" trial testimony. *See Ex parte Andrew Wayne Roark*, WR-56,380-03. Applicant also apprised the habeas court of recent developments in other jurisdictions unwinding convictions based on the SBS/AHT hypothesis.

On December 13, 2021, this Court entered an Order directing that the habeas record be completed and that the habeas court resolve the issues raised in this proceeding and return this case to the Court on or before February 15, 2022.

The official Reporter's Record for this proceeding was finally conveyed to the parties on December 22, 2021.

On January 13, 2022, Applicant filed a Request That The Court Take Judicial Notice of New Court Decision Barring Testimony Regarding SBS/AHT Diagnosis as Unreliable, alerting the habeas court that a trial judge in New Jersey recently granted a pre-trial Daubert motion, precluding *any* testimony about SBS/AHT as an explanation for a child's death, finding the admissibility of SBS/AHT testimony "inappropriate because it is an inaccurate and misleading diagnosis because it lacks scientific grounding." *State of New Jersey v. Darryl Nieves*, Indictment No. 17-06-00785 (Superior Court of NJ, Middlesex County Jan. 7, 2022). Based on a robust evidentiary record, the Nieves court found "[t]here is no 'quality assurance' component to this diagnosis because it is a hypothesis based upon extrapolation of data, coupled with a 'process of elimination' engaged in by diagnosticians in an

effort to reach a 'conclusive diagnosis' which, in the end, cannot be treated medically. The accuracy of scientific evidence must be established and not left premised upon probabilities based upon extrapolation of data but, instead, certainties borne from testing and examination." *Id.*

The parties submitted their Proposed Findings of Fact and Conclusions of Law on January 24, 2022. The State's proposal was 17 pages long, does not mention the vast majority of the relevant evidence adduced in this proceeding, and misrepresents the little testimony that is cited. Applicant's proposal was 295 pages, amply supported by citations to the habeas record. *See* **EXHIBIT A**.

On January 28, 2022, the Center for Integrity in Forensic Sciences filed an *amicus curiae* brief in the trial court, supporting Applicant's request for habeas relief. The *amicus* brief describes how contemporary medical understanding has significantly undermined the SBS/AHT hypothesis and how courts across the nation have granted post-conviction relief in cases where individuals were convicted based on the unsubstantiated SBS/AHT hypothesis. This *amicus* brief indicates the national significance of the issues involved in this proceeding.

On January 31, 2022, the habeas court heard Closing Arguments. 12EHRR.[15]

[15] At the time of filing, Applicant has not yet received a transcript of the Closing Arguments but it is reportedly forthcoming and will be incorporated into the habeas record.

On February 14, 2022, the habeas court entered FFCL, rejecting Applicant's request for a recommendation that he be found Actually Innocent or at least be awarded a new trial free of false and misleading evidence. Instead, the habeas court adopted the State's proposal wholesale with a few minor additions.

On February 24, within ten days of the receipt of the habeas court's Findings of Fact and Conclusions of Law ("FFCL") in this cause, Applicant filed Objections pursuant to Texas Rule of Appellate Procedure 73.4(b)(2) in the trial court.

This motion follows.

ARGUMENT

I. THE FFCL ARE BASED ON THE INDEFENSIBLE PREMISE THAT APPLICANT ADDUCED "NO NEW EVIDENCE."

The FFCL repeatedly state that relief should be denied because Applicant did not adduce any "new evidence." Yet the habeas record plainly shows that Mr. Roberson adduced ***considerable*** new evidence (a) of how the relevant science used to convict him has changed; (b) of the specific tenets of SBS relied on at trial that have been discredited; (c) most critically, that Nikki died from natural and accidental factors, not as a result of a homicide; (d) that the autopsy was profoundly flawed by errors of omission and commission; and (e) that the sexual assault allegations used to poison the jury against Mr. Roberson were false and material to the conviction.

A. New Evidence of How the Relevant Science Has Changed

Applicant established that, in 2002-2003, when Mr. Roberson was tried, the medical community was advising doctors to infer that a child had been violently shaken or flung against something (that does not leave any eternal marks) if the child had the following medical symptoms: subdural hematoma/bleeding, brain swelling also known as "edema," and retinal hemorrhaging or bleeding in the eyes. The assumption was that, where this "triad" of symptoms was present, a child must have been the victim of intentionally inflicted abuse that included violent shaking and that whoever had been caring for that child when the symptoms became manifest must

have been the culprit—absent some verified major trauma such as a car wreck or a fall from a multistory building. This phenomenon was known as "Shaken Baby Syndrome" (SBS) or "Shaken Impact Syndrome," and, eventually, was reclassified as a sub-category of the umbrella term "Abusive Head Trauma" (AHT) in 2009.

Experts who testified in this habeas proceeding, including neuropathologist and Ph.D. scientist Roland Auer, attested that many pathologists, himself included, believed in 2003 that merely seeing the triad of subdural bleeding, cerebral edema, and retinal hemorrhage was sufficient to presume that a child had sustained an inflicted head injury. 8EHRR129. Only a small number of pioneers, such as Dr. John Plunkett, were questioning that presumption at the time. *Id.*; see also APPX2 & APPX3.

Applicant established that the State relied on the SBS hypothesis and its tenets to obtain Mr. Roberson's conviction. *See* **EXHIBIT A** at 134-165.

Although the habeas court refused to admit into evidence the scientific publications and treatises that Applicant adduced to show the evolution of scientific thinking related to SBS/AHT, Applicant elicited expert testimony to prove-up that evolution and thus carried his burden. *See* TEX. CODE CRIM. PROC. *See* TEX. CODE CRIM. PROC. art. 11.073 (b)(1)(A) (requiring habeas applicant to show "relevant scientific evidence is currently available and was not available at the time of the convicted person's trial because the evidence was not ascertainable through the

exercise of reasonable diligence by the convicted person before the date of or during the convicted person's trial.").

Applicant adduced new evidence showing that SBS emerged as a hypothesis and took hold without scientific testing. The idea that shaking a baby might cause brain damage first emerged in the early 1970s, inspired in part by an article entitled *On the Theory and Practice of Shaking Infants* by Dr. John Caffey. APPX21; 3EHRR45; 4EHRR12, 4EHRR17. Dr. Caffey was a radiologist in Pennsylvania who posited that violent shaking might pose specific risks to infants. *Id.* Around this same time, Dr. Norman Guthkelch, a British neurosurgeon, raised concerns that violent shaking of infants might cause subdural bleeding. APPX20; 4EHRR17-18. These doctors raised concerns that the unstable nature of the infant brain, with its high-water content, increased the risk for bleeding in the head from shaking. "Shaking" as a mechanism of injury was a hypothesis proposed by Drs. Caffey and Guthkelch absent evidentiary support or confirmation from scientific principles. 3EHRR93; 8EHRR17-18.

Applicant adduced new evidence that, when the SBS hypothesis was first proposed, it focused on very small infants whose brains are different from a two-year-old's brain and whose neck muscles are very different. 3EHRR46-47. Infants, not toddlers, have a "relatively heavy head, watery brain, and weak neck muscles," which is how the hypothesis emerged. 3EHRR47.

Applicant adduced new evidence that, without any scientific study to support it, the hypothesis that a brain could be damaged by violent shaking was gradually applied to older and older children. 3EHRR47. For many decades, this hypothesis was accepted without being tested. 4EHRR18.

Shortly before Nikki Curtis's death, the American Academy of Pediatrics published a position paper ("2001 AAP") stating that violent shaking was not only considered a form of child abuse to young infants but also emphasizing the view that subdural bleeding, brain swelling, and retinal hemorrhage were "diagnostic features of this form of head injury." 4EHRR20; APPX22. The 2001 AAP position paper was not a scientific study, but a collection of opinions selected by the organization to educate its members. 4EHRR20. As such, the 2001 AAP reflected and promoted what was perceived as medical orthodoxy at the time of Mr. Roberson's 2002-2003 trial.

Applicant adduced new evidence that, in 2009, the American Academy of Pediatrics published a new position paper ("2009 AAP"), in which the organization dropped the term "shaken baby." APPX29; 4EHRR43-44. Instead, doctors were urged to use a new nonspecific term: "abusive head trauma" (AHT). The AHT term is not synonymous with SBS; AHT is a blanket term used to encompass all mechanisms that might be used to intentionally injure a child in a way that results in some head injury. 4EHRR124. It is a broad, non-specific term, although the name

itself implies a criminal act. 8EHRR130. In 2009, some key elements of the 2001 AAP paper were changed significantly, including issues having to do with falls and the interpretation of subdural blood, brain swelling, and retinal hemorrhage as diagnostic. 4EHRR21.

Applicant adduced new evidence that, in the meanwhile, outliers had started to challenge the untested premises of SBS. Dr. Ophoven described a "fairly small cohort of practitioners" who raised concerns about the ramifications of the SBS diagnosis and its reliability. 4EHRR23. For instance, forensic pathologist Dr. John Plunkett published a commentary on the Louise Woodward trial, which had involved a babysitter accused and convicted of shaking an 8-month-old baby to death; Dr. Plunkett's commentary raised concerns about whether science supported the shaking hypothesis. 4EHRR23-24. In 2001, Dr. Plunkett published a paper titled "Fatal Pediatric Head Injuries Caused by Short-Distance Falls." 4EHRR25; APPX24. Dr. Plunkett's paper challenged the assertion frequently made in SBS trials, before and afterwards, that short falls cannot kill a child—emphasizing that even the Consumer Product Safety Commission had fatal short falls in its database of child fatalities. 4EHRR26. The paper identified 18 cases of fatalities that had been classified as short-fall accidents and thus verified that short falls can indeed, under some circumstances, kill or create a fatal blunt force impact to the head. *Id.*

Applicant adduced new evidence that one of the accidents discussed in Dr. Plunkett's paper had accidentally been captured on videotape and the tape plainly showed that the event was an accident. The tape showed a little girl, precisely Nikki's age, fall from a small playscape in the garage onto concrete covered by carpet while a female relative just happened to be filming the toddler joining her older brother on the playscape. In this habeas proceeding, Dr. Plunkett's research related to this fall was discussed and the videotape of this particular fall was played during the testimony of Dr. Kenneth Monson.[16] 5EHRR28-32. As Dr. Monson explained, before Dr. Plunkett's paper, there had been a few reports of injuries related to short falls, **but they had largely been dismissed**. 5EHRR29-30. The videotape showed the fall and how the child remained lucid; but she ended up dying approximately a day later. 5EHRR32.

Applicant adduced new evidence from Dr. Plunkett by affidavit that explains how the fact that a short fall can, under circumstances, be fatal was **derided by most**

[16] Dr. Monson is an associate professor of mechanical engineering at the University of Utah. 5EHRR12. He has bachelors and masters degrees in mechanical engineering from Brigham Young University and a Ph.D. in mechanical engineering from the University of California, Berkeley. He pursued post-doctoral training at the University of California, San Francisco, in the Department of Neurosurgery. His current responsibilities include directing the "Head Injury and Vessel Biomechanics Laboratory" at the University of Utah, which is devoted to better understanding traumatic brain injury and, more specifically, how the blood vessel of the brain are influence by head trauma. 5EHRR16-17. *See also* APPX130.

Dr. Monson is a reviewer for numerous scholarly journals and for governmental entities seeking expert input for the allocation of research funding. 5EHRR19-20. He was been accepted as an expert by courts in approximately 50 proceedings involving the death of or injuries to a child following a purported fall. 5EHRR21-22. He was accepted as an expert in biomechanical engineering without objection from the State. 5EHRR23.

in the medical community. Dr. Plunkett also explained why this research was relevant to challenging the SBS hypothesis that had taken hold in the medical community. APPX3.[17]

Applicant adduced new evidence that the change in understanding of the injury-potential of short falls, prompted by research in the field of biomechanics, progressed slowly. Biomechanics is a science that applies the principles of mechanics/physics to biological materials. 5EHRR17. When trying to understand whether specific circumstances could have caused an injury, biomechanical engineers, unlike medical doctors, quantify the level of force or acceleration that the head may have experienced and compare the measured result to the injury threshold expected to result in injury. 5EHRR33. One way that biomechanical engineers conduct these kinds of experiments is by using crash-test dummies, cadavers, animal models, and computer simulations. 5EHRR34; 5EHRR38-40. Experiments utilizing these models are accepted by the research community and are relied on, for instance, by the federal government and the automotive industry to improve product safety and reduce head injuries. 5EHRR44; 5EHRR146.

Applicant adduced new evidence that, after Mr. Roberson's February 2003 trial, studies began to undermine what had been widespread acceptance of the SBS

[17] Dr. Plunkett passed away before the evidence hearing was conducted, but his affidavit was admitted into evidence.

hypothesis. Dr. Monson, for instance, explained some of the laboratory studies that continued to be conducted after Dr. Plunkett's initial paper, up through 2011, on assessing the injury potential of short falls. 5EHRR66-71.

Additionally, in 2003, the *Journal of Neurosurgery* published an article by several biomechanical engineers, including Michael Prange, as well as a neurosurgeon, Dr. Duhaime, entitled "Anthropomorphic Simulations of Falls, Shakes, and Inflicted Impacts in Infants." APPX25; 4EHRR29-31. The publication described a study that had been conducted at a laboratory in the University of Pennsylvania using biofidelic dummies to measure the injury-potential of a variety of actions including dropping onto foam rubber, dropping from various heights onto a variety of surfaces, and violent shaking. The study demonstrated that the injury-potential from even relatively short falls could cause serious injury, even fatalities. The study also showed that violent shaking did *not* create energy and injury-potential more than dropping the child from a short height onto a foam rubber surface. 4EHRR29-20.

Similarly, in 2004, Prange et al. published reports of laboratory studies at Duke University that provided guidance about measuring the injury impact of short falls. APPX131; 5EHRR68.

Applicant adduced new evidence that, instead of utilizing this information to question whether there was any scientific basis for the SBS hypothesis, a mere

terminology shift occurred—with child abuse pediatricians promoting the term "shaken impact syndrome" instead of "shaken baby." 4EHRR31.

Then, in 2007, the fruits of a judicial inquiry initiated by the Canadian government was published, identifying numerous false convictions obtained in reliance on the SBS hypothesis. 4EHRR33-34; APPX26. The voluminous report was made available to the public and was considered exhaustive in terms of identifying growing concerns with the SBS diagnosis. 4EHRR36-37. That same year, 2007, a paper by Ken Monson was published, entitled "Head Exposure Levels in Pediatric Falls," which approached the matter of injury potential in scientific terms. 4EHRR40; APPX27. This paper was presented at the National Neurotrauma Symposium and explained how the potential for head injury varies based on how a child may hit the ground. 5EHRR20-21.

Applicant adduced new evidence that, in 2009, a biomechanical engineer named Chris Van Ee co-authored a paper with Dr. John Plunkett entitled "Children ATD Reconstruction of a Fatal Pediatric Fall." 4EHRR41; APPX28. The paper described a laboratory reenactment of one of the short falls discussed in Dr. Plunkett's 2001 paper (the same short fall that had been accidentally captured on videotape). The case involved a two-year-old falling a short distance off a small playscape, hitting her head, crying, then seeming okay, but ultimately dying from the injury caused by a single impact to the head during the seemingly minor

accidental fall. 4EHRR42-43. Dr. Monson explained to the habeas court how the fall had been reconstructed, including the fact that the toddler's feet were only 28 inches from the ground when the fatal fall occurred. 5EHRR35. This study and the reconstructed short fall highlighted in the paper added to the scientific understanding of how children can be fatally injured in short falls. 5EHRR51-54. The same year that the paper co-authored by Drs. Van Ee and Plunkett was published, the American Academy of Pediatrics dropped promotion of the term "shaken baby." 4EHRR44-45; *see also* APPX29.

Applicant adduced new evidence that, in 2011, Dr. Patrick Barnes, a neuroradiologist who had testified for the prosecution in the Louise Woodward case, published an article entitled "Imaging of Nonaccidental Injury and the Mimics: Issues and Controversies in the Era of Evidence-Based Medicine." 4EHRR46; APPX30. Dr. Barnes is the head of pediatric radiology at Stanford University. 4EHRR46. His article surveyed a number of conditions, circumstances, and mechanisms that can create internal head conditions, characterized by subdural blood, brain swelling, and retinal hemorrhages, that were **not caused by trauma** at all. If trauma was not necessary, the clear implication was that this condition did not necessarily prove that *inflicted* trauma had occurred. *Id.*

Applicant adduced new evidence that, in 2012, the International Journal of Developmental Neuroscience published an article entitled "Influence of Age and

Fall Type on Head Injuries in Infants and Toddlers." 4EHRR56; APPX34A. This article reflected further inquiry by a group of scientists from multiple disciplines, at the prestigious laboratory at the University of Pennsylvania, into the nature of head injuries sustained by children, including as a result of short falls. 4EHRR57.

Applicant adduced new evidence that, in 2013, a study by multiple authors, including Irene Scheimburg, M.D., was published in Pediatric and Developmental Pathology entitled: "Nontraumatic Intradural and Subdural Hemorrhage and Hypoxic Ischemic Encephalopathy in Fetuses, Infants, and Children up to Three Years of Age: Analysis of Two Audits of 636 Cases from Two Referral Centers in the United Kingdom." 4EHRR57-58; 8EHRR29; APPX34B. This study demonstrated that the ***lack of oxygen*** (aka hypoxia) causes subdural bleeding in young children; such bleeding is not caused by the tearing of bridging veins, as had previously been assumed. 4EHRR58. The lack of oxygen to the nerve cells in the brain caused the brain to swell and then die, not shaking or shaking + impact. The article also identified various naturally occurring conditions that can cause lack of oxygen. 4EHRR59. That is, this study established that oxygen deprivation, not necessarily trauma, can cause bleeding in infants' and children's nonperfused brains. 8EHRR29-31. The study also demonstrated that the longer the interval of heart-stoppage resulting in oxygen deprivation before resuscitation, the more bleeding was observed under the scalp. 8EHRR31.

Applicant adduced new evidence that, also in 2013, an extensive study by Patrick Lantz, M.D., et al., was published by the American Academy of Forensic Sciences called: "Extensive Hemorrhagic Retinopathy, Perimacular Retinal Fold, Retinoschisis, and Retinal Hemorrhage Progression Associated with a Fatal Spontaneous, Non-Traumatic, Intracranial Hemorrhage in an Infant." This study identified approximately 30, *non-traumatic* conditions that can cause retinal hemorrhage, *i.e.*, bleeding in the eyes. Retinal hemorrhage had previously been used as a primary indicator that child abuse had been perpetrated in the form of violent shaking. 4EHRR60-61; APPX34C.

Applicant adduced new evidence that, in 2014, the third edition of Dr. Jan Leetsma's treatise Forensic Neuropathology was published. 4EHRR; APPX32. This edition of a treatise, used by neuropathologists worldwide, contained an entire chapter on biomechanics and how it should be used to understand issues arising in forensic neuropathology. 4EHRR169. The treatise discussed SBS/AHT in great detail and the lack of scientific support for the hypothesis. 4EHRR49-50.

Applicant adduced new evidence that, in 2015, the American Academy of Forensic Sciences published an open letter entitled: "Argument and Critique, Open Letter on Shaken Baby Syndrome and Courts: A False and Flawed Premise." APPX145. The letter noted:

- "It can be shown in many such instances that the evidence of the prosecution experts alleging death or serious injury from SBS is demonstrably flawed. The

scientific basis for the assertion that these injuries are the consequence of deliberately inflicted violent shaking is highly contentious."

- "Biomechanical evidence has shown that shaking without contact would only produce the triad of injuries in association with other injuries to the neck and spinal column that are typically not found in alleged SBS cases."

- "SBS is lacking in scientifically-conducted validation and forensic rigour."

- "To date, the scientific research which has been conducted casts considerable doubt on the SBS construct."

Id; see also 10EHRR123-128.

Applicant adduced new evidence that change in the scientific understanding continued after Mr. Roberson's writ application was filed. For instance, in 2016, an agency of the Swedish government published the first "meta study" of SBS studies. 4EHRR51-52; APPX34D. The entity found that there were no high-quality articles or scientific studies that met the criteria for sound science supporting the SBS/AHT hypothesis. 4EHRR52-53. An appendix to the study highlighted the absence of any uniform diagnostic criteria for SBS/AHT, as there are for other medical conditions. 4EHRR53-54. The meta-study noted the "circular" reasoning at the heart of the SBS/AHT phenomenon: that the presence of subdural bleeding, brain swelling, and retinal hemorrhage were considered proof that abuse had occurred and so cases in which these conditions were found were considered proof that abuse, including violent shaking, had occurred. 4EHRR54-55; *see also* 8EHRR35.

In this proceeding, Dr. Auer, who read the results of the study in the original Swedish, explained the significance of this peer-reviewed publication (APPX34D), which had identified significant defects in the SBS/AHT literature, particularly the circular reasoning (where the idea that one starts with becomes the conclusion, rather than reaching a conclusion based on the facts presented). 8EHRR35-37. In short, the Swedish study demonstrated that there is no science demonstrating that shaking and flinging a baby or toddler causes the triad of internal head injuries. 8EHRR36-38.

Applicant adduced new evidence that, in 2017, a team of researchers, led by Niels Lynøe, published an article entitled "Insufficient Evidence for Shaken Baby Syndrome," a survey of the lack of evidence-based support for the SBS/AHT diagnosis. 4EHRR62; APPX34D.

Applicant adduced new evidence that a 2018 study, involving a survey of pediatricians and child abuse experts, identified eight cases of children involved in verified accidental falls who suffered subdural bleeding and retinal hemorrhage. APPX141; *see also* 5EHRR140-143 (discussing N. Atkinson 2018, "Childhood Falls with Occipital Impacts in Pediatric Emergency Care). One of the falls in the study involved a set of children in the front yard with multiple other family members. One child pushed another child, who then fell backward into a 16-month-old. The 16-month-old fell to a sitting position; the child then fell backwards, hitting her head from the seated position; the child died as a result of the impact from that fall of only

a few inches. This study showed that inflicted trauma should not be presumed because plainly accidental short falls could cause the kind of fatal head injuries that had been treated as proof of SBS/AHT for decades. 10EHRR160-164.

Applicant adduced new evidence that, in 2019, a scholarly journal, Clinical Ethics, published an article entitled "Hidden Clinical Values and Overestimation of Shaken Baby Cases." 4EHRR63; APPX34E. The article discussed the epidemiologic implications of the SBS/AHT diagnosis, suggesting that many of the cases are inadequately diagnosed and that the literature reflects pronounced bias. *Id.*

Further, Applicant adduced new evidence that one of the doctors responsible for the original SBS hypothesis, Dr. Guthkelch, had spoken up about his concern that this unverified hypothesis had caused a great deal of damage. He acknowledged that subdural and retinal hemorrhages, with or without cerebral edema, have been observed in accidentally or naturally occurring circumstances. 10EHRR130. Dr. Guthkelch also acknowledged that the forces generated by humans and laboratory machines shaking a dummy have proved "insufficient to cause disruption of human tissue" or any other injuries associated with SBS/AHT. 10EHRR131. His call for civilized and reason-based scientific discourse was published in an article entitled "Problems of Infant Retino-Dural Hemorrhage with Minimal External Injury." 4EHRR64; APPX34F.

B. New Evidence That Specific Components of the SBS/AHT Hypothesis Relied on to Obtain Roberson's Conviction Are Contrary to Contemporary Scientific Understanding

While the State distanced itself from the concept of shaking as a cause of Nikki's injuries in this proceeding, the case was plainly tried as an SBS/AHT case.[18] Mr. Roberson's jury was repeatedly told that Nikki's condition showed that she had been violently shaken, which the State then used to prove the *mens rea* element of the alleged crime. Several tenets of the SBS/AHT hypothesis were attested to at trial as representing scientific fact. While "AHT" is still a diagnosis that can be used by doctors on forms,[19] there is no evidence-based research that supports its tenets.[20]

Applicant adduced new evidence that several propositions asserted as scientific fact during Mr. Roberson's trial are no longer defensible.

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[18] In Dr. Urban's 2016 affidavit, she denied that she had identified shaking as a cause of Nikki's injuries. APPX100; 5EHRR196-200 (discussing content of Dr. Urban's 2016 affidavit). The trial transcript, however, shows otherwise. Echoing Dr. Urban, the State's retained expert in this proceeding, Dr. Downs, repeatedly suggested that this is "not a shaking case." 10EHHR144. But that position reflects a significant change from the State's position at trial. Additionally, while on the stand, Dr. Downs seemed to abandon his position that shaking was not involved and ended up deferring to the State's trial expert, Dr. Squires—whose opinions Applicant demonstrated are not reliable in light of intervening changes in scientific understanding.

[19] This on-going controversy was explained in part by the difference between practicing medicine on one hand and conducting research on the other hand. As Dr. Auer explained, as a scientist, he can conduct experiments and approach new information skeptically, amassing and studying data; by contrast, medical doctors are busy treating patients and often accept information conveyed through group thinking, as occurred with the momentum behind the "shaken baby" hypothesis. 8EHRR14-15.

[20] The State's retained expert in this proceeding, Dr. Downs, opined that forensic pathologists like himself (and Dr. Urban) "can't do" "evidence-based medicine." 10EHRR27. However, Article 11.073 of the Texas Code of Criminal Procedure, in tandem with the federal and state Constitutions, exists to ensure that criminal convictions rest on "evidenced-based" science.

1. Discredited position: Shaking can cause a triad of internal head injuries without injuring the neck

Applicant adduced new evidence that it was widely believed at the time of Mr. Roberson's trial that violent shaking could cause subdural bleeding, brain swelling, and retinal hemorrhage—the condition observed in Nikki at the time of her collapse. The idea was that "sheering forces" generated by shaking caused "the brain to move around" and then caused the internal damage without leaving external evidence of the internal injuries. 3EHRR45; 3EHRR89; 3EHRR993; *see also* 42RR107 (Dr. Squires testifying at trial that "most of the experts do think that shaking alone, if done vigorously, will kill a child, but most children are shaken and then thrown against something."); 42RR120 (Dr. Squires answering "yes" to defense counsel's question at trial: "In many respects, what you saw with this child are classically consistent with injuries from rotational force [*i.e.,* shaking]?").

At trial, Dr. Squires expressly testified that the "American Academy of Pediatrics" had taken a position on SBS. 42RR116-117. This was a reference to the 2001 AAP position paper (APPX23). In that paper, pediatricians were taught that they did not have to consider other possible diagnoses if there were three findings: subdural bleeding, brain swelling aka cerebral edema, and retinal hemorrhaging. The 2001 AAP also instructed that these three findings justified the presumption that the child's injury had been caused by abusive shaking.

The trial record plainly reflects that Dr. Urban relied on the opinion that shaking was a mechanism that explained Nikki's condition and death. 4EHRR76-78. Dr. Urban testified that Nikki, a two-year-old child, had anatomical features, such as a "weak neck," that made her more vulnerable to shaking. Dr. Ophoven opined in this proceeding that "those purported factors were never scientifically established in a child of [Nikki's] age[.]" APPX2 at 16 (citing 43RR82). *Newborns* have weak necks, which is why their necks need to be protected; but a two-year-old's neck is anatomically quite different. 3EHRR91. As Dr. Ophoven explained, "[b]y the time a child gets to two and a half years old, their brains are three times bigger and their skulls are thicker and their necks are stronger" than those of newborns. 3EHRR90. Dr. Urban's suggestion that Nikki's neck was protected when she was being shaken and battered because her neck muscles were "weak" and her head big compared to her body was inaccurate and misleading; but her testimony was consistent with the teachings of SBS at that time. 3EHRR91.

At trial, Dr. Urban repeatedly described shaking as a cause of Nikki's internal bleeding, suggesting that a shaking motion had somehow caused her brain to move back and forth within the skull, thereby rupturing, as she put it: "the little bitty veins" that connect "the dura and the brain itself." 5EHRR195-196 (quoting Dr. Urban's trial testimony). In this proceeding, Dr. Wigren noted that biomechanical engineers have since established that shaking *cannot* generate forces sufficient to rupture "the

little bitty veins" that connect the dura and the brain itself; that is "literally impossible" to do through shaking. *Id.* This point was verified by biomechanical engineer Dr. Monson, who reported that no study has ever demonstrated that shaking can produce a subdural hematoma or any internal head injuries. 5EHRR98; 5EHRR122; 5EHRR131.

But because shaking does not bruise the scalp, when the internal triad of symptoms was present, with relatively minor or no external bruises at all, that was seen as proof that shaking had occurred. 3EHRR45. Only well after the SBS/AHT hypothesis became entrenched were biomechanical studies used to test the hypothesis that the rotational acceleration and deceleration associated with abusive shaking would cause retinal hemorrhaging and other head injuries; and that hypothesis has now been proven false. 3EHRR94.

While SBS/AHT is still adhered to by child abuse pediatricians,[21] there is no scientific basis to support the hypothesis that violent shaking can scramble or "sheer" an infant's brain cells or cause subdural bleeding, brain swelling, or retinal hemorrhage. 3EHRR45-46; 4EHRR37; 4EHRR142; 4EHRR146.

[21] Importantly, no one in the medical community, including no experts who testified in this proceeding, argued that violent shaking is advisable. If a baby is shaken with sufficient force, the baby's neck can be injured or the spinal cord severed. 5EHRR100. But all experts agree that Nikki had no such injuries.

More specifically, there are no biomechanical studies that support the assertion that a child of Nikki's weight and height could be shaken so as to cause *any* internal head injuries. 3EHRR46-47.

Dr. Monson described studies in the field of biomechanics on the injury-potential of shaking. 5EHRR83-89. The only study involving a toddler-sized model demonstrated how much harder it was to shake a child of that size. The greatest force that could be generated in such circumstances was .48 kiloradians per second squared, a factor of 10 difference between the force that could be generated in shaking a model comparable to a human infant. 5EHRR87-89. A teddy bear, such as was used as a demonstrative during the Roberson trial, weighing less than a pound, is not a comparable model in any relevant respect. A teddy bear is easy to move around quickly and generate rapid acceleration ***impossible*** with a 24-pound toddler like Nikki. 5EHRR90-96. The difference in difficulty is explained by Newton's Law. 5EHRR96.

When asked about Dr. Urban's testimony stating that Nikki's "weak neck" was not injured because it was "protected," Dr. Monson stated that that does not make sense. 5EHRR101. As he explained, any head acceleration generated by shaking is generated by force *in the neck* specifically; thus, the neck is not protected during shaking. 5EHRR102.

Dr. Monson also disagreed entirely with Dr. Urban's trial testimony suggesting that when a child is "shaken hard enough, the brain is actually moving back and forth within the skull" and that impact within "the skull itself" "is enough to "damage the brain." 5EHRR102 (quoting Dr. Urban's trial testimony). Dr. Monson noted that, even with an infant, where greater force can be generated through shaking, shaking has not been shown to cause the brain to move inside the skull. 5EHRR103-104.

Dr. Monson also explained studies showing that the forces generated through violent shaking result in ligament disruption **in the neck**. 5EHRR100. Yet Nikki had no neck injuries of any kind. 5EHRR101. Dr. Monson concluded that it was "very unlikely" that shaking caused any of Nikki's injuries. 5EHRR99.

All of this evidence, discrediting the primary tenet of SBS/AHT conveyed at trial, was new.

2. Discredited position: The presence of subdural bleeding, brain swelling, and retinal hemorrhage or just retinal hemorrhage proves that abusive shaking occurred

Applicant adduced new evidence that at the time of Mr. Roberson's trial the SBS hypothesis was accepted as *the* way to explain the triad of internal head injuries in infants and young children; that is, if a doctor saw subdural bleeding, brain swelling, and retinal hemorrhage that was seen as "proof" that the child had been abused. APPX22. Contemporary science has established that there are many

conditions that can cause the condition present in Nikki when she collapsed. 3EHRR48-49; *see also* APPX34B; APPX1. It is also now recognized that the triad is not specific to trauma, let alone inflicted trauma. Illness and oxygen-deprivation can cause subdural bleeding and brain swelling, which in turn causes retinal hemorrhage. 3EHRR49; APPX35C; APPX1; APPX2.

At the time of trial, the medical community believed that the presence of retinal hemorrhage alone confirmed that shaking had taken place. 3EHRR56. For many years, doctors were taught that bleeding in the eyes was proof of child abuse in the form of shaking. 3EHRR56; 3EHRR89; *see also* Dr. Squires' trial testimony 42RR108 (describing retinal hemorrhages as "one more thing that really lets you know that those eyes were being shaken and that the blood vessels broke.").

Now it is recognized, and studies have demonstrated, that many phenomena can cause retinal hemorrhage that have nothing to do with trauma, let alone inflicted trauma. APPXC; 8EHRR16 (explaining that retinal hemorrhaging is caused by hypoxia, which can be brought on by activities like climbing in high altitudes).

All of this evidence, discrediting the tenet of SBS/AHT that the triad is diagnostic, was new.

3. Discredited position: Brain damage would be immediate with no lucid interval

Applicant adduced new evidence that another belief at the time of Mr. Roberson's trial was that violent shaking would render an infant "immediately

unconscious" because the brain was being devastated by the shaking and would put the baby into an immediate, deep coma. 3EHRR93; 3EHRR106. Then, since the hypothesis was that "the child lost consciousness the minute you shook them," it was presumed that "the person with the child when they lost consciousness" had done the shaking and caused the deep coma. 3EHRR107-108.

In accord with this SBS tenet, Dr. Squires opined as to why she thought the shaking would have produced an obvious, instant change in Nikki's level of consciousness, thus allowing an inference that Mr. Roberson had been the one to cause Nikki's condition:

> It is my assessment in this child that after the event that caused all this deep brain injury she would not have been normal. And any reasonable person would know that she wasn't normal. . . . she would never have talked, walked, and been thought to be normal by anybody.

42RR108-109. Similarly, Dr. Urban testified at trial that, after being shaken, Nikki's injuries would have been immediately apparent—reflected in "a change in the level of consciousness." 43RR81.

The videotaped accidental fall played during the evidentiary hearing—the fall that was studied by Dr. Plunkett in conjunction with a biomechanical engineer—demonstrated that a child can sustain internal head injury and remain conscious for an extended period of time. Additionally, the Atkinson study recorded lucid periods

during which children could still talk for minutes or hours before the brain reacted to the injury and caused a seemingly sudden death. 5EHRR216; APPX141.

The contemporary scientific understanding is that hypoxia, brought on by whatever means, sets off a cascade of conditions that can eventually—after a lucid period of hours or even days—produce the triad of internal symptoms when the child stops breathing. 3EHRR32-33; 3EHRR49; 8EHRR82.

All of this evidence, discrediting the tenet of SBS/AHT that no lucid interval was possible, a tenet that permitted assuming that the person with the child when she collapsed was guilty of abuse, was new.

4. Discredited position: Short falls cannot cause serious head injuries

At the time of Nikki's collapse, all of the medical personnel and law enforcement in Palestine rejected the idea that a short fall could have explained any aspect of Nikki's condition, and thus assumed Mr. Roberson was lying. That was a core theme the State elicited through their testimony at trial. *See, e.g.*, 41RR66; 41RR69; 41RR89; 41RR99; 41RR123-125; 42RR17-18; 42RR83-85; 42RR108; 43RR156. Dr. Urban also rejected the concept that a short fall could have played any role in causing Nikki's condition, thus she did not ask for any information about the reported fall or otherwise investigate the circumstances preceding Nikki's collapse. 5EHRR215 (quoting Dr. Urban's trial testimony).

At trial, testimony was adduced expressing criticizing Mr. Roberson's report that Nikki had fallen out of bed and suggesting that her condition is the kind "usually" seen from "a massive car wreck . . . . something that you have a massive impact." 41RR123-125. The testimony that a "massive" force was required enabled the prosecution to argue that Nikki had been intentionally harmed. These statements are similar to statements that have been used in SBS/AHT cases around the country that are now recognized as devoid of a scientific basis. *See, e.g.*, Imwinkelried, "Shaken Baby Syndrome: A Genuine Battle of the Scientific (and Non-Scientific) Experts" (2009) at text accompanying notes 122-127 (noting "prosecution experts frequently give analogies. . . . to the amount [of force] generated by high speed automobile accidents and a fall from a several-story building" but those analogies are "fallacious"); *see also* Randy Papetti, Paige Kaneb, and Lindsay Herf, *Outside The Echo Chamber: A Response To The Consensus Statement On Abusive Head Trauma In Infants And Young Children*, 59 SANTA CLARA L. REV. 299 (2019), at 314 (concluding "[t]he motor vehicle and multi-story analogies, which filled the child abuse literature and courtrooms for decades ... were without basis.").

Before this proceeding began, many courts, including the Texas Court of Criminal Appeals, had already recognized that scientific studies have now established that a child may sustain serious internal head injuries and even death from a relatively short fall, even from a height of one to ten inches, far less than the

height of the bed at issue in this case. *See also Ex parte Henderson*, 384 S.W.3d 833, 837-51 (Tex. Crim. App. 2012) (detailing significant scientific changes in the field of biomechanics on whether "short falls" can cause fatal injuries to infants); *Ex parte Robbins*, 478 S.W.3d 678 (Tex. Crim. App. 2014) ("*Robbins II*")[22] (finding male caretaker convicted of capital murder of a child was entitled to habeas relief based on new science related to short falls). *See also*, *e.g.*, *In re Fero*, 367 P.3d 588 (Wash. Ct. App. 2016); *Commonwealth v. Epps*, 53 N.W.2d 1247, 1264-65 (Mass. 2016); *People v. Bailey*, 999 N.Y.S.2d 713, 725 (N.Y. 2014); *Del Prete v. Thompson*, 10 F. Supp. 3d 907 (N.D. Ill. 2014); *Edmonds v. Wisconsin*, 746 N.W.2d 590 (Ct. App. Wisc. 2008).

Applicant adduced new evidence that, at the time of Mr. Roberson's trial, it was widely believed, as reflected in the medical literature, that a short fall, something less than four feet, *could not produce a serious injury*. 3EHRR44. The 2001 AAP paper expressly stated that "the constellation" of brain damage (the triad) "does not occur in short distance falls." APPX23. That was an absolute statement, made without exception; therefore, in any case where there was a report of a short-distance fall, doctors, guided by the Academy, were induced to conclude that the child's

[22] The Texas Legislature was motivated to enact Article 11.073 in part to address concerns about the scientific integrity of criminal convictions raised in cases like *Ex parte Robbins*, 478 S.W.3d 678, 695-696 (Tex. Crim. App. 2014), reh'g denied sub nom. *See Ex parte Robbins*, 560 S.W.3d 130 (Tex. Crim. App. 2016).

caregiver was either lying about the fall or that the child had to be abusively shaken, in addition to sustaining some kind of inflicted head impact, because it was believed that a short distance fall could not explain those findings. The positions articulated in the 2001 AAP position paper remained in place, without revision, retraction, or modification, through May of 2009, well after Mr. Roberson's trial. *See* APPX29.

Applicant adduced testimony regarding contemporary scientific studies, including a 2017 study by Atkinson, et al., show that short falls can cause the exact kind of impact and subdural hemorrhages observed in Nikki when she first arrived at the hospital (as seen in the CAT scans taken of her head). 5EHRR215; 5EHRR140-143 (discussing Atkinson 2018, "Childhood Falls with Occipital Impacts in Pediatric Emergency Care"); *see also* APPX141.

Biomechanical engineer and researcher Dr. Monson was expressly asked: whether a fall off a bed could result in the injuries that were observed in this case and how the state of the science at the time of trial compared to today. 5EHRR22. He initially prepared a declaration, which was admitted into evidence. APPX4. Subsequently, he made some case-specific calculations based on the limited known variables relevant to the fall that Nikki had sustained. 5EHRR24-25. He also reviewed the report of radiologist, Dr. Julie Mack (APPX93), which was not available when Dr. Monson prepared his initial report. 5EHRR72-74. That report, interpreting the CAT scans, shows a single impact site.

The variables Dr. Monson used in his calculations were estimates because the fall was not witnessed. 5EHRR56. The height of the bed was estimated to be 22-24 inches off the floor, but, as Dr. Monson explained, Nikki could have fallen off the bed "in a host of different ways." Therefore, he established some benchmarks utilizing different assumptions: that Nikki had been standing when she fell, lost her balance, and hit her head or rolled off. 5EHRR26; 5EHRR56-57. He measured an impact force based on Newton's Law: F = MA. 5EHRR58-59. Dr. Monson was able to identify a "peak value of acceleration" associated with the event. 5EHRR61-62. His calculations involved merely applying basic laws of physics and are "soundly supported by the scientific literature." 5EHRR127; 5EHRR128.

Dr. Monson noted that, although the result of his calculations was a range, critical to the reliability of his assessment was the radiological evidence of a single impact to the back of Nikki's head. 5EHRR63. His calculations also accounted for the fact that Nikki fell onto a thin carpet over a wood floor in a house with pier-and-beam construction. 5EHRR64-65. He explained that he took a conservative approach to making his calculations.[23] 5EHRR65-67. The resulting range of accelerations associated with his calculations was 107-150 Gs from a standing position and 64-90 Gs from lying down. 5EHRR74-76. By way of comparison, Dr. Monson noted that

[23] Dr. Monson did not account for Nikki being sick at the time of the reported fall or analyze what medications she had in her system at the time, factors that would have made her more vulnerable to falling and injuring herself. 5EHRR144.

the fatal accident captured in the videotape that was played in court during the evidentiary hearing resulted from 125 Gs. 5EHRR78.

Dr. Monson opined that the testimony at trial stating that a short fall could not have caused Nikki's injuries is not correct; although uncommon, short falls can cause serious injury and even death. 5EHRR27-28. Also, based on his case-specific calculations, he concluded that a fall from standing on the bed at issue could have resulted in her death, while rolling off the bed would not likely have done so. 5EHRR82. Importantly, it is invalid, in light of contemporary scientific understanding, to say that a short fall cannot cause a fatal injury to a child. 5EHRR104-105.

Applicant's new evidence showed that the scientific consensus regarding the injury-potential of short falls has changed considerably since Mr. Roberson's trial.

All of this evidence, discrediting the tenet of SBS/AHT that a short fall was not relevant to explaining serious internal head injuries and should instead be viewed as a sign an abuser is lying, was new.

C. New Evidence That Nikki's Death Was Not a Homicide

CAT scans taken of Nikki's head, including a set taken soon after her admission to the Palestine Regional ER the morning of January 31, 2002, were rediscovered in the courthouse basement in August 2018. Thereafter, both parties had access to the digitized images and had the opportunity to consult with a

radiologist. The only radiologist to provide the parties, their experts, and the habeas court with an interpretation of the most objective evidence of the condition of Nikki's head at the time of admission was Dr. Julie Mack. APPX93.

The jury did not see the CAT scans of Nikki's head or have access to the report by Dr. Julie Mack, the only doctor in this proceeding trained in radiology and thus qualified by experience and training to read the CAT scans.[24]

Applicant adduced new evidence in the form of the long-suppressed CAT scans and Dr. Mack's interpretation of them. Dr. Mack's findings were relied on by Dr. Auer, Dr. Ophoven, Dr. Wigren, and Dr. Monson in testing and forming their own opinions, yet more new evidence. Those opinions all include the conclusion that there was radiological evidence that Nikki had sustained a single impact to the right back of her head where a "goose egg" (swollen tissue) had formed. The scan taken during Nikki's initial hospitalization shows a small amount of subdural blood and asymmetrical brain swelling associated with the single impact site where the goose egg is seen. Dr. Auer, Dr. Ophoven, Dr. Wigren, and Dr. Monson all opined that the single impact was consistent with the report of a short fall from the bed.

[24] Dr. Mack graduated from Harvard Medical School in 1990, is currently licensed to practice medicine in Pennsylvania, and is board certified by the American Board of Radiology. *Id.* Following graduation, Dr. Mack did her residency at Baylor University Hospital where she first began her training in medical imaging, known as radiology. Dr. Mack practices in radiology at Penn State Hershey Medical Center, where she interprets imaging studies. Dr. Mack is published in the field of pediatric radiology, has presented at conferences concerning pathology and radiology, and researched and written about abusive head trauma and shaken baby syndrome as it relates to radiology. *Id.*

Dr. Auer and Dr. Wigren, a neuropathologist and a forensic pathologist, respectively, reviewed all of the original microscopic autopsy slides and identified other evidence relevant to assessing why Nikki would have been prone to falling and why she ultimately stopped breathing at some point after sustaining a single, relatively minor impact that was not the primary cause of her death, just a contributing factor. Critically, Dr. Auer also explained how the small amount of subdural blood visible in the CAT scan became a large volume of subdural blood two days later. The large volume of subdural blood is what led Dr. Urban to conclude that Nikki had experienced *trauma*, which Dr. Urban then assumed had been *inflicted* by "blunt force." Dr. Urban perceived the blood itself to be evidence of "multiple impact sites," a conclusion with which far more experienced pathologists (Dr. Auer, Dr. Ophoven, Dr. Wigren) adamantly disagreed.

1. New Evidence: Expert Testimony of Dr. Roland Auer

a. Dr. Auer's qualifications

Dr. Roland Auer is a medical doctor, certified in neuropathology by boards in both the United States and Canada. He is also a research scientist with a Ph.D. in medical science. He is employed full time as a professor at the Royal University Hospital in the Department of Pathology and Laboratory Medicine at the University of Saskatchewan, where he teaches courses in clinical neuropathology to medical

residents and medical students. He has spent over 30 years performing autopsies and conducting research in laboratories. 8EHRR11-12.

As a neuropathologist, his focus, anatomically, is on the brain, spinal cord, related nerves and muscles, and the eyes. 8EHRR10. His particular field of study is brain damage, including the effect of ischemia (lack of blood flow) on the brain, and epilepsy, trauma, and neurotoxicology. 8EHRR5-6. He has published over 130 scientific articles in peer-reviewed journals. 8EHRR8. On indexes measuring the impact of scholarly contributions, he has high scores showing that his articles have been frequently cited by other researchers in peer-reviewed articles (over 10,000 times). 8EHRR9. He has published a leading treatise in his field called Forensic Neuropathology and Associated Neurology. 8EHRR10. *See also* APPX124 (Auer's CV).

Although he is employed full time as a professor and researcher, Dr. Auer has previously testified as an expert. Primarily, he testified for the prosecution until 2013 when he was asked to consult on a case involving allegations of "so-called shaken baby" injuries. 8EHRR12. In that case, he reviewed the autopsy slides, the child's entire medical history, and rendered an opinion that the child had pneumonia based on inflammation observed in the lung tissue under the microscope; his independent investigation resulted in the criminal case being dismissed. 8EHRR12; 8EHRR41. Since that time, he has devoted a percentage of his research to cases like Nikki's.

8EHRR12. To date, he has independently reviewed at least 40 such cases. 8EHRR32-33; 8EHRR40.

The habeas court accepted Dr. Auer as an expert in neuropathology, pediatric neuropathology, and as a researcher in hypoxia, hypoxic ischemia,[25] and pediatric pneumonia without objection from the State. 8EHRR14. There was no adverse credibility finding.

b. Dr. Auer's methodology in assessing the cause of Nikki's death

Dr. Auer was initially contacted about Nikki Curtis's case in 2018 by Dr. Carl Wigren, seeking a consultation following his own review of the original autopsy slides at the Dallas crime lab. After a court order was obtained, Dr. Auer was eventually able to obtain the microscopic slides associated with Nikki's autopsy and studied them in his laboratory. 8EHRR13. He requested cuts of the original histology, but was told that all of the biological materials associated with Nikki had been destroyed. 8EHRR170.

Upon reviewing the original autopsy slides of the lung tissue, Dr. Auer observed interstitial cellular thickening in Nikki's lungs, which he analogized to placing Saran Wrap over the breathing membrane. 8EHRR60-61. Dr. Auer observed, at the microscopic level, considerable interstitial thickening and

[25] Dr. Auer explained that the term "hypoxic ischemia" refers to low oxygen content in the blood. 8EHRR7.

"macrophages"—a sign that the infection in Nikki's lungs had pre-dated her hospitalization and thus was not ventilator pneumonia.[26] In the lung tissue itself, Dr. Auer also observed "smudge cells,"[27] lung cells whose nucleus has been rendered dark, a marker of "viral cytopathic effect." The presence of smudge cells was another indication that Nikki had interstitial pneumonia. 8EHRR84-86.

Dr. Auer attested that pneumonia is the most common cause of death worldwide in children, and yet the "pneumonia is being missed" in autopsies of children dying at a young age. 8EHRR90. Dr. Auer explained that unless one is trained to look for it, many pathologists will miss interstitial pneumonia because it replicates *in* the lung tissue but leaves air spaces within the lungs open. 8EHRR173.

Dr. Auer noted that, although Dr. Urban observed "macrophages" in the lungs and made a reference to them in her autopsy report, she did not "connect the dots"—likely because she was only trained to look for bronchopneumonia. Bronchopneumonia, which is more common, is characterized by pus filling up the

[26] Dr. Auer explained that ventilator pneumonia, caused by bacteria, is easy to identify and looks entirely different from interstitial viral pneumonia, which requires special expertise to identify. 8EHRR86.

[27] The State's retained expert Dr. Downs testified that he had "never heard anybody else use" the term "smudge cell" to apply to anything but "blood smears." 9EHRR75. Yet Dr. Wigren also attested to seeing "viral smudge cells" in Nikki's lung tissue. 6EHRR20. Additionally, this Court should take judicial notice of the fact that "smudge cells" are referenced in multiple scientific publications available on the Internet through, for instance, the National Library of Medicine, *e.g.*, https://pubmed.ncbi.nlm.nih.gov/27221863/ and the Mayo Clinic, *e.g.*, https://www.mayoclinicproceedings.org/article/S0025-6196(11)61073-2/fulltext and "smudge cells" are defined as remnants of "leukocytes" that come from several types of cells, including macrophages. *See, e.g.*, websites such as that hosted by LabCE, available at https://www.labce.com/spg48905_smudge_cells.aspx (last visited Feb. 22, 2022).

bronchials and air sacs; it is easy to recognize. By contrast, interstitial viral pneumonia[28] is more subtle. 8EHRR88.

Dr. Auer reviewed Nikki's entire medical history. His report and testimony included a survey of key components of Nikki's medical history from birth to her death at age two. He discussed her extensive, significant illnesses and explained their relevance to understanding Nikki's ultimate collapse. 8EHRR47-54.

Dr. Auer relied on the radiology report of Dr. Julie Mack (APPX93). He also studied the 2002 autopsy report and related photographs. 8EHRR13-14; 8EHRR43. He took photographs of the original microscope slides of Nikki's lungs using a microscope. 8EHRR44. He then prepared a comprehensive 64-page report with 222 references reflecting his findings and his conclusion that Nikki died of natural causes, namely, interstitial viral pneumonia, with an accidental component associated with the prescription drugs in her system and a short fall. APPX110 (admitted as a demonstrative); 8EHRR127; 8EHRR141. He converted his report into a summary PowerPoint presentation that was shown during his testimony. APPX110A (admitted as a demonstrative).

c. Scientific foundation for Dr. Auer's conclusions

[28] Interstitial viral pneumonia has been seen in many people infected with the COVID-19 virus. Therefore, during the recent pandemic, people have become more familiar with interstitial viral pneumonia and the way it can cause a sudden collapse due to gradual thickening of lung tissue at the cellular level. 8EHRR89; 8EHRR100.

Dr. Auer provided new evidence about the difference between damage to the head caused by trauma (that he did not find) and damage caused by hypoxia (that he did find). Dr. Auer explained that both head trauma and hypoxia (oxygen deprivation) can give rise to hemorrhages (*i.e.*, bleeding) inside the head from leaking blood vessels. 8EHRR15. Dr. Auer's research, in accord with other studies, has established that the same internal triad (observed in Nikki at autopsy) is associated with hypoxia. Hypoxia causes bleeding in infants' and children's nonperfused brains,[29] and the severity of the bleeding is proportional to the degree of hypoxia. 8EHRR29-31. Therefore, the triad of subdural bleeding, brain swelling, and retinal hemorrhage do *not* prove that head trauma occurred—let alone intentionally inflicted head trauma. 8EHRR73.

Dr. Auer testified that "hypoxia increases blood flow because the content of oxygen in the blood is reduced[;]" and as a result, "the body simply tries to increase the blood flow to deliver that same amount of oxygen[.]" 8EHRR16. As Dr. Auer explained, a person can have hemorrhaging from hypoxia without head trauma. A basic example is hypoxia brought on by activities in high altitudes, such as climbing Mount Everest. 8EHRR16. Hypoxia can ultimately stop the heart. 8EHRR61; 8EHRR73.

[29] According to Dr. Auer, medical doctors generally refer to the "nonperfused brain" as "ischemic encephalopathy or hypoxic ischemic encephalopathy." In lay terms, this condition is known as "brain death." 8EHRR46-47.

By contrast, head trauma is caused, not by oxygen-deprivation, but by "a loading impact" to the head caused, for example, by a fall or a blow. Dr. Auer explained that injury from trauma looks "identical whether intentionally inflicted or accidental." 8EHRR16. But with trauma sufficient to cause internal brain damage, there will be external markers on the skin in the form of corresponding bruises/contusions and likely corresponding skull fractures. 8EHRR144; 8EHRR16-17. Dr. Auer was clear that any fatal blow to the head would leave a corresponding bruise. 8EHRR144.

Dr. Auer agreed that a short, unbraced fall with an impact to the head can be fatal. This possibility was demonstrated by the video played during Dr. Monson's testimony and discussed at length during his testimony. APPX149. But as both Dr. Monson and Dr. Auer explained, the injury-potential of a short fall depends on many variables including the loading, the thickness of the skull, and the composition of the skull. 8EHRR147-148. If the force were sufficient to prove fatal, a skull fracture would be expected. 8EHRR24.

Dr. Auer instructed that skull fractures are an index of the loading of force in head trauma. Helmets protect heads from trauma by distributing (and thus defusing) that focal loading over a greater surface area. 8EHRR15. If the loading exceeds the strength of the skull at the point of impact, then there will be a fracture. As a matter of basic physics, if energy is applied to the head during an impact, it must be

absorbed by the skull. 8EHRR21. If it is absorbed by the skull without being defused, for instance, by a helmet, and does not cause a fracture, that indicates that the force was insignificant. As Dr. Auer noted, the photographs Dr. Urban took of Nikki's skull (and the CAT scans that Dr. Urban did not consider) show no skull fractures. 8EHRR24. This fact is uncontested.

In part, because Nikki had no skull fractures, Dr. Auer does not believe that her death can be explained by recourse to the short fall alone and the resulting single impact evident in the CAT scans, which he viewed as minor. 8EHRR24. However, he found the scans "entirely compatible" with Mr. Roberson's explanation that his daughter had fallen out of bed. 8EHRR25. Moreover, Dr. Auer found the resulting "goose egg" observed at the single impact site on the back of Nikki's head consistent with injuries caused by low-velocity falls. 8EHRR26; 8EHRR78. Additionally, her pneumonia would have made her more prone to falling because when a person has pneumonia, they become woozy and can unexpectedly collapse. 8EHRR59. Further, Nikki's balance had likely already been affected by her chronic ear infections that persisted even after she had tubes surgically implanted in her ears. And, finally, she was only two years old and thus still toddling. 8EHRR59-60.

Dr. Auer explained an obscure reference in the autopsy report regarding "multifocal traumatic axonal injury" identified using "B-APP immunohistochemical staining." The definition and significance of this staining technique is discussed at

length in Dr. Auer's report (APPX110). Dr. Auer testified that the axonal changes detected in Nikki's brain were described as "multi-focal," meaning they were "diffused," because they were observed throughout Nikki's brain. However, Dr. Auer opined that this cellular-level nerve damage is "not a signature of trauma. It can be present in global energy failure as in … cardiac arrest"—which Nikki had experienced by the time she got to the hospital. 8EHRR111. In labeling it "traumatic" axonal injury in her autopsy report, Dr. Urban was presuming trauma when there are many other causes of axonal injury;[30] moreover, Dr. Auer found the presumption inaccurate in this case. 8EHRR120-121.

Dr. Auer, a specialist in both head trauma and hypoxia, found no evidence suggesting significant trauma to the head, only one minor impact. 8EHRR80. This fact comports with the expert opinions of radiologist Dr. Mack, pediatric pathologist Dr. Ophoven, forensic pathologist Dr. Wigren, the State's trial expert Dr. Squires, and all other medical professionals who considered the CAT scans taken of Nikki's head back in 2002 when she was hospitalized, before the autopsy occurred. Only the medical examiner, Dr. Urban, and the State's retained, post-conviction expert, Dr. Downs, claimed that Dr. Urban's autopsy photographs reveal evidence of "multiple impact sites." Yet the evidence to which Drs. Urban and Downs point to support

[30] In this proceeding, Dr. Urban conceded that axonal damage can be caused by hypoxia and ischemia and thus is not specific to trauma. 9EHRR112-113; 9EHRR195-198. *See also* APPX96.

their conclusion is merely *the blood* within the subdural space—not any skull fractures, corresponding bruises to the scalp, or bruises to the brain itself. 9EHRR187.

Dr. Auer concluded that, even among the 40 cases of infant and child deaths he has studied with the same compendium of internal head injuries arising from hypoxic ischemia brought on by undiagnosed pneumonia, Nikki was "severely infected." 8EHRR50. Dr. Auer disagreed with the suggestion that Nikki's breathing apnea episodes, which began when she was seven months old, were somehow "voluntary" breathing-hold spells. Instead, these episodes of apnea likely indicated that she had been gravely ill with some pneumonia for months. 8EHRR51; 8EHRR156. The long-term virus weakened her and made her vulnerable to bacterial infections, which she had with great frequency.[31] Her chronic fever began to spike, reaching a recorded high of 104.5 degrees less than two days before her collapse. 8EHRR53-54. Dr. Auer further explained that what the State has characterized as mere "ear infections" is contrary to Nikki's medical records generally and, specifically, to evidence that her antibiotic-resistant, chronic ear infections progressed to "glue ear despite myringotomy tubes inserted." Dr. Auer characterized

[31] As Dr. Auer explained, his conclusion that Nikki was chronically ill does not mean that she was ill every day of her life. But at least once a month, throughout her life, starting at eight days old, she had medical issues, which became increasingly serious despite continuous medical intervention. 8EHRR171-173; *see also* APPX9.

this condition as reflecting "the extreme end of the spectrum," not an ordinary occurrence in childhood, even among children prone to ear infections. 8EHRR153. Dr. Auer also described the abnormal movement of Nikki's infections within her body, explaining that this is what unaddressed viruses do; they "invade multiple cells in multiple tissues of the body." 8EHRR155; 8EHRR160.

During her last days, Nikki was sent home from a doctor's appointment with a high fever (104.5) with more prescriptions for Phenergan, which is promethazine, a drug that depresses respiration, and for codeine, an opiate. As Dr. Auer explained, these medications would have done nothing to address her infections but instead affected her ability to breath. 8EHRR55-56. Phenergan/promethazine now has a "Black Box Warning" against prescribing the medication to children with a history of respiratory issues or who are under two years old. 8EHRR56. Codeine is a narcotic that metabolizes into morphine, which causes breathing stoppage and death. 8EHRR57.

Because of his special expertise in identifying pneumonia-induced hypoxia in child deaths initially considered to be abuse cases, Dr. Auer was able to look at Nikki's lung tissue under a microscope and determine that Nikki had interstitial viral pneumonia—not bronchial or ventilator pneumonia where bacteria are introduced by non-sterile air that can generate "pus" that can be easily seen. 8EHRR86.

Dr. Auer explained how the subdural blood seen at autopsy is not evidence of multiple impact sites or even trauma. Dr. Auer noted that radiologist Dr. Mack, after studying Nikki's head CAT scans taken at the time of her initial hospitalization on January 31, 2002, concluded that "The imaging findings show definitive evidence of ***an*** impact-related insult to the right side of the head." APPX93 (emphasis added).

Dr. Auer, based on his expertise in head trauma, found that the single impact site showed a minor injury as there was no skull fracture but only "some soft tissue swelling, which would be called in English a goose egg or a boo-boo if a child hit themselves." 8EHRR20. Also, the radiology confirmed that, underneath the goose egg, at the time the scan was taken, there was only "**a small subdural collection**" of blood at the impact site. 8EHRR21-22.

Dr. Auer opined that the subdural bleeding apparent at autopsy did *not* indicate other impact sites but instead suggested "continued profusion through leaky vessels." 8EHRR22. The sequence of events was: Nikki's heart stopped, ischemia set in, meaning low or no oxygenated blood was flowing, then pressure on the vessels in the subdural space increased, causing them to leak, first water then red blood cells. This process was accelerated as blood flow *from* the heart increased but blood flow *into* the brain was no longer possible. 8EHRR23. Dr. Auer opined that Dr. Urban's suggestion that the subdural hemorrhage matched external evidence of blows or impact sites was wrong. 8EHRR76. The "very faint bruising" captured in

Dr. Urban's own photographs likely came from handling the child after her collapse. And, as Dr. Auer noted, because this child was experiencing "disseminated intravascular coagulation" or "DIC" and had elevated D-dimer and partial thromboplastin during her final hospitalization, one could not touch her without leaving some marks. 8EHRR77-78; 8EHRR38-39; *see also* 8EHRR64.

Dr. Auer provided new evidence of the *effect* of medical treatment Nikki had received before the autopsy and how Dr. Urban had not taken that intervening medical treatment into account. He explained how the medical treatment that Nikki received at both the Palestine and Dallas hospitals during the two days before the autopsy affected what was later seen by Dr. Urban and captured in photographs taken during her autopsy. *See* APPX110.

Dr. Auer explained that, the fact that Nikki already appeared "blue" when she arrived at Palestine Regional indicated "deoxygenated hemoglobin at a concentration of more than 5 gras per deciliter," meaning her blood had been deprived of so much oxygen that its coloration had turned from bright red to blue.[32] This condition is a sign of hypoxia. 8EHRR25-27. Thereafter, Nikki's heart was restored, but not her brain because she had already experienced brain death. That is, her brain had become "nonperfused," a condition that, as Dr. Auer instructed, cannot

[32] Because Dr. Urban did not obtain any information from Palestine Regional, she did not know or consider this important fact.

be reversed. 8EHRR32. Dr. Auer explained that, after 10-12 minutes of heart stoppage, the brain shuts down permanently. Thereafter, blood being pumped into the head can never reenter the brain itself. 8EHRR62.

Although Nikki's brain had become nonperfused, Nikki's resuscitated heart was still pushing out blood. 8EHRR27. The scalp remained perfused; thus, blood could flow through the scalp but was trapped under the skull, being unable to penetrate the brain. 8EHRR28. Therefore, there was a causal connection between the brain death caused by hypoxic ischemia and the accumulation of the volume of subdural and intradural blood later seen during the autopsy. 8EHRR32. The blood that could not penetrate the brain detoured around the brain underneath the scalp. 8EHRR34. This phenomenon utterly refutes the hypothesis that shaking or impact caused the large volume of subdural blood. 8EHRR34.

Moreover, Dr. Auer noted that, while hospitalized, Nikki received epinephrine and three other drugs that stimulate blood flow: vasopressin, dopamine, and heparin. 8EHRR66-68. Her pulse was raised to over 200. The blood being pumped through her resuscitated heart was pouring towards the brain, but could not resuscitate the brain—or even get through. 8EHRR63-66. Anatomically, there was "no chance of ever getting blood through that brain again" once it became nonperfused (the condition commonly referred to as "brain death"). 8EHRR65.

When Dr. Urban conducted the autopsy on February 2, 2002, she observed the accumulation of subdural blood. She did not, however, reconstruct past events to assess how that accumulation in the subdural space (which Dr. Urban referred to as "subscalpular") had occurred *during* Nikki's hospitalization. 8EHRR67. As the new evidence showed, had Dr. Urban looked at the initial CAT scans, she would have seen the relatively small amount of subdural blood captured in the x-rays corresponding to a single impact site. Had Dr. Urban studied the hospital records, she should have noted several phenomena that increased the pressure inside Nikki's head and increased the volume of blood in the subdural space. She would also have seen that Nikki had been experiencing DIC (or consumption coagulopathy), which meant that her blood was not clotting properly. 8EHRR68-69. This condition further explains the volume and condition of the blood later seen in the subdural area during the autopsy.

Dr. Auer explained how he reconstructed the development of Nikki's condition at the time of autopsy, using demonstratives in a PowerPoint he created based on his lengthy report:

> In a normal child, 60 percent of the cardiac output [of blood] goes to the brain at two-and-a-quarter years of age [Nikki's age]. That's quite astounding. When that blood can't go through the brain with high blood pressure, it goes to the eye, the dura, the scalp, the face, and you often get bruising and bleeding. The eye is supplied by the central retinal artery which comes out of the eye at the back . . . , and it arises from the ophthalmic artery, and that comes off the carotid artery, and the

> carotid artery perfuses the ophthalmic and the retina even during brain death. So you have arterial perfusion of the retina in brain death.
>
> If you go to the right, the dura, it is supplied by the middle meningeal artery which comes off the maxillary artery which comes off the external carotid artery. So the dura is supplied also arterially by blood flow during brain death, and the blood has nowhere to go through the brain. So it detours around the brain via these anatomical pathways, and the stop sign [symbol] below the brain [depicted in the PowerPoint slide] is because the blood can't enter the brain.
>
> So we have all of this arterial flow to the eye and arterial bleeding in the dura during brain death, and this is commonly misread as trauma, the bleeding, but it's actually hemodynamic bleeding. It's a blood flood as I put on the -- on the slide, and the reference shows that the retina continues to be perfused during brain death, number one; and, number two, it shows that a two-and-a-quarter-year-old as Nikki has an enormous fraction. More than half of the blood is supposed to go to the brain, but it can't. So it goes to the eye and the dura.

8EHRR69-70; *see also* APPX110 (report admitted as a demonstrative); APPX110A (PowerPoint admitted as a demonstrative).

The blood observed at autopsy was no longer the small subdural bleeding close to the single impact site visible in the CAT scan taken at the Palestine hospital. The bleeding had become "bilateral"—it was "everywhere"—because more blood had been pushed into the subdural space by flow that was increased by the epinephrine, vasopressin, and the dopamine yet could not enter the nonperfused (dead) brain. 8EHRR72; 8EHRR75. At that point, the blood in the subdural space was considerable but had little to do with the small hematoma associated with the

single, minor impact site at the back of the head captured in the x-rays on January 31, 2002. *Id*. Since that blood could not return to circulation, it accumulated outside of and around the brain, which is what Dr. Urban observed when she pulled back Nikki's scalp during her autopsy on February 2, 2002. 8EHRR76.

d. Dr. Auer's conclusions regarding causation

Dr. Auer concluded that Nikki's undiagnosed pneumonia, "with the layer of drugs suppressing her respiration," caused her to stop breathing and experience cardiac arrest. 8EHRR82. The cardiac arrest explains what was observed inside Nikki's head when she arrived at the Palestine hospital:

> the cardiac arrest deprives the cells called endothelial cells, which are in front of you, the lining cells of the blood vessels, from blood flow. They then immediately start to separate from each other, and they leak, and they do that within minutes, and you get brain edema after cardiac arrest. Often [in] minutes or more, you get a lot of edema and that presses the vessels shut from the outside.

8EHRR82. But the cardiac arrest itself arose from breathing stoppage, caused primarily by her undiagnosed pneumonia.

Although Dr. Auer opined that the primary cause of Nikki's death was the undiagnosed pneumonia, he acknowledged that hers is a case of "co-pathology," meaning that many things went wrong causing her to stop breathing, including the promethazine, which was "very dangerous" and is no longer supposed to be given to patients of Nikki's age because of many adverse side effects, including respiratory

depression. 8EHRR91. On top of that, the codeine she was prescribed is a narcotic that metabolizes into morphine, which causes breathing to stop. 8EHRR92.

As Dr. Auer explained, the fall and resulting impact to the back of Nikki's head (evidenced by the goose egg seen in the hospital and the CAT scans) did not cause Nikki to stop breathing. Dr. Auer explained that head injuries, physiologically speaking, do not prompt a person to stop breathing; breathing accelerates even after a person is knocked unconscious, as is visible during a knock-out in a boxing match. 8EHRR95-96.

Dr. Auer, relying on the CAT scans as interpreted by radiologist Dr. Mack, was adamant: there is no evidence of multiple impact sites; they are not there. 8EHRR79. Dr. Auer found "no support for multiple impact sites neither on the brain nor in the skull nor in the scalp." 8EHRR126. He found "no evidence for multiple impact sites whatsoever." 8EHRR139.

Also, Dr. Auer emphasized the complete absence of any contusions on the brain itself; he looked for them and found that they do not exist. 8EHRR96. Dr. Auer opined that, although many things came together to contribute to Nikki's death, none of the factors involved intentionally inflicted head trauma. 8EHRR46-47. The ultimate cause is that her illness caused her to stop breathing and that affected her brain and the subdural membrane. 8EHRR93. Dr. Auer connected all of the data points as follows:

> Nikki has multiple causes to stop breathing. She's got multiple respiratory depressant drugs, including promethazine in very high doses and codeine in lower doses, that disappeared by the time of the autopsy toxicology. She's got pressure-driven bleeding by arterial bleeding into the retina and dura with a hyper-dynamic circulation due to epinephrine supplemented by dopamine and vasopressin. And all that is added to a pneumonia that by itself causes collapse and death.

8EHRR97.

Dr. Auer was quite certain that this case is not a homicide because Nikki's fatal breathing stoppage is "fully explained" by "a very severe and deep and chronic fever-producing through most of her life, apnea-producing pneumonia"—along with the "high doses of drugs in her system," and then "a minor fall" that impacted the head and gave rise to a right-side subdural hematoma. But resuscitating her heart and then giving her epinephrine and other drugs in the hospital caused further leakage of blood vessels "everywhere in the dura," all of the blood that was later misconstrued as proof of trauma. Yet there was no fatal trauma—inflicted or otherwise. 8EHRR103-105.

Dr. Auer concluded that "The manner of death is clearly natural, and the fall off the bed is clearly accidental. . . . [I]t's not a homicide either. So this is an inaccurate characterization of the manner of death based on the evidence." 8EHRR127.

All of the expert testimony from a world-renowned neuropathologist and research scientist was new.

2. New Evidence: Expert Testimony of Dr. Janice Ophoven

a. Dr. Ophoven's qualifications

Dr. Ophoven has been a licensed medical doctor since 1971. 3EHRR13. She is board certified in forensic pathology and anatomic pathology with special training and experience in pediatrics and pediatric pathology. 3EHRR13-14. She began her medical career as a pediatrician before becoming an expert in child abuse and child death cases and then focused for decades on the subspeciality of pediatric pathology. 3EHRR14-22. She was on the staff of the St. Paul Children's Hospital in Minneapolis, during which time she worked almost exclusively with law enforcement and prosecution and consulting with medical examiners' offices on particularly challenging pediatric death cases. 3EHRR22-23 She developed a nationally recognized model advocacy center for consulting on how to assess suspected cases of child abuse and ultimately helped train law enforcement throughout the state on how to investigate injuries or fatalities of children mostly less than two years of age and trained physicians in identifying families at risk to help prevent child abuse and other domestic violence. 3EHRR23-24.

Dr. Ophoven was instrumental in promoting recognition of child abuse as a very real societal problem and, to this day, at least once a week, makes diagnoses that violence perpetrated against a child was the cause of brain damage. 4EHRR68.

Dr. Ophoven has performed many hundreds of autopsies on children and consulted on hundreds more. 3EHRR25-26; 4EHRR87; 4EHRR96. She has authored a chapter of a medical textbook on forensic pediatric pathology, beginning in the 1990s, which was the first of its kind. 3EHRR25-26.

She has testified as an expert over 200 times in state and federal courts, for both the prosecution and the defense, and has also testified as an expert witness in proceedings in the United Kingdom and Australia. 3EHRR26-27; 4EHRR89. She has frequently been asked to provide expertise in cases involving child death cases, including cases involving toddlers with similar brain damage as observed in Nikki. 3EHRR28.

The habeas court accepted Dr. Ophoven as an expert in forensic pathology with a particular emphasis in pediatric pathology without objection from the State. 3EHRR30. There was no adverse credibility finding.

b. Dr. Ophoven's methodology in assessing the cause of Nikki's death

Dr. Ophoven was asked to conduct an independent forensic analysis; and in preparing to do so, she reviewed (1) all of Nikki's available medical records; (2) witness statements and medical records reflecting Nikki's condition in the days and weeks before the fatal event; (3) all available records of the emergency and in-patient services she received; (4) the autopsy report created by Dr. Jill Urban and all

available supporting materials; (5) the trial testimony provided by medical doctors; and (6) investigative materials and reports. 3EHRR29; 3EHRR31-32.

Dr. Ophoven concluded from all available evidence that Nikki had sustained a single impact to her head within 72 hours of her presentation for medical attention. 3EHRR32. Dr. Ophoven found evidence of the impact located "to the right posterior lateral or side of the back of the head[.]" 3EHRR32. As Dr. Ophoven explained the radiographic evidence, or x-rays/CAT scans, shows changes to Nikki's scalp in the form of swelling of the skin and soft tissue at a discrete impact site. 3EHRR43; 3EHRR82-88. Dr. Ophoven further noted that the radiographic evidence aligned with a diagram made during the autopsy showing a single impact site "to the right posterior lateral side, back of her head" as well as "bleeding under the scalp and swelling of the scalp over the right side" associated with the impact. 3EHRR43; 3EHRR65; 3EHRR68; 3EHRR72; 4EHRR157-158; *see also* SX58. She concluded that this impact resulted in subdural bleeding and then "a cascade of complications over time that led to other findings that include increased intracranial pressure, severe brain swelling, retinal hemorrhage, and brain death." 3EHRR32-33.

Dr. Ophoven concluded that the designation of death should not have been homicide. Based on the scope of her review, she would have concluded that the cause was undetermined. 3EHRR34. In part, this is because there is no scientific basis for looking at an impact site and concluding whether it was intentionally inflicted or the

result of an accidental fall. 3EHRR57. What needed to be done was an inquiry into whether there was a problem with Nikki's **breathing**. 3EHRR58.

c. Dr. Ophoven's conclusions regarding causation

Dr. Ophoven, in accord with Dr. Auer and Dr. Wigren, found that Nikki died because her brain stopped due to "increased intracranial pressure and swelling" that was a function of ischemia or lack of oxygen. 3EHRR34. Based on the information available to her, Dr. Ophoven was unable to conclude what had caused the lack of oxygen; that would have required further investigation.[33] Dr. Ophoven was, however, confident that the evidence available at the time of autopsy does not support a conclusion that the precipitating event was caused by "shaking" *or* by "multiple impacts" to the head. 3EHRR34. Similarly, she was confident that darker blood in the subdural space is **not** evidence of multiple impacts as Dr. Urban told the jury and the habeas court. 3EHRR69.

Dr. Ophoven opined that all of the internal head injuries observed in Nikki simply means that she had suffered irreversible damage from oxygen deprivation. 3EHRR81. Dr. Ophoven, like neuropathologist Dr. Auer, saw no evidence that the

[33] Dr. Ophoven did not have the opportunity to see the original autopsy slides, yet, as Dr. Auer explained, that evidence is essential to forming a definitive opinion regarding cause and manner of death. 8EHRR169. Because Dr. Ophoven did not see the autopsy slides, including the slides of lung tissue that Dr. Auer and Dr. Wigren studied under a microscope, she did not have access to the evidence of Nikki's pneumonia—as both Dr. Auer and Dr. Wigren did.

brain itself had been bruised. 3EHRR78. Nor did the neuropathology work-up requested by Dr. Urban find any brain bruising. 3EHRR79.

Dr. Ophoven found that the evidence supports a conclusion of a single impact site on the back of Nikki's head, contrary to Dr. Urban's assessment. But considerable other evidence, never considered by Dr. Urban or anyone else at the time, shows that the impact site was not the only factor that contributed to the cascade of conditions in Nikki—subdural bleeding, brain swelling, herniation, retinal hemorrhages. 3EHRR49. The blood vessels on the under-side of the dura became damaged by oxygen-deprivation. 3EHRR52. Once damaged, the vessels began to leak into the subdural space, thereafter causing braining swelling, herniation, and retinal hemorrhage. 3EHRR52. Dr. Ophoven provided a detailed, anatomical explanation of how this occurs. 3EHRR50-51.

Dr. Ophoven further explained that anyone who stops breathing and has their heart stop is at risk for the same constellation of internal head injuries Nikki sustained. 3EHRR53. If the brain is deprived of oxygen, brain swelling occurs. Then, as pressure against the brain increases, bleeding into the eyes, which are connected to the brain, can occur. 3EHRR53-55.

All of the expert testimony from a pediatric forensic pathologist with decades of experience assessing the cause of infant and child deaths was new.

3. New Evidence: Expert Testimony of Dr. Carl Wigren

a. Dr. Wigren's qualifications

Carl Wigren, M.D. has been licensed since 2001 after obtaining a medical degree from the University of Washington School of Medicine. 5EHRR159. He is a forensic pathologist with a specialty in anatomic pathology and a subspeciality and special training from the American Board of Pathology and Forensic Pathology. 5EHRR156. He has worked as a medical examiner and as a private consultant and, to date, has performed over 2,000 autopsies and maintains an active practice. 5EHRR157. He is a member of the American Academy of Forensic Sciences. 5EHRR157-159; APPX92.

Dr. Wigren has been accepted as an expert and testified in 120-125 cases, both civil and criminal. His testimony has been sponsored by parties for both sides. 5EHRR161; 6EHRR10.

The habeas court accepted Dr. Wigren as an expert in forensic pathology, without objection to his qualifications from the State. 5EHRR163-165.[34] There was no adverse credibility finding.

b. Dr. Wigren's methodology

For this case, Dr. Wigren was asked to conduct an independent assessment of cause and manner of death after: examining the medical testimony proffered at the

[34] The State did not object to Dr. Wigren's qualifications to opine; however, the State did object to his testifying about the cause and manner of Nikki's death as "outside the scope" of the Court of Criminal Appeals remand order. The habeas court overruled that objection.

trial; reviewing the autopsy report that was rendered following the examination of Nikki Curtis; looking at the autopsy photographs of Nikki Curtis; studying under a microscope the histology, which are the microscopic slides from samples that were taken by the forensic pathologist who performed the autopsy (Dr. Urban); and reviewing relevant information gathered by law enforcement. 5EHRR162. The latter included scene photographs of the bed and the cinder blocks underneath the bed holding it up. 5EHRR165-166; *see* APPX40-45. Dr. Wigren also noted that the lead investigator, Detective Wharton, saw nothing suggesting that violence had occurred in the house where Nikki had collapsed.[35] 6EHRR30.

Dr. Wigren was required to travel to the Dallas crime lab (SWIFS) with his own microscope to obtain access to the original autopsy slides that Dr. Urban had created on February 2, 2002 during Nikki's autopsy. 5EHRR166. At the crime lab, Dr. Wigren was surprised to see that the file did not include any CAT scans of Nikki's head mentioned in medical records he had reviewed; nor did the file include any medical records. 5EHRR166. Dr. Wigren asked that follow-up inquiries be made at the two different hospitals where CAT scans had been made (Palestine Regional and Children's Hospital) during Nikki's last days; however, both hospitals stated

[35] Detective Wharton, testifying in this proceeding, reaffirmed that the investigators had looked for signs of violence at Mr. Roberson's house and found none. 7EHRR23-24; 7EHRR26.

that the scans were no longer available, which struck him as odd in a case involving the death of a child and a criminal prosecution. 5EHRR167-168.

After the head scans were later found in the courthouse basement in August 2018, Dr. Wigren asked that a radiologist, trained to interpret such scans, be consulted. 5EHRR169. Ultimately, Dr. Julie Mack, a radiologist with Penn State Health Milton S. Hershey Medical Center, was able to review digitized copies of the head scans that had been taken when Nikki was first brought into Palestine Regional the morning of January 31, 2002. Dr. Mack prepared a report that Dr. Wigren reviewed and relied on. 5EHRR172; APPX93.

Dr. Wigren also consulted with a neuropathologist, Dr. Roland Auer, because of his special expertise in the nervous system (the brain, the eyes, the spinal cord, and related nerves). 5EHRR178-179. Dr. Auer is the author of an advanced treatise, Forensic Neuropathology and Neurology, that Dr. Wigren relies on. 5EHRR182; APPX94. Dr. Wigren believed that a consultation with Dr. Auer was advisable because Nikki's injuries seemed to be neurological. Dr. Wigren requested that Dr. Auer study the autopsy slides himself to determine if Nikki's injuries were related to trauma, specifically, blunt force injury to the head, or were due to the absence of oxygen to the brain for an extended period. 5EHRR280.

Additionally, while looking at the lung autopsy slides, Dr. Wigren had noticed that Nikki's lungs exhibited signs of pneumonia—not a hospital-acquired, ventilator

pneumonia, but chronic interstitial pneumonia that was causing changes to the actual lung tissue. 5EHRR183; 6EHRR14. Dr. Wigren's review of the medical records revealed that, in the week prior to her death, Nikki had been quite ill with temperatures reaching up to 104.5 degrees on January 29, 2002, the last day she was seen by a doctor before her collapse the morning of January 31, 2002. 5EHRR180. Dr. Wigren asked Dr. Auer to look at the lung autopsy slides to determine whether the signs of pneumonia in Nikki's lung tissue indicated an infection that had existed before her final admission to the hospital. 5EHRR181.

Aside from observing issues in Nikki's lung tissue, Dr. Wigren noted that the autopsy report itself contained several pieces of information suggesting that Nikki's lungs were infected. First, the autopsy report stated that the right lung had been measured at 170 grams, and the left lung at 150 grams. Dr. Wigren explained that those lung weights were roughly double the normal lung weight seen in a child of Nikki's age. 5EHRR184. Second, the autopsy noted other problems with Nikki's respiratory system: "Sectioning of the lungs discloses a dark red-blue, moderately congested, slightly edematous parenchyma." Dr. Wigren explained that that notation was significant because lung tissue is not ordinarily dark red-blue; and the description of "edematous parenchyma" means that the lungs were congested, suggesting a pneumonia. Third, according to the autopsy report, the trachea (the windpipe going into the lungs) had signs of chronic inflammation, indicating that

Nikki's body had been fighting an infection for some time. Fourth, the autopsy report refers to "interbronchial aggregates of neutrophils" and "macrophages." Dr. Wigren explained that the reference to "neutrophils" suggested the presence of an infection in the lungs. Moreover, "macrophage" are large cells that take more time to form and "eat" other cells as a defense against infection. Additionally, Dr. Wigren observed that, under the microscope, the lung tissue was widened, with "lymphocytes" within the tissue, another indicator of a chronic lung infection. 5EHRR184-187.

Dr. Wigren explained that a finding of pneumonia is significant because pneumonia decreases oxygen intake as it spreads. 5EHRR188. As oxygenation levels start to drop, a person starts to experience shortness of breath until a tipping point occurs when insufficient oxygen is reaching the person's brain, and they become "hypoxic," disoriented, and vulnerable to collapse. 5EHRR188-189.

Dr. Wigren explained and demonstrated the importance of consulting with experts in other disciplines as part of conducting an adequate forensic assessment. 6EHRR42. As he explained, this kind of multi-disciplinary approach is especially important in a complex case like Nikki's with "many moving parts." 5EHRR201. Among the kinds of experts that needed to be consulted in this case, where a short fall had been reported, was a biomechanical engineer because this is the expert best

equipped to ascertain the kind of forces that can impact the head and cause potentially fatal injuries. 5EHRR169.

In endeavoring to ascertain cause and manner of death, particularly of a child, Dr. Wigren attested that a forensic pathologist must conduct a "mini-inquest," using information obtained from law enforcement, CPS, family members, and medical records. The investigation requires a complete medical history of the decedent, an understanding of the scene where the child was reportedly injured, and knowledge of any medications the child may have been taking at the time of her collapse. 5EHRR159-160; 6EHRR31. Dr. Wigren opined that, generally, the more information a forensic pathologist gathers, the more likely any determinations of cause and manner of death are going to be accurate. 5EHRR178.

Dr. Wigren emphasized that it is important for forensic pathologists to visit the scene themselves to look at the environment and take measurements and to ask specific questions relevant to understanding the circumstances of the child's injuries. 5EHRR219-220. In the case of Nikki Curtis, that would have entailed asking precisely where on the floor Nikki had been found and what position she was in and studying the environment, including the bed that was propped up on cinder blocks, where she had purportedly fallen. 5EHRR220-224. Without viewing the scene, a

statement that she "fell out of a bed" provides very little information for the forensic pathologist to evaluate.[36] 5EHRR224.

Dr. Wigren also explained the importance of distinguishing between Nikki's condition at the time of admission to the hospital versus at the time of autopsy. For instance, once transferred to Dallas, Nikki had an intracranial pressure monitor drilled into the top right side of her skull to monitor her brain. That process would cause bleeding into the scalp, further altering what would be observed at the time of autopsy. 5EHRR173; 5EHRR175. Dr. Wigren also explained that intracranial pressure is normally measured around 5-15, whereas during Nikki's last hospitalization, hers was measured up to 60-65,[37] which is why medical professionals elected to drill the pressure monitor into her skull. 5EHRR239.

c. Dr. Wigren's conclusions regarding causation

After conducting a comprehensive, independent forensic assessment, including consulting with qualified experts with expertise in other disciplines, Dr. Wigren identified several factors that were critical to understanding his conclusion that Nikki's death was not a homicide. These factors include: (1) the report of a fall off of a bed; (2) the evidence (CAT scans and autopsy photographs) of only a single

[36] Dr. Urban conceded that she did not undertake any investigation of the scene. Yet even the State's retained expert testified that he always visited the scene when he was a practicing medical examiner. 9EHRR62.

[37] Likewise, Dr. Ophoven opined that intracranial pressure should be "between 5 and 15 millimeters of mercury," yet Nikki's was measured at 65. That degree of pressure meant "no blood was circulating" into her brain when her brain was already dead. 3EHRR79-80.

impact site to the back of Nikki's head that was consistent with the report that she had sustained a short fall; (3) evidence in the toxicology report of potentially toxic quantities of a drug (Phenergan/promethazine) in Nikki's bloodstream at the time of autopsy, a drug which had been prescribed to her on January 29, 2002, less than two days before her collapse; (4) evidence that she had also been prescribed cough syrup with codeine,[38] a narcotic that metabolizes into morphine; (5) evidence that the fall occurred while she was in an unsafe and unfamiliar sleep environment, a bed that consisted of a mattress and box springs that had recently been propped up on two layers of concrete cinder blocks, some of which were sticking out from under the box springs;[39] and (6) evidence that Nikki had undiagnosed pneumonia. 5EHRR201-209; *see also* APPX95 (Dr. Wigren's chart/demonstrative); 5EHRR225-238; 6EHRR25.

Dr. Wigren walked through each of these factors and how they were relevant to understanding the toddler's circumstances when she experienced an unwitnessed fall around 5:00 AM in the morning while cognitively impaired from an underlying illness that affected her lungs and from the promethazine and codeine in her system,

[38] Codeine/morphine alone makes it difficult to breathe. That is why morphine is used to relieve pain at the end of life. 5EHRR239. Additionally, it is not supposed to be given to children under 12 years of age. 6EHRR29.

[39] Larry Bowman testified in this proceeding that Nikki "always" slept in the same bed with him and his wife and she would move around "like a little brush hog or something just going around and around." 6EHRR172. No one compared the two sleeping environments, but it was uncontested that Nikki had not previously stayed over at Mr. Roberson's house with the bed propped up on cinder blocks.

drugs that have a sedating effect and depress the respiratory system. 5EHRR227-228.

Dr. Wigren concluded that Nikki's condition was caused by multiple factors that came together to cause an "unfortunate accident" and was "absolutely not" a homicide. 5EHRR240; 5EHRR244.

Dr. Wigren opined that SBS/AHT played no role in causing Nikki's death. 5EHRR244.

All of the expert testimony from a forensic pathologist with a very active and diverse practice involving thousands of autopsies was new.

D. New Evidence of Significant Flaws in the 2002 Autopsy

Dr. Ophoven testified that, for many years, when a child had died and there was evidence of anything that suggested trauma, medical doctors were taught to assume abuse first absent some "clear-cut traffic accident" or similar event to put ensuring children's safety first. 3EHRR41-42. Thus, bias was explicit. Current teaching is that medical examiners must differentiate between opinions and speculation on one hand and evidence-based, scientific interpretation on the other hand. 3EHRR41-42. Applicant adduced considerable new evidence that Dr. Urban failed to conduct a "differential diagnosis," identifying all relevant circumstances and conditions in an individual complainant before rendering an opinion in a criminal case. 4EHRR72-73. Applicant also adduced considerable new evidence that

Dr. Urban failed to maintain sufficient objectivity during the initial investigation or thereafter in considering the critiques of an autopsy performed twenty years ago when she was relatively inexperienced.

1. Errors of Omission

It is uncontested that Dr. Urban's autopsy report, which was put before the jury, and her trial testimony regarding the same, do not discuss any of the following:

- Nikki's medical history, including her illness during the days right before her collapse;
- The implications of the toxicology finding of a high level of promethazine still in Nikki's system at the time of autopsy;
- The prescriptions Nikki was given during her last doctor's visit less than two days before her collapse, which included Phenergan/promethazine in two forms and cough syrup with codeine;
- The environment where Nikki reportedly fell off the bed and was found on the floor and any consideration of how an accidental fall may have caused any of the injuries observed in Nikki when she arrived at the hospital;
- The drugs given to Nikki during her final hospitalizations or how those drugs would have affected vascular circulation inside Nikki's head after her brain was already nonperfused (dead); or
- The CAT scans of Nikki's head taken at Palestine Regional and Children's Hospital before the autopsy showing a single impact site.

8EHRR107-108; *see also* APPX12 (autopsy report dated 2-02-2002).

Applicant adduced new evidence that all of these omissions seriously undermine confidence in Dr. Urban's methodology and conclusions. As Dr. Wigren

opined, instead of considering the multiple factors that likely caused Nikki's death, Dr. Urban saw an impact site then concentrated on the subdural blood and retinal hemorrhage and interpreted those conditions, incorrectly, as multiple impact sites from which she further extrapolated wounds that had been intentionally inflicted. 5EHRR241.

Dr. Urban did not know of or consider the role of Nikki's underlying illness and its effect on respiration. 4EHRR78-79. Dr. Urban did not know of or consider Nikki's history of breathing apnea that had prompted a neurological workup in September of 2000, when a CAT scan had also been taken. 5EHRR176. That earlier scan might have indicated whether Nikki was particularly vulnerable to subdural collection of blood after an impact to the head. 5EHRR176-177. But it was never investigated by Dr. Urban, who did not review any of Nikki's medical records.

Although the medical records show that Nikki had developed an inability to clot her blood, Dr. Urban did not investigate or consider this circumstance. 3EHRR55.

Dr. Urban's autopsy report includes the unexplained statement that "Interbronchial aggregates of neutrophils and macrophages" were observed in Nikki's lungs. APPX12. Dr. Urban likely lacked the expertise in 2002 to recognize evidence that Nikki had life-threatening interstitial viral pneumonia, but her inability

or unwillingness to learn from the contemporary teachings of more experienced experts should have been disqualifying.[40]

Dr. Urban did not make a reasonable effort to distinguish between injuries or internal bleeding associated with treatment Nikki received in the hospital versus her condition when initially admitted to Palestine Regional. 5EHRR175. Dr. Urban did not consider what happens to the brain when it stops receiving sufficient oxygen and then dies. Dr. Ophoven, Dr. Wigren, and Dr. Auer each explained that, once this occurs, blood cannot move through the brain. Meanwhile, increased intracranial pressure would have caused the tiny blood vessels related to the dura to rupture. Once the brain itself was unable to absorb blood, the accumulating blood detoured around the brain, trapped in the subdural space.

Dr. Urban did not consult with a biomechanical engineer about matters of physics and the kinds of forces that can cause injury and in what form. Instead, Dr. Urban agreed at trial with Dr. Squires, a child abuse pediatrician without any evident

[40] In the evidentiary hearing, it was established that Dr. Urban, who had little experience when she conducted Nikki's autopsy, made numerous mistakes, big and small. For instance, according to Dr. Auer, Dr. Urban used, "interbronchial," is not a location in the lungs, but he understood her to be referring to part of the airways. "Neutrophils" are essentially "pus," which would have been associated with bronchial pneumonia, which Dr. Auer did not see and thus believes she may have used this term in error. Dr. Auer said that he did find "macrophages" when he looked at the lung tissue under a microscope, but, as he explained, macrophages are associated with a longer-term infection and thus further support the finding of viral pneumonia, not ventilator pneumonia as Dr. Urban suggested in this proceeding. 8EHRR112. Although Dr. Urban admitted that a lot of her cases "run together," she did not acknowledge learning anything in the intervening years since 2002 that would make her doubt her findings. 9EHRR121; 9EHRR127.

training in biomechanics, when the latter claimed that "rotational forces," *i.e.*, shaking motions, "were the likely mechanism" that caused Nikki's brain injury. 5EHRR194 (quoting trial testimony). As Dr. Wigren explained, forensic pathology does not involve the study of physics and the study of forces and related mechanisms of injury is outside their purview (as well as outside the expertise of pediatricians like Dr. Squires). *Id.* That is why contemporary standards requires consultation with other experts, which Dr. Urban did not do before deciding Nikki's death was a homicide. APPX101.

Dr. Urban had requested a toxicology report but nothing in her autopsy report indicates that she took its results into account. The toxicology report showed that, at the time of autopsy, Nikki's blood still had promethazine in her system of a quantity that would be toxic in a child of her age and size. Promethazine had been prescribed to her on January 29, 2002 along with codeine. Dr. Urban should have been prompted by the toxicology report to consult, at the very least, a basic treatise that would have shown that Nikki had very high amounts of promethazine in her postmortem blood. Dr. Urban did not consider the presence of that drug or the effects it would have had on Nikki's nervous system at all. Nor did Dr. Urban consider how this drug would have affected Nikki in light of her chronic underlying infections, her recent temperature of 104.5, or the codeine that she had been prescribed. 5EHRR229-238.

Applicant's new evidence established that Dr. Urban did not consider Nikki's medical history, her current symptoms and medications, the postmortem toxicology showing a high level of promethazine in the post-mortem blood, or the scene where the reported fall occurred, all of which were material.

The failure to consider the CAT scans taken of Nikki's head when she arrived at Palestine Regional alone entirely undermine Dr. Urban's credibility. Those scans constitute critical exculpatory evidence because they directly contradict Dr. Urban's finding of "multiple impact sites" on the head that she believed had caused Nikki's internal symptoms. The CAT scans showing a single impact site also corroborate Mr. Roberson's report of a short fall.

The autopsy report associated with Nikki Curtis does not mention *any* CAT scans, either the scans taken when she was first admitted to Palestine Regional or after she was transferred to Children's Hospital in Dallas. *See* APPX12. At trial, State's expert Dr. Janet Squires referred to the CAT scans and the evidence of only a single impact site. But Dr. Urban, the medical examiner, did not refer to the head CAT scans in either her autopsy report or her trial testimony. 5EHRR168.

Contrary to Dr. Urban's testimony and her 2016 affidavit, only a single impact site can be observed in the CAT scan. 5EHRR172; APPX93. Specifically, radiologist Dr. Mack reported seeing a single impact site and associated soft tissue swelling over the right side of Nikki's skull. *Id.* Dr. Mack focused on the very first

CAT scan taken shortly after Nikki's arrival at the hospital in Palestine because it most accurately captured Nikki's condition at the time of admission—before she was put through two days of extensive medical treatment. 5EHRR172.

Applicant's new evidence demonstrated that Dr. Urban reached a determination that Nikki's death was a homicide without considering multiple relevant factors and thus her conclusion cannot be considered based on "a reasonable degree of medical certainty." 4EHHR81.

2. Errors of Commission

In addition to the material omissions, Applicant adduced new evidence that several errors of commission, as illuminated by reliable expert testimony, that taint Dr. Urban's autopsy report and trial testimony and are material to assessing her current opinion that there is no basis to change her 2002 findings regarding the cause and manner of Nikki's death.

a. Overstating the evidence of relevant blunt force injuries

Dr. Urban concluded that Nikki's death was caused by "blunt force injuries," yet Dr. Auer, a specialist in head trauma, found *no* evidence of blunt force injuries to the head other than the "goose egg" on the back right side of Nikki's head, observed in the CAT scans. 8EHRR135; 8EHRR137. The absence of credible evidence of blunt force injuries is likely why the State pursued the SBS theory at trial, largely through child abuse expert Dr. Squires. At trial Dr. Urban also defined

"shaking" as one way blunt force injury could be inflicted, in addition to "blows" to the head. But as Dr. Auer opined: "it's an overreach to diagnose trauma. It's actually more than an overreach. There's no real basis for a fatal head injury here, clinically [or] pathologically. The only thing, there's a goose egg," which Dr. Auer believed was caused by "an accidental roll out of bed." 8EHRR138. That impact likely caused the small amount of subdural bleeding visible in the CAT scan, but Dr. Urban did not gather the information and reconstruct the events leading up to the time of the autopsy that explain the considerable subdural blood that Dr. Urban saw later and incorrectly viewed as evidence of "multiple impacts."

In her autopsy report, her trial testimony, and her testimony in this habeas proceeding, Dr. Urban claimed that she saw evidence of a "blow" to Nikki's mouth in the form of a torn frenulum. Yet as Dr. Auer and other experts attested, a torn frenulum is common when a child is intubated. 8EHRR113; 6EHRR123-125. Also, the staining technique used on that wound indicated that it was "very recent," "not a few days old"—therefore, it had to have occurred during Nikki's hospitalization soon before the autopsy. 8EHRR114. Moreover, as Dr. Auer explained, the torn frenulum would not be evidence to support the conclusion of fatal head trauma. Dr. Auer noted that Dr. Urban's explanation of why the torn frenulum was relevant "doesn't make sense" as there was "ample other cause for" the minor injury to

Nikki's lip and frenulum. 8EHRR123; 8EHRR125. Moreover, there was no evidence that anyone observed a torn frenulum before Nikki was intubated.

Dr. Ophoven opined that a medical examiner has to be careful in interpreting facial injuries and mouth abnormalities that can occur during the process of resuscitation. Dr. Ophoven emphasized that there are a number of possible injuries that can occur during the violent process associated with a Code Blue situation, which was initiated when Nikki arrived at Palestine Regional: there would have been individuals responsible for putting the endotracheal tube in by adjusting Nikki's head and mouth, pulling her jaw up and away from the mouth, lifting her tongue with a blade, and pushing a tube down through the vocal cords into the trachea. 4EHRR184. Moreover, the records showed that Nikki's intubation had initially been mishandled such that medics had had to pull the breathing tube back out and then reinsert it down Nikki's throat. 42RR87. Dr. Urban does not appear to have taken this process into account and instead presumed that Nikki's torn frenulum was evidence that a "blow" had occurred.[41]

Dr. Urban listed retinal hemorrhage among what she characterized as "blunt force injuries," but as Dr. Auer explained, bleeding in the eyes and optic nerve is

[41] At trial, the State adduced testimony from one of the ER nurses (Andrea Sims) who asserted that the torn frenulum, which Sims never saw, was evidence of a sexual assault; that highly prejudicial contention is addressed below. In any event, the torn frenulum is not relevant to understanding Nikki's internal head injuries by the time of the autopsy. Dr. Urban's characterization of the torn frenulum as a "blunt force injury" relevant to cause of death was misleading.

caused by intracranial pressure, which Nikki undoubtedly experienced, not blunt force. 8EHRR116. Also, as Dr. Auer instructed, "there's no way of getting a blunt force to the optic nerve. It's packed in fat and bone. It's in a bony canal, and the back of the eye is unreachable for trauma as well." These hemorrhages were "flow-related," not the result of an external "blunt force." 8EHRR121.

In her autopsy report and in her 2016 affidavit, Dr. Urban referenced a "contusion and an abrasion on the face." APPX100. But what is apparent in the autopsy photographs are marks likely caused by medical personnel masking, intubating, and moving the child when she was in the hospital. 8EHRR125. More specifically, Dr. Auer noted that "the face has marks on it which must occur when a child with DIC is held either for surgery as when the intracranial pressure monitor was placed [into her skull] or for intubation or for any procedure or just being moved in bed. The child was brain dead, so had to be handled and moved. So the face and the extremities have to show some markings." 8EHRR125. There are no abrasions or signs associated with a face that has been punched or otherwise struck with the force required to cause an internal injury. 8EHRR132. Dr. Auer noted that the autopsy photographs do not depict any face abrasions. 8EHRR134; *see also* EHRR139. Although photographs taken at Palestine Regional capture some light bruising on the face, those could be attributable to her short fall induced by her hypoxia or Mr. Roberson grabbing her face and shaking it to try to revive her. They

are not, according to head trauma and brain expert Dr. Auer, indicative of a fatal head injury from trauma. 8EHRR151-152.

Dr. Ophoven specifically rebutted Dr. Urban's claim that her autopsy photographs showed "multiple impact sites" sustained pre-hospitalization. Nikki's condition was instead caused in part by what happened while she was being treated, as Dr. Ophoven explained using the autopsy photographs:

> you can see discoloration of the skin of her scalp that reflects the blood that has moved there from her ongoing bleeding. This isn't a bruise. This is discoloration from the bleeding that's underneath there. There's no impact sites. . . . There are three -- four incisions in her skin there, all of which are going to produce bleeding, and one of them -- the one that -- where the tube [from the pressure monitor] is going into the skin is actually where the tube enters the skull.
>
> So they had to drill into the bone of the skull, which is going to keep bleeding, and the skin is going to keep bleeding from her problems with clotting. So seeing blood all underneath the scalp skin there, that was done by the doctors. That's not injury.

3EHRR73-74.

b. Equating blunt force with "blows," *i.e.*, intentionally inflicted injury

Dr. Urban erred in treating "blunt force" as synonymous with inflicted blows. As Dr. Ophoven explained, "blunt force head trauma" is simply "the constellation of changes to tissue that results from *some* form of impact typically, and with head trauma[,] impact can occur from a moving head against a surface, a moving head

against an object, or a moving object against a head." 3EHRR42-43 (emphasis added). Dr. Ophoven addressed the example of someone, unobserved, falling on the stairs, hitting the back of their head, and being rendered unconscious; Dr. Ophoven opined that a forensic pathologist (or other medical doctor) would have no way to look at the resulting injury during an autopsy and determine whether the injury had been caused by slipping, someone intentionally pushing the person, or hitting the person with a blunt object. 3EHRR57. The State's retained expert in this proceeding reluctantly concurred. 10EHRR169.

c. Misrepresenting the source and significance of the blood observed under the scalp

Dr. Auer testified that the diffuse bleeding that Dr. Urban observed inside Nikki's head and captured in the autopsy photographs is seen in people with coagulopathy, which Nikki had, a condition exacerbated by the drugs she was given in the hospital to promote circulation. The diffuse bleeding is not a sign of impact sites, as Dr. Urban repeatedly claimed. 8EHRR118.

Dr. Urban gave the jury the false impression that the blood in her autopsy photographs somehow represented injuries Nikki had sustained when she was brought to the hospital. But as Dr. Ophoven explained, "to suggest to the jury that the inside of her scalp looked like that" because of what had "happened to Nikki at the house is absolutely incorrect and doesn't represent in any way the nature of the

injuries that she may or may not have received," and thus are "incredibly misleading." 3EHRR69-70; *see also* 3EHRR77-78.

In this proceeding, Dr. Urban repeatedly attested that the presence of blood/hemorrhage in the subdural space was the evidence of "multiple impact" sites. 9EHRR38; 9EHRR41; 9EHRR43-40; 9EHRR50; 9EHRR52-54; 9EHRR70-71. Yet as Dr. Ophoven explained, once blood vessels in the dura around the brain begin to leak, the blood will accumulate there. 3EHRR66. Therefore, one cannot conclude that the location of the blood indicates where trauma occurred. 3EHRR66. The correlation has to be with what is observed *outside* of the scalp. *Id.* The bleeding observed at autopsy was consistent with (1) a single impact (as proven by CAT scan not shown to the jury); (2) a documented clotting problem (not disclosed to the jury); (3) the anticoagulants Nikki was given in the hospital during triage when she was already having trouble clotting (not disclosed to the jury); (4) the pressure monitor screwed into her scalp (not explained to the jury); and (5) the extremely high intracranial pressure she was experiencing that led to herniation (not explained to the jury). 3EHRR66-67. None of this amounts to evidence of "multiple impacts" or "blows." 3EHRR68.

Dr. Wigren demonstrated that the incision Dr. Urban had made on the top of Nikki's head during the autopsy to allow Dr. Urban to pull Nikki's scalp back had caused dark subgaleal blood at the incision site to be moved during the autopsy; thus,

that darker blood could not be construed as evidence of "multiple areas of subgaleal hemorrhage" as Dr. Urban suggested since her own actions had created the movement of the blood. 5EHRR212-213.

Dr. Ophoven further explained that the blood that had pooled under Nikki's scalp was "consistent with gravity and having her [lie] on her back in the intensive care unit"; "there is no way to look at where the blood is … and say these are impact points[.]" 3EHRR76-77. Dr. Urban's autopsy photographs, as Dr. Ophoven noted, were taken "many hours after a complex medical treatment," and did not reflect the minimal trauma, consistent with a short fall, that may have started the subdural bleeding that increased when she ceased breathing due to the effects of hypoxia. 3EHRR77.

In light of Applicant's new evidence of the errors surveyed here, Dr. Urban's conclusions that Nikki's death was caused by blunt force injuries (inflicted by shaking + impact) and that her death should be considered a homicide should have been roundly rejected.

E. New Evidence of the Falsity of the Sexual Assault Allegations

In addition to the false testimony related to shaking and "multiple impacts," Applicant adduced testimony in this proceeding from an expert demonstrating the false and misleading nature of the sexual assault testimony the State presented at

trial through ER nurse Andrea Sims. Sims claimed to be a certified SANE until, on cross-examination, she admitted that she was not actually certified. 41RR144.

Kim Basinger, a nurse who is *in fact* a certified SANE and a registered nurse who specializes in trauma, testified in this proceeding. 6EHRR60. Nurse Basinger has been certified as a SANE through the Attorney General's Office of Texas to perform sexual assault exams on adults, adolescents, and children. She was among the first five nurses to receive the certification in 1998. She has been a SANE trainer for the Attorney General's Office since 2002, when she also became certified by the International Association of Forensic Nursing. 6EHRR61-62. She has performed approximately 400 SANE exams on adults and 800-900 on children. 6EHRR63. She attends many trainings and conferences and is often a presenter. Courts have accepted her as an expert on SANE exams many times; and she has testified at the request of both the prosecution and the defense. 6EHRR66-67. *See also* APPX111 (Basinger CV). The habeas court accepted her as a qualified expert and made no adverse credibility determination.

Nurse Basinger explained the standard of care that is supposed to govern SANEs and, after reviewing the error-ridden paperwork prepared by Nurse Sims related to her SANE exam of Nikki, Sims's trial testimony, and the photographs introduced into evidence at trial during Sims's testimony, concluded that Nurse Sims

did not comply with the standard in any material respect. 6EHRR65-80; 6EHRR89-90.

Nurse Basinger was clear that it is *not* the role of a SANE to decide if a sexual assault occurred, as Nurse Sims had. Instead, the primary concern is "to take care of the health and welfare of the patient" and document whatever is observed. The obligation is to be an objective fact-finder, not to inject "personal opinions" into the process. Additionally, the primary focus is supposed to be on caring for the patient. 6EHRR81; 6EHRR83; 6EHRR84.

Nurse Basinger explained that, for a nurse employed in a rural community like Palestine, doing a SANE exam on a two-year-old child would be a "rare thing." 6EHRR64. It is unclear if Nurse Sims had ever done a SANE exam on a child Nikki's age before because she was not asked about that experience at trial, her CV was not offered or admitted into evidence, and she never obtained SANE certification, which would have involved keeping a record of her experience.

Nurse Basinger noted that Andrea Sims had not been a registered nurse for very long before January 2002 when she performed the SANE exam on Nikki. Sims had been an "LV" or licensed vocational nurse, which involves a one-year training program and only permits the individual to perform simply tasks that do not require critical thinking, like taking blood pressure. 6EHRR85. This information relevant to assessing Sims's credibility and qualifications was not before the jury.

According to Nurse Basinger's investigation, Sims took a SANE training right after she became an RN, yet the rules at the time in the State of Texas and the International Association of Forensic Nursing required that a nurse had to have been an RN for at least two years before they could take the SANE training. 6EHRR86. Therefore, Sims either took a training before she was authorized to do so or she testified incorrectly about when she had first taken a SANE training. Moreover, she initially told the jury that she was a "certified" SANE, which was not true. On cross-examination, she admitted that she had never actually been certified. 41RR104; 41RR144.

At trial, Nurse Sims claimed that she had done approximately 200 SANE exams "in the course of [her] career as a SANE nurse." 41RR104. According to Nurse Basinger, despite her own extensive expertise, she did not get to a volume like that in four years and, for instance, did "more like 12" exams a year initially. 6EHRR91-92. Whether Nurse Sims exaggerated her experience while testifying or she had played some role in initiating a strikingly high number of SANE exams during the few years she had been a licensed RN, in light of the new evidence provided by Nurse Basinger, the sheer number of SANE exams that the uncertified Nurse Sims claims to have performed raises concerns about her credibility as well as her judgment, evidence the jury never heard.

The trial record established that Nurse Sims was on duty in the ER and part of the team doing triage on Nikki when she did her SANE exam. Nurse Basinger noted that this was "not best practice." 6EHRR95. The reason why it would not be "best practice" is confirmed by Sims's own trial testimony describing Nikki's condition on January 31st when Nurse Sims was supposed to be providing care in the ER. Nikki was intubated at 9:50 AM, then CPR was performed to get her heart restarted, then the heartbeat was described as "tachycardia," which meant that the heart was beating too fast to counter the inadequate circulation of oxygenated blood. 41RR112; 6EHRR96-97. Then, at 10:10 AM, Nikki was taken to get a CAT scan of her chest to ensure that the breathing tube had been properly inserted and, ultimately, the x-ray revealed that the tube had *not* been properly inserted and had to be pulled out and reinserted. 6EHRR97-98. At some point thereafter, before Nikki was transported to Dallas for further treatment, Nurse Sims did a SANE exam although Nikki had not been stabilized. 6EHRR99. Based on Nurse Basinger's expert opinions, undertaking a SANE exam under the circumstances suggests that Nurse Sims acted more as an adjunct of law enforcement than as a nurse.

Nurse Sims told the jury that she decided that Nikki had been "sexually assaulted" after she did the SANE exam. Yet, according to Nurse Basinger, that is a legal conclusion that SANE nurses are expressly trained *not* to offer. 6EHRR100-101.

As for Nurse Sims' testimony suggesting that she saw a bruise on Nikki's face that looked like a handprint, Nurse Basinger opined that the photographs taken in the hospital after Nikki had been intubated show only light bruising on her face and nothing in the shape of a hand. 6EHRR103-104. More troubling, the pictures that were seemingly taken during the SANE exam show hands pulling on Nikki's buttocks, creating traction contrary to the way SANE nurses are trained because doing so affects dilation. 6EHRR105; 6EHRR107. The photographs, introduced into evidence during Sims' testimony, depict multiple hands pulling on Nikki's buttocks. And as Nurse Basinger pointed out, at least three of the hands in these photographs are not wearing gloves, contrary to basic practice among health-care providers. *See* SX21; SX22; *see also* 6EHRR105-106.

At trial, Nurse Sims had offered several bases to support her opinion that Nikki had been anally penetrated, none of which Nurse Basinger found to be sound.

First, Nurse Sims speculated that the dilation of Nikki's anus was not normal, yet Nikki was in a comatose state and thus was far from normal. As Nurse Basinger explained, when a patient has been intubated and given any sedatives or is unconscious, that process causes anal dilatation. Additionally, "[a]ny insult to the central nervous system, a head injury or a spinal cord injury, can cause the anus to relax and dilate"—and it was already obvious that Nikki had brain damage at the time Sims performed the SANE exam. 6EHRR108-109.

Second, Nurse Sims testified that she saw "anal laxity," which she asserted was caused by sexual assault. 6EHRR110. Yet, as Nurse Basinger explained, suppositories and enemas can cause anal laxity; and Nikki had received suppositories in the days before her collapse. 6EHRR110-112. Additionally, Nurse Basinger, after evaluating Sims' own photographs saw neither anal laxity nor even an indication of complete dilation. 6EHRR112.

Third, Nurse Sims testified that she saw "anal tears" and offered her belief that such tears are "only" caused by a sexual assault. Yet, as Nurse Basinger (and other healthcare providers who testified) recognized, the skin in the anal region is especially vulnerable to tearing. Nurse Basinger noted that many things can cause that area to tear: chronic constipation, passing hard-formed stool, and diarrhea. A child is especially vulnerable to tearing if, like Nikki, there was diarrhea over a period of time, which can cause "a lot of irritation down there"; that irritation then causes the skin to crack, *i.e.*, tear. 6EHRR116. From Sims's testimony, it was unclear if she had read Nikki's recent medical records and seen that she had had diarrhea for over a week before her hospitalization. 6EHRR120.

Fourth, Nurse Sims testified at trial about Nikki having a torn frenulum, which Sims described as another sign of sexual assault. Nurse Basinger explained that a frenulum is a small piece of skin, with one example being found where the upper lip connects to the gumline. 6EHRR122. But Nurse Sims had not even seen the inside

of Nikki's mouth because she was intubated and masked throughout the time Nurse Sims had any contact with her. Nurse Sims only learned that a torn frenulum was observed several days later during the autopsy. She then told the jury that intubation would not tear a frenulum. 41RR136-137. Nurse Basinger disagreed with Nurse Sims's insistence that a frenulum *cannot* be turn by intubation, explaining that, when intubated, the tube is held tightly against the patient's lip and, if rocked back and forth, can cause the frenulum to tear. Nurse Basinger opined that she has seen torn frenulums in intubation attempts, either from the tube or from the instrument that is used to be able to see the vocal cords, which is a metal blade attached to a flashlight-like handle. That metal blade goes in the mouth, over the tongue, and then is lifted up during the intubation process. 6EHRR123. Nurse Basinger's opinion rebuts Sims' opinion and is consistent with that provided by other medical experts in this proceeding. *See, e.g.,* 8EHRR113. Moreover, Nurse Basinger referred the habeas court to an article, "Diagnosing Abuse: A Systematic Review of Torn Frenulum and Other Intraoral Injuries." This medical article expressly notes that one of the things that can tear a frenulum is intubation and cautions against rushing to conclusions regarding abuse. 6EHRR124-125; APPX115.

Nurse Basinger noted that the results of the sexual assault exam that Nurse Sims had performed ultimately showed no semen, no spermatozoa, and no trace

evidence to support the conclusion that there had been some kind of sexual abuse. 6EHRR119.

Nurse Basinger further observed that Nurse Sims' testimony referencing "a pedophile" and how they do not want to go to a particular area of a child's body was inappropriate, especially since pedophilia is a psychiatric diagnosis that nurses are not qualified to make. 6EHRR122.

Overall, Nurse Basinger concluded that, if Nurse Sims had taken the SANE training, then she did not apply that training in this case and her conclusions were unreliable. 6EHRR125. Additionally, Nurse Basinger noted that Nurse Sims's SANE exam paperwork (APPX6) was replete with errors. 6EHRR126-130 (noting that Nurse Sims recorded Nikki's temperature as "9," described her cardiovascular system as "normal" although Nikki had stopped breathing and her resuscitated heart experienced tachycardia, described her neurological system as "normal" when she was brain dead and unresponsive). Nurse Sims also included in the paperwork a drawing that was an "overexaggeration" of the anal tears that she claimed to have seen. 6EHRR130.

For all of these reasons, Nurse Basinger concluded that the opinions that the jury heard from Nurse Sims regarding sexual abuse were unreliable, prejudicial, and were in fact **false**. 6EHRR130-131. All of this was new evidence relevant to Mr. Roberson false testimony claim. The FFCL do not address the new evidence; instead

the FFCL contain the incorrect assertion that Nurse Basinger "testified that Nurse Sims findings were consistent with sexual assault." FFCL ¶92. Then, while implicitly acknowledging problems with Nurse Sims' testimony, the habeas court makes a conclusory materiality finding, implying that there was no harm because "the sexual assault allegations were abandoned by the State and not submitted to the fact finder." FFCL ¶89. Although the State dropped the sexual assault count from the jury charge right before Closing Arguments, Nurse Basinger recognized (as does anyone with common sense) that it is virtually impossible to "unring" the very loud bell that had been rung about sexual assault allegations throughout the investigation and trial. Additionally, even though the State dropped the count, it devoted much of its Closing Arguments to urging the jury to believe Nurse Sims and the allegations of sexual assault any way. 56RR21, 53-54, 56, 58-61.

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None of the vast new evidence summarized above is mentioned, let alone assessed, in the FFCL.

II. THE HABEAS COURT RELIED ALMOST EXCLUSIVELY ON THE STATE'S PROPOSED FINDINGS, WHICH ENTIRELY IGNORE ALL OF THE NEW EVIDENCE AMASSED IN THIS PROCEEDING AND MISREPRESENT THE LIMITED PORTIONS OF THE RECORD THAT IS CITED.

Except for a few notes to indicate that the Applicant had indeed called some witnesses, the habeas court adopted the State's proposal virtually verbatim, typos

included. The Supreme Court of the United States has criticized courts for "their verbatim adoption of findings of fact prepared by prevailing parties," *Anderson v. Bessemer City*, 470 U.S. 564, 572 (1985), and has remanded a case reflecting that practice for further review. *See Jefferson v. Upton*, 560 U.S. 284, 294 (2010) (remanding for determination whether state court factual findings warranted presumption of correctness if they were not the result of a full and fair proceeding).

A. Many of the Specific Findings Are Patently Misleading

The few quasi-specific findings in the FFCL are found mostly under the heading styled "First ground for relief - 11.073 claims." FFCL at pp. 2-7. Those findings are, however, fraught with errors and misleading representations regarding the contents of the few parts of the habeas record that are cited.

The habeas court, for instance, followed the State's lead in distorting the expert testimony that was adduced. *See* FFLC ¶¶10-13. As explained above, Ken Monson, a biomechanical engineer, was not offered to opine about the ultimate issue of cause of death. He was asked to answer three questions based on his expertise in biomechanical engineering, particularly his study of head injuries: Could a fall off a bed result in the injuries that were observed in this case? Could shaking have contributed to the injuries in this case? And what was the state of the art at the time of trial as compared to today? 5EHRR22. His answers to the first two questions were "Yes" and "No," respectively, supported by an extensive explanation of the relevant

scientific literature and modeling he did based on Newton's Law and the known variables applicable in this case. 5EHRR22-108.

The habeas court's reliance on testimony from Applicant's experts for the proposition that SBS/AHT "is still a recognized diagnosis in the medical field" and "still an accepted mechanic [sic] of death" misrepresents their testimony. FFCL ¶9 & ¶14. Dr. Ophoven acknowledged that SBS/AHT is still a diagnosis in the context of explaining the acrimony arising from child abuse experts, who have long supported the diagnosis and resisted change and instead attack as "child-abuse deniers" "a significantly greater cohort of mainly forensic pathologists" who have "concerns" about the concept "of violent shaking as a causative mechanism, especially in children without evidence of trauma to the neck, which is much more vulnerable tissue, and these arguments continue to take place mostly in medical/legal contexts." 4EHRR67. Likewise, when Dr. Monson was asked during cross-examination to acknowledge that AHT was still "an accepted mechanic [sic] of death," Dr. Monson replied: "It is, but it's still never been shown to be an actual phenomenon." 5EHRR122. Dr. Monson also noted: "I suspect there are a number of doctors that question its [SBS/AHT's] reality who are involved in those questions every day." *Id.*

Similarly, Dr. Monson did not suggest that SBS is entirely "moot" because there is evidence of an impact; nor did he testify that the short-fall science is moot if

there is evidence of multiple impacts. FFCL ¶¶16-17. Quite the contrary, he noted that the State may not have seen this as a "shaking only" case but pointed out that many at trial "certainly testif[ied] that it played an important role" in causing Nikki's death. *Id.* Dr. Monson also acknowledged during cross-examination that "*if* there are multiple impact sites," one would need to look at "what caused those impacts[.]" 5EHRR35 (emphasis added). He noted that the CAT scans and the report from radiologist Dr. Mack, which he reviewed, showed only a single impact. APPX93.

The importance of the radiologist's assessment was explained by Dr. Wigren who, unlike Dr. Monson, was asked to investigate and opine about cause of death:

> Q. Dr. Wigren, if you could just share with us what aspect of [Dr. Mack's] report, if anything, was helpful to you in forming your own opinions.
>
> A. Certainly. So one of the things that I wanted to know about was, you know, was it a single impact site or multiple impact sites, and so Julie Mack is a radiologist --
>
> Q. Excuse me, Doctor. First, why was that even a question whether it was single or multiple?
>
> A. Because it had been brought up by Jill Urban in her affidavit signed on November 18th of 2016 that this may be multiple impact sites.
>
> Q. And did you get clarification as to whether there were multiple or a single impact site?
>
> A. Well, Julie Mack in part helped by saying that she saw a soft tissue swelling over the right side of the skull extending to the vertex, and the vertex is kind of the top of the skull. The vertex like -- yeah.

> Q. So based on the report provided by a radiologist who looked at the CAT scans, you concluded there was a single impact site?
>
> A. Yes, and specifically this was a good CT of the head to look at because this was the very first CT of the head that was done, you know, shortly after Nikki was admitted to Palestine hospital. So whatever change might have occurred in her head over the ensuing 30 or so hours of her, you know, admission, transport to Dallas, and then in the Dallas, you know, hospital, you know, those -- there could be some things that could be what we call artifact of, you know, the treatment.
>
> So it was very important, and I think it was fortuitous that we were able to get the CT of the head from Palestine, which was kind of the first thing that, you know, was showing up in Nikki's head before any real treatment had ensued. For example, in Dallas she had a intracranial pressure monitor that was embedded, you know, into the right side of her skull.
>
> So that would cause some artifact, you know, some hemorrhage in that area.
>
> So, kind of, I wanted to see that initial CT from Palestine to kind of subtract all of those things out and then, you know, had Dr. Mack, the radiologist, look at that, and then she had said that, you know, she saw this soft tissue swelling over the right side of the skull with extension to the vertex, which was the top of the skull.

5EHRR171-73. The habeas court's FFCL ***does not even mention*** the highly relevant, long-suppressed exculpatory CAT scans.

Another example of a misleading finding is the suggestion that "six other pathologists from her office" signed off on Dr. Urban's ruling that Nikki's death was a homicide. FFCL ¶29. What was established during the evidentiary hearing was that everyone in Dr. Urban's office at that time routinely added their signatures to autopsy reports, without dating them, even though none of them had been involved in the autopsy or in vetting Dr. Urban's work in any discernible way. 9EHRR165.

At that time, SWIFS' lab was not yet accredited and thus not governed by recognized quality-control standards that would likely preclude such a practice. 9EHRR158.[42] As Dr. Auer, who has over 30-years' experience performing thousands of autopsies testified: "I've never seen seven signatures on an autopsy report at all. Ever." Moreover, he could not imagine that these other individuals had looked into the specifics of the case. 8EHRR11, 127-28. Indeed, since Dr. Urban herself did not even consider a significant body of relevant information—such as Nikki's medical history, her recent prescriptions, her then-current illness, or the CAT scans taken of her head at the time of her collapse—these other pathologists in her office seemed to have unwittingly signed off on notably sub-standard work product. But at that time, a presumption of child abuse based on the triad of subdural bleeding, brain swelling, and retinal hemorrhage was seen as injuries that had to have been *inflicted*. 3EHRR41-42.

Aside from the habeas court's reliance on Dr. Urban, without accounting for any of the new evidence outlined above, and in addition to the misleading citations to some of Applicant's experts, the FFCL refer almost exclusively to testimony

[42] The habeas court was asked to take judicial notice of the fact that the Texas Forensic Science Commission's website includes a list of Forensic Lab Accreditation Status in this state. The information about SWIFS, where Dr. Urban performed the autopsy on February 2, 2002, shows that SWIFS was not accredited with respect to any recognized standards in *any* area until 2003 after Dr. Urban performed the autopsy on Nikki Curtis. Moreover, that accreditation was withdrawn by the accrediting body in 2008 and only reinstated several years later. Public reports are available at https://www.txcourts.gov/media/1452463/texas.pdf (last visited Feb. 22, 2022).

provided *at trial* as if that testimony had not been ***challenged*** in this proceeding. *See* FFCL ¶¶19, 21-37, 40-41, 64-67, 77-88 (citing trial testimony of Dr. Squires, Dr. Urban. Nurse Gurganus, Nurse Odem, Nurse Sims, Dr. Ross, Dr. Konjoyan). The existence of scientifically unsound trial testimony does not rebut the testimony that the scientific understanding has changed. Rather, the contrast *proves* that the scientific understanding has changed. *Compare* **EXHIBIT A** at pp. 134-165 *with* **EXHIBIT A** at pp. 51-134. *See also Robbins II*, 478 S.W.3d at 693 (Johnson, J., concurring) (explaining that Article 11.073 permits claims that involve both "bad science" and "bad scientists"). As Judge Johnson explained: "'Bad science' and 'bad scientists' are inseparable. A scientist may not intend to present bad science, nor must that scientist be a bad scientist in every situation. . . . The result of inexperience or out-dated knowledge may be testimony that may rightfully be called bad science, even if not intentionally so, and that testimony may persuade a jury to convict when it should not." *Id.* Mr. Roberson's claims involve both "bad science" (the SBS/AHT hypothesis) and "bad scientists," *i.e.*, a medical examiner who relied on outdated, inadequate, and factually untethered knowledge in this case, not necessary in all of her cases.

The FFCL also cite lead detective Brian Wharton's trial testimony. FFCL ¶38. The FFCL did not, however, acknowledge Detective Wharton's testimony in *this* proceeding that included his belief that justice was *not* done in this case. 7EHRR37.

Detective Wharton testified in this proceeding that if Mr. Roberson had not pointed out the washcloth and bedsheet with small specks of blood on them, the detectives would not have noticed them. There were no pools of blood anywhere and no signs of violence at the house. 7EHRR23-24; 7EHRR26; 41RR187. There was also nothing suggesting that the place had been scrubbed clean. 7EHRR26. The detectives expressly looked for evidence that Nikki had been thrown into a wall or something of that nature. They found nothing. 7EHRR26-27. As Detective Wharton testified in this proceeding, the shaking baby hypothesis arose at the outset of the investigation; and no other explanation for Nikki's condition was ever offered by or to law enforcement other than shaken baby/impact syndrome. 7EHRR31-32. Law enforcement did not investigate Nikki's social or medical history or any other possible cause of death. 7EHRR31. Instead, they relied on the purported medical expertise offered first by child abuse expert Dr. Squires, which was obtained before the autopsy was even performed, and then relied on Dr. Urban's conclusion that the death was a homicide.

The FFCL make the perplexing assertion that "some evidence of pneumonia" was found during the autopsy and thus the fact that Nikki had undiagnosed pneumonia was "known" at trial. FFCL ¶¶50-51. These findings are particularly misleading because, as Dr. Auer explained, pathologists are not even trained to recognized the *type* of pneumonia that he found in Nikki. The interstitial viral

pneumonia has only become widely understood in the wake of the COVID-19 pandemic. 8EHRR89; 8EHRR100. Dr. Urban did *not* recognize Nikki's pneumonia at the time of trial; and in the current proceeding, she did not even seem to understand what Dr. Auer had found as she confused it with "ventilator pneumonia," an entirely different phenomenon that does not affect the lung cells themselves. 8EHRR173. Dr. Auer began researching the connection between untreated interstitial viral pneumonia and hypoxic ischemia (the phenomenon observed in Nikki) only in 2013. Since then, he has identified 40 cases similar to Nikki's, with Nikki being "severely infected." 8EHRR50. The unexplained reference to "macrophages" in Dr. Urban's autopsy report is hardly proof that Dr. Urban disclosed a pneumonia finding. The word "pneumonia" does not appear anywhere in her autopsy report, in the trial transcript, or in Nikki's extensive medical records. It is a *new* discovery made possible only be intervening advances in science as explained by Dr. Auer on the stand and in his 64-page report with 222 references reflecting his findings that Nikki died of natural causes, namely, interstitial pneumonia, with an accidental component associated with the prescription drugs in her system and a short fall. APPX110.

The habeas court's inattention to the evidence amassed in support of Applicant's other claims—particularly his claim of Actual Innocence—is so complete that the only way to respond is to refer to Applicant's Proposed Findings, which provide a summary of the factual basis for finding that Mr. Roberson has more

than carried his burden—under both the preponderance standard as well as the more onerous clear and convincing standard that applies to his Actual Innocence claim. *See* **EXHIBIT A** at 276-289.

B. The FFCL, Based Almost Exclusively on the State's Proposal, Rely on the Testimony of a Brazenly Unreliable and Unqualified Expert Retained by the State in the Habeas Proceeding.

The FFCL repeatedly cite the testimony of Dr. James Downs, who was retained by the State and testified to bolster Dr. Urban's opinion that, despite what the long-suppressed CAT scans show, she saw "multiple impact sites" on Nikki's head. FFCL ¶¶46-48. Dr. Downs has a company called "forensX, LLC" and works as a "faculty" member with the "Shaken Baby Alliance," teaching prosecutors how to obtain convictions based on the SBS/AHT hypothesis. RX40; 10EHRR112-115. For multiple reasons, Dr. Downs opinions about Nikki's condition and cause of death are utterly reliable.

1. Dr. Downs has no credibility with respect to spotting pneumonia.

In an attempt to rebut Dr. Auer's comprehensive findings, including the opinion that Nikki's death was caused primarily by an undiagnosed interstitial viral pneumonia, Dr. Downs repeatedly claimed that Nikki's lungs were "normal little kid lungs" and that he saw "no pneumonia." 10EHRR74; 10EHRR76; 10EHRR212; 10EHRR220; 10EHRR242. Dr. Downs also asserted that he did not believe he had "ever missed" a pneumonia "since they're pretty much readily apparent grossly."

10EHRR221. (The latter is not true of interstitial viral pneumonia, as Dr. Auer explained, further demonstrating Dr. Downs' ignorance on this particular topic.)

As Applicant alerted the habeas court, a court in another jurisdiction recently concluded that Dr. Downs had missed a key finding of pneumonia in a child autopsy that he had performed and about which he testified in a death-penalty case that resulted in a conviction. In a recent appellate court decision by Alabama's Court of Criminal Appeals, the habeas applicant, John Ward, who had been sentenced to death for intentionally causing the death of his four-month-old son, was granted relief based in part on new evidence that Dr. Downs had failed to recognize (or at least failed to tell the jury) that the child had **pneumonia** at the time of his death. *See Ward v. State*, CR-18-0316, 2020 Ala. Crim. App LEXIS 62 (Ala. Crim. App. Aug. 14, 2020); *see* also APPX160.

Ward provides the following history relevant to assessing the reliability of Dr. Downs' opinions in the present case. Dr. Downs, then the Alabama state medical examiner, performed the autopsy in question in 1997. In Ward's 1998 trial, Dr. Downs told the jury that the child had suffered from "battered child syndrome" and that the cause of the child's death was "multiple blunt force injuries and suffocation." *Id.* at *3-*4. Approximately ten years later, for reasons unclear from the court's opinion, the doctor who was then Chief State Medical Examiner, ordered a review of Dr. Downs' work. *Id.* at *8. "[F]our Senior State Medical Examiners" were asked

to review Dr. Downs' "original case notes, histology slides, and photographs" from the autopsy of Ward's son. *Id.* After that review, all four pathologists agreed that the child had "significant acute bronchopneumonia" at the time of his death that Dr. Downs had not noted; two of the forensic pathologists agreed that the pneumonia, not blunt force injuries, had caused the child's death. *Id.* at *9. But because a majority of the four did not agree on the cause of death, the autopsy was not amended at that time. *Id*. Nor were the results of the internal investigation and the pneumonia findings shared with Ward at that time. *Id.* Ward did not receive a copy of "the memorandum—or know of its existence—until September 22, 2017." *Id.* That was ten years later—and a few months *after* Ward had filed a habeas petition alleging "that newly discovered evidence showed that [his son] died from pneumonia and thus Ward was actually innocent[.]" *Id.* at *7. Ward had been able to ascertain that his son had pneumonia only by obtaining an independent review by a retained forensic pathologist. *Id.* Only after Ward had independently learned about this alternative explanation of his son's death and sought relief on that ground was the memorandum describing the critique of Dr. Downs' initial autopsy disclosed. *Id.* at *7-*9.

In the recent *Ward* decision, the Alabama Court of Criminal Appeals concluded that the new evidence of the child's pneumonia "***directly contradicted testimony from Dr. Downs*** at Ward's trial that [his son] must have been suffocated

based on some physical signs that, Dr. Downs said, were consistent with death by suffocation and because ***he could discern no other cause of death***." *Id.* at *10 (emphasis added). The *Ward* court further emphasized that Dr. Downs was "the only expert witness who testified at Ward's trial about the cause of [his son's] death" and Dr. Downs had "said nothing in his report or his trial testimony about whether [the child] had pneumonia." *Id.* at *11. Similarly, Dr. Urban said nothing about Nikki having pneumonia in her autopsy report and said nothing about pneumonia during Mr. Roberson's trial.

During the recent evidentiary hearing in this case, Dr. Downs claimed "being unaware" of the recent determination by the Alabama Court of Criminal Appeals regarding his failure to find or reveal that the child in *Ward* had had pneumonia. 10EHRR222. Considering that Mr. Roberson adduced significant new evidence that Nikki too had undiagnosed pneumonia at the time of her death, Dr. Downs' opinions regarding cause of death in Nikki's case should have been viewed with great skepticism. Other reasons exist to discount his opinions entirely.

2. Dr. Downs ventured far beyond his field of expertise.

Dr. Downs is a medical doctor who spent most of his career as a medical examiner and is trained in clinical, anatomical, and forensic pathology. 10EHRR10-11. He has no special training in neuropathology, radiology, pediatrics,

pharmacology, or biomechanics. 10EHRR106-108. Yet during the evidentiary hearing, he purported to offer opinions in each of these fields and others.

While admitting that he is not trained in radiology, Dr. Downs claimed that he nevertheless knows how to read x-rays and CAT scans. 10EHRR171. He claimed that he "tried" to consult with a radiologist about this case, but did not succeed. 10EHRR110. He purported to interpret CAT scans taken of Nikki after blowing them up and cutting and pasting components of different images and then incorporating them into a PowerPoint presentation. 10EHRR52-56. Dr. Downs then claimed that "blood" that he saw in the x-rays allowed him to see "additional" impact sites that everyone else had missed—including the only radiologist to interpret the head scans. 10EHRR52-56. During its cross-examination of a different witness, counsel for the State had asked: "wouldn't it be better for a person that is certified in radiology" to interpret "X-rays and CT scans?" 4EHRR100. Certainly, that reasonable premise should apply to Dr. Downs himself. His attempt to venture far outside his field instead of relying on a trained radiologist further undermined his credibility.

Dr. Downs' testimony regarding his personal view about the contents of the CAT scans, which he has not been appropriately trained to interpret, is especially problematic since his interpretation was at odds with, and seems to have been adopted to contradict, radiologist Dr. Mack's report. The State could have, but did

not, retain a qualified radiologist or neuroradiologist to interpret the CAT scans that were rediscovered in August 2018 in the courthouse basement. Dr. Downs was not qualified to opine on this topic. *See* TEX. R. EVID. 705(b); *Broders v. Heise*, 924 S.W.2d 148, 153 (Tex. 1996) (requiring trial court to exclude expert testimony where the expert is not specifically qualified to opine on the subject).[43]

Dr. Downs spent a great deal of time testifying about biomechanical issues, simultaneously arguing that he has known for "years and years" that short falls can be fatal while also arguing that the body of biomechanical research into the injury-potential of short falls is wrong as is the biomechanical research showing that shaking has not been shown to cause the kind of internal head injuries in Nikki. 10EHRR65; 10EHRR97-99; 10EHRR102; 10EHRR141; 10EHRR241. Although Dr. Downs claimed to be aware "for decades" that short falls can kill, he was

[43] Dr. Downs' opinions about the contents of CAT scans and other topics outside his field would be inadmissible at trial under Texas law as those opinions were formed without consultation with a qualified radiologist. The trial court is responsible for ensuring that "those who purport to be experts truly have expertise concerning the actual subject about which they are offering an opinion." *Broders*, 924 S.W.2d at 152. Before a trial court admits expert testimony, it must find that the witness is "qualified as an expert by reason of his knowledge, skill, experience, training, or education[;]" that the expert testimony is reliable; and that the expert's testimony is relevant. *Vela v. State*, 209 S.W.3d 128, 131 (Tex. Crim. App. 2006) (quoting TEX. R. EVID. 702). Qualification is distinct from reliability and relevance and, therefore, must be evaluated independently. *Vela*, 209 S.W.3d at 131. That a witness is an expert in some matters, or that he/she "possess[es] knowledge and skill not possessed by people generally," does not necessarily mean "that such expertise will assist the trier of fact regarding the issue before the court." *Broders*, 924 S.W.2d at 153 (quoting opinion below, emphasis added). To be qualified, the witness's "background must be tailored to the specific area of expertise" in which he/she will testify. *Vela*, 209 S.W.3d at 133. The inquiry into qualification thus focuses on the "fit" between the expert's qualifications and the subject matter at issue. *Broders*, 924 S.W.2d at 153.

untroubled by Dr. Urban's failure to investigate Nikki's fall from a 22.5-inch bed propped up on cinder blocks. 10EHRR241-242. When asked during cross-examination to cite evidence as to why his opinions should trump that of relevant research in the field of biomechanics, Dr. Downs respond by saying "I'm not a physicist. I'm not a biomechanical engineer." 10EHRR156-159. Indeed, Dr. Downs has no special training in biomechanics or physics and thus was not qualified to rebut the testimony of qualified biomechanical engineer, Dr. Monson, who does have that special training.

Dr. Downs further purported to offer expert testimony regarding "factors," such as being poor, that he believes can lead a person to commit child abuse. He offered an extensive argument, devoid of scientific support, as to why random elements of Mr. Roberson's social history that Dr. Downs seems to have imagined would have made Mr. Roberson prone to abuse Nikki.[44] 10EHRR85-92. Dr. Downs has no apparent training in sociology, social work, psychology, child abuse pediatrics, or any other field that might have made him potentially qualified to opine about the socio-economic and mental health factors relevant to understanding child abuse.

[44] *See, by contrast,* testimony by neuropsychologist Dr. Diane Mosnik who diagnosed Mr. Roberson with autism spectrum disorder and noted that a thorough review of social history records showed that Mr. Roberson had *no* documented history of violent behavior. **EXHIBIT A** at pp. 229-236.

Dr. Downs also claimed that he saw "potential bite marks" on Nikki's mouth and suggested that he has expertise in "odontology." 10EHRR177. Dr. Downs testified that he has been able to identify perpetrators of assaults by interpreting "bite mark" evidence "[a]ctually quite a few times." 10EHRR238. He did not seem aware that in Texas, forensic attempts to interpret "bite mark" evidence is now seen as junk science. *See Ex parte Chaney*, 563 S.W.3d 239 (Tex. Crim. App. 2018) (granting habeas relief under Article 11.073 based on a substantial sea-change in the field of forensic odontology, larging discrediting the field).

Dr. Downs claimed that he has done "research" on child head trauma, but could not cite any publications of his work in any peer-reviewed journal. 10EHRR13; 10EHRR129. Moreover, he dismissed the idea that a pathologist like himself could do "evidence-based medicine" anyway because, in his view, that is only relevant to "treating patients," which he has never done. 10EHRR27-28; 10EHRR105.

Dr. Downs claimed that he has "written on ethics" and that "ethics are very important to" him. 10EHRR14. Dr. Downs was a signatory on an amicus brief, filed with a court, that described various ethical propositions that are supposed to guide forensic pathology. Those precepts include the following: "Even when a witness is qualified as an expert in pathology, a Court must not give him or her carte blanche

to proffer any opinion he chooses." 10EHRR185-187. Yet as explained above, Dr. Downs did not adhere to that ethical principle in this case.

3. Dr. Downs' approach to this case suggested a cavalier approach to the relevant, underlying facts.

Dr. Downs testified that he agreed that responsible opinion evidence from forensic scientists "must report any relevant uncertainty in their findings." 10EHRR186. Yet Dr. Downs' testimony in this proceeding was announced with absolute certainty and the contention that this was "a very easy case," 10EHRR153, even as he wantonly disregarded or mischaracterized considerable relevant evidence adduced in this proceeding.

For instance, in asserting his view that Nikki was not ill at the time of her collapse, Dr. Downs cited a note Dr. Ross had made that Nikki was "free of illness." 10EHRR57. Yet Dr. Ross's own trial testimony makes clear that he admitted on the stand that this was one of several errors in his notes from January 31, 2002. Dr. Ross specifically testified that, based on Nikki's medical history, his notes for January 31st should have stated "viral illness." 42RR13. Moreover, the assertion that Nikki was "free of illness" is contradicted by her medical records including those from the visit to Dr. Ross's office on January 29th, less than two days before her collapse, when her temperature was recorded as 104.5 degrees and she was assessed as having an antibiotic-resistant "***respiratory infection***." APPX9. Likewise, Dr. Downs' insistence that there was "no evidence of infectious process" in Nikki is contrary to

the record. 10EHRR72. Dr. Ross testified that Nikki had had an upper respiratory infection when seen in his office; that her ear drums were infected and visibly "red" when he observed her in the ER; that her infection had been progressing despite a regiment of antibiotics. 42RR18; 42RR32-33.

Dr. Downs denied that Nikki's brain was already dead/nonperfused when she arrived at the hospital, despite the testimony that her eyes were "fixed and dilated" when she arrived at the hospital. 10EHRR50; 10EHRR213.

Dr. Downs initially claimed that he saw no evidence that Nikki had been given epinephrine in the hospital and then admitted that there was a reference to it being given by at least January 31, 2002 at 7:45 PM—over 1.5 days before the autopsy. 10EHRR59. Dr. Downs also admitted, on cross-examination, that hospital records showed that Nikki had also been given vasopressin, dopamine, and heparin, all of which increase intracranial pressure. 10EHRR214-215. Dr. Downs, like Dr. Urban, did not take into account how those drugs would have affected the volume and position of the blood inside Nikki's head as observed at the time of the autopsy, as Dr. Auer, the brain specialist, did.

Dr. Downs claimed that the brain itself "had quite a few injuries," yet none are noted in the autopsy report or neuropathology report. Additionally, neuropathologist Dr. Auer, the brain expert, looked for and found no bruising or

other injuries to the brain itself. 8EHRR96; 3EHRR79. Even Dr. Urban admitted that she had found no evidence that the brain itself was injured. 9EHRR188.

Dr. Downs, incorrectly, asserted that there was "never any mention or notation that [Nikki] had any kind of respiratory issues ever." 10EHRR73. This assertion is contrary to the evidence of her history of breathing apnea and to several notations in her medical records, including the last illness that resulted in a prescription for Phenergan with codeine specifically because Dr. Ross found she had a respiratory infection. APPX9.

In terms of the drugs that had been prescribed to Nikki during her last month and days, Dr. Downs did not feel that this information was significant to his assessment. 10EHRR173. He dismissed the high quantity of Phenergan/promethazine found in her system as a "red herring." 10EHRR76. Although he testified that a forensic pathologist should study all medical records, "birth to death," he was unfamiliar with the history of Phenergan prescriptions in Nikki's medical records. 10EHRR181; 10EHRR195-197. He did not recognize, therefore, that the amount of Phenergan Nikki had been prescribed had tripled right before her death. 10EHRR197.

Dr. Downs admitted that he did not know what a fatal dose of Phenergan would be—or how Phenergan mixed with the narcotic drug codeine might have

affected a child Nikki's age. 10EHRR207. He was also unfamiliar with the Black Box Warning on Phenergan that states, *inter alia*:

- "Phenergan tablets and suppositories may impair the mental and/or physical abilities required for the performance of potentially hazardous tasks. The impairment **may be amplified by concomitant use of other central-nervous-system depressants**."

- "Phenergan tablets and suppositories may lead to **potentially fatal respiratory depression**."

- "Use of Phenergan tablets and suppositories in **patients with compromised respiratory function** (i.e. -- e.g., COPD and **sleep apnea**) **should be avoided**."

- "**Caution** should be exercised when administering Phenergan tablets and suppositories to **pediatric patients 2 years of age and older because of the potential for fatal respiratory depression**."

- "Excessively large doses of antihistamines, including Phenergan tablets and suppositories, in pediatric patients **may cause sudden death**."

- "**When given concomitantly** with Phenergan tablets and suppositories, the dose of **barbiturates should be reduced by at least one-half**, and the dose of narcotics should be reduced by one-quarter to one-half."

10EHRR203-206 (emphasis added).

4. Dr. Downs exhibited bias against Mr. Roberson instead of objectively considering the relevant facts and science.

Dr. Downs declined to "speculate" about the relevance of toxic levels of Phenergan/promethazine found in Nikki's system at the time of the autopsy. Dr. Downs was not, however, reluctant to speculate about his opinion that Nikki's condition had been "inflicted."

Dr. Downs testified at length that Mr. Roberson kept "changing his story" about what had happened to Nikki. 10EHRR67. Yet the record is clear that Mr. Roberson never claimed to know what had happened and stated that he had not witnessed the fall but only found Nikki on the floor after she had, seemingly, fallen out of bed. APPX7. To support his view of Mr. Roberson's guilt, Dr. Downs testified at length about a timeline of events that was untethered to and often contrary to the record evidence. 10EHRR69-73. Dr. Downs also seemed to accept as fact, without objectivity, the hearsay report from the Bowmans about Nikki's condition the day before her collapse: "we know she was playing and seemed fine," 10EHRR73, even though this characterization of Nikki's condition is contrary to Nikki's medical records and the strong medications she had been prescribed.

Dr. Downs' lack of objectivity was evident throughout his testimony. For instance, he purported to judge Mr. Roberson's delay in getting Nikki to the hospital as indicative of guilt, which is not a medical judgment. Also, while doing so, Dr. Downs misrepresented the facts, stating that "at roughly 9:50" Mr. Roberson had called his girlfriend "instead of 9-1-1." 10EHRR87. Yet the hospital records show that Nikki was already intubated by 9:50 AM. APPX14.

Similarly, Dr. Downs invoked evidence of a "bloody rag and bloody pillow" found at the scene that he plainly did not investigate. 10EHRR63. The blood on these items amounts to a few spots that the lead detective acknowledged he would not

have even noticed but for Mr. Roberson showing them to the investigators. 7EHRR23-24; 7EHRR26; 41RR187.

Dr. Downs exhibited a similar lack of objectivity when he characterized a note in the medical records, made before the autopsy, stating that "father is going to face capital murder charges," was "relevant history." 10EHRR174-175.

Dr. Downs repeatedly insisted that he had not "manipulated" evidence—such as autopsy photographs and CAT scans—while also admitting that he had adjusted the lighting, cropped them, and put pieces of different images together to construct new images for his own purposes. 10EHRR34; 10EHRR 37; 10EHRR64; 10EHRR80-81. His PowerPoint presentation, admitted as a demonstrative, also included inflammatory materials from unknown sources that have never been admitted into evidence and reflect a partisan agenda more than an attempt to provide the court with the unvarnished truth. SX41. Moreover, his PowerPoint related to this case did not address the fact that the autopsy found no evidence of any broken ribs, torso bruising, neck injuries, or skull fractures—all injuries associated with trauma (caused by shaking or impact)—even as he acted out an imagined pounding he envisioned Nikki sustaining that, had such an event actually occurred, would have left *some* evidence in the form of broken ribs, torso bruising, neck injuries, or skull fractures. 10EHRR135. But no such evidence exists.

5. Dr. Downs' conclusions regarding causation are internally inconsistent and inconsistent with contemporary scientific understanding.

Dr. Downs opined that he agreed with medical examiner Dr. Urban that Nikki died from multiple blunt force injuries and that the manner of death was homicide. 10EHRR22. Dr. Downs asserted that he and Dr. Urban were right about the cause of death because "all these physicians" when Nikki was hospitalized in 2002 reached "the same conclusion." 10EHRR62. Dr. Downs did not seem aware that the entire premise of this proceeding is that the scientific understanding that was used to convict Mr. Roberson has changed. Therefore, the fact that others in 2002 agreed with his and Dr. Urban's opinions is not relevant if their opinions are contrary to contemporary scientific understanding. As noted above, Applicant adduced significant evidence that the contemporary scientific understanding has changed since his trial in 2003.

Dr. Downs' opinions about the ultimate issue are further burdened with inconsistences and exaggeration. While Dr. Urban claimed to see evidence of three impact sites, Dr. Downs claimed that he could "clearly" see six impact sites on Nikki's head, yet he also referred to "eight" injuries. 10EHRR33; 10EHRR38; 10EHRR42. During his testimony, he increased the number of impact sites that he claimed to see. 10EHRR58. He eventually suggested that he believed that Nikki had

been hit "multiple times" in the "same spot," but without those blows creating any corresponding external bruise. 10EHRR149.

Of the three impact sites to the head that Dr. Urban claimed to see, Dr. Downs admitted that there was no photograph of the impact site she claimed to see on the top of Nikki's head (where a pressure monitor had been screwed into her head during her hospitalization). 10EHRR35; 10EHRR178. He further admitted that the only impact site associated with any visible external marks/bruises was the "goose egg" captured in the CAT scans at the back of Nikki's head. 10EHRR179; *see also* APPX93.

Dr. Downs repeatedly agreed with Dr. Urban that the *subdural blood* proved the existence of distinct "impact sites" with darker blood being proof of different impacts. 10EHRR36; 10EHRR38; 10EHRR41; 10EHRR45; 10EHRR97. Yet during cross-examination, Dr. Downs admitted that the amount and location of subdural blood that Dr. Urban had observed during the autopsy would not have been the same as what was present when Nikki was admitted to the hospital. 10EHRR190.

Aside from the subdural blood, Dr. Downs relied on the presence of the two other components of the SBS triad: brain swelling and retinal hemorrhaging. Yet he resisted characterizing these three symptoms as a "triad." 10EHRR47. He asserted that no "responsible physician" has "ever" used the triad alone to diagnose SBS/AHT, claiming that would be "malpractice." 10EHRR121. Yet that was

precisely the teaching of the American Academy of Pediatrics at the time of Mr. Roberson's trial, up until 2009. APPX22; APPX29.

Dr. Downs argued that the triad is "common" in cases of childhood trauma, and therefore proves that inflicted trauma had occurred. 10EHRR99-100. But this is the very same "circular" reasoning that has been recognized as the problem at the heart of the SBS/AHT phenomenon: that the presence of subdural hematoma, brain swelling, and retinal hemorrhage were considered proof that shaking or shaking + impact had occurred and so cases in which these conditions were found were considered to prove that SBS/AHT had occurred. 4EHRR54-55; *see also* 8EHRR35.

While relying on the triad to diagnose "impacts" and trauma, Dr. Downs also admitted on cross-examination that other phenomenon can cause the triad, which he dismissed as "nothing new." 10EHRR146-147. But the rejection of the triad as a means to diagnose inflicted head trauma *is* new since Mr. Roberson's trial. *See, e.g.*, APPX29 (2009 position paper of American Academy of Pediatricians).

Dr. Downs, like Dr. Urban, cited the presence of retinal hemorrhages as proof of trauma and an example of a blunt force injury. 10EHRR43. Yet Dr. Downs also conceded that it is now known that phenomena ***other than trauma*** can cause retinal hemorrhages. 10EHRR151.

Neuropathologist Dr. Auer explained at length that, when a person ceases to breathe, hypoxia (oxygen deprivation) sets in and that can cause the triad of

neurological conditions Nikki experienced: blood vessels leaking into the subdural space, edema or brain swelling from the increased intracranial pressure, and then retinal hemorrhages from the pressure on the optic nerve and eyes. *See* APPX110; APPX110A. Contrary to the expert opinions of Dr. Auer, whose research focuses on hypoxia and its effect on the brain, Dr. Downs argued that hypoxia is caused *by* inflicted head trauma and insisted that "nothing else" explained Nikki's death. 10EHRR45; 10EHRR47; 10EHRR78; 10EHRR82; 10EHRR83; 10EHRR94. But Dr. Auer, the brain expert, explained that blows to the head do not cause a person to stop breathing but in fact have the opposite effect. When the head is injured through trauma, breathing ***accelerates***. 8EHRR95-96.

Dr. Downs also endeavored to critique Dr. Auer by arguing that it was not "logical" to suggest that blood was trapped in the subdural space because "there's no space for it;" yet both Dr. Downs and Dr. Urban relied on the presence of voluminous blood in the subdural space as proof of their multiple impact hypothesis. 10EHRR217-218. Dr. Downs' opinions defied basic logic.

6. Dr. Downs was laboring under an interest in preserving the legitimacy of the SBS/AHT hypothesis.

It was established during the evidentiary hearing that Dr. Downs is affiliated with a "shaken baby" advocacy organization known as the "Shaken Baby Alliance" that, among other things, purports to teach prosecutors how to prosecute shaken baby cases. 10EHRR112-115. This organization, run by former Kindergarten teacher

Bonnie Armstrong, counts Dr. Downs' wife as a board member. *Id*. Dr. Downs admitted during cross-examination that this organization likely recommended him to the State in this case. *Id.* This organization exists, and its fund-raising is premised on, the belief that SBS/AHT is a sound medical diagnosis. Therefore, the organization has an interest in seeing challenges to its reliability fail.

Dr. Downs' close affiliation with the "Shaken Baby Alliance" suggests a bias even though Dr. Downs, like Dr. Urban, initially endeavored to distance himself from the trial testimony that shaking was a mechanism that had contributed to causing Nikki's death. Dr. Downs, for instance, claimed that he had not used the term "shaken baby" "for years." 10EHRR118. Yet a 2017 brochure advertised Dr. Downs as a presenter at a "Shaken Baby Alliance" conference held years after the American Academy of Pediatrics had recommended dropping the term "shaken baby" because of the controversy surrounding the hypothesis. *See* APPX29.[45]

Dr. Downs admitted knowing that, in 2015, the American Academy of Forensic Sciences, the leading professional organization in his field, published an open letter criticizing SBS/AHT and its use in prosecutions because of its lack of "scientifically-conducted validation and forensic rigour." 10EHRR128. But Dr.

[45] Dr. Downs admitted during cross-examination that he was aware of the controversy surrounding both the use of "SBS" and the newer label "AHT." 10EHRR115; 10EHRR118; 10EHRR119.

Downs stated that he disagreed with the organization's official position with respect to SBS/AHT. 10EHRR123-128.

Dr. Downs repeatedly stated that this was "not a shaking case" 10EHRR95-97; 10EHRR144. But he also affirmed his personal belief that "it is possible to shake a child to death without an impact." 10EHRR111. Dr. Downs further offered the personal belief that a toddler of Nikki's age (26 months) and size (28 pounds) could be violently shaken and sustain brain damage without injuring the neck. He could not cite any current scientific evidence to support his personal beliefs. 10EHRR123; 10EHRR137; 10EHRR138; 10EHRR140. He simply "believe[s] it can happen." 10EHRR136.

After stating repeatedly that this was not a "shaking case," Dr. Downs then seemed to switch gears and opine that he believed Nikki's injuries were caused by shaking after all: "I think a shaking-type motion did occur here because I have multiple impacts, and that argues a back-and-forth motion in order to get repeated impacts." 10EHRR148. Also, once he was shown Dr. Squires' trial testimony stating that the presence of subdural blood "all over" is "indicative of shaking," he conceded entirely. Dr. Downs attested that Dr. Squires "sees more of these cases or saw more of these cases than I do." 10EHRR153-154. In other words, Dr. Downs seemed to ultimately defer to Dr. Squires as having superior expertise when she opined at trial that "the retinal hemorrhages are just further -- it's one more thing that really lets

you know that those eyes were being shaken and that the blood vessels broke." 10EHRR154. Dr. Squires' trial opinion corresponds with basic premises of SBS/AHT that have since been rejected, including the concept that shaking can cause blood vessels, including in the eyes, to break and cause subdural and retinal hemorrhage. As explained above, no valid science supports that hypothesis, stated as fact by Dr. Squires and Dr. Urban during Mr. Roberson's trial.

Dr. Downs' attempt to affirm SBS/AHT as a legitimate hypothesis while also insisting that "this is not a shaking case" and then changing his opinion while on the stand further undermines Dr. Downs' credibility.

For all of these reasons, the habeas court's reliance on Dr. Downs in making findings renders the FFCL entirely unreliable. This was no mere "battle of the experts," as the State argued. It was the difference between numerous, highly qualified experts armed with the facts and special expertise versus a medical examiner defending herself and a paid expert with minimal relevant expertise, brazen bias problems, and a demonstrated ignorance of the core facts.

III. THE HABEAS COURT'S CONCLUSIONS OF LAW DO NOT TRACK THE GOVERNING LAW OR APPLY THE RELEVANT FACTS.

The "Conclusions of Law" found in the FFCL are a verbatim copy of the State's proposal. *See* FFCL at pp. 11-12. The terse conclusions contain no legal analysis, but merely a conclusory dismissal of each claim and, with the second and third claim, a few citations to cases. By contrast, Applicant's proposal identifies and

discusses the legal standard associated with each distinct claim, provides a robust application of law to facts corresponding to the elements of each claim, and includes a clear recitation as to why relief is warranted. *See* **EXHIBIT A** at pp 244-294.

Applicant amassed considerable new evidence from an array of exceptionally qualified experts, who have identified numerous factors, never considered at the time of trial, which demonstrate why Nikki's death was not a homicide. These factors include:

(1) the tenets of SBS/AHT that were applied to assessing Nikki's condition in 2002 have changed considerably because they have been invalidated through scientific study;

(2) the State's shift of focus to a theory of "multiple impact sites" caused only by "blows" and not "shaking" is contrary to the new evidence contained in the long-suppressed CAT scans, which show only a single, minor impact site to the head;

(3) the report of a fall off of a bed was dismissed, but had it been investigated, would have shown that the event had significant injury-potential had Nikki landed on her head (whereas shaking would have injured the neck), as demonstrated by the contemporary teaching of biomechanical research;

(4) the CAT scans and autopsy photographs show only a single impact site on Nikki's head and a small amount of subdural blood and brain swelling that corroborate Mr. Roberson's report of a short fall but is only one critical part of the differential diagnosis that was needed;

(5) the post-mortem toxicology report that Dr. Urban did not consider shows that Nikki had toxic quantities of a drug (Phenergan/promethazine) in her bloodstream at the time of autopsy, a drug which had been prescribed to her on January 29, 2002, fewer than two days before her collapse, and that drug now contains an FDA "Black Box Warning" against prescribing it to children of Nikki's age and condition because of the risk of causing respiratory failure and sudden death;

(6) Nikki had also been prescribed on January 29, 2002, cough syrup with codeine, a narcotic that metabolizes into morphine, suggesting yet another contributor to her death because this drug suppresses breathing yet was given to her when she was found to have a respiratory infection and given in conjunction with other respiratory-suppressing drugs;

(7) the fall a few hours before her collapse occurred while she was in an unsafe and unfamiliar sleep environment, a bed that consisted of a mattress and box springs that had recently been propped up on two layers of concrete cinder blocks, some of which were sticking out from under the box springs, circumstances that also needed to be taken into account in considering the other minor bruises and abrasions observed on her at autopsy;

(8) new evidence established that Nikki's heart was resuscitated after her brain had already become "nonperfused" aka brain dead but blood thereafter, over the course of two days, pumped through her resuscitated heart, pouring towards her brain, but could not enter the brain;

(9) new evidence established that, after Nikki was moved to Children's Hospital in Dallas, she was receiving epinephrine and three other drugs that *stimulate* blood flow (vasopressin, dopamine, and heparin) and raised her pulse to over 200, adding to the blood flowing in and under the scalp, accumulating in the subdural space, unable to enter the brain;

(10) new evidence demonstrated that when Dr. Urban conducted the autopsy on February 2, 2002, she observed an accumulation of subdural blood but made no attempt to reconstruct past events to assess how that accumulation in the subdural space had occurred *during* Nikki's hospitalization—even ignoring a pressure monitor that had been surgically screwed into the top of Nikki's head and, in contradiction to the opinions of Drs. Ophoven, Wigren, Auer, and Bonnell, read the blood like tea leaves as signs of "multiple impact sites" that did not exist; and, most critically:

(11) new evidence established that Nikki—who had been very ill most of her life, had high fevers during her last week, and had an unidentified "respiratory infection"—had undiagnosed interstitial viral pneumonia, a condition that pathologists require special training to be able to recognize, which Dr. Auer has but Dr. Urban does not.

At some point in the early hours of January 31, 2002, Nikki fell out of bed—likely because of wooziness from her pneumonia and the respiratory-suppressing medications she had been prescribed. She may have sustained the minor trauma to the back of her head at that time, which caused a goose egg of swollen tissue to form at the back right exterior of her skull, which was the "bogginess" that hospital personnel later noted. That impact may have started the subdural bleeding, a small amount of which existed when a CAT scan was made at Palestine Regional around 10:15 AM on January 31, 2002. At some point after that fall, Nikki stopped breathing for an extended period. When Mr. Roberson woke up around 9:30 AM, Nikki was already unconscious and had turned blue, as she had done on several occasions in the past due to unexplained "breathing apnea" spells. When she was intubated and her heart was resuscitated at the Palestine Regional Hospital around 9:50 AM, her eyes were already fixed and dilated. This showed that her brain was already nonperfused (dead) from the oxygen deprivation—which only requires 10-12 minutes to become irreversible. Although Nikki's brain had become nonperfused, Nikki's resuscitated heart thereafter continued to push out blood. The scalp remained perfused; thus, blood could flow through the scalp but was trapped there, being unable to penetrate the brain. Therefore, there was a causal connection between the brain death caused by hypoxic ischemia and the accumulation of subdural and intradural blood that was later observed. The blood that could not penetrate the brain

detoured around the brain underneath the scalp. This phenomenon contradicts the hypothesis that shaking or impact/blows caused the accumulation of considerable subdural blood, the brain swelling, and the retinal hemorrhage that was, in 2002, seen as diagnostic of SBS/AHT. There were not "multiple impact sites" to Nikki's head—but only a single goose egg without any associated skull fracture. Nikki had no fractures of any kind and no neck injuries. Her internal condition was finally explained in this proceeding by testimony from highly experienced and qualified experts from an array of disciplines. This testimony was not available at the time of trial, because the science had not yet evolved sufficiently. Nikki's death was a tragic result of natural illness and accidental factors. *See* **EXHIBIT A** at pp. 84-134.

All of this evidence is new and is outlined in extensive detailed in Applicant's Proposed Findings and is reflected in the habeas record itself. Mr. Roberson entreats this Court to look at that evidence and find that Mr. Roberson has more than carried his burden as to each of his four claims, particularly his claim of Actual Innocence under *Ex parte Elizondo*, 947 S.W.2d 202, 209 (Tex. Crim. App. 1996); *see also Herrera v. Collins*, 506 U.S. 390 (1993).

CONCLUSION

Above, Applicant Roberson highlighted three of the most significant categorical errors that render the habeas court's FFCL fundamentally unreliable. Mr. Roberson respectfully asks that this Court consider these errors and then consider ordering additional briefing and/or oral argument before setting the case for submission. Mr. Roberson prays that, after this Court's own independent review of the full record, it will find no reasonable basis for deferring to the habeas court's FFCL. The full record includes significant new evidence adduced in the habeas proceeding as reflected in a 12-volume Reporter's Record of the August 2018 and March 2021 evidentiary hearing and the January 31, 2022 Closing Arguments. After considering the full record and making the appropriate comparison to the trial record and consulting the relevant federal and state law, this Court should GRANT this motion and GRANT habeas relief in the form of a declaration of Actual Innocence or, at the very least, a new trial untainted by discredited science and false testimony. An innocent man's life is at stake, as is the efficacy of Article 11.073 as a vehicle designed to elevate the truth over finality. Indeed, the very integrity of the criminal justice system hangs in the balance.

Respectfully submitted,

/s/ Gretchen S. Sween
Gretchen S. Sween
(State Bar No. 24041996)
SWEEN LAW
P.O. Box 5083
Austin, TX 78763-5083
gsweenlaw@gmail.com
Phone: (214) 557.5779

Jason P. Fulton
(State Bar No. 24040936)
jfulton@diamondmccarthy.com
Diamond McCarthy LLP
Tower at Cityplace
2711 N. Haskell Ave.
Suite 3100
Dallas, Texas 75204
(214) 389-5300 (phone)

Post-Conviction Attorneys
for Robert Leslie Roberson III, Applicant

CERTIFICATE OF CONFERENCE

On February 23, 2022, undersigned counsel conferred with counsel for the State by email, apprising them that this motion would be filed. Counsel for the State represented that they oppose the relief requested in this motion.

/s/ Gretchen S. Sween

CERTIFICATE OF SERVICE

Undersigned counsel represents that the foregoing was served on counsel of record for the State in this cause via the Texas efile system and by electronic mail as follows:

Anderson County District Attorney
DA Allyson Mitchell
amitchell@co.anderson.tx.us
ADA Scott Holden
sholden@co.anderson.tx.us

/s/ Gretchen S. Sween

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Gretchen Sween on behalf of Gretchen Sims Sween
Bar No. 24041996
gsweenlaw@gmail.com
Envelope ID: 62105394
Status as of 2/28/2022 3:36 PM CST

Case Contacts

Name	BarNumber	Email	TimestampSubmitted	Status
Allyson Mitchell		amitchell@co.anderson.tx.us	2/25/2022 4:38:02 PM	SENT