SJC-11921

COMMONWEALTH vs. DERICK EPPS.

Essex. December 7, 2015. - July 14, 2016.

Present: Gants, C.J., Spina, Cordy, Botsford, Duffly, & Hines, JJ.

Assault and Battery. Child Abuse. Constitutional Law, Assistance of counsel. Due Process of Law, Assistance of counsel. Evidence, Expert opinion. Practice, Criminal, New trial, Assistance of counsel.

Indictment found and returned in the Superior Court Department on November 17, 2004.

The case was tried before David A. Lowy, J., and a motion for a new trial, filed on October 17, 2011, was heard by him.

After review by the Appeals Court, the Supreme Judicial Court granted leave to obtain further appellate review.

David Hirsch for the defendant.

David F. O'Sullivan, Assistant District Attorney, for the Commonwealth.

The following submitted briefs for amici curiae:

Seth Miller, of Florida, Katherine H. Judson, of Wisconsin, Adam W. Deitch & Lindsay A. Olson, of New York, & Mark W. Batten for The Innocence Network.

Heather Kirkwood, of Washington, & David E. Meier for David Ayoub & others.

Matthew R. Segal, Dennis Shedd, & Chauncey B. Wood for Committee for Public Counsel Services & others.

GANTS, C.J. The defendant was convicted by a Superior Court jury of assault and battery on a child causing substantial bodily injury, in violation of G. L. c. 265, § 13J (b). The prosecution contended that the defendant violently shook the two year old child in his care based on medical testimony that the child was diagnosed with traumatic brain injury, and scans of her brain that showed retinal hemorrhages, subdural hematoma, and brain swelling, the three symptoms known as "the triad" associated with shaken baby syndrome. The defendant, when interviewed by the police, denied having injured the child and reported that, hours before the child's grievous injuries became manifest, she had fallen down the wooden stairs in her home and had later fallen off a kitchen stool, leaving a bump on her forehead. The Commonwealth's medical expert offered the opinion that injuries of the type and severity suffered by the child could not have been caused by the short falls described by the defendant. The defendant called no expert to offer an opinion to the contrary.

In Commonwealth v. Millien, 474 Mass. 417, 418 (2016), we noted that "[t]here is a heated debate in the medical community as to whether a violent shaking of a baby alone can generate enough force to cause the triad of symptoms of traumatic brain

injury, and as to whether these symptoms can sometimes be caused by a short accidental fall." We conclude that, in the unusual circumstances of this case, the absence of expert testimony that the child's injuries might have been caused by her accidental falls deprived the defendant of an available, substantial ground of defense, and thereby created a substantial risk of a miscarriage of justice. We therefore reverse the judge's denial of the defendant's motion for a new trial, vacate the conviction, and remand the case to the Superior Court for a new trial.[1]

Background. 1. Evidence at trial. We summarize the evidence presented at trial in July, 2007. On October 9, 2004, Sara Comeau left for work early in the morning, leaving her two children, Veronica, age two, and Delilah, age four, in the care of the defendant, who was her live-in boy friend.[2] The two girls were still asleep in their bedroom; the defendant was awake but still in bed.

The defendant told the police during two interviews on October 10 that, after Comeau left for work, Veronica woke up

[1] We acknowledge the amicus briefs submitted by The Innocence Network and "concerned physicians and scientists," and the amicus brief jointly submitted by the American Civil Liberties Union of Massachusetts, the Committee for Public Counsel Services, and the Massachusetts Association of Criminal Defense Lawyers.

[2] Sara Comeau worked as a certified nurse assistant at a nearby nursing home.

and he brought her into the bed with him. After one to two hours both woke up and the defendant sent Veronica downstairs by herself while he went to use the bathroom. He then heard Veronica cry and found her at the bottom of the stairs; based on what he saw and heard, it seemed that she had fallen down two or three wooden stairs. Veronica told him that she was all right. Veronica then sat on a stool in the kitchen eating cereal while the defendant played a video game. Veronica tried to get down from the stool by herself and fell.[3] He found her on the floor, picked her up, and saw a small red mark on the left side of her forehead. She cried briefly but then said that she was okay. The defendant gave her juice and sat her on the couch, where she then started coughing and vomited. The defendant cleaned up the vomit and gave her a bath. Later, Veronica vomited again when she was upstairs.[4]

The defendant's friend, Jason Fletcher, arrived later that morning. When he arrived, the defendant told Fletcher that Veronica had fallen off the stool and Fletcher saw "a bump"

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[3] Chemist Cailin Lally of the State police crime laboratory measured the stool and determined that it was thirty inches tall. Lally also performed an orthotolodine test, a presumptive test for the presence of blood, on a stain found on the kitchen floor near the stool, and the result came back positive.

[4] Lally found a pair of children's jeans with chunky, strong-smelling material in the hallway upstairs, and brown chunky material with a "vomit-like" odor in the bathroom sink upstairs.

above her left eye. The defendant and Fletcher played a football video game downstairs while the children played upstairs. At around noon, Comeau returned home on her lunch break and found the defendant in the living room with Fletcher, sitting on the couch and playing the football video game. Veronica was wearing pull-up underpants and a T-shirt, which was the same T-shirt Comeau had dressed her in when Comeau put her to bed the night before. Comeau saw that Veronica had a red, dime-sized mark on her forehead. Comeau asked the defendant what had happened, and he told her that Veronica had fallen off the stool while she was eating breakfast. She and the defendant then got into an argument about neither child being fully dressed. Before returning to work, Comeau went upstairs and dressed Veronica in pants and a T-shirt. During this time, Veronica said to her, "Mommy, I hit my head." According to Comeau, Veronica was not acting unusual at this time.

After Comeau returned to work, the defendant and Fletcher continued playing the video game downstairs while the girls were playing upstairs. The defendant told the police during his interviews that, shortly after Comeau left, while he and Fletcher were playing the video game, he heard a "boom" from upstairs. He initially thought that it was the children jumping around to music, but then Delilah ran to the top of the stairs and yelled to the defendant that Veronica had fallen. The

defendant stated that he went upstairs and found Veronica lying on her back with "her eyes . . . almost going in the back of her head." He began to give her cardiopulmonary resuscitation (CPR). She was limp and gurgling, and her stomach expanded and her arms flared up each time he breathed into her mouth. Her fingers were "like knots," and her body stiffened as if she were having a seizure. He panicked and yelled for Fletcher. Fletcher came upstairs, and the defendant sent him to get Comeau from her work. The defendant told the police that, when his attempts at CPR failed, he tried to put a toothbrush in her mouth to create an airway.

At trial, Fletcher testified that, while he was playing the football video game downstairs with the defendant, Delilah yelled from upstairs that Veronica had fallen. The defendant went upstairs while Fletcher played four downs of the football video game.[5] While the defendant was upstairs, Fletcher did not hear any "bangs," "shouts," or "noises." Because the defendant had not returned, Fletcher went upstairs "to see what was going on."[6] He then saw Veronica lying unconscious on a mattress in

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[5] Jason Fletcher testified that the defendant was winning the football video game when Delilah called for him.

[6] There was a dispute at trial as to how much time elapsed before Fletcher went upstairs after the defendant left; Fletcher estimated that it was approximately two minutes. The defendant told the police that he called for Fletcher after about thirty seconds.

the girls' bedroom and the defendant giving her mouth-to-mouth resuscitation. The defendant sent him to get Comeau, and he drove to the nursing home where she worked.

Comeau drove home immediately when she learned about Veronica's condition and saw Veronica on the couch in the living room with the defendant leaning over her. Veronica had a large lump on her head, which Comeau testified was "red and purple/black" in color. The defendant was attempting to administer CPR, but Comeau screamed and told him to stop because Veronica's stomach was raised and "she had too much air in her." Comeau asked the defendant what had happened, and he told her that Veronica had fallen down the stairs. Comeau telephoned 911, and the emergency medical technicians arrived. Fire fighter and emergency medical technician Robert Irvin said that Veronica was having difficulty breathing, her eyes were rolling back, and she was sweating profusely. According to Irvin, she had a "bang" on her head, a black eye, a small bang on her nose, and a red line across her chest, which, he said, looked "as if the child had leaned up against a chair or a table."

A neighbor, Karen Grober, saw the fire trucks and ambulance and went outside to see what was going on. Grober testified that the defendant appeared "upset" and "worried." Grober asked him what had happened, and he said that he did not know, that he

heard a big thump from upstairs, and that when he went upstairs Veronica was on the floor, with her eyes rolling back.

Comeau followed Veronica to Lawrence General Hospital in a separate ambulance. When they arrived, Comeau saw a red mark under Veronica's ribs that had not been there when Comeau had dressed her at lunchtime. Comeau also saw red marks on the inside of both of her knees. Once the defendant arrived at the hospital, he told Comeau that Veronica had fallen down the stairs and had fallen off the breakfast stool, and that Delilah had yelled at the top of the stairs that Veronica had fallen a third time.

At Lawrence General Hospital, medical professionals intubated Veronica to assist her breathing and took several X-rays, including a head computerized tomography (CT) scan. She was eventually "med-flighted" to Boston Children's Hospital, where she arrived unresponsive and was displaying "posturing," which is an upper motor neuron sign signaling injury to the brain. She was placed in the pediatric intensive care unit. The head CT scan revealed a significant amount of swelling on the left side of Veronica's brain, as well as bleeding in the subdural space and the subarachnoid space. The swelling was such that the left side of the brain was extending over and encroaching into the right side of the brain, a condition known in the medical community as a midline shift. A craniotomy

surgery was performed to help relieve the swelling and to help drain some of the blood that had collected.

Dr. Celeste Wilson, a board-certified pediatrician and child abuse specialist, examined Veronica and found that her left pupil was fixed and dilated, and her right pupil was very sluggishly reactive to light. Although she was not an ophthalmologist, Dr. Wilson examined Veronica's eyes and found bleeding in the back of both eyes. An ophthalmologist subsequently examined Veronica and found bleeding, known as retinal hemorrhages, in both eyes, with approximately twelve hemorrhages on the right side and five hemorrhages on the left side. Dr. Wilson also found bruising over Veronica's right eye, as well as increased redness under the nostril and a bruise under her chin. Dr. Wilson observed additional areas of bruising or increased redness over Veronica's mid-chest, a bruise on her right upper back, a bruise on her left lower back, and bruising or increased redness on her right leg at the level of the knee on the outer side and on her left leg on the inner side.[7] Veronica was given an electroencephalogram, a test that measures seizure activity in the brain, as well as a magnetic resonance imaging test and repeat head CT scans. The CT scans revealed that a portion of Veronica's brain had infarcted, the

[7] At trial, Dr. Celeste Wilson testified that it is not possible to determine how long bruises have been present.

medical term for the loss of function in part of the brain, as a result of the nerve injury. Tests did not reveal any spinal cord damage; neck injury, aside from some swelling in the tissues around the neck; or skull fracture.

Dr. Wilson offered her opinion that these injuries were "consistent with non-accidental trauma." Specifically, she testified that Veronica's injuries were consistent with shaken baby syndrome,[8] which she described as a clinical diagnosis based on a constellation of findings that include subdural hemorrhage, retinal hemorrhages, and possibly bruises or fractures. She explained that shaken baby syndrome "is thought to occur as a result of significant acceleration/deceleration forces . . . when a caretaker vigorously shakes an infant such that the head moves back and forth." This shaking leads to strain and tension on the blood vessels in the brain, causing them to tear and release blood. When a blood vessel tears in the subdural space, it causes bleeding in the subdural space, i.e., a subdural hemorrhage. The shaking forces also cause shearing and tearing

[8] In 2009, the American Academy of Pediatrics in a policy statement recommended that pediatricians "use the term 'abusive head trauma' rather than a term that implies a single injury mechanism, such as shaken baby syndrome, in their diagnosis and medical communications." Christian, Block, and the Committee on Child Abuse and Neglect, Abusive Head Trauma in Infants and Children, 123 Pediatrics 1409, 1411 (2009). See Commonwealth v. Millien, 474 Mass. 417, 423 n.7 (2016). In this opinion, we refer to "shaken baby syndrome" (the term used at trial) and "abusive head trauma" interchangeably.

on the nerves of the brain such that they release a substance called cytokines, which then results in brain swelling.

Dr. Wilson testified that the normal activities of a toddler, even one who is clumsy, would not account for the type of injuries she described. She also testified that blood testing was performed and did not reveal any sign that Veronica was suffering from a blood disease or blood disorder. Finally, she opined to a reasonable degree of medical certainty that a fall of three feet could not cause Veronica's injuries and that a fall down multiple stairs would be "extremely unlikely" to cause them. She stated that, apart from shaking, the circumstances that might cause a child to sustain these types of injuries would be a high speed motor vehicle accident or a fall from a building or from a height of "more than [ten] feet, more . . . on the order of [seventy] feet." On cross-examination, Dr. Wilson acknowledged that Dr. John Plunkett has conducted research indicating that the same types of symptoms as occur in shaken baby syndrome could occur from falls as low as three feet, but she stated that such findings are not widely accepted within the national community of pediatricians or recognized by the American Academy of Pediatrics. She also admitted on cross-examination that she could not say when Veronica's injuries were inflicted, and that it was possible for Veronica to have

remained conscious for some period of time after their infliction.

Comeau testified that Veronica was a clumsy child and fell down often, that she bruised easily, and that she was being treated for a blood disorder.[9] She said that Veronica and Delilah would jump off the couch and bed, and fight with each other. She gave Veronica a bicycle in June, 2004, and Veronica fell off and broke her arm several days later. The cast did not come off until the week before the incident. The defendant also described Veronica as "clumsy" and "accident prone" in his interview to the police, and described specific instances when Veronica had fallen, including three or four days prior when she ran into a door and sustained a bump on her head and a slight black eye. Grober similarly testified that she saw the girls outside every day and that Veronica was often falling down and "had a lot of accidents."[10]

Comeau also testified that in August or September, 2004, the defendant told her he had slapped Veronica. Comeau saw a "big red welt and a handprint" between Veronica's legs and buttocks. During the police interviews the defendant admitted that he and Comeau "occasionally" gave the children a "slap on

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[9] The type of blood disorder was not identified at trial.

[10] Veronica was known as "Tonka" by her family because she was clumsy and always banging into things and getting bruised.

the butt" as a disciplinary measure. Nika Fontaine, Comeau's best friend and Delilah's godmother, testified that, when she approached Comeau's home on an unknown date, she saw through the screen door that the defendant put his hands on Veronica's arm and shook her while Veronica was on the ground standing.

On the evening of October 10, the defendant waived the Miranda rights and agreed to be interviewed by Trooper Robert LaBarge of the State police and Detective Carl Rogers of the Haverhill police department. He also agreed to be interviewed later that evening by Trooper Brandon Arakelian of the State police. Throughout the recorded interviews the defendant denied causing Veronica's injuries, even after his interrogators told him that the doctors at Children's Hospital had determined that Veronica's injuries were intentionally inflicted and that they could not have been caused by an accidental fall.[11] The defendant also stated that he did not think Comeau had caused the injuries.[12]

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[11] Trooper Brandon Arakelian of the State police told the defendant that Arakelian knew the "who" but was asking the defendant "to answer the why, and tell [him] what happened, and . . . how it happened." The defendant insisted, "I am answering the why for you." Arakelian told the defendant that he did not think the defendant was "a mean guy who did it on purpose," but the defendant did not waiver in his insistence that he "didn't do anything."

[12] On October 13, Comeau was arrested and charged with child endangerment. She spent three days in custody before she was released on bail. During the time she was in custody, the

As a result of the events on October 9, Veronica is paralyzed on the right side of her body and cannot walk. According to Comeau, Veronica's cognitive abilities are seriously limited and she "can't comprehend."

2. Closing arguments. Defense counsel informed the judge on the first day of trial that he would not be pursuing a third-party culprit defense and during his opening statement asked the jury to consider "whether or not those injuries were caused by the blows of [the defendant] or . . . by some other non-intentional source." But defense counsel in closing argument abandoned the argument that Veronica's injuries were accidental and invited the jury instead to consider whether Comeau "struck the blow that injured Veronica" when she came home from work on her lunch break. He noted that Comeau was "angry and upset" when she came home, and was alone upstairs with the children. In contrast, he argued that the defendant was in a good mood because he was winning in the football video game, and did not have the state of mind necessary to injure Veronica. As to the timing of the blow, defense counsel noted that Dr. Wilson had testified that "although the child suffered a very severe,

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Department of Children and Families (then the Department of Social Services) removed Delilah from her home and placed her in foster care, and initiated a care and protection proceeding to remove custody of both children. The prosecutor later offered to dismiss the charges against Comeau if she testified truthfully against the defendant; Comeau accepted the offer.

traumatic shaking, . . . the child would not have been immediately comatose."

The prosecutor in closing argument argued that the defendant violently shook Veronica during the time that he was upstairs and Fletcher was downstairs. She claimed that "two-year olds get banged up and bruised, but they don't break like this," arguing that "even the clumsiest two year old, even one who's fallen off a [thirty-]inch stool or a couple of steps is not left with parts of her brain that have literally died-off." Rather, she said, only a fall from seventy feet or an automobile crash where the child is ejected from the automobile could cause these injuries. She argued that, because there was no evidence of a fall or crash of this magnitude, the only possible cause of Veronica's injuries is that the defendant shook "her so violently that it inflict[ed] those rotational forces on her brain and in her brain."

2. Motion for a new trial. The defendant, represented by new counsel, filed a postconviction motion for a new trial under Mass. R. Crim. P. 30 (b), as appearing in 435 Mass. 1501 (2001), claiming first, that his trial counsel was ineffective for failing to retain a medical expert to question whether Veronica's injuries were caused by shaken baby syndrome and to acknowledge the possibility that her injuries could have been caused by an accidental short-distance fall, and second, that

newly available evidence, specifically new scientific advances on shaken baby syndrome and short falls, warranted a new trial.

The motion judge, who was the trial judge, conducted a three-day evidentiary hearing that concluded on May 15, 2013. The defendant's trial counsel testified that he was aware prior to the start of the trial that the Commonwealth was intending to call Dr. Wilson as a witness, and that Dr. Wilson had diagnosed Veronica with shaken baby syndrome. Although he was aware that CT scans and other radiological images had been taken of Veronica's brain, he did not attempt to obtain copies of the scans. He conducted research into shaken baby syndrome and was aware of the controversies around it, and contacted two experts for assistance. The first expert originally agreed to be retained but then was unable to do so. Counsel then contacted Dr. Edward Sussman, a pathologist whose services he had used in prior cases and in whom he had confidence. Before counsel retained Dr. Sussman, he learned that Dr. Sussman believed in the validity of shaken baby syndrome as a diagnosis. Without viewing the CT and other radiological scans, Dr. Sussman advised that Veronica's injuries were compatible with impact to the left temporal lobe of the brain, and that the tearing of veins in her brain and bilateral retinal hemorrhaging were "some evidence of shaking." He also advised that the multiple sites of Veronica's injuries were not compatible with a single fall. He said it was

possible that her injuries were caused by three separate falls on the day of the incident, but unlikely because he did not believe that the falls were of a great enough distance. Thus, counsel chose not to call Dr. Sussman as a witness because counsel "did not believe that he would be of value."

Trial counsel also contacted other attorneys who had worked on shaken baby cases to find out which experts they had used. At the time of the motion hearing, he could recall that he had spoken with only one attorney and that the attorney had consulted with Dr. Plunkett, but had not called him to testify at trial. Counsel said that the attorney expressed an opinion about Dr. Plunkett that led him to decide that Dr. Sussman was "best." Counsel spoke with Dr. Sussman about Dr. Plunkett's research regarding short falls, and Dr. Sussman told him that Dr. Plunkett was an opponent of shaken baby syndrome but that his opinions "had been refuted in several peer review articles."

Although trial counsel read literature critical of shaken baby syndrome, he did not contact any of the authors of that literature and did not seek to retain any other critics who could be helpful as expert witnesses. He testified that he did not choose to call an expert because he believed, based on his conversations with other attorneys, that doctors who questioned the validity of shaken baby syndrome were subject to attack by their peers, which would render them more vulnerable to cross-

examination and might lead to a counter-expert being called by the Commonwealth. He said, however, that if he had found an expert from out-of-State who had solid credentials and could assist the defense, he would have "brought in" that witness to testify.

Regarding the strategy he ultimately did pursue, trial counsel stated that "[his] preference was to blame [Comeau] for the event" but "the problem that [he] had was that gap in time between [Comeau] leaving and the child being found." He explained that he did not pursue a third-party culprit defense until the closing argument because of that concern, but once Dr. Wilson testified that Veronica could have sustained the blow and remained conscious after Comeau had left, he had the opportunity to pursue this defense.

Dr. Joseph Scheller, a pediatrician and child neurologist, testified regarding the scientific evidence that could have been presented at trial on behalf of the defense. First, Dr. Scheller described what he considered the questionable foundation of shaken baby syndrome as a valid and scientifically supported medical diagnosis. He explained that, although in theory a violent shaking of a baby can cause injury, there is no scientific evidence based on biomechanical models or animal studies, or from video cameras or witnesses, to support the claims made by proponents of shaken baby syndrome. He stated,

"[W]e don't really have scientific proof that [shaken baby syndrome] happens like doctors say it happens and that [it] can cause the injuries that are credited to it or connected with it." Dr. Scheller further testified that scientific studies on shaken baby syndrome that rely on perpetrator confessions are flawed because the confessions are unreliable. He stated that in the cases he has seen, the confession is one that is "either exaggerated or coerced."[13] Moreover, he stated, even if the confession was assumed valid, he has "never once seen a confession that explains every injury." He explained that, although there are video recordings that exist of people intentionally shaking babies, the babies in those video recordings were not harmed in the way predicted by proponents of shaken baby syndrome, and in fact all of those babies had normal CT scans and eye exams and "turned out fine." Dr. Scheller also testified that a child over three months old who is shaken is unlikely to suffer any kind of head injury because the neck would prevent the head from moving back and forth; however, "it

[13] Dr. Joseph Scheller offered as an example one case in which the child did not wake up, the parents admitted to shaking the baby a little bit to awaken him or her, and such an admission was reported as an admission of violent shaking. [14] Defense counsel has no duty to investigate a theoretically possible defense that is not potentially substantial. See Commonwealth v. Holliday, 450 Mass. 794, 807, cert. denied, 555 U.S. 947 (2008).

is very easy to imagine that these youngsters will have rib injury, skin injury and limb injury."

Second, Dr. Scheller called into question Dr. Wilson's diagnosis of Veronica. Specifically, Dr. Scheller testified that the presence and extent of Veronica's retinal hemorrhages do not prove that she was violently shaken. He stated that while child abuse pediatricians and some ophthalmologists believe one can actually shake the eyeball and cause a retinal hemorrhage, it has never been done in a model and it has not occurred in people known to have been shaken. In contrast, he stated, "we absolutely do know that you can get retinal hemorrhages from too much pressure." He opined, "[I]n a two-year-old who has this type of head injury, the retinal hemorrhage is absolutely zero evidence of any kind of shaking, even [to] those who believe in the shaking theory[;] because this child has so much pressure going on we have got to believe that it was the pressure that caused the retinal hemorrhage." He stated that he could not give an opinion to a reasonable degree of medical certainty whether the amount and type of retinal hemorrhages Veronica suffered would be more consistent with abuse or falling down three stairs because "it could happen with either" and the probability is "fifty/fifty."

Based on his review of Veronica's medical records, Dr. Scheller offered an opinion to a reasonable degree of medical

certainty that Veronica suffered a subdural hemorrhage that "could have easily been from an accidental injury, just as it could have been from an inflicted injury[;] there was no way to tell from what actually happened to Veronica that it was accidental or inflicted." He further stated that Veronica's injuries could have been caused by a short distance fall of two and one-half to three feet onto her head, and there is no way to tell from the medical records whether the brain swelling was more likely to have been caused by a fall or by abuse. He stated unequivocally, however, that, given the location of Veronica's subdural hemorrhage, her injuries "did not come from a shake" because it is impossible to cause a subdural hemorrhage in only one side of the brain by shaking back and forth. He concluded that "without any question [Veronica] received a blow to the left side of the head and that caused bleeding underneath, that caused the brain to swell underneath the bleeding and all the other problems, but that blow could have been an accidental blow or an intentional blow. There is just no way to tell from looking at [the CT scan]."

Finally, Dr. Scheller testified that shaken baby syndrome is the subject of heated debate and widespread disagreement among forensic pathologists, radiologists, pediatricians, ophthalmologists, and physicists and biomedical engineers. He stated that, although in 2006 every pediatrician and child abuse

specialist he met believed strongly that shaken baby syndrome was a valid diagnosis, in the more recent past a "significant minority" has recognized that the science behind shaken baby syndrome is questionable and has instead adopted the term "abusive head trauma" or "abusive head injury" as a more general term for inflicted injury. He stated that ophthalmologists disagree on whether retinal hemorrhages prove shaken baby syndrome; although the majority agree that retinal hemorrhages provide some evidence in support of a shaken baby syndrome diagnosis, a minority of ophthalmologists believe that their presence does not point to a specific diagnosis. Dr. Scheller testified that, among radiologists, pathologists, and pediatricians, the majority supporting the shaken baby syndrome theory has shrunk. He stated that nothing has changed in his view or in the literature since 2007, and that he would have come to the same conclusions about the cause of Veronica's injuries in 2007. Dr. Scheller stated that the only change in the debate since 2007 has been in the increased acceptance of the views critical of shaken baby syndrome.

The judge denied the motion for a new trial, concluding that trial counsel's decision not to call an expert was a strategic judgment that was not manifestly unreasonable. The judge reasoned that, had counsel called a scientific expert to testify, he would have had to "address the expert's

vulnerabilities on cross-examination." The judge found that counsel instead "used his agile and compelling cross-examination of Dr. Wilson to make all the essential points he needed" to suggest the possibility that Comeau, not the defendant, had struck the blows that injured Veronica, which was a reasonable defense strategy. The judge also rejected the defendant's newly discovered evidence claim, determining that the defendant's proffered evidence regarding shaken baby syndrome and accidental short falls was not newly discovered because five of the seven articles that Dr. Scheller relied upon were published before trial and, even if it were newly discovered, the defendant's evidence that the views of Drs. Plunkett and Scheller were "now widely accepted is not credible." The judge also found that the conclusion that the medical evidence in this case was consistent with shaken baby syndrome or abusive head trauma rather than with multiple short falls "is supported by overwhelming medical evidence."

The defendant appealed, and the Appeals Court affirmed the denial of the defendant's motion for a new trial and the defendant's conviction in an unpublished memorandum and order issued pursuant to its rule 1:28. See Commonwealth v. Epps, 87 Mass. App. Ct. 1116 (2015). The Appeals Court held that trial counsel was not ineffective because his failure to call an expert to testify was a strategic decision, and that decision

was not "manifestly unreasonable" because, as the motion judge reasoned, counsel made all of the essential points he needed to make on cross-examination, and "[a]ny further exploration into this area . . . would have undermined the defendant's ultimate defense that someone other than the defendant, i.e., the victim's mother, inflicted the victim's injuries." The Appeals Court further reasoned that counsel's decision not to call an expert was not unreasonable because the research proffered by the defendant at the motion for a new trial "remains in the significant minority and subject to sizeable attack." The court also agreed with the judge's ruling on the newly discovered evidence claim. We granted the defendant's motion for further appellate review.

Discussion. 1. Ineffective assistance of counsel. To prevail on a motion for a new trial claiming ineffective assistance of counsel, a defendant must show that there has been a "serious incompetency, inefficiency, or inattention of counsel -- behavior of counsel falling measurably below that which might be expected from an ordinary fallible lawyer," and that counsel's poor performance "likely deprived the defendant of an otherwise available, substantial ground of defence." Commonwealth v. Saferian, 366 Mass. 89, 96 (1974). Where defense counsel makes a strategic decision not to present a potentially substantial defense, we "ask whether the decision

was manifestly unreasonable when made." Commonwealth v. LaBrie, 473 Mass. 754, 771 (2016). See Commonwealth v. Kolenovic, 471 Mass. 664, 674-675 (2015) ("The manifestly unreasonable test, therefore, is essentially a search for rationality in counsel's strategic decisions, taking into account all the circumstances known or that should have been known to counsel in the exercise of his duty to provide effective representation to the client and not whether counsel could have made alternative choices"). Where that strategic decision is made after conducting a complete investigation of the possible defense, we give deference to defense counsel's decision and determine whether it was manifestly unreasonable for counsel to forgo that defense based on the information available to counsel at the relevant time. See Commonwealth v. Holliday, 450 Mass. 794, 807, cert. denied, 555 U.S. 947 (2008); Commonwealth v. Candelario, 446 Mass. 847, 854-858 (2006) (counsel's failure to pursue lack of criminal responsibility defense was not manifestly unreasonable where "[counsel] took appropriate steps to investigate such defenses and, after doing so, made a tactical decision that the defenses were unlikely to succeed"). But where a strategic decision is made to conduct something less than a complete investigation of a potentially substantial defense, either because defense counsel decided to forgo that defense or to present it at trial without complete investigation, we ask

whether it was manifestly unreasonable to conduct so limited an investigation. See Labrie, supra, quoting Commonwealth v. Lang, 473 Mass. 1, 14 (2015) (Hines, J., concurring) ("Strategic choices made before a complete investigation are reasonable '[only] to the extent that reasonable professional judgments support the limitation on investigation'"); Kolenovic, supra at 670, 675 (counsel's decision to forgo further evaluation of defendant for posttraumatic stress disorder [PTSD] after consulting with one expert not manifestly unreasonable where "counsel had done what was necessary to identify the defense options based on PTSD" and "made the strategic decision that a lack of criminal responsibility or diminished capacity defense was unlikely to succeed and that further investigation was unnecessary").

Defense counsel has a professional obligation to investigate all potentially substantial defenses.[14] See Commonwealth v. Alcide, 472 Mass. 150, 160 (2015); Commonwealth v. Haggerty, 400 Mass. 437, 441-442 (1987). The extent of investigation required to explore each potential defense depends on the strength of that defense relative to the availability and strength of other potential defenses. See Kolenovic, 471 Mass.

[14] Defense counsel has no duty to investigate a theoretically possible defense that is not potentially substantial. See Commonwealth v. Holliday, 450 Mass. 794, 807, cert. denied, 555 U.S. 947 (2008).

at 676 ("choice between a [lack of criminal responsibility] defense that . . . would require riding 'two horses,' and a viable alternative defense based on the factually unassailable intoxication defense developed by counsel" justified lack of investigation into lack of criminal responsibility defense); Haggerty, supra at 442 ("[f]ailure to investigate the only defense a defendant has, if facts known to or with minimal diligence accessible to counsel support that defense, falls beneath the level of competency expected"). See also Lang, 473 Mass. at 15 (Hines, J., concurring); Commonwealth v. Baker, 440 Mass. 519, 529 (2003).

Here, the defendant's trial counsel chose not to consult with any further experts after speaking with one expert who he knew did not question the validity of shaken baby syndrome and who, without having viewed the medical records, offered the opinion that Veronica's injuries could not possibly have been caused by the accidental falls described by the defendant. We consider whether, in the circumstances of this case, it was manifestly unreasonable for counsel to have decided to confer with no other expert who might challenge the diagnosis of shaken baby syndrome or who might challenge the opinion that Veronica's symptoms could not possibly have been caused by the accidental falls described by the defendant.

As became apparent at trial, defense counsel reasonably had two alternative lines of defense: he could argue that there was a reasonable doubt whether the defendant caused Veronica's injuries because of the possibility that her injuries were caused by the accidental falls she sustained earlier that morning -- falling down the stairs, falling off the stool, or the cumulative effect of both falls; or that there was a reasonable doubt whether the defendant caused Veronica's injuries because of the possibility that Comeau intentionally inflicted the injury. The accidental defense had significant evidentiary support in that the defendant had consistently reported that Veronica fell down the stairs earlier that morning and had fallen off the stool at breakfast. The defendant's report that Veronica fell from the stool was strongly corroborated:

- The defendant told Fletcher about it when he arrived at the home, and Fletcher saw a "bump" over Veronica's left eye;
- When Comeau came home during her lunch break, the "bump" was now "dime-sized," and the defendant told her that Veronica had fallen from the stool; and
- Veronica herself told Comeau that she had hit her head.

Moreover, although the prosecution theory was that the defendant violently shook Veronica after Delilah had reported that Veronica had fallen, defense counsel reasonably could have

argued that Veronica was already unconscious when Delilah called (as the defendant reported to police) because a four year old is unlikely to report to his or her caretaker an ordinary fall by a two year old sibling, especially when, as here, the sibling fell so often that she earned the nickname of "Tonka." When Comeau returned to her home after Veronica had become unconscious, she reported that she saw a big "red and purple/black" lump on Veronica's forehead, which permitted the inference that the bump from the fall had grown into this discolored lump.

At the time of trial, there was substantial scientific and medical literature that recognized the possibility that accidental short falls can cause serious head injuries in young children of the type generally associated with shaken baby syndrome.[15] Numerous studies had also been published at the time

[15] See, e.g., Roth, Raul, Ludes, & Willinger, Finite Element Analysis of Impact and Shaking Inflicted to a Child, 121 Int'l J. Legal Med. 223, 225 (2007) (based on computer simulation, eighteen inch fall as likely to cause subdural hemorrhage as shaking); Prange, Coats, Duhaime, & Margulies, Anthropomorphic Simulations of Falls, Shakes, and Inflicted Impacts in Infants, 99 J. Neurosurgery 143 (2003) (shaking and minor falls produce similar rotational responses, with falls of only twelve inches with head impact producing accelerations in excess of those produced during shaking); Hymel, Jenny, & Block, Intracranial Hemorrhage and Rebleeding in Suspected Victims of Abusive Head Trauma: Addressing the Forensic Controversies, 7 Child Maltreatment 329 (2002) (describing two cases of serious head trauma from accidental short falls); Jenny, Shams, Rangarajan, & Fukuda, Development of a Biofidelic 2.5 kg Infant Dummy and Its Application to Assessing Infant Head Trauma During Violent Shaking, Injury Biomechanics Research, Proceedings of the Thirtieth International Workshop, at 138 (Nov. 10, 2002) (based

of trial challenging the view that shaking alone can produce the types of injuries associated with shaken baby syndrome.[16] Although these issues were hotly contested in the relevant medical and scientific fields, see People v. Ackley, 497 Mich. 381, 385 (2015); State v. Edmunds, 308 Wis. 2d 374, 385-386 (2008), and although the experts who would support the positions beneficial to the defense were in the minority in this debate, there was significant medical and scientific support for these

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on biomechanical experiment, maximum head center of gravity acceleration produced by shaking less than one-third of that produced by rolling off sofa); Plunkett, Fatal Pediatric Head Injuries Caused by Short-Distance Falls, 22 Am. J. Forensic Med. & Pathology 1, 7-9 (2001) (symptoms attributed to shaken baby syndrome also found in fatal short falls); Christian, Taylor, Hertle, & Duhaime, Retinal Hemorrhages Caused by Accidental Household Trauma, 135 J. Pediatrics 125, 127 (1999) (reporting three cases of infants between seven months and thirteen months of age who had retinal hemorrhages after short falls); Hall, Reyes, Horvat, Meller, & Stein, The Mortality of Childhood Falls, 29 J. Trauma 1273-74 (1989) (of fatal falls by children in Cook County, Illinois, during four-year period, forty-one per cent were minor falls from less than three feet).

[16] See, e.g., Bandak, Shaken Baby Syndrome: A Biomechanics Analysis of Injury Mechanisms, 151 Forensic Sci. Int'l 71, 78 (2005) (infant shaking cannot cause serious injuries without also resulting in neck injury); Ommaya, Goldsmith, & Thibault, Biomechanics and Neuropathology of Adult and Pediatric Head Injury, 16(3) Brit. J. of Neurosurgery 220, 233 (2002) (based on standard biomechanical principles, shaken baby syndrome hypothesis requires forces that are biomechanically improbable and increased intracranial pressure is more likely to cause retinal bleeding than shaking); Duhaime, Gennarelli, Thibault, Bruce, Margulies, & Wiser, The Shaken Baby Syndrome: A Clinical, Pathological, and Biomechanical Study, 66 J. Neurosurgery 409, 413-414 (1987) (subjecting biomechanical model to repetitive violent shaking demonstrated that shaking fell below established injury thresholds).

minority positions. See notes 15 and 16, supra; note 17, infra; Millien, 474 Mass. at 435 n.16, 438 n.20. There were also published articles that identified the methodological shortcomings of the research supporting the majority view on shaken baby syndrome,[17] and that highlighted the difficulties faced by physicians in accurately diagnosing the cause of injuries that appear to have been caused by child abuse.[18]

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[17] See, e.g., Vinchon, Defoort-Dhellemmes, Desurmont, & Dhellemmes, Accidental and Nonaccidental Head Injuries in Infants: A Prospective Study, 102 J. Neurosurgery: Pediatrics 380, 383 (2005) ("[T]he evaluation of the incidence of [retinal hemorrhages] in child abuse remains a self-fulfilling prophecy" because children are diagnosed as being abused "in great part based on the presence of [retinal hemorrhage]"); Donohoe, Evidence-Based Medicine and Shaken Baby Syndrome, 24 Am. J. Forensic Med. & Pathology 239, 240-241 (2003) (performing review of shaken baby syndrome literature from 1966 through 1998 and concluding that "there existed serious data gaps, flaws of logic, inconsistency of case definition, and a serious lack of tests capable of discriminating [non-accidental injury] cases from natural injuries. . . . [By 1999] the commonly held opinion that the finding of [subdural hematoma] and [retinal hemorrhages] in an infant was strong evidence of [shaken baby syndrome] was unsustainable"). For example, in one study seeking to determine whether short falls of children cause death, after finding an unexpectedly large number of deaths after reported short falls, the author excluded those deaths because they assumed those reports to be false. See Chadwick, Chin, Salerno, Landsverk, & Kitchen, Deaths from Falls in Children: How Far Is Fatal?, 31 J. Trauma 1353, 1355 (1991).

[18] See, e.g., Christian, Taylor, Hertle, & Duhaime, Retinal Hemorrhages Caused by Accidental Household Trauma, 135 J. Pediatrics 125, 127 (1999) (recognizing overlap between accidental and abusive head injury and cautioning against presumption of abuse when infants under one year present with traumatic retinal hemorrhages); Sirotnak, Medical Disorders that Mimic Abusive Head Trauma, in Abusive Head Trauma in Infants and Children 191 (2006) (many conditions mimic abusive head trauma);

In contrast, the alternative defense that Comeau had shaken Veronica would have required a jury to accept as a reasonable possibility that the natural mother of Veronica, rather than the boy friend with no biological connection to Veronica, violently shook Veronica when she came home during her lunch break. Apart from the inherent difficulty in persuading a jury to accept such a possibility, this defense suffered from two additional challenges: Veronica appeared normal and continued to play after Comeau returned to work, and the defendant told the police that he did not believe Comeau had inflicted the injury.[19] In light of these difficulties, it is not surprising that defense counsel told the judge on the first day of trial that he did not

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Barnes, Ethical Issues in Imaging Nonaccidental Injury: Child Abuse, 13(2) Topics in Magnetic Resonance Imaging 85, 86-87, 91 (2002) (applying standard of evidence-based medicine to shaking mechanism and concluding that no scientific basis exists indicating force required to produce traumatic brain injury and that many conditions mimic child abuse); Case, Graham, Handy, Jentzen, & Monteleone, Position Paper on Fatal Abusive Head Injuries in Infants and Young Children, 22 Am. J. Forensic Med. & Pathology 112, 116-117 (2001) (acknowledging that retinal hemorrhages have many nontraumatic causes, including increased intracranial pressure, bleeding disorders, sepsis, meningitis, and vasculopathies, and that pathogenesis of retinal hemorrhages is not precisely understood).

[19] Based on the information in the record, counsel made no effort to locate a medical expert who would support the contention that a child who suffered Veronica's injuries from a violent shaking could have a lucid interval between the shaking and the manifestation of symptoms.

intend to offer a defense of third-party culprit,[20] and that he invited the jury in opening statement to consider whether Veronica's injuries were accidental rather than inflicted.

Without an expert to testify to the possibility that Veronica's injuries might have been caused by her accidental falls, all that trial counsel was able to do to advance the theory of accident was to ask Dr. Wilson to acknowledge the existence of Dr. Plunkett's findings regarding short falls, which Dr. Wilson did and then noted that Dr. Plunkett's findings were not widely accepted within the national community of pediatricians and were not recognized by the American Academy of Pediatrics (AAP). It should have been entirely foreseeable that, when defense counsel invites a prosecution expert to acknowledge findings in support of a minority position in the field of science or medicine, the expert will diminish the significance of those findings by testifying that they are not credited by the majority of experts in the field. And without an expert to testify in support of the minority position, or vigorous cross-examination prepared with the assistance of such an expert, there is no reason to believe that a jury will be persuaded by a view rejected by the majority of experts in a

[20] Defense counsel was able to resurrect the Comeau defense in closing argument only because the prosecutor elicited testimony from Dr. Wilson that a child after having been shaken may not immediately be unconscious or comatose, but would not likely be playful or eating normally.

learned field. Defense counsel apparently recognized the futility of an accident defense without the testimony or aid of such an expert, because, in closing argument, he effectively abandoned the accident defense entirely, and asked the jury simply to consider who "struck the blow."[21]

Having informed the judge at the beginning of trial that he did not plan to pursue a third-party culprit defense, defense counsel's failure to consult with any expert other than Dr. Sussman effectively meant that the defendant commenced trial without any substantial defense, even though further investigation would have supported a potentially substantial defense of accident.[22] Trial counsel testified that he would have retained an expert to testify if he could have found one with "solid credentials" who could assist the defense. But when asked if he made "any inquiries into whether any experts other than Dr. Plunkett would be helpful as witnesses in this case," he answered, "No." He also testified that he never contacted

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[21] Defense counsel in closing argument went so far as to tell the jury, mistakenly, that the defendant during his interviews with the police admitted that the falls he described could not have caused Veronica's injuries.

[22] Apart from the substantial evidence that Veronica had suffered some head injury from her fall off the stool, the medical evidence revealed that Veronica suffered no neck injury. There was medical literature published at the time of trial that concluded that neck injury would be inevitable in a shaking so violent as to have caused the symptoms associated with shaken baby syndrome. See note 16, supra; Millien, 474 Mass. at 433 n.15.

any of the authors of the scholarly articles that questioned the validity of shaken baby syndrome or that recognized the possibility that short falls could cause the type of injuries usually associated with shaken baby syndrome. Where there was strong, corroborated evidence that Veronica had suffered a head injury from at least one short accidental fall, where accident was the defense that counsel presented to the jury in opening statement, and where this defense was tenable only with the aid of an expert to challenge the majority views on short falls and shaken baby syndrome, it would have been manifestly unreasonable for counsel to have made so little effort to find and retain such an expert if there were experts available with "solid credentials," that is, experts who could have been found credible by a reasonable jury, and who challenged these views.

Whether counsel's representation in this case was ineffective, therefore, rests on whether, at the time of trial in July, 2007, there were credible experts available who challenged the majority views on short falls and shaken baby syndrome. The record, however, is sparse on this issue; the existence of scientific and medical studies would certainly provide the factual basis for an expert to offer a minority opinion on these subjects, but that does not mean that experts were readily available in 2007 who were prepared and willing to offer such opinions in a criminal case. Dr. Scheller testified

that credible experts were available to testify in 2007, but we note that the judge did not find Dr. Scheller credible as an expert himself in part because of his assertions that ventured well beyond what was necessary to his opinion that the injuries suffered by Veronica reasonably could have been caused by her accidental falls.[23] For reasons that will soon become clear, however, we need not determine whether it was manifestly unreasonable in 2007 for counsel to have failed to find a credible expert who shared the minority view in this scientific controversy.

2. Newly discovered evidence. We now consider whether there was newly discovered evidence in the form of new scientific or medical findings. Newly discovered evidence warrants a new trial where that evidence "would probably have been a real factor in the jury's deliberations" and where its absence at trial "casts real doubt on the justice of the conviction." Commonwealth v. Cowels, 470 Mass. 607, 616, 617 (2015), quoting Commonwealth v. Grace, 397 Mass. 303, 305, 306 (1986). Evidence is newly discovered where it was "unknown to the defendant or his counsel and not reasonably discoverable" through "reasonable pretrial diligence." Grace, supra at 306.

[23] For instance, the judge found "absurd" Dr. Scheller's testimony that people generally do not shake babies out of frustration and that the perception that they do is the result of "public relation campaigns launched by child abuse pediatricians."

Since the defendant's trial, several additional studies have been published that provide further support for the view that subdural hematomas, retinal hemorrhages, and other forms of significant head injury can result from accidental short falls.[24] More research has also been conducted that casts doubt on the view that shaking alone can cause serious head injury.[25] And more articles have been published in medical and scholarly journals questioning the diagnostic significance of the symptoms previously thought indicative of shaken baby syndrome.[26]

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[24] See Barnes, Imaging of Nonaccidental Injury and the Mimics: Issues and Controversies in the Era of Evidence-Based Medicine, 49 Radiologic Clinics of N. Am. 205, 217 (2011) (based on clinical, biomechanical, neuropathological, and neuro-radiological evidence, significant head injury, including subdural and retinal hemorrhages, may result from low level falls); Squier, The "Shaken Baby" Syndrome: Pathology and Mechanisms, 122 Acta Neuropathologica 519 (2011) (same); Cummings, Trelka, & Springer, Atlas of Forensic Histopathology, Cambridge Univ. Press (2011) (skull fractures, subdural hematomas, and retinal hemorrhages have all been found after short falls); Lantz & Couture, Fatal Acute Intracranial Injury, Subdural Hematoma, and Retinal Hemorrhages Caused by Stairway Fall, 56(6) J. Forensic Sciences 1648 (2011) (case study of infant who fell from short height and had subdural hemorrhage, midline shift, mild edema, and severe retinal hemorrhages).

[25] See, e.g., Jones, Martin, Williams, Kemp, & Theobald, Development of a Computational Biomechanical Infant Model for the Investigation of Infant Head Injury by Shaking, 55 Med., Sci., & Law 291 (2015) (biomechanical study using computational model suggests shaking cannot generate levels of force necessary to produce injuries associated with abusive head trauma).

[26] See Anderst, Carpenter, Abshire, Bleeding Disorders in Suspected Child Abuse, 131 Pediatrics 1314, 1320-1321 (2013) (demonstrating that bleeding disorders can cause or aggravate findings that can be attributed to abuse and recommending more

This research appears to have influenced the position of the AAP regarding the diagnosis of child abuse in head injuries. In July, 2001, the Committee on Child Abuse and Neglect of the AAP declared, "Although physical abuse in the past has been a diagnosis of exclusion, data regarding the nature and frequency of head trauma consistently support the need for a presumption of child abuse when a child younger than [one] year has suffered an intracranial injury." Shaken Baby Syndrome: Rotational Cranial Injuries -- Technical Report, 108 Pediatrics 206, 206 (2001). In 2009, however, the AAP acknowledged in a policy statement that "[f]ew pediatric diagnoses engender as much debate as [abusive head trauma]." Christian, Block, & Committee on Child Abuse and Neglect of American Academy of Pediatrics, Abusive Head Trauma in Infants and Children, 123 Pediatrics 1409, 1410 (2009). The AAP recognized that the "[c]ontroversy is fueled because the mechanisms and resultant injuries of accidental and abusive head injury overlap, the abuse is rarely witnessed, an accurate history of trauma is rarely offered by the perpetrator, there is no single or simple test to determine

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extensive evaluations to test for presence of these disorders); Guthkelch, Problems of Infant Retino-Dural Hemorrhage with Minimal External Injury, 12 Hous. J. Health L. & Pol'y 201 (2012) (due to the complexity of infant brain, "we should not expect to find an exact or constant relationship between the existence or extent of retino-dural hemorrhage and the amount of force involved, let alone the state of mind of the perpetrator. Nor should we assume that these findings are caused by trauma, rather than natural causes").

the accuracy of the diagnosis, and the legal consequences of the diagnosis can be so significant." Id. The 2009 policy statement no longer spoke of a presumption of child abuse, and instead declared, "A medical diagnosis of [abusive head trauma] is made only after consideration of all clinical data," noting that pediatricians "have a responsibility to consider alternative hypotheses when presented with a patient with findings suggestive of [abusive head trauma]." Id.

If defense counsel had offered expert testimony at trial questioning the validity of the scientific foundation of the diagnosis of shaken baby syndrome, and discussing the possibility that accidental short falls can cause injuries generally associated with shaken baby syndrome, the studies published after July, 2007, and the changes in the AAP policy statement might have lent more credibility to that expert testimony, but this generally would not be enough alone to justify a new trial. See Commonwealth v. Shuman, 445 Mass. 268, 275-276 (2005) (where defendant offered expert testimony at trial, proffer of new scientific evidence that constitutes "mere[] . . . broadening of the research . . . already present in legal and scientific circles" or "mere addition of further information to the preexisting debate" would not be "significant enough to create a substantial risk that the jury would have reached a different conclusion had the evidence been admitted at

trial"); Commonwealth v. LeFave, 430 Mass. 169, 181 (1999). But, here, defense counsel did not present any expert testimony because he claimed he could not find an expert with "solid credentials" who could assist the defense. Consequently, apart from the brief reference to Dr. Plunkett's research on accidental falls referenced on cross-examination, the jury heard nothing that would allow them to have a reasonable doubt whether Veronica's injuries had been caused by her accidental falls. Yet, in view of the new research published after trial and the number of published court cases where such experts have testified, competent counsel today would, with diligent effort, have been able to retain such an expert and offer the jury an alternative interpretation of the evidence. See, e.g., In re Fero, 192 Wash. App. 138, 156-157 (2016) ("the medical community now recognizes that [the constellation of injuries associated with shaken baby syndrome], which was once believed could only be inflicted by car accidents, long falls, or child abuse, can actually be caused by short falls and other low-impact accidents, in addition to various natural causes"); Ackley, 497 Mich. at 391-392 (noting "prominent controversy within the medical community regarding the reliability of [shaken baby syndrome]/[abusive head trauma] diagnoses"); Edmunds, 308 Wis. 2d 385-386 ("a significant and legitimate debate in the medical community has developed in the past ten years over whether

infants can be fatally injured through shaking alone, whether an infant may suffer head trauma and yet experience a significant lucid interval prior to death, and whether other causes may mimic the symptoms traditionally viewed as indicating shaken baby or shaken impact syndrome").

Therefore, we confront this dilemma: if the defendant were deprived of an available defense because counsel was ineffective, we would determine whether there was a substantial risk of a miscarriage of justice and, if there was, we would conclude that the interests of justice require a new trial. See Millien, 474 Mass. at 432 ("substantial risk of a miscarriage of justice" standard is same as prejudice standard under second prong of ineffective assistance of counsel test). But what do we do if we determine that the defendant was deprived of a substantial defense only because, if the trial were conducted today, it would be manifestly unreasonable for counsel to fail to find and retain a credible expert given the evolution of the scientific and medical research?[27]

[27] We emphasize that our focus on the search for a credible expert is framed by the unusual circumstances of this case. Where the medical and scientific community is less divided or where the minority position has less medical or scientific support, or alternatively, where the defense is weaker relative to other reasonably available defenses, it is generally not manifestly unreasonable to consult only with one expert when that expert offers an opinion that a defense is not viable. This is especially true where the defense rarely succeeds, such as a defense of lack of criminal responsibility. See

We conclude that our touchstone must be to do justice, and that requires us to order a new trial where there is a substantial risk of a miscarriage of justice because a defendant was deprived of a substantial defense, regardless whether the source of the deprivation is counsel's performance alone, or the inability to make use of relevant new research findings alone, or the confluence of the two. See Commonwealth v. Brescia, 471 Mass. 381, 388 (2015) ("if it appears that justice may not have been done, the valuable finality of judicial proceedings must yield to our system's reluctance to countenance significant individual injustices").

Therefore, we need not determine whether it was manifestly unreasonable in July, 2007, for trial counsel to have failed to

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Commonwealth v. Kolenovic, 471 Mass. 664, 675 (2015) (noting "extreme difficulty in successfully defending a murder case based on a lack of criminal responsibility defense"). But the research regarding cases where the prosecutor contends that a young child was injured by a violent shaking suggests that "the most important predictor of an acquittal is the defense presentation of nationally prominent experts who challenge the science." Tuerkheimer, The Next Innocence Project: Shaken Baby Syndrome and the Criminal Courts, 87 Wash. U. L. Rev. 1, 37-38 (2009). In cases such as these, where there is strong evidence that a young child hit his or her head after an accidental fall shortly before the child's devastating head injuries became manifest, defense counsel might reasonably choose not to present an expert at trial to testify to the possibility that a short fall could have caused the injuries, and might reasonably decline to pursue a short fall defense at trial, but it is manifestly unreasonable for counsel to make such a strategic decision without making a diligent effort to consult with an expert with "solid credentials" who recognizes the possibility that short falls can cause severe injuries in young children.

make the additional effort needed to find an appropriate expert. It suffices that we conclude that the defendant was deprived of a defense from the confluence of counsel's failure to find such an expert and the evolving scientific research that demonstrates that a credible expert could offer important evidence in support of this defense.[28]

3. Prejudice. In evaluating whether there is a substantial risk of a miscarriage of justice arising from the deprivation of this defense, we conduct a prejudice analysis comparable to the analysis we conduct after finding that defense counsel was ineffective or that newly discovered evidence has emerged. See Millien, 474 Mass. at 432 (where it was manifestly unreasonable for counsel to fail to present defense, we determine whether "we have a serious doubt whether the jury verdict would have been the same had the defense been presented"); Grace, 397 Mass. at 305-306 (newly discovered evidence warrants new trial where that evidence "would probably have been a real factor in the jury's deliberations" and its absence at trial "casts real doubt on the justice of the conviction"). We have a serious doubt in this case whether the

[28] Although we conclude that the judge erred in failing to evaluate under Mass. R. Crim. P. 30 (b), as appearing in 435 Mass. 1501 (2001), whether "justice may not have been done" because of the confluence of counsel's performance and the evolving scientific research, we recognize that we can cite no case presenting the unusual circumstances found here that would justify such an analysis.

jury verdict would have been the same had the jury heard expert testimony regarding the possibility that short falls can cause severe head injuries in young children.

Here, the prosecution was able to persuade the jury that it had eliminated the alternative explanation of accidental short falls because the only medical expert who testified offered the opinion that injuries of the type and severity suffered by Veronica could not have been caused by the short falls described by the defendant, and the only evidence to the contrary was the brief reference to Dr. Plunkett's study on short falls, the findings of which the jury learned from Dr. Wilson were not widely accepted within the national community of pediatricians and had not been recognized by the AAP. If the jury had learned that injuries of the type and severity suffered by Veronica could have been caused by short falls of the type described by the defendant, they might have had reasonable doubt whether the defendant violently shook Veronica after he left Fletcher to go upstairs. A reasonable jury could have found that Veronica fell down the stairs and later fell off the kitchen stool, and that one (or the combination) of these falls caused the bump on her forehead that had grown to the size of a dime when Comeau came home on her lunch break and grew into a discolored lump by the time she returned home. Based on Dr. Wilson's testimony, a reasonable jury could have found that Veronica could have

remained conscious after even a severe fall, and lost consciousness after a lucid interval. A reasonable jury could also have inferred that Delilah called the defendant to tell him that Veronica had fallen, not because of any routine fall, but because Veronica had fallen after losing consciousness, and that the defendant found her unconscious when he went upstairs. The missing link in the defendant's accident defense was any credible expert evidence that one or both of these accidental falls could have caused Veronica's injuries.

Were an expert such as Dr. Scheller to testify at such a trial today, the expert could offer the opinion that it is possible for a child to suffer serious head injuries from an accidental short fall. See notes 15 and 24, supra; Millien, 474 Mass. at 435 n.16; In re Fero, 192 Wash. App. at 156-157. Once the expert's opinion is challenged on cross-examination, the expert on redirect examination could cite and explain the numerous studies published in peer-reviewed journals that support this proposition. Such an expert witness on redirect examination also could cite and explain the numerous studies challenging the view that shaking alone can produce injuries of the type and severity suffered by Veronica. See notes 16 and 25, supra; Millien, 474 Mass. at 433 n.15. See also Cavazos v. Smith, 132 S. Ct. 2, 10 (2011) (Ginsburg, J., dissenting), quoting Edmunds, 308 Wis. 2d at 385 ("[d]oubt has increased in

the medical community 'over whether infants can be fatally injured through shaking alone'"). If such an expert were to cause the jury to doubt whether violent shaking alone could have caused Veronica's severe injuries, they may ask whether there is any evidence that Veronica was not only shaken, but perhaps slammed against the wall or thrown to the floor. But Fletcher heard nothing unusual while the defendant was upstairs, and Veronica did not suffer any skull fracture or neck injuries. And if such an expert were to cause the jury to question whether Veronica's injuries were caused by impact trauma rather than violent shaking, they might more carefully consider whether the impact trauma described by the defendant -- Veronica's fall down the stairs and off the kitchen stool -- could have caused her head injuries.

Such expert opinion testimony likely would be challenged on cross-examination or by a prosecution expert called in rebuttal, where the studies in peer-reviewed journals that support the prosecution theory of shaken baby syndrome could be cited and discussed. We need not determine who would prevail in this battle of the experts, or whether the defendant would be found not guilty were it presented. We need only determine, in the circumstances of this case, whether there is a substantial risk of a miscarriage of justice where the jury heard no scientific or medical expert challenging the majority views on shaken baby

syndrome and short falls, and where new research has emerged since the time of trial that would lend credibility to the opinion of such an expert. Because we conclude that there is a substantial risk of a miscarriage of justice here, we cannot allow this conviction to stand.

Conclusion. We conclude that, in the circumstances of this case, there was a substantial risk of a miscarriage of justice, and we therefore reverse the denial of the defendant's motion for a new trial, vacate the conviction, and remand the case to the Superior Court for a new trial.

So ordered.