2013 IL App (1st) 123472

THIRD DIVISION
June 19, 2013

No. 1-12-3472

In re	)	Appeal from the
YOHAN K. AND MARIKA K., Minors,	)	Circuit Court of
Respondents-Appellants and Cross-Appellees	)	Cook County.
	)	
(The People of the State of Illinois,	)	
Petitioner-Appellee and Cross-Appellee,	)	No. 11 JA 512-513
	)	
v.	)	
	)	The Honorable
K.S. and TERESA G.,	)	Bernard J. Sarley,
Respondents-Appellees and Cross-Appellants).	)	Judge Presiding.

JUSTICE HYMAN delivered the judgment of the court, with opinion.
Presiding Justice Neville and Justice Pierce concurred in the judgment and opinion.

O P I N I O N

¶ 1 The facts in child abuse and neglect cases seem rather straightforward at times, but more often than not, the facts venture into gray areas. While judges try, no judge or set of judges can perfectly reconstruct the past or perfectly predict what will happen in the future, which partly explains why offenses against children rank among the most gut-wrenching and challenging proceedings judges handle. This appeal calls for a measure of clarity to what has essentially been characterized as either a "constellation of injuries" suffered at human hands or a cluster of difficult-to-diagnose and rare medical conditions brought on by the mysteries of the human body.

¶ 2 The allegations of abuse and neglect involve a weeks-old newborn whose parents the trial judge describes as loving, responsible, and nurturing. The trial court heard tangled facts made all

the worse by seemingly conflicting expert medical testimony. Discerning the source of the baby's conditions left the conscientious trial judge in a quandary.

¶ 3 After agonizing over how to rule, the trial court placed the family in a strange limbo. He determined the parents to be fit, willing, and able to care for their children despite finding (i) physical abuse to a child, (ii) "neglect injurious environment," and (iii) "abuse substantial risk of injury" by an unknown perpetrator. The State and the guardian *ad litem* (GAL) (collectively, the proponents) on behalf of baby Yohan, born on May 1, 2011, and his now almost five-year-old sister, Marika, born October 13, 2008, along with the parents, K.S.[1] and Teresa G., all argue that the trial court's decision should not stand and they should be awarded total victory.

¶ 4 What makes this case all the more troubling is that the proponents and the parents put forward opposing explanations, neither of which is flattering to the other side. The proponents say one of the parents inflicted horrendous injuries to his or her newborn. The parents say their lives have been turned inside-out because overzealous doctors and agencies have let speculation trump medical science.

¶ 5 As vexing as this case appears,[2] after a thorough, painstaking examination of the entire record, and in particular a detailed analysis of the expert testimony, we conclude that the trial judge's finding of abuse and neglect cannot stand, and K. S. and Teresa G. have been thrust into a nightmare by well-intentioned, but misguided doctors and child protection specialists.

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[1] The father's first name is the same as the children's last name and, therefore, his first and last initials will be used throughout the decision to identify him.

[2] The court wishes to commend the counsel for each of the parties to this appeal for their well-drafted briefs.

¶ 6 Background

¶ 7 Yohan's First Few Weeks

¶ 8 The parents described Yohan's birth as complicated. Teresa testified that in contrast to her delivery of Marika, Yohan's delivery was precipitous and extremely painful. K.S. testified Yohan exited the birth canal with the umbilical cord around his neck. Following birth, Yohan was taken to a separate room to stabilize his temperature and returned to his parents' care after nearly six hours.

¶ 9 Three days after his birth, on May 4, the parents took Yohan to an appointment with his pediatrician Dr. Chandra-Puri, which they scheduled to monitor Yohan's decreasing weight. The parents were advised to return on May 6. At that appointment, Yohan had gained several ounces and a follow-up visit was set for May 18.

¶ 10 The parents testified Yohan exhibited behaviors they found distressing during his first few weeks of life, including episodes of staring and random bursts of yelping lasting a few seconds. The parents also worried that Yohan, who was being exclusively breastfed, seemed to be cluster feeding (pattern of frequent nursing).

¶ 11 After Yohan's birth, K.S. took leave from work and stayed home with Teresa and the children during the entire month of May. On May 9, K.S.'s sister came to stay with the family for a week. She too observed Yohan's unusual expressions, where he would look dazed with his eyes rolling up and side-to-side, which the family referred to as "drunk old man expression" or "dazed and confused."

¶ 12 At Yohan's appointment with Dr. Chandra-Puri on May 18, the parents told her about the unusual behaviors they had been observing. The parents stated that Yohan made high-pitched yelps two or more times every day and, though the episodes were never a source of frustration, they found them alarming. Dr. Chandra-Puri told the parents that if Yohan appeared to be having indigestion or gas, they could try gripe water.

¶ 13 The parents testified that a few weeks later, on the evening of June 4, Yohan, who was five weeks old, was uncharacteristically fussy and refused to nurse. The parents tried giving Yohan gripe water and massaged his stomach. Yohan fell asleep abruptly, and then awoke in the night yelping and again refused to nurse. The next morning, Yohan nursed as usual, but as the family was preparing to leave the home, Yohan suddenly vomited, something he had never done before.

¶ 14 K.S. took Marika out and Teresa stayed home with Yohan. Yohan nursed again, but in the middle of the feeding, he vomited for a second time. Teresa immediately called the pediatrician's office and paid to have the on-call doctor paged. She then called K.S. When K.S. arrived home, a doctor returned Teresa's call and went through a list of potential symptoms. Yohan had none of the symptoms, and the parents, following the doctor's advice, did not go to the emergency room. Instead, they scheduled an office visit with their pediatrician for the next morning.

¶ 15 For the rest of the day, the parents closely watched Yohan as he nursed and slept. While Yohan was napping, Teresa saw him slightly twitch his left hand and jerk his left leg for a few seconds. Teresa told K.S. and together they videotaped a second short episode of twitching.

During the second episode, Yohan had his eyes open with a dazed stare, as well as twitching of his left eye. Teresa picked Yohan up, and he appeared fine. The parents witnessed two other episodes of twitching the night of June 5; otherwise, Yohan appeared fine, nursing as usual, and moving his arms and legs as he played.

¶ 16 On the morning of June 6, as the parents were on the way to Yohan's appointment, they observed another twitching episode. At a little before 8 a.m., while waiting for Dr. Chandra-Puri, a nurse witnessed Yohan undergo a twitching episode. The nurse notified Dr. Chandra-Puri, who identified the behavior as seizure activity. An ambulance was called to transport Yohan, who was described in stable condition, and his parents to Children's Memorial Hospital (CMH).

¶ 17 Yohan's Hospitalization, June 6-15, 2011

¶ 18 Yohan and his parents arrived at the emergency room at 9:30 a.m. on June 6. Yohan continued to have clinical seizure episodes, meaning the seizures were observable, with his left arm jerking and his eyes moving to the left or right. Yohan's physical examination on admission documented no bruising, contusions, or other external injuries and a full range of motion for all his extremities, with no pain or discomfort. Yohan underwent two additional physical examinations, one at 2:40 p.m., the other at 6:40 p.m., with both noting full range of his extremities with no mention of pain, discomfort, or tenderness.

¶ 19 Reports of a CT scan and subsequent MRI scan taken of Yohan's head on June 6 described the presence of small, bilateral, extra-axial, posterior fluid collections, which the MRI report noted were likely representative of subdural hematomas. Both reports also noted the

presence of a suspected left frontoparietal hemorrhage, identified on the June 9 MRI as a likely subarachnoid hemorrhage.

¶ 20 CMH neuroradiologist Dr. Burrowes read Yohan's June 6 MRI and concluded that a contrast venogram (standard diagnostic medical procedure for visualization of the veins) was clinically indicated, but it was never conducted. No radiologist at CMH ever evaluated Yohan for the presence of clotting in his cortical veins. In her report, Dr. Burrowes noted no hemorrhage in Yohan's brain ventricles and no restricted diffusion. She later authored an addendum to her report, indicating the existence of restricted diffusion on the June 6 MRI. (A restricted diffusion is seen on a brain imaging scan in the presence of inadequate oxygen, inadequate blood flow, or seizures.)

¶ 21 Based on the findings of Yohan's June 6 MRI report, the child protection team at CMH was contacted. Dr. Kristine Fortin, a child abuse pediatrician, provided a consultation. On the evening of June 6, she interviewed Teresa for 15 to 20 minutes. The following day, Dr. Fortin interviewed Teresa again, asking her whether she or K.S. had "done" anything to Yohan. Teresa testified she was shocked at this allegation and alarmed that Yohan had an underlying medical condition that was not being diagnosed. Teresa denied ever harming Yohan and requested a second medical opinion. Later that morning, Dr. Fortin interviewed K.S. The separate accounts of Teresa and K.S. were consistent. Dr. Fortin found both parents to be appropriate in their responsiveness to Yohan's medical needs. Nevertheless, that evening, Dr. Fortin informed the parents that CMH was making a report of suspected child abuse to DCFS.

¶ 22 An electroencephalogram (EEG), a diagnostic test that measures and records the electrical activity of the brain, was conducted. It showed the presence of sub-clinical (meaning not outwardly observable) seizures throughout the night of June 7. Yohan's seizures were defined as "status epilecticus," a condition that can cause a finding of "restricted diffusion" on brain imaging. To manage the seizures, Yohan was given a sedative requiring intubation.

¶ 23 On June 7, Dr. Marc Wainwright, an attending child neurologist at CMH, consulted on Yohan's seizures. Dr. Wainwright conducted a physical examination, which included tapping on Yohan's knees with an instrument, and found no external injuries, no injuries to his neck, and normal movement of Yohan's arms and legs. Dr. Wainwright identified potential causes for Yohan's intracranial bleeding as infection, inflicted trauma, coagulopathy (a clotting disorder), metabolic disorder, or birth trauma, which he noted in his consult note could still be present three to five weeks after delivery. During his treatment, Dr. Wainwright did not evaluate Yohan for the potential existence of congenital abnormalities, such as benign external hydrocephalus (BEH).

¶ 24 On June 7 and June 14, Yohan had two inpatient ophthalmological examinations, involving both an external and dilated fundus examination. The June 7 dilated examination showed the presence of scattered retinal hemorrhages in both Yohan's eyes, the right greater than the left, and one small pre-retinal hemorrhage to the right eye.

¶ 25 On June 14, CMH resident Dr. Grace Wu examined Yohan and found his retina to be attached and flat, with scattered retinal hemorrhages bilaterally and one small preretinal hemorrhage to his right eye. Dr. Wu also noted that the hemorrhages were greater in Yohan's

right eye than his left. Supervising attending physician Dr. Yoon examined Yohan immediately after Dr. Wu and noted bilateral, multilayer, retinal hemorrhages. Dr. Yoon noted the hemorrhages were too many to count and greater in the left eye than the right, a different observation from Dr. Wu, despite his characterization that the observations were "[l]ikely unchanged from previous exam." Two common retinal injuries often associated with abuse, retinoschesis (injury to the retina marked by separation of the retinal layers) and macular fold (injury to the retina marked by elevation or fold of the retina instead of being flat against the eye), were not observed.

¶ 26 On June 8, 2011, scans of Yohan's skeletal system were taken. The survey was limited and many of the images were later described as suboptimal. The radiology report, authored by CMH Dr. Jennifer Nicholas, noted an irregularity along Yohan's lateral distal left femoral metaphysis (outer lower end, left knee area). Her report also noted concern for fracture of three of Yohan's ribs, but later exams established Yohan never experienced rib fractures.

¶ 27 X-rays of Yohan's left knee from June 8 and June 10 indicated an abnormality along the outer side of his distal femoral metaphysis, which, according to one radiologist, "may represent a corner fracture." The possibility of Yohan having a fracture did not make sense to the parents who claimed that from the time of Yohan's birth, they had constantly manipulated his left leg through diaper changes, massages, dressing, and nursing, and they had never noticed any signs of pain or discomfort. A cast was applied to Yohan. The application took about 10 minutes and Yohan was fully awake. The parents stated that during that time, Yohan did not show any signs

of pain or discomfort as his leg was manipulated. Once the cast was applied, Yohan began kicking his left leg and the cast slipped from mid-thigh to below his knee.

¶ 28 On June 8, Yohan was weaned off the sedative. On June 9, he was extubated and began nursing without incident. He also began cooing and smiling. A second inpatient MRI study was conducted. The June 9 report of the MRI noted that the restricted diffusion was more extensive than it had been on June 6. The report also revealed a new identification of two small subarachnoid hemorrhages in the right frontal region, as well as a small amount of intraventricular hemorrhage.

¶ 29 Yohan was discharged from CMH on June 15 to the care of Teresa's sister. Teresa and K.S. were not allowed to have unsupervised contact with their children because of DCFS's involvement. The parents testified they moved in with a neighbor to minimize disruption to Yohan and Marika, while caretakers stayed with the children at the family residence.

¶ 30 DCFS Involvement

¶ 31 On June 8, 2011, DCS investigator Carolina Bono interviewed each parent. She found both parents to be compliant and cooperative. Both parents told Bono they could not explain Yohan's injuries and that neither had witnessed any accidents or abusive behavior.

¶ 32 On June 20, Bono again met with the parents. During all of their meetings, the parents tried to figure out what happened to cause Yohan's injuries. They offered possible explanations, such as the particular baby equipment the family used or Marika interacting too roughly with him. Throughout the investigation, Bono observed the parents with the children weekly, noting all of their interactions to be positive and loving.

¶ 33 At their June 27 meeting, Teresa shared with Bono some of the complications from Yohan's birth. Teresa stated that because the parents knew Yohan's injuries were not due to abuse, they wanted another medical opinion to provide answers to explain his injuries, which they believed were because of an underlying medical condition.

¶ 34 Based on the DCS investigation, on July 25, 2011, the State filed petitions for adjudication of wardship and motions for temporary custody of Marika and Johan. Yohan was by then almost three months old and Marika was about two years and nine months old.

¶ 35 Yohan's Health Post-Hospital Stay

¶ 36 On June 17, 2011, Yohan's follow-up appointment with Dr. Chandra-Puri was entirely normal. Yohan showed no signs of pain or distress when Dr. Chandra-Puri manipulated his legs.

¶ 37 On June 23, Yohan underwent follow-up X-ray imaging of his skeletal system. By this time, Yohan had kicked his left cast to below his knee. When the cast was removed, Dr. Fortin observed that Yohan was "moving his left lower extremity actively." Dr. Jennifer Nicholas reported periosteal reaction, which she interpreted to be consistent with a healing fracture.

¶ 38 In their quest for answers as to what caused Yohan's injuries, the parents learned about the risks of vitamin D deficiency, which is the primary cause of rickets and can predispose individuals to venous thrombosis, clotting in the veins. Yohan's vitamin D levels were never tested during his stay at CMH, but July 2011 blood tests showed Teresa had "insufficient" levels and Yohan had a "deficient" level.

¶ 39 On October 12, 2011, during a follow-up MRI Yohan had at CMH, it was noted that "[t]he extra-axial CSF spaces appear prominent," a description that refers to the condition known

as benign external hydrocephalus or BEH. ("Extra-axial" refers to the outside of the brain.) This condition in infants involves enlarged spaces between the brain and arachnoid membrane, which is filled with cerebral spinal fluid.

¶ 40 In November 2011, Dr. Patrick Barnes, the chief of pediatric neuroradiology at Stanford University Medical Center, became involved in Yohan's case. Dr. Barnes reviewed all of Yohan's imaging studies and concluded that he had preexisting BEH predisposing him to intracranial bleeding triggered spontaneously or by ordinary trivial trauma or medical conditions such as venous thrombosis. Dr. Barnes also reviewed Yohan's skeletal images and observed the irregularities to Yohan's femur. Barnes did not identify the irregularities as either a fracture or periosteal reaction to the healing of a fracture and, instead, observed many findings consistent with congenital rickets.

¶ 41 In December 2011, pediatric neurosurgeon Dr. David M. Frim, the chief of neurosurgery at the University of Chicago, provided his assessment of Yohan. After reviewing Yohan's brain images and medical records, Dr. Frim opined that Yohan was born with BEH, that he likely sustained a hemorrhage during birth that caused him to be even more susceptible to additional hemorrhages and that these hemorrhages caused the seizures he exhibited when he was admitted to CMH on June 6, 2011. Dr. Frim explained that blood from the subarachnoid space surrounding the brain can travel to the retinas causing retinal hemorrhaging. On February 2, 2012, Dr. Frim observed Yohan in person. Dr. Frim found Yohan to be progressing well, even exhibiting developmental advancement for his age.

¶ 42 Procedural Background

¶ 43 On July 25, 2011, the State filed petitions for adjudication of wardship and motions for temporary custody of Yohan and Marika. The trial court found probable cause and urgent and immediate necessity to remove Yohan and Marika from the care of their parents and place them in temporary custody of the DCFS Guardianship Administrator.

¶ 44 The adjudicatory hearing began May 14, 2012. The State admitted into evidence Yohan's medical records from CMH, including his radiology and ophthalmology records.

¶ 45 Caroline Bobo, the DCFS investigator assigned to the Division of Child Protection, was the first witness to testify for the State. Bobo testified she investigated a call to the DCFS hotline alleging Yohan suffered head injuries. On June 8, 2011, she interview Teresa, who denied causing Yohan injury. Similarly, K.S. told Bobo he did not harm Yohan nor did he see anyone else harm Yohan. Bobo interviewed the parents again on June 14, 2011. The parents denied Yohan had fallen, was shaken, or harmed in any way. The parents stated they were the only caretakers of Yohan at that time. Bobo interviewed the parents three other times: June 20, June 27, and July 13, 2011. During the June 20 interview, both parents denied any accidents could have caused Yohan's injuries. During their June 27 interview, Teresa told Bobo she believed Yohan's birth caused his injuries. K.S. provided no explanation for Yohan's injuries. At their last interview on July 13, the parents again denied any injury, accidental or intentional, could have caused Yohan's injuries. Bobo testified she did not request a second medical opinion, but the parents told her they wanted one.

¶ 46 Dr. Kristine Fortin testified as an expert in pediatrics and child abuse pediatrics for the State. Dr. Fortin, board-certified in pediatrics since 2006, is also a specialist in the field of child

abuse pediatrics, having been board-certified in that area since November 2011. Dr. Fortin is a member of the CMH protective services team. As part of the team, Dr. Fortin evaluates children when abuse is suspected.

¶ 47 On June 7, 2011, Dr. Fortin consulted on Yohan's case. Her consultation was one of 600 cases the child protective services team conducts each year. Dr. Fortin reviewed Yohan's medical file, including the radiological images, and considered the opinions of other medical specialists at CMH in her assessment of Yohan's case. Dr. Fortin opined that Yohan suffered from subdural hematomas, blood between his brain and skull, as well as hypoxic ischemic injury, injury from lack of oxygen or blood circulation. Dr. Fortin explained that there are multiple causes of subdural hematomas, but that trauma from either impact or acceleration/deceleration is the most common. She testified that to rule out the possibility that Yohan's head injuries were due to medical causes, various laboratory tests, radiological exams and consultations were ordered. Dr. Fortin reviewed the results of all of the testing and opined that no underlying medical condition explained Yohan's injuries. Dr. Fortin never stated what specific medical causes were considered and later excluded based on the results of the tests.

¶ 48 During her consultation, Dr. Fortin interviewed both parents separately to collect a medical and family history. At the first interview on June 7, 2011, both parents stated they were the only people to provide care for Yohan. To rule out an accident, Dr. Fortin questioned the parents about any possible injuries, but they denied Yohan had suffered any injury.

¶ 49 Dr. Fortin summarized her opinion in two reports that were admitted into evidence: "Multidisciplinary Pediatric Education and Evaluation Consortium Summary Statement"

(MPEEC Report), dated June 27, 2011, and "Multidisciplinary Pediatric Education and Evaluation Consortium Addendum" in response to discovery materials (MPEEC Addendum), dated March 15, 2012.

¶ 50 Dr. Fortin provided a detailed summary of her examinations and interviews in the MPEEC Report, including a detailed family history. Her "best medical opinion [was] that the injuries *** are explained by inflicted trauma." Dr. Fortin explained that Yohan experienced prolonged seizure activity beginning June 6, 2011. Yohan's seizure in the emergency room lasted 40 minutes. After Yohan was transferred to the pediatric intensive care unit, he continued to experience seizures every three to five minutes. After multiple doses of phenobarbital were unsuccessful, Yohan was intubated and treated with a versed drip. Yohan's seizures stopped at 4:30 a.m. on June 7, when the versed drips were increased. Dr. Fortin's first examination of Yohan took place after he had been intubated and sedated.

¶ 51 Dr. Fortin testified that because Yohan experienced seizures and intracranial bleeding, a skeletal X-ray series was ordered. The findings of those X-rays were "suggestive of a fracture." Based on the results, a follow-up radiological study of Yohan's knee was performed on June 23. Dr. Fortin testified she reviewed the findings of the radiology and orthopedic departments of CMH, which noted the X-rays showed signs of periosteal reaction or healing, and that the findings were consistent with a classic metaphyseal fracture, also called a corner fracture or bucket handle fracture to Yohan's left femur. Dr. Fortin testified that seeing signs of periosteal reaction on June 23, but not two weeks earlier on the X-ray, helped doctors date the fracture, determining it occurred less than seven to ten days before June 8. Additional tests were

conducted, but no medical cause was determined to explain Yohan's fracture. Dr. Fortin opined that Yohan's fracture was caused from sheering, force in opposite directions, or traction, a pulling force. Dr. Fortin acknowledged that during her interviews with the parents they did not reveal any incident involving sheering or traction forces. Based on her review of the CMH laboratory data, Dr. Fortin concluded there was no medical cause predisposing Yohan to fractures and it was her opinion that Yohan's fracture was due to inflicted trauma.

¶ 52 Dr. Fortin testified ophthalmologists were consulted in Yohan's case. The ophthalmologist found "too many to count retinal hemorrhages in both eyes with more in the right eye" and a small preretinal hemorrhage. The retina is a layer of tissue on the back of the eye. Retinal hemorrhages are bleeds within the layers of the retina and are caused by trauma or medical causes. The medical tests that were conducted ruled out any underlying medical causes for Yohan's retinal hemorrhages. Dr. Fortin concluded the retinal hemorrhages were caused by acceleration and deceleration forces.

¶ 53 Dr. Fortin testified that birth trauma was considered as a potential cause for Yohan's intracranial bleeding, but opined that birth trauma could not account for Yohan's fracture or his retinal hemorrhages because he was past the age where they would present in the manner they did and, therefore, she ruled out birth trauma as an explanation for the "constellation" of Yohan's injuries.

¶ 54 Dr. Fortin testified she considered the medical opinions of the expert witnesses hired by the parents, Dr. Sullivan, Dr. Barnes and Dr. Frim. Dr. Fortin acknowledged that Dr. Frim diagnosed Yohan with BEH, but opined that even though some of the medical community

believes BEH predisposes children to subdural hemorrhages, BEH could not account for all of Yohan's injuries. Dr. Fortin acknowledged that she was not familiar with any literature looking at birth trauma in the context of BEH and that none of the literature she relied on for her understanding of retinal hemorrhages from birth included infants with BEH. Dr. Fortin did not dispute the BEH diagnosis of Yohan, stating she did not feel qualified to override the opinion of a neurosurgeon with respect to a neurosurgical injury.

¶ 55 Dr. Fortin also considered the diagnosis of rickets as a possible explanation for Yohan's leg fracture. Rickets is a deficiency in the mineralization of growing bones and one possible cause is inadequate vitamin D. A diagnosis of rickets is based on clinical information, laboratory data, and radiological testing. She testified laboratory blood testing for the presence of rickets showed Yohan's blood values to be normal. Additionally, although she acknowledged Yohan's vitamin D levels were low, Dr. Fortin testified his X-rays showed no signs of rickets. Dr. Fortin admitted she relied on the radiology reports by CMH radiologists for her conclusion that Yohan's bone images showed no signs of rickets. Dr. Fortin explained that vitamin D deficiency does not alone support a diagnosis of rickets. She explained that low vitamin D is common in the United States, but rickets is not. Dr. Fortin testified that the type of fracture she believed Yohan had can be completely without symptoms.

¶ 56 Dr. Fortin testified Yohan had a very thorough medical workup at CMH to evaluate his injuries. Once medical causes for Yohan's injuries were ruled out, she concluded that his injuries resulted from inflicted trauma. Dr. Fortin testified that because Yohan was so young and, therefore, not mobile, she looked for an accidental explanation for his injuries. She ruled out an

accident because both parents stated they were the only caretakers of Yohan and both denied any accident had occurred.

¶ 57 Next, the State called Dr. Marc Wainwright, the CMH attending neurologist who treated Yohan. The trial court found Dr. Wainwright to be an expert in child neurology. Dr. Wainwright first examined Yohan in the emergency room on June 7. Dr. Wainwright spoke with Yohan's parents and reviewed the June 6 CT imaging study and laboratory data. Dr. Wainwright explained that Yohan's seizures were caused by a subacute posterior subdural hematoma bilaterally with no evidence of venous thrombosis. Venous thrombosis can cause seizures in newborns, so ruling it out as a diagnosis was important for Yohan's care. On June 9, Yohan had an MR venogram, which is a type of MRI, to confirm that he did not suffer from venous thrombosis. Dr. Wainwright diagnosed Yohan with a subdural hemorrhage, a subarachnoid hemorrhage, and ischemia based on the presence of restricted diffusion. Dr. Wainwright concluded Yohan's subdural and subarachnoid hemorrhages were caused from external forces, either shaking or a blow to the head. He concluded the ischemia, a loss of blood flow to the brain, was caused by either a blow to the head or suffocation. In concluding that Yohan's injuries were the result of trauma, Dr. Wainwright did not make a distinction between accidentally and nonaccidentally-inflicted trauma. In forming his opinions, Dr. Wainwright said he considered and ruled out other differential diagnosis, such as: birth trauma, infection, metabolic disorders, and blood clotting problems. He also ruled out birth trauma as an unlikely cause for Yohan's intracranial bleeding because it could not account for his fracture or retinal hemorrhages.

¶ 58 Dr. Wainwright further testified that the presence of subdural hematoma in infants born through a precipitous delivery, as Teresa claimed Yohan's was, is as high as 25%. According to Dr. Wainwright, Yohan's intracranial bleeding could have been caused from birth trauma, which can be found in healthy babies up to five weeks old. Dr. Wainwright acknowledged the literature he relied on to identify the age range for indications of birth trauma did not include infants with BEH. He acknowledged that the posterior location of Yohan's bleeds was not typical for inflicted, nonaccidental trauma but, rather, was consistent with bleeds found in babies who suffered birth trauma.

¶ 59 During cross-examination, Dr. Wainwright changed his testimony about retinal hemorrhages and agreed that they can be caused by birth trauma. He concluded he could not definitively rule out birth trauma as a cause of Yohan's intracranial bleeding.

¶ 60 Dr. Wainwright admitted he never considered the presence of BEH during Yohan's hospitalization and stated that no doctor at CMH had. In the seven years he had practiced in the intensive care unit, Dr. Wainwright said he never saw a case of BEH diagnosed and that during his entire career, he has only seen two patients with BEH. Despite these admissions, Dr. Wainwright testified that it was his opinion that Yohan did not have BEH because Yohan's head circumference was not abnormal, he had seizures and BEH, in his opinion, could not account for the retinal hemorrhages or femur fracture.

¶ 61 Dr. Astrid Kyle Mack, a board-certified pediatric hematologist at CMH, testified on behalf of the proponents. The trial court found Dr. Mack to be an expert in pediatrics and pediatric hematology. Dr. Mack testified he was asked to consult on Yohan's case to evaluate

possible bleeding disorders "that could have explained his constellation of findings." Dr. Mack reviewed Yohan's medical records, received a family history, and conducted a physical examination of Yohan before ordering laboratory tests. Dr. Mack ordered a complete blood count, which returned normal results. Dr. Mack also ordered coagulation studies, which returned normal results. Dr. Mack opined Yohan did not suffer from a bleeding disorder.

¶ 62 Dr. Mack did not conduct a vitamin D test nor did he recommend a thrombophilia workup. Dr. Mack acknowledged he did not evaluate Yohan for any clotting disorders, including venous thrombosis, which require their own separate category of testing. Dr. Mack testified he signed off of Yohan's case once he determined he did not have a bleeding disorder.

¶ 63 Dr. Hawke Yoon testified as an expert in pediatric ophthalmology. Dr. Yoon first saw Yohan on June 14, and performed a complete ophthalmological exam. Although Yohan had previously been seen by another CMH ophthalmologist, Dr. Yoon did not review any ophthalmology studies done before his examination of Yohan. Dr. Yoon opined Yohan suffered from bleeding in the retina, which manifested into bilateral retinal hemorrhages and bleeding multiple retinal layers. Dr. Yoon was the only CMH ophthalmologist to claim that the hemorrhaging in Yohan's left eye was greater than in his right eye.

¶ 64 During his testimony, Dr. Yoon attempted to offer his opinion as to the cause of Yohan's retinal hemorrhaging; however, the trial court struck his testimony because he had testified at his deposition one month before that he did not at that time, and would not in the future, have any opinion as to the cause of Yohan's retinal hemorrhages. On direct examination, over the parents' objection, Dr. Yoon was allowed to testify as to potential causation factors he ruled out and his

general opinions about causation of retinal hemorrhages. Dr. Yoon testified that birth trauma was an unlikely explanation because birth-related retinal bleeding generally resolves by two to four weeks. But, at his deposition, Dr. Yoon testified he did not know how long it could take for retinal hemorrhages from traumatic, precipitous, or abnormal deliveries to resolve and he knew nothing about how long it would take in a baby with BEH. Over the parents' objection that it contradicted his deposition testimony that he had no opinion about the causation of Yohan's retinal hemorrhaging, Dr. Yoon testified he ruled out intracranial hemorrhage and intracranial pressure as causes for Yohan's retinal hemorrhaging.

¶ 65 During cross-examination, Dr. Yoon admitted he had no expertise in intracranial bleeding or pressure. He admitted he did not know exactly what BEH was and did not know specifically what impact BEH could have on retinal bleeding. Dr. Yoon identified drawings showing retinal hemorrhages in the presence of BEH and testified that the hemorrhages in the drawings were similar to those seen in Yohan during his fundoscopic exam at CMH.

¶ 66 Dr. Delilah Burrowes testified as a witness for the GAL as an expert in neuroradiology, as well as pediatric radiology. The parents objected to Dr. Burrowes being qualified as an expert in pediatric radiology given that the majority of her practice involved adults. Dr. Burrowes reviewed Yohan's June 6th MRI and diagnosed him with subacute subdural hematomas. She testified the subdural hematomas were not from Yohan's birth, explaining that subdural hematomas from birth usually resolve within one to two weeks. During her review of Yohan's MRI, she did not see any signs of venous thrombosis in the sinus veins, but had no opinion as to whether there was cortical venous thrombosis as CMH never evaluated for it.

¶ 67 In Dr. Burrowes' opinion, Yohan did not have BEH. She testified BEH is the prominence of the subarachnoid space, and she measured Yohan's subarachnoid space on June 6 to be as much as seven millimeters in some areas, but testified she does not render a diagnosis of BEH for any subarachnoid space less than 10 millimeters. Dr. Burrowes disagreed with Dr. Frim's opinion that any subarachnoid space greater than three millimeters was termed BEH, based on her experience, not any scientific literature.

¶ 68 Dr. Burrowes testified she worked with Dr. Frim, consulting with him about brain imaging studies, for two years while at University of Chicago. Dr. Burrowes agreed Dr. Frim is a well-respected neurosurgeon, with expertise in the area of BEH. Dr. Burrowes further agreed that children with BEH are predisposed to spontaneous bleeds or bleeds from trivial trauma. She also testified she was unaware that Dr. Frim published a textbook chapter on extracerebral fluid collections in infants, and that, unlike Dr. Frim, she has not devoted a large portion of her practice to the treatment and care of infants and children with BEH.

¶ 69 Dr. Joseph Janicki, an expert in the field of pediatric orthopedics, testified for the State. Dr. Janicki, a CMH pediatric orthopedic surgeon, testified he treated Yohan on June 24, 2011 for follow-up care concerning Yohan's diagnosis of a possible fracture. Dr. Janicki testified that because abnormalities present on the X-rays of June 9 and 10th were suspicious for a fracture in early June, doctors at CMH splinted Yohan's leg and scheduled him for a follow-up evaluation. Dr. Janicki reviewed Yohan's X-rays and agreed that the X-rays showed an abnormality that could be a fracture. Before his follow-up evaluation on June 24 with Dr. Janicki, Yohan had a follow-up skeletal survey and isolated X-ray of his knee on June 23. In his review of Yohan's X-

rays from the day before, Dr. Janicki was looking for signs of healing fractures. On June 24, Dr. Janicki observed periosteal reaction, a sign of healing fracture, on Yohan's distal femur on the lateral and medial side. Dr. Janicki diagnosed Yohan with a distal femur metaphyseal corner fracture. Dr. Janicki opined the fracture was caused from a fairly significant external force.

¶ 70 Dr. Janicki testified that before forming his opinion as to whether Yohan had a fracture, he was aware that Yohan had presented with seizures, intracranial bleeding, and retinal hemorrhaging at CMH. He agreed this information could have influenced his diagnosis. Dr. Janicki agreed that periosteal reaction can be seen in rapidly growing infants, but opined that the presence of the reaction in Yohan meant he had sustained a fracture to his distal left femur on June 6, 7, or 8.

¶ 71 Dr. Janicki agreed there is an expectation that a child would exhibit pain when sustaining a fracture and afterwards. He confirmed that if Yohan was moving his extremities freely and without pain while awake during his hospitalization, that would be inconsistent with a diagnosis of a fracture. He found no evidence of rickets on Yohan's X-rays or laboratory data, but acknowledged he had no expertise in the area of rickets, never having diagnosed a patient as having rickets.

¶ 72 Dr. Jennifer Nicholas, who practices at CMH and is board-certified in diagnostic radiology with an emphasis in pediatric radiology, testified for the State. The court found her to be an expert in both radiology and pediatric radiology. Dr. Nicholas reviewed Yohan's full skeletal survey from June 8th. Before her review of Yohan's skeletal survey, Dr. Nicholas was aware that Yohan had presented with a head injury. She observed characteristics suggestive of a

fracture on the femur and diagnosed Yohan with an irregularity. She also noted irregularities in Yohan's left ribs she thought were suspicious for fracture. She recommended follow-up X-rays for further evaluation. Yohan had no rib fractures.

¶ 73 She saw no radiological evidence of rickets on either the June 8 or June 23 X-rays. Based on the June 23 X-ray, Dr. Nicholas diagnosed Yohan with metaphyseal lesion or bucket handle fracture to the left leg based on periosteal reaction. (Dr. Sullivan explained that when there has been a fracture, the bone will bleed underneath the periosteum, which will then lift up and generate new bone from that position. On an X-ray this periosteal reaction appears within 7 to 14 days of a fracture as a light onionskin-like layer on either side of the darker mature bone.) Dr. Nicholas agreed that periosteal reaction can occur for multiple reasons, including rapid growth. Dr. Nicholas also reviewed Yohan's June 6 head CT and thought he might have a hemorrhage. She suggested a follow-up MRI.

¶ 74 Dr. Nicholas testified she has no expertise in congenital rickets or in diagnosing rickets in infants under six months of age. She testified that rickets can involve the metaphysis of a long bone, often having a cupping or fraying appearance, and agreed that an early location for rickets to appear is the distal femur and proximal tibia. She is familiar with the work of Dr. Barnes, respects his opinions, knows that congenital rickets is an area of interest for him and has read some of his peer-reviewed articles on the subject. Although Dr. Nicholas agreed she was not qualified to opine whether Yohan had rickets, she did testify there was no indication to her on Yohan's skeletal survey that suggested he had rickets.

¶ 75 The parents called Dr. David Frim, who has been treating Yohan as his patient since February 2012, and who received no monetary compensation for his testimony. Dr. Frim is a board-certified neurosurgeon and pediatric neurosurgeon, serving as the chief of neurosurgery at University of Chicago. When Dr. Frim first began practicing at the University of Chicago in 1996, he served as the chief of pediatric neurosurgery.

¶ 76 Dr. Frim testified that each year, he sees between 1,000 and 1,500 patients and conducts between 300 and 400 pediatric surgeries, including patients younger than six months old, addressing medical issues that can include trauma to the brain and spine. Dr. Frim works closely with the child protection team at the University of Chicago. Dr. Frim has been recognized as a preeminent physician in his field, both in Chicago and nationwide. Dr. Frim's endowed chair provides support for his ongoing laboratory research of congenital anomalies of the nervous system, including BEH. Dr. Frim has published over 100 peer-reviewed articles, including, in 2000, an article, along with one of his students, in *Pediatric Neurosurgery*, entitled "A Theoretical Model of Benign External Hydrocephalus that Predicts a Predisposition Towards Extra-Axial Hemorrhage After Minor Head Trauma." The article describes a mathematical model of BEH that predicts children who are predisposed to bleeds out of the brain after minor or trivial trauma. In 2005, Dr. Frim and a colleague co-authored a textbook chapter entitled, "Extracerebral Fluid Collections in Infants," an examination of conditions such as BEH, which was published in a medical reference textbook used by physicians in the field of neurosurgery. Both the article and textbook chapter were admitted for the limited purpose of expert qualification.

¶ 77 Dr. Frim diagnosed Yohan as having an older subdural hematoma as well as some acute (*i.e.*, new) subdural blood on June 6. Dr. Frim opined these old and new bleeds were most likely caused by Yohan's seizure activity in early June because blood is irritating to the surface of the brain. Dr. Frim diagnosed Yohan as having been born with BEH. He diagnosed and treated up to 100 patients with BEH in his career.

¶ 78 Any subarachnoid space that exceeds three millimeters is diagnostic for BEH, a benchmark Dr. Frim himself developed though his mathematical model that was the subject of his peer-reviewed article. Dr. Frim testified that on the June 6 MRI, the measurement of Yohan's subarachnoid space was six millimeters. He also used a demonstrative exhibit to demonstrate this to the court.

¶ 79 In his expert medical opinion, Dr. Frim found Yohan's intracranial bleeding to be consistent with the preexisting medical condition of BEH. Due to his condition, Yohan was particularly susceptible to bleeding from birth trauma or from trivial or minimal force. Dr. Frim testified he has experience treating patients with birth trauma whose symptoms appear several weeks following birth.

¶ 80 In his review of Yohan's MRI imaging from CMH, Dr. Frim noted the presence of subarachnoid hemorrhages that changed locations between two different days, indicating that the blood in Yohan's subarachnoid space was traveling. Based on the movement of the blood in Yohan's subarachnoid space, Dr. Frim concluded it was reasonable to expect the blood to move into the retinal space and be viewed as retinal hemorrhaging. Dr. Frim supported his expert opinion with an article by Dr. Joseph Piatt about a case study profiling a child with BEH who

sustained both subdural hematoma and retinal hemorrhaging from a small amount of accidental trauma. Dr. Frim viewed the images and descriptions of the retinal hemorrhages in Dr. Piatt's article as strikingly similar to the descriptions of Yohan's retinal hemorrhages in the CMH records.

¶ 81 In Dr. Frim's expert opinion, nonaccidental trauma was not the most likely explanation for Yohan's intracranial bleeding. In the absence of any reported trauma, Dr. Frim said that it was not reasonable to conclude that abuse was a more likely explanation for the intracranial bleeding than a nonabuse explanation, particularly in light of Yohan's diagnosis of BEH and his young age. The absence of any marks on Yohan's scalp, head, or skull and the absence of injury to Yohan's brain indicated to Dr. Frim that even if external trauma had caused Yohan's intracranial bleeding, it was unlikely that it was severe trauma. Dr. Frim opined that there was an adequate neurosurgical explanation based on the anatomy of the subarachnoid space–the existence of BEH in Yohan explained his retinal hemorrhaging, particularly in the absence of any other damage to the retina, such as retinoschesis. Dr. Frim testified that the presence or absence of a fracture is not relevant to a neurosurgical diagnosis of BEH or to the potential causes of intracranial bleeding.

¶ 82 Dr. Patrick Barnes, the chief of pediatric neuroradiology at Packard Children's Hospital, Stanford University, testified via video link from California on behalf of the parents. The court qualified Dr. Barnes as an expert in pediatric radiology and pediatric neuroradiology, as well as an expert qualified in the areas of imaging of child abuse and the mimics of child abuse. Dr. Barnes' child abuse focus has included examining and identifying conditions and findings that

mimic the signs of child abuse in radiological imaging studies. He has published several hundred peer-reviewed articles and co-authored two chapters with Dr. Paul Kleinman in *Diagnostic Imaging of Child Abuse*. While at Stanford, Dr. Barnes co-founded the hospital's Suspected Child Abuse and Neglect Team, as well as the Northern California Task Force on Child Abuse.

¶ 83 Dr. Barnes has extensive clinical and academic experience with BEH, having first authored an article about the condition in 1987, and having diagnosed hundreds of patients with BEH during his career. Dr. Barnes never treated Yohan, but reviewed his imaging studies, medical records, and DCFS documents.

¶ 84 Dr. Barnes diagnosed Yohan with BEH and rickets, not a fracture. Dr. Barnes opined that the skull findings for rickets, as well as the collections of fluid between the brain and skull, indicating BEH, could date back to Yohan's birth; however, Dr. Barnes could not diagnose Yohan with birth trauma. Dr. Barnes testified that infants with BEH are predisposed to either spontaneous hemorrhage or hemorrhage with trivial trauma and that vitamin D deficiency may contribute to venous thrombosis. Dr. Barnes opined Yohan's intracranial bleeding occurred within three to seven days of June 6, and was most reasonably explained by the preexistence of BEH.

¶ 85 During his testimony, Dr. Barnes explained the imaging that had been taken of Yohan's head while at CMH, particularly the numerous images from the June 6 CT scan and MRI. Dr. Barnes identified prominent subarachnoid spaces in the front part of Yohan's head, which he explained were "benign extracerebral collections" *(i.e.*, BEH). Dr. Barnes identified the small posterior blood noted in the CMH radiology reports, which he explained could represent either a

hemorrhage or thrombosis (clotting within the vein). The very small nature of this subdural blood is characteristic of BEH.

¶ 86 On the June 6 scans, Dr. Barnes saw blood in the left frontal area noted in the CMH reports, which he labeled as either a subarachnoid hemorrhage or thrombosis in the cortical vein. He also noted microscopic blood on the posterior right side, which he testified is characteristic for cortical brain thrombosis. In the June 9 MR venogram without contrast, Dr. Barnes noted an asymmetry of the smaller cortical veins, suggestive for cortical venous thrombosis. Dr. Barnes testified that in the presence of BEH, cortical venous thrombosis can cause subdural hemorrhaging. And, individuals who are vitamin D deficient are predisposed to venous thrombosis, not an uncommon condition in infants under a year old. Dr. Barnes testified a thrombophilia blood workup, which was not done, would have assisted in assessing Yohan's propensity for venous thrombosis.

¶ 87 The image findings, testified Dr. Barnes, were consistent with Yohan having BEH since birth. Because infants with BEH are susceptible to bleeding spontaneously, from minimal force, or from concurrent medical conditions, such as venous thrombosis, it was Dr. Barnes' expert medical opinion that Yohan's intracranial bleeding was most reasonably explained by the pre-existing condition of BEH.

¶ 88 Dr. Barnes testified that since beginning his practice in the 1970s, his work has included the diagnosis and identification of rickets. He acknowledged that rickets is more rarely diagnosed than BEH. Dr. Barnes sees between 6 to 12 cases in his clinic annually and has diagnosed thousands of bone fractures throughout his career.

¶ 89 Following his review of Yohan's June 6 head imaging, Dr. Barnes identified some findings in the skull that were indicative of congenital rickets. Specifically, irregularities in the bones adjacent to Yohan's sutures (the normal soft gaps found in the skulls of infants) that represented incomplete bone formation and insufficient bone thickness, a condition called craniotabes that is often seen in infants with congenital rickets. (Dr. Barnes explained that craniotabes is an abnormality often found in infants with congenial rickets and is identified through insufficient bone thickness and irregularities in the suture bones of the skull, which represents incomplete bone formation.) The craniotabes was confirmed by the skull images from the June 23 skeletal survey, which also revealed incomplete bone formation in Yohan's teeth and jaw. During his testimony, Dr. Barnes explained that he referenced the June 23 skeletal survey because of the poor image quality of the June 8 skeletal survey relied on by Dr. Nicholas. Dr. Barnes identified many abnormal findings characteristic of congenital rickets, including fuzziness at the growth centers (metaphysis) of both knees and ankles, bowing in the tibial bones of both legs, and incomplete growth pattern in both the right and left ribs, known as rachitic rosary.

¶ 90 In the growth center, or metaphysis, of Yohan's distal left femur, Barnes identified characteristic findings of rickets, noting the findings were more severe in the left knee than the right knee. Dr. Barnes saw no evidence of a fracture to either the medial or lateral aspect of Yohan's left distal femur or evidence of periosteal reaction indicative of traumatic fracture. Dr. Barnes explained that the radiographic indicators of congenital rickets can mimic the appearance of a "classic metaphyseal fracture," a fracture that some practitioners argue is specific to child

abuse. Dr. Barnes further testified that rickets, whether evolving or in the process of healing, can mimic the signs of periosteal reaction. In Dr. Barnes' expert medical opinion, Yohan had findings consistent with congenital rickets, which can produce findings that mimic abuse, and that Yohan had no fracture or healing fracture to his left femur.

¶ 91 Dr. Christopher Sullivan, a pediatric orthopedic surgeon at the University of Chicago's Children Hospital, testified on behalf of the parents. The court qualified Dr. Sullivan as an expert in pediatric orthopedics and bone fractures. Dr. Sullivan testified he has attended specialized training on issues surrounding child abuse and has published two articles addressing the topic of how child abuse relates to fractures, as well as given numerous presentations on the issue of child abuse-related fractures as a member of the child protection team at the University of Chicago.

¶ 92 Dr. Sullivan testified he is familiar with the condition of congenital rickets and has treated several dozen children for rickets-related issues. Dr. Sullivan displayed a side-by-side comparison of the X-ray of Yohan's left knee from the skeletal surveys of June 6 and June 23. Dr. Sullivan did not identify any fractures, and testified that a very small irregularity that appeared in the first image differs in appearance from a fracture, which would be more disruptive and apparent.

¶ 93 The absence of clinical observations corroborating the presence of a fracture was significant, according to Dr. Sullivan, and that although some fractures to nonverbal children can be missed due to subtle symptoms, if a patient is pressed on the area of a suspected fracture, there will be observable tenderness if there is actually a fracture.

¶ 94 Dr. Sullivan testified he observed an irregularity in the distal femoral metaphysis on Yohan's June 23 image. Dr. Sullivan testified the irregularity was a classic finding for irregular calcification of normal bone growth, or rickets. Dr. Sullivan testified the June 23 image did not contain signs of true periosteal reaction. He testified the absence of periosteal reaction indicates a fracture never existed. Dr. Sullivan's expert medical opinion was that Yohan had no evidence of a fracture.

¶ 95 In addition to their own testimony, the parents also presented the testimony of lay witnesses. The witnesses all testified K.S. and Teresa were kind, loving, and gentle parents, who did not express anger or frustration with their children.

¶ 96 Adjudicatory Hearing Ruling

¶ 97 On August 1, 2012, the trial court issued its written adjudicatory ruling. The trial judge began by stating, "this has been an extremely difficult case for me to decide." The judge acknowledged that "[a]ccording to the evidence, mother and father are loving and responsible parents."

¶ 98 The trial court credited Dr. Janicki's and Dr. Nicholas's diagnosis of a knee fracture, and attributed such a diagnosis to Dr. Fortin as well, over the testimony of Dr. Sullivan and Dr. Barnes, both of whom testified there was no evidence of fracture or signs of a healing fracture. Both Dr. Sullivan and Dr. Barnes testified the findings were consistent with rickets. The court noted that Dr. Nicholas did not see evidence of rickets on the imaging she viewed. The court claimed all parties agreed blood tests could confirm the presence of rickets and that all of Yohan's levels were found to be in the normal range, except for vitamin D. Based on the

evidence, the court concluded Yohan did not have rickets, but suffered a fracture to his left distal femur. The court reasoned that because no accidental explanation for Yohan's fracture was offered, it must have been caused by abuse. And, even if it accepted as true that the imaging of the periosteal reaction could be so unclear as to prevent the finding of a fracture, that could only be true in the absence of the other medical findings.

¶ 99 Concerning the blood found on Yohan's brain and the retinal hemorrhaging, the court found the testimony of Dr. Mack "quite compelling." Dr. Mack testified there was no bleeding abnormality that could explain the constellation of findings in the case. The court held Dr. Mack concluded Yohan did not suffer from "any clotting disorder or bleeding disorder."

¶ 100 The court acknowledged Dr. Frim opined that Yohan's injuries were more likely caused by his precipitous delivery based on the condition of BEH; however, the court found it significant that Dr. Frim testified that the alleged fracture was not relevant to his diagnosis of BEH. The court held the evidence of trauma elsewhere was "very relevant" in light of the "constellation of findings" in the case, which the court found indicative of abuse.

¶ 101 The court held that it could possibly be persuaded that (i) birth trauma and BEH were responsible for Yohan's intracranial bleeding, or (ii) that blood from a benign bleed flowed into the minor's eyes, causing retinal hemorrhages too many to count five weeks after birth, or (iii) that the imaging was unclear enough as to whether periosteal reaction existed to prevent the finding of a fracture, but all were only possible in the absence of other medical findings. The court held that "to conclude that all three of these infrequent to rare conditions came together at the same time to explain the minor's condition was not reasonable." The court concluded the

State proved by a preponderance of the evidence that Yohan suffered physical abuse, where it was "more likely than not that Yohan K. suffered non-accidental included trauma in this case."

¶ 102 The trial court found Yohan was the victim of physical abuse and that both Yohan and his sister Marika had been neglected due to an injurious environment and abused due to substantial risk of injury. Despite the parents' testimony that during the relevant time period before Yohan's alleged abuse, they were his only caretakers, the trial court declined to identify a perpetrator of the abuse, stating it was unable to do so.

¶ 103 Dispositional Hearing

¶ 104 At a subsequent dispositional hearing, the court ruled that the respondents, K.S. and Teresa G., were fit, willing, and properly able to care for Yohan and Marika, and found it in the best interests of their children that the children be home with their parents under an order of protective service under Section 2-24 of the Juvenile Court Act of 1987 (705 ILCS 405/2-24 (West 2010)).

¶ 105 At the conclusion of the dispositional hearing, the proponents requested the children be made wards of the court and the parents be found unfit. The proponents contend the final dispositional order returning the children to their parents' care under an Order of Protective Supervision is contrary to the manifest weight of the evidence, arguing the parents failed to engage in "meaningful therapy" sufficient to eliminate the risk of future abuse or neglect to their children.

¶ 106 The proponents request the portion of the August 2012 adjudication order failing to name the parents as perpetrators of Yohan's physical abuse be reversed. The proponents further request

that the trial court's October 2012 dispositional order finding the parents fit, willing, and able, as well as the section 2-24 order of protective supervision be vacated. The proponents ask that the children be placed in the guardianship of DCFS. The parents filed a cross-appeal challenging the trial court's adjudicatory finding that their children had been abused and neglected.

¶ 107 ANALYSIS

¶ 108 The Juvenile Court Act of 1987 (Act) sets forth the procedures and criteria to be used in deciding whether a minor should be removed from his or her parents' custody and made a ward of the court. 705 ILCS 405/1-1 *et seq.* (West 2010). The Act provides a two-step process; the first step is an adjudicatory hearing on the petition for adjudication of wardship. *In re A.W.*, 231 Ill. 2d 241, 254 (2008). At the adjudicatory hearing, the trial court is to determine whether the child was neglected or abused, not whether the parents were neglectful or abusive. 705 ILCS 405/2-18(1) (2010); *In re Arthur H.*, 212 Ill. 2d 441, 467 (2004). Following the adjudicatory hearing, if the trial court has determined the minor is abused, neglected, or dependent, the trial court moves to the second step of the process, the dispositional hearing. 705 ILCS 405/2-21(2) (West 2010). At the dispositional hearing, the trial court is charged with determining "whether it is consistent with the health, safety and best interests of the minor and the public that he [or she] be made a ward of the court." 705 ILCS 405/2-21(2) (West 2010).

¶ 109 "A proceeding for adjudication of wardship 'represents a significant intrusion into the sanctity of the family which should not be undertaken lightly.' " *In re Arthur H.*, 212 Ill. 2d at 463 (quoting *In re Harpman*, 134 Ill. App. 3d 393, 396-97 (1985)). As with any proceeding

initiated under the Act, during an adjudication of wardship, the overriding consideration must be the best interests of the child. *In re N.B.*, 191 Ill. 2d 338, 343 (2000).

¶ 110 The State bears the burden to prove allegations of abuse and neglect by a preponderance of the evidence. *In re N.B.*, 191 Ill. 2d at 343. In other words, the State must prove the allegations of neglect are more probably true than not. *In re N.B.*, 191 Ill. 2d at 343. On review, we will not overturn a trial court's finding of neglect unless it is against the manifest weight of the evidence. *In re D.S.*, 217 Ill. 2d 306, 322 (2005). A finding is against the manifest weight of the evidence if the opposite conclusion is clearly evident. *In re D.S.*, 217 Ill. 2d at 322.

¶ 111 Though the trier of fact bears the responsibility of assessing the credibility of expert witnesses when they offer different opinions, there is an expectation that the conflict will be resolved by evaluating the relative merits of the experts and their opinions. *LaSalle Bank, N.A. v. C/HCA Development Corp.*, 384 Ill. App. 3d 806, 828 (2008) (citing *Bergman v. Kelsey*, 375 Ill. App. 3d 612, 626 (2007)).

¶ 112 The parents ask this court to overturn the trial court's holding at the adjudicatory hearing that the proponents met their burden of proving Yohan's medical findings were the result of physical abuse. The parents contend the trial court's ruling is contrary to the manifest weight of the evidence and legally erroneous. The parents maintain the court's finding that Yohan was physically abused is contrary to the manifest weight of the evidence in that it credited an unsupported "constellation of injuries" theory over the well-supported medical explanations provided by their experts, and the abuse finding was inconsistent with many critical facts in the record. Further, the parents argue the Act requires evidence of a nonaccidentally inflicted injury

and, therefore, by finding abuse in the absence of any evidence of an abusive action, the trial court committed legal error.

¶ 113 We agree with the parents that relying on a "constellation" theory when there is no preponderance of evidence proving abusive causation as to each separate injury is akin to relieving the State of its burden of proof. Based on a careful and thorough review of the evidence, we find the trial court's conclusion of abuse provides no explanation for critical facts, such as the seizure behavior Yohan exhibited from birth, the posterior location of Yohan's intracranial bleeding, and the trial court's inability to identify a perpetrator of abuse, finding Yohan's only caretakers, Teresa and K.S., were loving and nurturing parents.

¶ 114 Fracture

¶ 115 In holding as it did, the trial court stated "the most critical determination in this case resolves around the minor's left knee." The trial court stated that Drs. Janicki, Nicholas, and Fortin diagnosed Yohan with a fracture, whereas Drs. Sullivan and Barnes testified there was no evidence of a fracture and that the imaging was consistent with a diagnosis of rickets. Dr. Fortin testified the most common cause of rickets is vitamin D deficiency, and Dr. Barnes testified the most common cause of rickets in an infant of Yohan's age is a vitamin D deficiency passed from the mother in utero (congenital rickets).

¶ 116 A critical conclusion for the trial court on the issue of Yohan's fracture was its recollection that "one thing that the sides did agree on was that the condition of rickets could be confirmed or diagnosed through a series of blood tests, including alkaline phosphate, calcium,

phosphorus and parathyroid hormone tests." The trial court stated that some of the tests were performed at CMH and the results were in the normal range. The trial court found it significant that no test confirmed a diagnosis of rickets. The trial court further found that because the alleged fracture was not shown to be caused by an accident, it "must have been an non-accidental injury."

¶ 117 The existence of the fracture was essential to the proponents' theory of the case and the trial court's finding that Yohan was abused; without a fracture, the "constellation" theory of abuse falls apart. The court dismissed BEH as an explanation for Yohan's intracranial bleeding and retinal hemorrhaging because BEH could not explain the fracture.

¶ 118 Dr. Wainwright was the only State witness qualified as an expert to offer an opinion concerning Yohan's intracranial findings. He testified, however, that if there was no fracture or if there was a diagnosis of rickets, he would have to reevaluate his opinion of "inflicted trauma."

¶ 119 The analysis applied by the trial court to Yohan's medical findings, based on the proponents' "constellation" theory, required a fracture to sustain a finding of abuse. But, the manifest weight of the evidence does not support a conclusion that Yohan had a fracture. No doctor definitively diagnosed a fracture on any of Yohan's X-rays. Indeed, the diagnosis was based on irregularities or the existence of periosteal reaction. The experts disagreed about whether Yohan's scans showed periosteal reaction, but all agreed that periosteal reaction can appear in the absence of a healing fracture.

¶ 120 Drs. Barnes and Sullivan testified Yohan did not have a fracture. Dr. Barnes was qualified as an expert in pediatric radiology, pediatric neuroradiology, and, most important to this issue, an expert in the areas of imaging of child abuse and the mimics of child abuse. Dr. Sullivan was the only physician qualified by the trial court as an expert in bone fractures.

¶ 121 In comparison to the experience of Drs. Barnes and Sullivan, the State's witnesses, Drs. Nicholas and Janicki, had significantly less experience. Dr. Nicholas had been board-certified in radiology for less than two years at the time of her initial reading of Yohan's scans in June 2011, and did not have her pediatric radiology qualification at that time. Dr. Janicki had also only been board-certified for two years at the time he conducted Yohan's follow-up visit in June 2011, and nothing in his clinical experience or published work suggests an expertise in the diagnosis of bone fractures in infants.

¶ 122 Noteworthy, the evidence is uncontested that Yohan's behavior was inconsistent with having a fracture. Yohan showed no signs of pain when moving his left knee, both before and after being sedated and while his knee was not immobilized by a cast. The hospital records confirm the parents' testimony that Yohan had at least three full range-of-motion exams on June 6th before sedation and that he showed no signs of pain or discomfort during any of them. Moreover, on June 8, Yohan was awake and alert for the cast application as well as its re-application, and showed no signs of pain or distress while his leg was manipulated. Yohan constantly kicked his left leg, causing the cast to move below his knee. Yohan moved his leg so much that the cast had to be applied three different times.

¶ 123 Dr. Janicki testified that Yohan's leg was fractured "one to two days prior to the skeletal survey." The skeletal survey was conducted at 3:15 p.m. on June 8, and, therefore, according to Dr. Janicki's dating of the alleged fracture, it would have occurred while Yohan was under the care of medical personnel. Since his arrival at his pediatrician's office at 7:45 a.m. on June 6, Yohan had been in the constant care of medical personnel. Based on Dr. Janicki's opinion as to the timing of the alleged fracture, the only reasonable inferences are that (i) Yohan never had a fracture, given the unlikelihood of it going unnoticed by medical personnel; (ii) a fracture occurred while under medical care, invalidating the trial court's conclusion that the fracture must necessarily be caused by abuse in the absence of any other explanation; and (iii) that Dr. Janicki erred in the dating of the alleged fracture, undermining the reliability of his opinion.

¶ 124 In addition to insufficient evidence of a fracture, there was significant evidence that Yohan had congenital rickets. Dr. Barnes, the only expert qualified by the court in the mimics of child abuse, testified that congenital rickets can be misinterpreted as periosteal reaction or a metaphyseal fracture, findings consistent with physical abuse. Dr. Barnes is a leading national expert on congenital rickets. Both Drs. Burrowes and Nicholas, the testifying CMH radiologists, acknowledged they knew of Dr. Barnes and respected his work. All of the testifying doctors agreed that a diagnosis of rickets is made through radiological findings, which can then be supported by laboratory testing. Contrary to the trial court's recollection, no witness testified that blood tests can definitively confirm the presence of rickets.

¶ 125 Dr. Barnes diagnosed Yohan with congenital rickets. Dr. Barnes reviewed all of Yohan's scans and found abnormal findings characteristic of congenital rickets in both of Yohan's ankles,

tibias, and knees, as well as his ribs (rachitic rosary) and skull (craniotabes). Dr. Sullivan corroborated Dr. Barnes' findings by also identifying irregularities above and below Yohan's left knee, which he testified were classic findings for rickets. The diagnosis of rickets was further corroborated by Yohan's severe vitamin D deficiency and Teresa's vitamin D insufficiency, as well a finding that he had low serum calcium and a heightened alkaline phosphate.

¶ 126 The trial court erred in believing that the evidence showed all of Yohan's levels were normal except for vitamin D. The trial court mistakenly believed that Yohan's parathyroid hormone was normal, but it was never tested.

¶ 127 The testimony of Drs. Nicholas, Janicki and Fortin that can be considered to rebut Dr. Barnes' diagnosis of congenital rickets should not have been given as much weight based on their qualifications. Dr. Fortin had no expertise in either orthopedics or the diagnosis of rickets. Dr. Janicki testified he had never diagnosed a patient with rickets, did not know the principal causes of rickets, had no formal training in rickets, and had never heard of congenital rickets. Dr. Janicki testified his only knowledge about the significance of vitamin D came from his personal experience as a father, not his medical training. Dr. Janicki testified he could not disagree with another doctor's findings of rachitic rosary or craniotabes. Dr. Nicholas' opinion relied on her review of Yohan's June 8 skeletal survey, which she acknowledged produced images of poor quality. Dr. Nicholas never evaluated the images from Yohan's June 23 skeletal survey. Dr. Nicholas testified she observed no radiological signs of rickets, but acknowledged she had no expertise in diagnosing rickets in infants under six months of age.

¶ 128 No witnesses rebutted Dr. Barnes' identification of craniotabes and rachitic rosary on the images from Yohan's June 23 skeletal survey. No medical expert testified that it is possible to rule out or confirm rickets based on any laboratory value other than vitamin D. No vitamin D levels were tested at CMH, showing CMH never considered rickets as a possible medical condition affecting Yohan during his hospital stay. The evidence is undisputed that Yohan's total vitamin D levels were deficient at 13 out of a reference range of 30 to 100. Where the deficiency is passed from the mother to the infant in utero, it is also relevant that Teresa tested insufficient for vitamin D at 25 out of a reference range of 30 to 80.

¶ 129 Considering all the evidence, including the evidence against the existence of a fracture, and the evidence supporting a diagnosis of congenital rickets, the trial court's finding that Yohan had a fracture caused by abuse was contrary to the manifest weight of the evidence.

¶ 130 Intracranial Bleeding and Retinal Hemorrhages

¶ 131 In its adjudicatory order, the trial court spent little time addressing whether Yohan had BEH by concluding that BEH would not be a reasonable explanation for the "constellation" of injuries. In essence, because BEH could not account for the alleged fracture, the trial court discounted the condition as an explanation for Yohan's intracranial and retinal hemorrhaging. By failing to sufficiently consider whether Yohan had the preexisting medical condition of BEH, the trial court assumed a connection between Yohan's intracranial and retinal findings and his leg related ones, without any evidence proving a connection existed. If the evidence reasonably showed Yohan's intracranial and retinal hemorrhages could be attributed to BEH, the existence of a separate injury, such as a leg fracture, would not change the non-abuse explanation for the

head-related findings. The trial court erred by not considering the evidence of each separate injury individually before determining how they were interrelated. The trial court's should have either made an affirmative finding that Yohan did or did not have BEH or that BEH was an inapplicable causal explanation for Yohan's head-related findings before discounting the condition. In its ruling, the trial court did not discuss Dr. Barnes' testimony.

¶ 132 Dr. Frim and Dr. Barnes, the only testifying experts who have published peer-reviewed articles on the condition of BEH, diagnosed Yohan as having the congenital condition. Dr. Barnes has published peer-reviewed articles about BEH since 1987 and has made hundreds of BEH diagnoses. Dr. Frim has published works directly related to BEH, including a chapter in a pediatric neurosurgery textbook and directs a fully endowed research laboratory at the University of Chicago, examining congenital anomalies such as BEH.

¶ 133 The evidence is undisputed that measurement of Yohan's subarachnoid space on June 6 fell within the six- to seven-millimeter range. Dr. Burrowes did not reference any medical authority for her opinion that the standard minimum measurement to diagnose BEH is 10 millimeters. Dr. Frim's three-millimeter benchmark has been validated through his own published work, peer-reviewed articles, and the inclusion of his benchmark in the textbook *Principles and Pediatric Neurosurgery*.

¶ 134 Dr. Frim opined that Yohan's injuries were most likely caused by his precipitous delivery, which caused bleeding because of the preexisting condition of BEH. Based on the evidence presented, it was improper for the trial court to discount Dr. Frim's opinions concerning BEH and

its impact on Yohan's intracranial and retinal hemorrhaging for the sole reason that Dr. Frim did find evidence of trauma elsewhere relevant to his diagnosis.

¶ 135 Dr. Fortin was the only doctor to testify there is "controversy" as to whether BEH predisposes children to subdural hemorrhage. Drs. Wainwright, Burrowes, Frim, and Barnes unanimously agreed that infants with BEH are predisposed to intracranial bleeding. Despite their awareness of the relationship between BEH and intracranial bleeding, Dr. Wainwright testified no CMH doctor considered BEH as a possible diagnosis during Yohan's hospitalization.

¶ 136 The evidence established that infants with BEH can sustain intracranial bleeds from various noninflicted causes, two of which were considered particularly plausible in this case: birth trauma and cortical venous thrombosis.

¶ 137 The parents testified that Yohan had a precipitous and complicated birth. Shortly after his birth, Yohan began showing symptoms consistent with seizures. Confirming the testimony of the parents' experts, Dr. Wainwright testified that intracranial bleeding from birth trauma can persist until five weeks of age without the complicating effects of BEH. Moreover, Dr. Wainwright could not rule out birth trauma as the cause of bleeding in Yohan's case. The evidence further established that 25% of all newborns are born with some form of intracranial bleeding and the posterior location of Yohan's subdural hematomas was more consistent with birth trauma than with abuse.

¶ 138 The evidence also supported the parents' theory that Yohan's predisposition to intracranial bleeding could have been triggered by cortical venous thrombosis. The evidence established that

a vitamin D deficiency increases the likelihood of developing thrombosis and venous thrombosis is common in infants. CMH never conducted any diagnostic tests to evaluate Yohan for cortical venous thrombosis. The diagnostic workup of Yohan during his hospitalization at CMH did not include a contrast venogram, an evaluation for thrombosis in Yohan's cortical veins or a thrombophilia profile of Yohan's blood. Without these tests, the presence of venous thrombosis was never ruled out. Further as Dr. Barnes observed, several indicators characteristic of venous thrombosis appeared on Yohan's June 6 MRI.

¶ 139 In addressing Yohan's brain and retinal hemorrhages, the trial court placed great significance on Dr. Mack's testimony, finding it "quite compelling." The trial court found that as an expert in pediatric hematology, Dr. Mack testified there was no plausible bleeding abnormality which could explain the constellation of findings. The trial court held that Dr. Mack concluded "that the minor did not suffer from any clotting disorder or bleeding disorder." A detailed review of Dr. Mack's testimony, however, shows he signed off of the case once he determined Yohan did not suffer from a bleeding disorder, and never evaluated him for the presence of a clotting disorder, a distinction Dr. Mack testified is significant. That Yohan was never tested for a clotting disorder is of little significance given Dr. Mack's testimony that an infant does not need to have a clotting disorder to develop venous thrombosis.

¶ 140 Dr. Fortin testified the reason she dismissed BEH as an explanation for intracranial bleeding was her assumption that Yohan had others signs of trauma or abuse, *i.e.,* the alleged fracture and retinal hemorrhaging.

¶ 141 The parents offered sound medical triggers for Yohan's intracranial bleeding and, therefore, the trial court's conclusion that the most likely cause was abuse is contrary to the manifest weight of the evidence.

¶ 142 The evidence further established that Yohan's enlarged subarachnoid spaces from BEH explained the retinal hemorrhaging he experienced. Dr. Frim testified that blood in the subarachnoid space of an infant with BEH can travel to the optic nerve and retina, accumulating in the retina as retinal hemorrhaging. Dr. Frim opined that the most reasonable and likely explanation for Yohan's retinal hemorrhaging was a medical outcome secondary to BEH. There was no evidence of retinal damage, such as retinoschesis or macular folds. The proponents' expert, Dr. Wainwright, agreed blood in the subarachnoid space of the cranium could cause retinal hemorrhaging.

¶ 143 Drs. Fortin and Yoon are the only physicians who questioned Dr. Frim's medial opinion. Their opinions were vague and their expertise limited. Dr. Fortin testified she ruled out medical explanations for Yohan's retinal hemorrhaging, but did not specify what conditions she considered and ruled out. Dr. Yoon testified he had no familiarity with BEH and did not know what impact it would have on blood in the retinal space. Dr. Yoon also confirmed that intracranial bleeding can cause retinal hemorrhaging.

¶ 144 The expert medical opinions do not sustain a finding of abusive causation. The parents' experts offered medical, nonabuse explanations as to their specific areas of expertise. The proponents' experts testified using the "constellation" of injuries theory and, therefore, speculated and generalized about the possible mechanisms causing the injuries in areas outside of their

expertise. The proponents' experts, as well as the trial court, assumed there must have been a connection between Yohan's head-related findings and the suspected fracture even though there was no basis in evidence or law for this conclusion which prompted the outcome.

¶ 145 Additionally, the parents claim that because the Act's definition of child abuse requires evidence that a person responsible for the minor inflicted physical injury by other than accidental means (705 ILCS 405/2-3 (West 2010)), a finding of abuse by the trial court required evidence of an abusive action toward Yohan. The parents argue the trial court committed legal error when it entered a finding of abuse absent any evidence of non-accidental causation.

¶ 146 The expert witnesses called by the proponents testified that each of Yohan's injuries could occur from trauma. Instead of evaluating and weighing the evidence and expert testimony as to each alleged injury, the trial court allowed the proponents to elude their burden of proof by claiming that the "constellation" of Yohan's injuries created a preponderance of evidence that he was abused. This "constellation" of injuries theory allowed the trial court to conclude that Yohan had been abused even though not one of his individual injuries within the constellation had been proven to be by abuse and where highly experienced and credentialed, nationally recognized doctors provided well-reasoned medical explanations, albeit rare ones, to explain each of his injuries.

¶ 147 The proponents offered no evidence that an injury is more likely to be caused by abuse merely because a second injury is alleged to exist, particularly where there are reasonable nonabuse explanations offered for each of the individual conditions. Not only did the proponents fail to provide authority supporting their "constellation" of injuries theory, but they failed to

identify any specific facts showing it should apply to Yohan. The "constellation" theory invited the proponents' experts to improperly rely on assumptions about injuries outside their respective specialities to rule out nonabuse explanations for the injury under their direct evaluation. In contrast, the parents offered nonabuse medical explanations supported by expert testimony from nationally recognized, highly qualified doctors in specific fields of expertise to explain the individual conditions suffered by Yohan. Accordingly, the trial court erred in disregarding the parents' medical experts' diagnoses because a single, uniform medical condition could not explain every medical finding Yohan presented.

¶ 148 Accordingly, we find the trial court's finding of abuse contrary to the manifest weight of the evidence, and reverse it.

¶ 149 Dispositional Order

¶ 150 Under section 2-27(1) of the Act, at a dispositional hearing, the trial court must determine whether: (1) the parents were fit, willing, and able "to care for, protect, train or discipline" their children; and (2) whether the children's health, safety, and best interests would be jeopardized if they were returned to their parents' custody. 705 ILCS 405/2-27(1) (West 2010). The trial court's dispositional order will not be reversed unless it is against the manifest weight of the evidence. *In re M.W.*, 386 Ill. App. 3d 186, 200 (2008).

¶ 151 The proponents acknowledge the parents were compliant and completed all of the requests of DCFS, including therapy. Yet, the proponents insist the parents must acknowledge that Yohan was physically abused, claiming that "by failing to acknowledge that Yohan was a

victim of abuse the non-perpetrating parent cannot fully protect Yohan from the perpetrating parent."

¶ 152 The trial court's ruling at the dispositional hearing was based on the testimony of three witnesses, two expert therapists, Dr. Helen Evans and Dr. Robert Evans, and the DCFS caseworker, Julie Bolden; numerous assessments and reports; DCFS' favorable recommendations; and the court's own observations of the parents over 15 months of legal proceedings.

¶ 153 The proponents fail to present any persuasive evidence supporting their conclusion that "meaningful therapy" cannot and did not occur in light of the parents' unwavering claims of innocence of the abuse allegations. The proponents offer no support for their suggestion that an acknowledgment of abuse is a *per se* requirement for therapy to be considered meaningful. To require that the parents must "acknowledge" the truth of a trial court's nonfinal findings of fact to be deemed to have had "meaningful therapy" has no precedent. Instead, we find the support offered for the proponents' position to be a misreading of case law in which parents failed to make actual progress in therapy and, thus, were deemed unable to care for their children as a result of having not participated in meaningful therapy, a significantly different factual scenario from the one presented here. We completely reject any notion that parents should be declared unable to care for their children merely because they persist in their own belief of innocence of wrongdoing, particularly here where their insistence is supported by the evidence.

¶ 154 Based on the evidence presented, the trial court's conclusion that the parents were fit, willing, and able to care for their children was not against the manifest weight of the evidence.

¶ 155 CONCLUSION

¶ 156 The trial court erred by relying on the proponents' "constellation of injuries" theory to issue a judicial finding of child abuse in the absence of any evidence of an abusive action by either of the children's only caretakers and a lack of evidence proving abusive causation as to each separate injury, particularly in light of the substantial evidence that Yohan had a pre-existing medical condition known to mimic the signs of abuse.

¶ 157 Accordingly, we reverse the trial court's order holding Yohan suffered physical abuse and that both he and his sister, Marika, were neglected based on an injurious environment and abused based on a substantial risk of injury by an unknown perpetrator.

¶ 158 Reversed in part and affirmed in part, cause remanded for immediate dismissal.