2. Prior to the commencement of these proceedings, the Director-General sought and obtained an

CASE LAW

Children's Court Decisions

IN THE MATTER OF PIERCE (MITCHELL CM, 21 JULY 2005)

In this case the issue was whether the child's injuries were likely to have been caused by shaking. Guidance was given on the use of concurrent evidence in the Children's Court.

IN THE CHILDREN'S COURT
OF NEW SOUTH WALES
AT ST JAMES

Mitchell ACSM

21 July 2005

No. 558 of 2004

In the Matter of PIERCE

REASONS FOR JUDGMENT

1. By an application filed on 27th September, 2004, the Director-General of the Department of Community Services sought care orders with regard to the child "Pierce A" who was born on [2003]. Pierce is the son of Ms Y and Mr A.... Ms. Y and Mr. A commenced their *de facto* relationship some five or six years ago in New Zealand and arrived in this country on or about 7th July, 2004. Ms. Y and Mr. A have three children of their relationship, namely Pierce and his twin brother, 'Larry', and their younger sister, 'Karen', who was born on [2002.] In addition, Ms. Y has another son, 'David', who was born of her previous relationship on [1998] and who resides in New Zealand with his father.

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emergency care and protection order with regard to Pierce on 31st August, 2004 which, on 14th September, 2004 was extended to 27th September, 2004. Pierce was admitted to the Children's Hospital at Westmead on 20th August, 2004 and has been in departmental foster care since his discharge from hospital. On 16th November, 2004 an order was made in this Court placing the child in the parental responsibility of the Minister, *pending further order.*

3. In the present proceedings, Mr. Saidi of Counsel appeared for the Director-General, Mr. Parkinson appeared for the Mother and Mr. Pappas for the Father. Ms. Giacomo of the Legal Aid Commission of New South Wales appeared in the interests of the child.

4. In support of his application the Director-General relied upon the affidavits of his officers, Jo Warne, Lucy Steel and Gavin Catanach and on the affidavit of Dr Yoon Hi Cho and there is expert evidence in

the form of reports of Sarah Love and Latha Ramesh, audiologists, Dr. Glenys Griffiths, paediatric registrar, Robyn Lamb, senior social worker, Dr. Paul Tait, paediatric consultant, Associate Professor Frank Uren, Dr. Kristina Prelog, radiologist, Dr. Mark Dexter, neurologist, Professor Frank Martin, ophthalmologist and Professor John Hilton.

5. On 12th April, 2004 a meeting of experts, facilitated by Ms. Giacomo, was conducted at Westmead. The experts in attendance were Dr. Prelog, Professor Hilton, Professor Uren, Professor Martin (by telephone) and Dr. Dexter (by telephone). Also attending the meeting were Jo Warne who represented the *JIRT*, Marion Emerson of the Department of Community Services and Mr. Parkinson. An extremely helpful document entitled 'Summary Of Experts Meeting As Agreed Between the Experts' was prepared Ms. Giacomo and has been placed before the Court.

6. The parents relied on the affidavit of the Mother of 9th November and the Father's affidavit sworn 11th November together with affidavits of Pierce's paternal uncle, 'Mr M' 15th November, and his aunts 'Mrs M' and 'Ms T' whose affidavits were sworn on 10th February, 2005.

7. In the course of the proceedings and in the expert evidence, reference was made to a number of learned articles which I took the opportunity to read. These included and article entitled *"Evidence Based Medicine and Shaken Baby Syndrome. Part 1: Literature Review, 1966-1998"* by Mark Donohoe MD published in the America Journal of Forensic Medicine and Pathology (2003) 24:239-242; *"Fatal Paediatric Head Injuries Caused By Short-Distance Falls"* by John Plunkett MD published in the American Journal of Forensic Medicine and Pathology (2001) 22(1): 1-12; *"Perimacular Retinal Folds From Childhood Head Trauma"* by Lantz, Sinal, Stanton and Weaver published in the British Medical Journal (2004) 328:754-756; *"The Update From the Child Abuse Working Party: Royal College of Ophthalmologists"* by Adams, Ainsworth, Butler *et al* published in Eye (2004) and *"Retinal Findings in Children with Intracranial Haemorrhage"* by Susan Schloff MD *et al* published in Ophthalmology Volume 109 No. 8 (August, 2002).

8. In the course of the proceedings, the Mother, the Father, the uncle and the two aunts appeared and each was examined and cross-examined and, in addition, evidence was given concurrently by Professors Martin and Hilton and Dr. Tait.

9. On 20th August, 2004, Pierce, accompanied by his mother, was conveyed by ambulance from his then home at .....to the Children's Hospital at Westmead where he was admitted, presenting with frontal swelling, bruising and an abrasion to the left side of the face, a subdural haematoma to the right side of the head and bilateral retinal haemorrhages in all layers of the retina. In addition there was suspected fractures of the skull which, despite the skeletal survey undertaken by the child, remain unconfirmed.

10. It appears that Pierce's injuries were sustained while in his parents' bedroom in the .... home which they were sharing with various family members. According to the parents and their witnesses, the people in the home at the time of the injuries were the Mother, the Father, his uncle, Mr M, his aunt, Mrs M, Mr. and Mrs. M's eleven years old daughter, 'Ellen', and the three children Pierce, Larry and Karen. The family say that the injuries were sustained when Pierce fell from the foot of his parents' bed, the only adult then present in the bedroom being the Mother.

11. In her affidavit, Ms. Y alleges that, at about 1pm on 20th August, 2004, she was in the master bedroom folding blankets and/or clothes. She was alone with Pierce, Larry and eleven years old Ellen. The Father had just returned from work and had greeted the Mother and the children and then left the bedroom to inspect a newly-delivered washing machine. Then, according to Ms. Y, while her back was momentarily turned, she heard a loud noise and turned around to find that Pierce, who had been "dancing on the bed," had fallen from the bed over the foot board and had landed on the wooden floor at the end of the bed. The notes of the Child Protection Unit at Westmead of 6th September, 2004 record that the Mother's description of the child falling from the bed "remained consistent during interviews with the CPU" but there is a reference to Ms. Y having told Dr. Yoon Hi Cho on 21st August, 2004 that "Pierce had been pushed off the bed by his sibling." In that connection, the Mother admits having spoken to Dr. Cho while at the hospital but denies having provided that explanation. Dr. Cho was not called for cross-examination and paragraph 9 of her

affidavit of 16th June, 2005 records the Mother having described Pierce as "happily jumping on the bed with his siblings," contrary to her evidence in cross-examination, and being "pushed off the bed by his siblings" when they saw their father enter the room.

12. Despite the recollection of hospital staff and the allegation in her affidavit to the contrary, Ms. Y was adamant in cross-examination that it was blankets and sheets she had been folding and not clothes. She says that, in that regard, both the hospital notes and paragraph 4 of her affidavit are wrong. Furthermore, as she described the event in cross-examination, there were four children on the bed, namely Pierce, Larry, Ellen and Karen although, when she had described the event in her affidavit, she had failed to make any mention of her daughter being present. Intriguingly, Mr. M told Mr. Saidi in cross-examination that, when he first entered the bedroom within moments of hearing a "loud bang," the people he found there were the Mother, Pierce and Ellen Mateo and only later did he amend his answer to include Larry and Karen.

13. Evidently, the door to the bedroom was open and although, from his vantage point in the dining room, Mr. M could see neither the surface of the bed not the Mother working in the room, he could see the foot of the bed and the floor area adjacent to it and his evidence is that, when he heard "a massive bang," he looked up and saw his nephew lying on the floor. At that moment, he told the Court, the Mother was not visible and was out of his line of sight but, although he may be able to say that she was not beside the child, I doubt that he can say that she "was at the other end of the room."

14. In his affidavit, the Father explains Pierce's misfortune in terms of the child "overbalancing and accidentally falling" as a result of "jumping for joy" at the sight of his father but this is not the explanation of the Mother who, in cross-examination, denied that the children were jumping on the bed. She says that they were not particularly excited. Given that the Father had already left the room by the time the child sustained his injuries, his description of Pierce "jumping for joy" can be no more than a guess. Otherwise, it is unclear how Mr. A could have gained the impression that Pierce had fallen off the bed while jumping for joy and the Mother's evidence is that she had not read his affidavit and that the first time she heard his explanation was when she was in the witness box. Indeed, in cross-examination, the Father told Mr. Saidi of Counsel for the Director-General that, in fact, Pierce was not "jumping for joy" but, instead, "just moving around on the bed" and, in his interview with *JIRT*, he did not indicate that the child had appeared particularly excited or doing any jumping. Mr. A says that, after he left the bedroom, he walked towards the garage and saw nothing of his son until he "heard a bang." Mr. M and Mr. A and Ms. T made haste to the bedroom. According to Mr. M's affidavit, he rushed towards Pierce to be beaten there by the Mother who picked up the child to comfort him. She was in panic, yelling out "Help me, help me, do CPR, do CPR." In cross-examination, Mr. M told Mr. Saidi of Counsel that, on his arrival in the bedroom, he asked "What happened?" and that the Mother replied "He fell down from the bed." Such conversation is not alleged by the Mother either in her affidavit or in her evidence before the Court and neither is the conversation alleged in Mr. M's affidavit where he describes a substantially different conversation. While in the bedroom, Ms T never heard anybody ask what had happened and heard no explanation except Ellen's claim that "He fell off the bed." I think it is very doubtful that, while they were in the bedroom, the Mother provided the explanation alleged by Mr. M and his evidence with regard to it is probably a reconstruction based on what various family discussions have suggested to him must have happened.

15. The Father's recollection is that, he "quickly walked" to the bedroom to find the Mother with the child in her arms with Mr. M and Ms. T looking on. Ms. T recalls entering the room, watching the Mother pick up the child from the floor. At that time, he did not ask the Mother what had happened but Ellen told him that the child had fallen down from the bed. In her affidavit, the child's great aunt, Ms T, does not specify the presence of her brother, Mr. M, or the Father in the room but, from the mention of "P" and the reference to Mr. M carrying the child to the dining room, I think she implies it. For her part, the Mother made no mention in her affidavit of Ms. T's presence in the bedroom but I think that nothing may hang on that because the aunt took no direct part at that time in assisting the child.

16. At least as far as their affidavit evidence goes, it seems that everybody in the family accepts that Pierce fell off the end of the bed. At paragraph 8 of his affidavit, Mr. A says that "...what happened to Pierce was an accident... The incident was an accident." The uncle says that "I saw Pierce on the floor immediately after he fell and hit the floor. I say that 'Ms Y' was not near him and did not in any

way shake him so as to cause any injury or harm" and the aunt cites the eleven years old Ellen who told her mother that "Pierce fell off the bed. He tried to grab the end of the bed but fell over the top" or words to that effect.

17. It is clear that, for a time, the child was in danger of death. His mother records that, "immediately after falling to the floor, Pierce cried out and then be came floppy and stiff. His arms twitched, he appeared to be fitting and he also appeared to be having difficulty breathing" and his aunt, Ms T records that "he had gone grey, he was not breathing and his eyes had turned." His father and then his uncle administered CPR and Pierce was then transported by ambulance to the Children's Hospital. Fortunately, he has made a good recovery but his injuries were extremely serious. While at the hospital, the Mother came under a degree of suspicion given the nature of the child's injuries and she was asked if she had ever had dealings with the Department of Community Services. It is clear, I think, that the reference to the Department was intended to include child welfare authorities no matter how entitled and I think that, as a New Zealander newly arrived in Australia, Ms. Y would have well understood the reference to include the New Zealand child welfare authorities. In the event, the Mother denied having had any such involvement whereas that appears not to be the case. While she was living in New Zealand, two or perhaps three complaints were recorded against Ms. Y's regarding her conduct towards her son David. On one occasion, she had smacked David although, she insisted, she had used one hand only and he had reported the incident "because he is spoilt and didn't like being smacked." On the other occasion, she told the Court, while trying, unsuccessfully, to smack the boy, she had inadvertently scratched his face. Further, she admitted in cross-examination that, because he had written on a wall, she smacked David with a wooden spoon but it was not clear whether that was a third incident or merely a more detailed description of the first incident.

18. At any event, as a result of those incidents, David was removed from her care and passed into the care of his father and, in that connection, she had been visited and interviewed by a New Zealand welfare officer and a solicitor appointed to represent her son. It seems to me that the Mother was very reluctant to provide that information to the Court and, when asked about the matter at the hospital, preferred simply to deny any dealings with child welfare authorities in New Zealand. I reject her explanation for her reticence at Westmead, namely that she was never very clear about what had happened in New Zealand because she was seven months pregnant at the time and because "it was never explained to me thoroughly" and I think the reality is that, when the question was put to her at Westmead, she preferred to lie rather than answer truthfully. I suppose she was embarrassed but, given what had happened to Pierce, she must have known how important the matter was and her willingness to lie in these circumstances is a real concern.

19. According to Ms T, the child's eleven years old aunt, Ellen, who was in the room when the child sustained his injuries, reported that "Pierce fell off the bed. He tried to grab the end of the bed but fell over the top" and it is clear that she has offered this explanation to a number of people including her father, Mr M, on a number of occasions although, naturally enough given her age, not to the Court. Her mother told me that Ellen is a very intelligent child and, clearly, I must take her version of events into account in reaching my conclusions as to what happened to Pierce and how it happened. Although the Mother's evidence is that "Ellen blames herself," there is really no reason to think that Ellen played any part in the harm which befell the child.

20. It appears that, at the critical time, Ellen was in the master bedroom of the home with the Mother and at least two of the three 'A' children but whether she actually saw what passed there is unclear. It is clear though that Ellen has been present at and, perhaps, sometimes a party to conversations among adult members of the family as to what happened to Pierce. The Mother's evidence is that she has discussed the events of 20th August, 2004 with other family members, including, she says, the Father and certainly with Ellen and Ms T, on many occasions and Mr. M and Ellen discussed it after Pierce had been taken off by ambulance. Mr. M's evidence is that, when he and Ellen had their discussion after Pierce's departure for hospital, Ellen was not able to explain to him how the child had come to fall from the bed and was not able to expand on her explanation, first given to him when he entered the bedroom, that he "fell off the bed. He tried to grab the end of the bed but fell over the top." By contrast, the recollection of Ms T is that, in the bedroom, Ellen had confined her remarks to " he fell off the bed" and that it was only later during a family discussion that she gave further details by explaining that "he tried to grab the end of the bed but fell over." Some days later, after Pierce had been discharged from hospital, the Mother told the aunt that Pierce "had tried to grab the foot of the bed and had gone over it" although, to Ms. T's recollection, Ms. Y did not say that she had actually

seen the incident. According to the aunt, Mrs M, she and the Mother had a discussion on or about 22nd August, 2004 at which Ellen may have been present when Ms. Y told Mrs. M that "I heard the noise but I didn't see what happened. I turned around and the child was on the floor." I am unable to exclude the possibility that, in forming her conclusions as to what happened, Ellen is reconstructing what she thinks must have happened, as I think the Father did in paragraph 8 of his affidavit, and/or is influenced in her perception of what happened by what she has heard in discussions between her parents, uncle and aunts.

21. In connection with the degree to which the causes of Pierce's misfortune have been the subject of conversation and discussion within the family, the Father's evidence is quite perplexing. He says that he had discussions with his uncle and aunt but, surprisingly, he told the Court that, prior to executing his affidavit on 11th November, 2004, he never once spoke with the Mother about how Pierce had been injured and, although his son had almost died and he was aware that child welfare authorities were expressing anxiety as to the cause of Pierce's injuries, never once asked the Mother what had happened or how it had happened. Instead, he told Mr. Saidi of Counsel for the Director-General, he "probably assumed" that the child had fallen off the bed. When asked by Mr. Parkinson how he came to know what happened in the bedroom, he answered, "I don't, actually."

22. On the 19th August, 2004, the day before Pierce sustained his major injuries, he was involved in a fall from his walker. At the time, it appeared to be a minor matter. Evidently, he "tilted" out of the walker when he was negotiating a step and the walker tipped over. According to the Mother, who did not witness the incident, Pierce sustained some bruising to the left side of his face and a graze above his left eyebrow. His aunt saw no swelling and no cut but a small red mark on the right temple. Certainly he cried but there appeared to be no continuing difficulty and no need of medical attention and a doctor was not consulted. Evidently there were none of the floppiness, breathing difficulty, rolling back of eyes, loss of colour and the like which were observed on the following day and, had it not been for the events of 20th August, 2004, the incident would probably have passed without further comment.

23. There is a wide measure of agreement between the medical experts who examined Pierce and/or were consulted as to his injuries. The only debate about the extent of his injuries relates to the possibility of skull fractures. Dr. Kristina Prelog, radiologist of The Children's Hospital at Westmead reported in her radiological interpretations of the CT head scan which Pierce underwent on 20th August, 2004 and his skull x-ray of 27th August, 2004 that no skull fracture was positively identified but two abnormalities were observed which, she thought, **may** represent tiny fractures. In his report, Associate Professor Roger Uren of the Department of Nuclear Medicine at the University of Sydney was unable to rule out the possibility of tiny skull fractures having occurred at any time *"over the previous month or two"* but declined to make a positive finding in that regard. Dr. Mark A. J. Dexter whose report of 14th September, 2004 is before the court is a neurological surgeon who, in the event, was not required to examine Pierce because no neurological intervention was considered necessary. He made no comment about the child's retinal haemorrhages but expressed the opinion that the child's subdural haematoma is *"quite consistent with a fall from one metre onto floor boards."*

24. Professor Martin, who is an extremely highly qualified ophthalmologist, examined Pierce in the Eye Clinic on 26th August, 2004. In his affidavit of 16th September, 2004, he indicated that *"ophthalmoscopy revealed bilateral widespread retinal haemorrhages... ...subretinal, intraretinal and preretinal."* Although unable to determine the timing of the injury, he declared that *"the clinical findings are consistent with non-accidental injury"* and he expressed the view that either falling from a height of one metre or falling whilst sitting in a baby walker *"would be extremely unlikely to cause retinal haemorrhages"* and he thought that *"the most likely cause for 'Pierce's' retinal haemorrhages is non-accidental injury."*

25. In Professor Hilton's view, *"the link between child shaking, irrespective of the degree of vigour, and retinal haemorrhage is hypothetical. In the presence of demonstrated impact injury, the linking of subdural haemorrhage plus retinal haemorrhage with an other possible mechanism (shaking) is unsafe."* Professor Hilton is particularly critical of mainly overseas research which linked retinal haemorrhage with so called "shaken baby syndrome" and erected the former as a diagnostic marker for the latter. He placed a great deal of significance on the findings of Lantz and Donohoe to

demonstrate proven instances where retinal haemorrhage in infants was quite unconnected with "shaken baby" and he complained that the research upon which the conventional hypothesis had been based was flawed and unreliable.

26. Professor Hilton is able to rely in his discontent about the rigour of earlier research upon the editorial opinion published in the British Medical Journal of Saturday, 27th March, 2004 which opined that *"Having reviewed the evidence base for the belief that perimacular folds with retinal haemorrhages are diagnostic of shaking, Lantz et al were able to find only two flawed case control studies, much of the published work displaying 'an absence of ...precise and reproducible case definition, and interpretations or conclusions that overstep the data.' Their conclusions are remarkably similar to those of Donohoe, who found that 'the evidence for shaken baby syndrome appears analogous to an inverted pyramid, with a very small data base (most of it poor quality, original research, retrospective in nature and without appropriate control groups) spreading to a broad body of somewhat divergent opinions.' His work entailed searching the literature, using the term 'shaken baby syndrome' and then assessing the methods of the articles retrieved, using the tools of evidence based inquiry. Reviewing the studies achieving the highest quality of evidence rating scores, Donohoe found that 'there was inadequate scientific evidence to come to a firm conclusion on most aspects of causation, diagnosis, treatment, or any other matters,' and identified 'serious data gaps, flaws of logic, inconsistency of case definition."*

27. In response, Professor Martin wrote to Mr. Cattanach, the Director-General's case work manager, on 10th February, 2005 to reaffirm his opinion that Pierce was a victim of "Shaken Baby Syndrome."

28. Other than that, Pierce's injuries were as I have described them and the controversy surrounding them relates not to their character but to their cause. An experts' meeting, chaired by Ms. Giacomo took place at the Child Protection Unit of Westmead Children's Hospital on 12th April, 2005. Dr. Kristina Prelog, Professor John Hilton and Professor Roger Uren were present along with Ms. Warne representing the *JIRT*, Marion Emerson of the Department of Community Services and the Mother's solicitor, Mr. Parkinson. Dr. (now Professor) Frank Martin and, briefly, Dr. Mark A.J. Dexter precipitated by telephone. Ms. Giacomo very ably prepared the Summary of Experts' Meeting which was available to the Court. The meeting produced agreement between the experts on eleven matters. They are as follows:-

> [1] That Pierce had presented at hospital with (a) a small acute subdural haematoma on the right, (b) bilateral retinal haemorrhages, (c) facial bruising to the left cheek, (d) a graze to the left forehead and (e) swelling to the left forehead. The experts could not be certain that the child had presented with a skull fracture;
>
> [2] That, as much as possible, any organic reasons for the child's injuries were fully investigated and ruled out;
>
> [3] That the injuries as observed on the bone scan could have been caused as the result of a fall of less than one metre;
>
> [4] That the subdural haematoma could have been caused as the result of a fall of less than one metre or as a result of shaking;
>
> [5] That the injuries could be as a result of an accident or could be as the result of non-accident and that the injuries could have been caused by impact or may no t have been caused by impact;
>
> [6] That retinal haemorrhages are very unlikely to be caused from a fall of less than one metre, very unlikely to have been caused from a fall from a baby walker and are consistent with non-accidental injury;
>
> [7] That shaking is not the only possible cause for the injuries but that another cause would be unusual;

[8] That retinal haemorrhages are not diagnostic of non-accidental trauma but that it would be unusual for retinal haemorrhages to be caused accidentally;

[9] That retinal haemorrhages can occur other than through shaking but this is unusual;

[10] That it is not shaking alone, of an otherwise healthy child, which causes retinal haemorrhages and subdural haematomas but it would be unusual for such injuries to occur without shaking; and

[11] That a short distance fall could cause any of the injuries seen in the child but this would be unusual.

29. When Professor Hilton reviewed the Summary document, he demurred from the proposition *"that causes for this child's constellation of injuries not being due to shaking would be unusual"* but added that *"I am not denying the possibility that oscillating movements of the head cannot (sic) produce internal injury – that much has been amply demonstrated by experimental work."* Professor Hilton wrote to Ms. Giacomo on 18th. April, 2005 to say that *"I believe we agreed that the only prospective study available to us indicated that retinal haemorrhage in infants and young children may be unusual as a result of impacts from low level falls Likewise, the concurrence of retinal haemorrhage and subdural haematomas in young infants may be unusual without shaking or impact or both (the scientifically hard evidence just does not exist – or if of does exist it hasn't been published to my knowledge)."*

30. The dilemma posed by the expert evidence of Professors Martin and Hilton is this, that although it must be acknowledged that Lantz has demonstrated that features previously thought to be diagnostic of Shaken Baby Syndrome – principally retinal haemorrhage – can be achieved by accidental injury such as falling, can it be said that there is a likelihood or even a high likelihood that, particularly when accompanied by subdural haematoma, retinal haemorrhages as observed in Pierce point to non-accidental injury?

31. In order to best resolve this dilemma, the Court took evidence from Professors Martin and Hilton and from Dr. Paul Tait concurrently. That is to say, those three experts were sworn and entered the witness box together. Each had been provided with a copy of the document prepared by Ms. Giacomo entitled "Summary of Experts' Meeting" to which I have already referred and, of course, each was familiar with the terms of his own and his fellows' affidavits.

32. Once in the witness box, each of the participating experts was invited to amplify his own position and comment on the positions of the others. In order to promote an orderly conversation, the participants used a roving microphone which they handed from one to the other according to whoever was addressing the Court. It would be an exaggeration to say that cross-examination in the ordinary sense took place. The discussion among the participating experts was facilitated by questions from the bench but I took great care not to lead the witnesses but rather to allow and encourage a free discussion between them. Questions were invited from Mr. Saidi of Counsel, Messrs. Pappas and Parkinson and Ms. Giacomo both during the process and at its conclusion, particularly on such aspects of the witnesses' medical opinions as remained in issue and were of special interest to them. Each participating expert was invited to respond to and to comment upon his fellows' opinions and, in this fashion, a conversation ensured.

33. Professor Martin opened by describing the complex structure of the retina which is made up of a number of horizontal layers. He readily accepted that retinal haemorrhage may accompany accidental trauma such as is caused by a severe fall – a concession upon which Professor Hilton would certainly have insisted - but said that not even a fall of up to three stories would be likely to produce other than superficial haemorrhages of the retina, that is to say haemorrhages in only one or, at most, a few layers of the retina. Professor Martin told the Court that multi-layered and wide spread retinal haemorrhage such as he had observed in Pierce is generally to be found only in Shaken Baby cases and that the same would be "most unusual" to occur as a result of a fall or, for that matter, a blow. Furthermore, he thought that the combination of two clinical features, namely retinal haemorrhage and subdural haematoma merely amplified the likelihood of Shaken Baby Syndrome which is his preferred explanation of Pierce's injuries.

34. Professor Hilton told the Court that he defers to Professor Martin's clinical expertise in the area of clinical ophthalmology but he pointed to the well documented case, cited by Lantz, where features previously seen as diagnostic of Shaken Baby Syndrome were observed on a child whose head had been struck by a falling television receiver. Professor Hilton sees that case as demonstrating flaws in earlier research and a great deal of medical reasoning which had so firmly pointed to so called Shaken Baby Syndrome as the only known cause of retinal haemorrhage.

35. Dr. Tait agreed that there had been reports of retinal haemorrhage in children apparently occasioned by a fall or a fit and he was prepared to concede, as Professor Hilton persuaded me that he must, that there is a very limited understanding of precisely how and why retinal haemorrhage occurs in infants and, in particular, how a force through the neck causing oscillation of the head can cause injury to the eye. Thus he, too, urged caution in determining the cause of this class of injury.

36. Professor Martin, too, conceded that, in medicine, nothing is 100% certain and that "anything is possible" but he maintained that it is "most unlikely" that the retinal haemorrhages observed in Pierce would have been caused by a fall, even a fall of one to two metres as suggested by his parents. In response to Professor Hilton, Professor Martin told the Court that the case described by Lantz has been a timely warning to the medical profession to be more cautious in explaining retinal haemorrhage in infants and in the diagnosis of Shaken Baby Syndrome and he was happy to concede that Pierce's other major injury, namely subdural haematoma, could perhaps as easily have been caused by a fall as by shaking and Dr. Tait appeared ready to agree with that view. But it was the combination of those two major injuries, retinal haemorrhage and subdural haematoma, and the wide spread and multi layered nature of the retinal damage which, in Professor Martin's mind, most eloquently argues for shaking rather than any accidental cause.

37. Professor Hilton harked back to the bruising to Pierce's forehead and to his cheek and to the absence of finger tip bruising to the child's flanks which, although not seen in the literature as absolutely essential, he and Dr. Tait would have expected to have seen. He noted that Lantz had described a more severe eye injury than Pierce had sustained but Professor Martin's response was that the Lantz eye injury and Pierce's eye injury were hardly comparable.

38. According to Professor Martin, the theory linking retinal haemorrhage with Shaken Baby Syndrome is that the injury occurs where there is rotational movement rather than lateral movement of the head. He was unable to tell the degree of force which might have been necessary to effect Pierce's retinal haemorrhages and he and Dr. Tait observed that the uncertainty which surrounds this matter arises in significant part from the unavailability of controlled trials. The working party of the Royal College of Ophthalmologists may have cast light on this theory thus, *"the vessels involved in subdural bleeding are less tightly bound and therefore less vulnerable to direct impact but susceptible to tearing when exposed to complex rotational forces (such as those which might occur when the head is free to rotate around the axis of the neck."* Professor Hilton told the Court that the research in the area of so called Shaken Baby Syndrome is fundamentally flawed and it seems to me that it is really what he sees as the poor quality of that research which informs his position in this case. Professor Hilton's view of the nature of the research here recalls the analogy, provided in one of the learned writings tendered to the Court, of the inverted pyramid – a vast bulk resting precariously on a single point buried standing in sand. He recalled that the supposed link between retinal haemorrhage and Shaken Baby Syndrome commenced in the 1950s when a constellation of retinal haemorrhage and subdural haematoma was first described – by a radiologist – as the result of shaking. In Professor Hilton's opinion, the original linking was never much more than a guess and has never really advanced beyond that stage. According to Professor Hilton, the only modern opportunity to confirm the speculation that rotational forces produced by shaking lead to retinal haemorrhages where lateral forces would fail to do so occurred in animal experiments in the United States which were discontinued for ethical reasons before producing any reliable results.

39. So, Professor Hilton said, the speculation remains just that – mere guess work and too unreliable to allow anybody to ascribe a cause to Pierce's injuries except to say that Shaken Baby Syndrome has not been excluded. Dr. Tait explained to the Court that, in the absence of trials, there have been few and only unreliable factors available to be used as control mechanisms and no diagnostic test which can be applied to prove beyond reasonable doubt that, in a particular case, particular injuries have been caused by shaking. It is in those circumstances that Professor Hilton rejects the proposition asserted by the American Academy of Ophthalmologists that severe retinal haemorrhages

is a marker of Shaken Baby Syndrome and asks, rhetorically, on what bases the Academy makes that assertion. For his part, Professor Martin would cleave to the view, supported by Schloff and Ors in their learned article before the Court and, to a degree, by the working party of the Royal College of Ophthalmologists.

40. The conclusions of Schloff's research are that *"retinal haemorrhage is uncommon in children with intracranial haemorrhage not resulting from Shaken Baby syndrome. The maximal incidence of intraretinal haemorrhage in children with non-abusive intracranial haemorrhage is 8%."*

41. Meanwhile, the R.C.O. working party has observed that *"It seems clear that minor falls can only exceptionally give rise to subdural and retinal bleeding. In these cases it may well be that the biomechanics of the impact induce the rotational forces necessary to produce the picture considered typical of Shaken Baby Syndrome. Abusive shaking (with or without impact) is the most likely cause of subdural haemorrhage and retinal haemorrhage in children. Rarely, accidental trauma may give rise to a similar picture. In a child with retinal haemorrhages who has not sustained a high velocity injury and in which other recommended causes of such haemorrhages have been excluded, child abuse is much the most likely explanation. A careful search for other evidence of non-accidental injury is mandatory."*

42. The purpose of taking evidence from Professors Martin and Hilton and Dr. Tait concurrently was to allow the Court more conveniently to consider the competing expert views as to the likely origin of Pierce's injuries, to allow each expert to engage in an open forum more conveniently to explain and amplify his own position and comment on the views of his fellows and to save time. As a result of the affidavits of the participating experts having been filed and served prior to the experts meeting, their participation in that meeting and the areas of their agreements and disagreements as formalised in the Summary of Experts Meeting prepared by Ms. Giacomo, the Court, the witnesses and the parties were well aware of the issues to be canvassed before the participating witnesses entered the witness box.

43. The consent of the parties to the taking of evidence concurrently was not sought and the Court relied instead on the provisions of section 93 and, in particular, section 93(3) which frees the Children's Court from the constraints which would otherwise be imposed upon it by the Evidence Act. Nevertheless, none of the parties made a specific objection to the procedure. Obviously, it was necessary to secure the co-operation of Professors Martin and Hilton and Dr. Tait and to ensure that each was warned in advance of the procedure to be followed and, in the event, each participated willingly and, I think, with candour and enthusiasm.

44. The procedure involved questions from the bench designed neither to lead nor to challenge the individual expert but, rather, to facilitate the discussion, re-focus it where necessary, allow each participating expert to amplify his position as disclosed in his own affidavit and in the Summary of Experts Meeting and encourage each expert to consider and comment upon the positions of his fellows. Those questions were designed to be "benign in the extreme... ... with no hint of cross-examination."

45. I sought to follow the requirements and observe the restraint described by the Court of Appeal in ***Botany Bay City Council v. Rethmann Australia Environmental Services Pty. Limited*** [2004] NSWCA 414 and in ***Galea v. Galea*** [1990] 19 NSWLR 263 at 281.

46. Great care was taken to ensure that each expert had ample opportunity fully to express his views and opinions and, although it fell short of cross-examination in the ordinary sense, counsel were invited to participate by exploring, amplifying and, where appropriate, questioning the evidence. Obviously the procedure depends upon the availability and participation of witnesses with an expert view on the areas in dispute as was the case with Professors Martin and Hilton and Dr. Tait and, unless they have already provided their evidence in chief in the form of affidavits or, at least, reports and unless at least the majority of them have already conferred amongst themselves so that a summary of the issues agreed and the issues in dispute can be made available to all concerned, the procedure is unlikely to be helpful but, in this case, the positions of each of the participating experts were well know to each other, to the parties and to the Court.

47. In shaping the procedure, the Court was guided by and, *mutatis mutandis*, adopted the directions provided on 19th April, 2004 by Talbot J. in the Land and Environment Court of New South Wales in ***Walker Corporation Pty. Limited v. Sydney Harbour Foreshore Authority,*** [2004] NSWLEC 170.

48. It is very significant, it seems to me, that alone of the experts participating in the concurrent evidence procedure, Professor Martin is a practicing ophthalmologist who had the opportunity of examining Pierce. As Professor Hilton was quick to point out, Professor Martin "has the clinical expertise of the specialist ophthalmologist." Professor Hilton, on the other hand, is an extremely eminent forensic pathologist with a highly developed and, with respect, well justified scepticism about the theory, now discredited, that retinal haemorrhage in an infant is irrebuttable evidence of non-accidental injury. But it seems to me that their exchanges during the concurrent evidence procedure indicate that Professor Martin is no "absolutist" in this regard and that their respective positions on this topic are really a good deal closer than was at first apparent. I think they are dealing in likelihoods and degrees of likelihood and neither is dealing in certainties.

49. In addition to the eleven points upon which agreement was reached at the experts meeting on 12th April, 2005, I have come to the conclusion, having heard the concurrent evidence that:-

> [12] Neither the presence of retinal haemorrhages alone nor such haemorrhages when accompanied by subdural haematoma is diagnostic of non-accidental injury (shaken baby) and accidental injury cannot be excluded as the origin of Pierce's injuries;
>
> [13] Retinal haemorrhages of the character of those observed in Pierce, particularly when accompanied by subdural haematoma, even in the absence of finger- tip bruising, are significantly more likely to have their origin in Shaken Baby Syndrome than otherwise.

50. Now it seems to me that the evidence of the Mother and other family members was far from clear and unambiguous. There is the suggestion that the Mother, whose evidence is that the child fell while "dancing on the bed," told Dr. Yoon Hi Cho at Westmead that "Pierce had been pushed off the bed by his sibling." There is the contrast between the Mother's evidence in cross-examination that there were four children on the bed, namely Pierce, Larry, Ellen and Karen, and her evidence in her affidavit where Karen's presence was not mentioned.

51. There is the Father's evidence about his son "jumping for joy" which was contradicted by the Mother in cross-examination when she denied that the children had been jumping on the bed and said that they had not appeared particularly excited by the appearance of the Father. There is the unanswered question of how the Father, who had not been present in the bedroom at the time Pierce sustained his injuries, gained his impression of what had happened.

52. There is doubt, it seems to me, as to when the Mother first enunciated her explanation that the child had fallen from the bed, Mr. M, in cross-examination, giving a version not provided in his own affidavit or in the Mother's.

53. Significantly there is the Mother's failure at the hospital to be frank and candid about her previous dealings with child protection authorities and her disingenuous evidence about not having understood the questions which were put to her at Westmead and of not having appreciated that the officials who had visited her in New Zealand in connection with her son David were child protection workers. There is her grudging and unsatisfactory evidence about her treatment of David particularly in the area of physical chastisement.

54. Finally, there is the peculiar evidence of the Father that, prior to executing his affidavit on 11th November, 2004, he and the Mother never once spoke about the origin of Pierce's injuries and his willingness to "probably assume" that his son had fallen from the bed.

55. Taking those matters into account, I am unable to rely with comfort on the Mother's explanation of Pierce's injuries which I must and do regard as not having been properly explained by Ms. Y and the family. Then, having regard to the medical evidence, I conclude that it is more likely than not that Pierce's injuries are non-accidental and that they were inflicted upon him by shaking.

56. In ***Lancashire County Council and Anor. v. Barlow and Anor.*** [2000] UKHL 16, the House of Lords dealt with a case where a seven months old child had sustained serious non-accidental head injuries but it could not be established with certainty whether a parent or another person had inflicted those injuries.

57. Section 31(2)(b)(i) of the Children Act, 1989 [UK] speaks of *"harm likely to be suffered ... ...and attributable to ... ...the care given to the child or likely to be given to him... ...not being what it would be reasonable to expect a parent to give him..."* The issue arose whether, in determining whether a child is *"likely to suffer significant harm" and whether such harm "is attributable to... ...the care given to the child or likely to be given to him...,"* a nexus must be established between the care or lack of care being given to the child and the parent or other primary carer. The House of Lords determined that *"the phrase 'care given to the child' refers primarily to the care given to the child by a parent or parents or other primary carer."* They held that *"the 'attributable condition' may be satisfied where there is no more than a possibility that the parents were responsible for inflicting the injuries which the child has undoubtedly suffered....."* Lord Nicholls of Birkenhead went on to say that *"I appreciate that in such circumstances where the Court proceeds to the next stage and considers whether to exercise its discretionary power to make a care order or a supervision order, the judge may be faced with a particularly difficult problem. The judge will not know which individual was responsible for inflicting the injuries. The child may suffer harm if left in a situation of risk with his parents. The child may also suffer harm if removed from parental care where, if the truth were known, the parents present no risk. Above all, I recognize that this interpretation of the attributable condition means that parents who may be wholly innocent, and whose care may not have fallen below the standard of a reasonable parent, will face the possibility of losing their child, with all the pain and distress this involves. That is a possibility once the threshold conditions are satisfied, although by no means a certainty. It by no means follows that because the threshold conditions are satisfied the court will go on to make a care order. And it goes without saying that when considering how to exercise their discretionary powers in this type of case judges will keep firmly in mind that the parents have not been shown to be responsible for the child's injuries."*

58. In ***Ella v. George*** (unreported, 10th . June, 1988) Loveday J. in the Common Law Division of the Supreme Court of New South Wales, when dealing with a stated case arising out of care proceedings brought under the Child Welfare Act, 1939, asked the question *whether it is necessary to establish a nexus between the child's injuries, that is the ill treatment, and the conduct of the child's guardian before making a finding that a child is a neglected child within the meaning of section 72(d).* This was a case in which the trial Magistrate had found as a fact that the child had been ill treated, that the causes of his injuries were unexplained, that the most serious of the injuries had probably been caused when the child was in the care of a baby sitter and that, in the Magistrate's finding, "there was no evidence to sheet home on the balance of probabilities any blame to the mother in the causation of the injuries."

59. Loveday J. answered his own question by finding that *"if a child is ill treated then the sheeting home of blame for the ill treatment is important only in so far as it is relevant in determining what should be done to protect the child."* His Honour went *on "I see no reason to place a gloss on the interpretation of 'ill treated' so that it reads 'ill treated by the parent or guardian of the child' or 'ill treated in circumstances for which the parent or guardian is responsible.' In my view it is only necessary for the complainant to show that the child is 'ill treated' for a finding to be made that the child is a 'neglected child.' A nexus between the child's injuries and the conduct of the child's guardian is unnecessary.*

60. Considering the terms of section 71 (1)(c) of the Children and Young Persons (Care and Protection) Act, 1998 [NSW], it does not appear to me that there is a distinction relevant to this particular issue to be drawn between that provision on the one hand and the terms of section 72(d) of the Child Welfare Act, 1939 [NSW] and of section 31(2)(b)(i) of the Children Act, 1989. Accordingly, though some doubt may remain as to the origin of Pierce's injuries, I am satisfied on the balance of probabilities that he is need of care and protection. I will make directions so that placement proceedings may be heard and determined without delay.