NOTE: PURSUANT TO S 437A OF THE CHILDREN, YOUNG PERSONS, AND THEIR FAMILIES ACT 1989, ANY REPORT OF THIS PROCEEDING MUST COMPLY WITH SS 11B TO 11D OF THE FAMILY COURTS ACT 1980. FOR FURTHER INFORMATION, PLEASE SEE HTTP://WWW.JUSTICE.GOVT.NZ/COURTS/FAMILY-COURT/LEGISLATION/RESTRICTIONS-ON-PUBLICATIONS.

IN THE HIGH COURT OF NEW ZEALAND
DUNEDIN REGISTRY

CIV-2012-412-000052
[2013] NZHC 2109

BETWEEN	Q and L Appellants
AND	CHIEF EXECUTIVE OF THE MINISTRY OF SOCIAL DEVELOPMENT Respondent

Hearing: 15, 16 and 17 July 2013

Appearances: N Levy and P Walker for Appellants
R P Bates for Respondent
L C Harrison as Lawyer for the Child

Judgment: 20 August 2013

JUDGMENT OF PANCKHURST J

A The care and protection declaration is discharged.

B The custody and additional guardianship orders in favour of the Respondent are discharged.

C The additional guardianship order in favour of JH and the access orders in favour of Q and L are discharged.

D Costs are reserved.

E Leave is reserved to revert to this Court in relation to any issues arising.

Index

A care and protection declaration

[1] Following a lengthy hearing in the Family Court, Judge Coyle on 15 December 2011 made a care and protection declaration in relation to a child, C, then aged eight months. C, a girl, was placed in the custody of the Chief Executive Officer of the Ministry of Social Development. A guardianship order, however, was subsequently made in favour of a paternal aunt, with whom C has since resided. Her parents have moved to the North Island to be near their daughter and to enable them to exercise regular supervised access to her.

[2] The Judge was satisfied that numerous fractures discovered when C was admitted to hospital in July 2011 were non-accidental injuries (NAIs). This pivotal conclusion was reached in light of expert medical evidence given at the Family Court hearing. The Judge felt compelled to the inescapable conclusion that C's injuries must have been caused by L or Q, albeit there was no evidence to suggest either of them were other than caring parents.[1]

[3] The parents do not accept this finding. They remain adamant that their daughter was not deliberately harmed in any way by them. Her injuries they attribute to vitamin D deficiency rickets which was only diagnosed after C's admission to hospital in July 2011.

[4] There are two aspects to the appeal. First, the approach adopted by, and reasoning of, Judge Coyle is challenged in a number of respects. Second, the parents obtained leave to adduce further evidence on appeal. Accordingly, I need to consider both the extensive evidence given and materials produced in the Family Court, as well as the new evidence given and additional materials relied upon on appeal.

A high level overview

[5] C was born on 6 April 2011. It was a normal spontaneous vaginal birth at 39 weeks gestation. L, then aged 27 years, took maternity leave from her job as a social worker. She remained on leave until C was removed from her parent's care on

---

1 *Ministry of Social Development v LH and QH*, FC Dunedin 2011-012-00573, 15 December 2011, at [101].

15 July 2011. The father, Q, was aged 28 years when C was born and worked as a landscape gardener. He too had a short period off work following C's birth.

[6] C's first months of life were unremarkable. She was seen by a range of health professionals and had no significant health problems until the weekend of 9-10 July 2011. Those days she was off colour, vomited and began twitching. Her parents phoned Healthline and were advised to consult the family general practitioner on Monday, if C had not improved. The mother did so, and the doctor upon finding abdominal discomfort suspected a bowel obstruction and arranged a paediatric admission to Dunedin Hospital.

[7] While being examined on her arrival at the hospital C had a seizure which induced abnormal movement of one arm and a leg. Magnetic resonance imaging (an MRI) undertaken the next day revealed the existence of a subdural haematoma, and a skeletal survey on 13 July revealed a number of fractures of the ribs, limbs and skull.

[8] On Friday 15 July 2011 the Ministry applied, without notice to the parents, for an interim custody order pending determination of a substantive care and protection application. This was granted.

[9] On 18 July 2011 blood was taken from C for screening in relation to possible vitamin D deficiency rickets. The test results showed a severe vitamin D deficiency. A few days later, on 22 July 2013, a diagnosis of rickets was confirmed.

[10] An early substantive hearing was arranged in the Family Court. It commenced on 29 November 2011 and concluded eight days later on 8 December 2011. Fifteen witnesses were cross-examined in relation to their affidavit evidence. There was conflicting medical evidence. The witnesses included paediatricians, paediatric radiologists, and a neurosurgeon; the family doctor, midwife, and Plunket nurse; and both parents and the maternal grandmother. There was extensive cross-examination of most witnesses.

[11] Commendably, the Judge assessed the volume of evidence and material with which he was confronted and delivered a judgment a week later, on

15 December 2011. This was a closely reasoned decision. Judge Coyle described the decision as "incredibly difficult".[2] He made a number of key findings, including:

- the initial conclusion that C's injuries were non-accidental was reached with unseemly haste and prior to the diagnosis that she suffered from vitamin D deficiency rickets.[3]

- the paediatrician who provided the evidence relied upon to obtain the initial custody order on 15 July 2011 portrayed both arrogance and a lack of empathy when giving evidence, which the Judge found disturbing. The initial assessment by this witness that C's injuries were life threatening was clearly an exaggeration, yet it comprised the catalyst for the without notice interim custody order.[4]

- the parents came from loving and supportive family backgrounds, had strong social networks, and were both intelligent, articulate young people; and there was nothing in their presentation to indicate that they presented a risk to C.[5]

- the Ministry's endeavours during the course of the hearing to accentuate a low level anxiety disorder as maternal depression, a risk factor for child abuse, was irresponsible given that L took medication for the disorder and while taking medication the symptoms disappeared.[6]

- the body fractures suffered by C, who was not mobile and did not have radiologically significant rickets, were most likely the result of non-accidental injury.[7]

---

2 At [105].
3 At [103].
4 At [103].
5 At [98].
6 At [97].
7 At [82].

- the skull fracture suffered by C occurred after birth as a result of significant force; and must have been a NAI since there was no other available explanation.[8]

- the absence of any particular signs of distress, and of bruising, swelling and tenderness was not inconsistent with NAIs, since the medical professionals considered that C's injuries may have made her no more than a little tired, irritable and off her food.[9]

- the expert medical evidence compelled the Judge to the inescapable conclusion that C's injuries were non-accidental and that they must have been caused by her parents because no-one else had the opportunity to do so.[10]

Accordingly, there was no option but to make a care and protection declaration.

[12] Final disposition of the case resulted in the further orders that C be placed in the day to day care of a paternal aunt in the North Island pursuant to an additional guardianship order, and that the parents have ongoing supervised access to their daughter. This has occurred. The mother moved to the North Island town with her daughter. The father remained to sell the family home, before he too moved to the North Island.

The required approach

The guiding principles under the Act

[13] The declaration was made under the Children Young Persons and Their Families Act 1989. Section 6 provides that in applying the Act the welfare and interests of the child shall be the first and paramount consideration having regard to the principles in s 13. Part 2 of the Act governs care and protection proceedings and commences with a statement of principles in s 13. The principles are aspirational and include the protection of children from harm; recognition that a child's family

8 At [93].
9 At [95] – [96].
10 At [101].

has the primary care and protection role, so that the removal of a child is only appropriate if a serious risk of harm exists; but, where removal is necessary, the provision of living arrangements which preserve contact with the family and maintain the child's cultural identity are to be preferred.

[14] Section 14 defines the circumstances in which a child is in need of care or protection. In this case subs (1)(a) was relied upon, namely:

> A child or young person is in need of care or protection within the meaning of this Part if-
>
> (a) The child or young person is being, or is likely to be, harmed (whether physically or emotionally or sexually), ill treated, abused, or seriously deprived;

[15] Section 71 provides that a declaration may be made pursuant to s 14(1)(a) regardless that the perpetrator of treatment cannot be determined. The section was applied in this instance, in that Judge Coyle was satisfied the parents inflicted the NIA albeit he could not determine which parent, or whether it was both. Section 73 provides that the Court is not to make a declaration unless satisfied that the child's need for care and protection cannot be met by other means. Subsection (2) requires the Court to consider whether the evidence demonstrates that the harm will not continue or be repeated, including whether the parents are capable of ensuring as much. Here, the Judge found that the parents' denial of responsibility precluded resort to s 73. That is, care and protection for C was not attainable by other means because the parents remained in denial.

Standard of proof

[16] The standard of proof is the balance of probabilities: s 197. It was common ground that the description of Baroness Hale in *Re B (Care Proceedings: Standard of Proof)* is apposite: [11]

> the standard of proof in finding the facts necessary to establish the threshold under ... the Act is the simple balance of probabilities, neither more nor less. Neither the seriousness of the allegation nor the seriousness of the consequences should make any difference to the standard of proof to be applied in determining the facts. The inherent probabilities are simply

[11] *Re B (Care Proceedings: Standard of Proof)* [2008] NZSC 55, UKHL 35 at [70].

> something to be taken into account, where relevant, in deciding where the truth lies.

An approach of this nature was approved by the New Zealand Supreme Court, although in a different context.[12]

[17] The appeal is pursuant to s 341(2) of the Act. This section imports the High Court Rules and relevant provisions in the District Courts Act 1947, with the result that the appeal is by way of rehearing on the evidence adduced in the Family Court. It follows that I am obliged to make my own assessment of the facts, and if satisfied that the decision is wrong I should intervene. Deference should not be accorded to the decision under appeal, save that it is appropriate to recognise the real advantage enjoyed by Judge Coyle in seeing and hearing the witnesses. It is, however, for the appellants to show that there is good reason to differ from the decision under appeal.[13]

The grounds of appeal

[18] The grounds of appeal advanced on behalf of the appellants were wide ranging. Ms Levy submitted that the judgment under appeal includes errors of fact and law. She argued that reliance was inappropriately placed upon certain parts of the rickets literature. Further, she argued that the Judge erred in relation to the correct approach to conflicting medical evidence and resolving such conflicts. These criticisms were raised in a context where it is said that medical knowledge is incomplete. The disagreements concerning the cause of C's injuries cannot be resolved on a principled and safe basis. Hence, the argument continued, it was not incumbent upon the Judge to make a positive finding as to causation. A finding of unknown cause was appropriate in this instance; and such a conclusion did not represent a medical, or legal, failure.

[19] Further grounds of appeal were based upon the new evidence, and materials, adduced on appeal. Professor Stephen Nussey, a consultant endocrinologist from London, gave expert evidence concerning rickets and, in particular, the uncertainties regarding the relationship between rickets and bone fractures. He expressed the

---

12 *Z v Dental Complaints Assessment Committee* [2009] 1 NZLR 1 (SC) at [97-107].

13 *Austin, Nichols and Co Inc. v Stiching Lodestar* [2008] 2 NZLR 141 (SC).

opinion that the uncertainties of medical understanding of the disease are such that it is unsafe to conclude that C's skeletal injuries must have been the result of significant force over and above normal parental handling. Counsel also placed reliance upon a number of recent decisions in the United Kingdom involving issues broadly similar to the issues in this case. Some of the cases post date Judge Coyle's decision of December 2011.

[20] The approach taken to the evidence concerning the parents, L and Q, was another area which came under scrutiny. Despite the favourable view he formed of them Judge Coyle concluded that the medical evidence was so compelling that the parents' denials could be accorded no weight. This approach was challenged.

[21] To my mind there were three broad themes advanced in support of the appeal:

(a) that the causation finding of NAIs was not compelling, given the uncertainties and limitations in relation to the medical understanding of the relationship between rickets and bone fractures,

(b) additionally, that the new evidence cast doubt upon the reliability of the ultimate conclusion reached in the Family Court, and

(c) that in the circumstances the parents' evidence was a highly significant factor which should have been accorded significant weight.

Generally, I propose to consider the case by reference to these three headings, but as will become apparent some departure from a strict division is unavoidable.

Rickets

[22] C was diagnosed to be suffering from nutritional vitamin D deficiency rickets in July 2011. The term rickets covers a range of bone conditions. Vitamin D deficiency causes soft bones in adults (termed osteomalacia). In children it causes rickets, sometimes known as the "English disease" as it was common when industrial pollution limited sunlight exposure in industrialised areas. Rickets in growing children causes failure of ossification (bone formation) in the growth plate.

This in turn causes delayed growth, limb deformity (bowing) and in some cases fractures. But, rickets is not a manifestation of vitamin D deficiency per se; rather, the disease results from a low blood calcium level.

[23] Calcium is very important in human health. The adult body contains about two kilograms of calcium stored predominantly in the skeleton for mechanical support. If the calcium in body cells changes in concentration, signalling occurs to stimulate calcium production and absorption. The blood concentration of calcium must remain within a narrow range. The concentration is regulated by the action of two hormones, parathyroid hormone and vitamin D. They influence the absorption of calcium from the gut, its storage in bone and its excretion by the kidneys. A low blood calcium concentration is termed hypocalcaemia, a symptom of which is muscle spasms or fits (convulsions).

[24] Parathyroid hormone is produced by glands in the neck. A lack of the hormone leads to hypocalcaemia. Vitamin D occurs naturally in the diet or is made in the skin as the result of the action of sunlight. However, vitamin D is only present in very low concentrations in breast milk and skin pigmentation can also reduce vitamin D production. Therefore vitamin D deficiency is most commonly linked to skin pigmentation, low levels of skin exposure to sun or poor diet.

[25] When vitamin D deficiency is sufficiently severe the parathyroid hormone mobilises calcium stores from bone to the blood. This mobilisation causes a bone enzyme, alkaline phosphatise, to rise.

[26] Importantly, there is a difference between vitamin D deficiency and vitamin D deficiency rickets. In a population vitamin D deficiency may be reasonably commonplace. For example, a recent New Zealand study of umbilical cord blood vitamin D levels revealed that in 929 babies 57 percent had some level of vitamin D deficiency. Rickets, however, is the most severe consequence of vitamin D deficiency and occurs only in a small minority of cases.

[27] The incidence of vitamin D deficiency, and rickets, has risen worldwide in recent years. Two factors seem to be at play. One is the sunsmart health message

and the consequent increased use of sunscreens and shades. The other is a correlation between increased use of total body coverings (burkas) by women and the deficiency. Both hinder the absorption of UV rays required for the skin to synthesise vitamin D.

[28] Blood tests enable the detection of vitamin D deficiency. Two of the relevant measures are the vitamin D level itself, a normal level being 50 nmol/L. C had a level of 5 nmol/L. Another is an ALP (alkaline phosphatase) level, indicative of the mobilisation of calcium from the bones, which is normally between 50 to 500 u/L. C's level ranged between 721 and 746 u/L. Her rickets was therefore severe. Following the diagnosis and treatment with vitamin D supplements, C's ALP level returned to normal within a month.

Was the medical evidence compelling?

The rib and metaphyseal injuries

[29] The scheme of the Family Court judgment was to consider the rib, wrist, knee and ankle fractures together, and then the skull fracture and subdural haematoma, separately. I shall follow suit.

[30] With reference to the rib and limb fractures the Judge concluded: [14]

> The research that is available indicates that in children with radiologically significant rickets, there is a greater propensity to bone fractures, but only in children who are mobile. The one article referring to rib fractures in a three month old was in a child who had radiographically significant rickets. *If I accept the proposition advanced by L and Q, then C is the first child in medical history, who is not mobile, who does not have radiologically significant rickets, and who presents with this number of fractures.* I am unable to accept on the balance of probabilities that C's injuries occurred through a combination of normal parental handling and severe vitamin D deficiency rickets. The research evidence simply does not support that proposition. It is my finding that the evidence establishes on the balance of probabilities that it is more likely that C's rib and metaphyseal fractures occurred as a result of non-accidental injury. (emphasis added)

[31] The sentence in italics was based on the evidence of Dr Ben Wheeler who gave evidence as an expert in paediatric endocrinology. In 2011 he was a member of

---

[14] At [82].

the paediatric team at Dunedin Hospital. Dr Wheeler undertook his PhD research in relation to vitamin D deficiency in pregnancy, lactation and childhood. I note that the highlighted sentence became something of a mantra in the submissions advanced before me on behalf of the Ministry. It was adopted by Mr Bates at both the interlocutory and substantive hearings.

[32] There is of course no doubt that C was not mobile at the relevant time, given she was only 13 weeks when admitted to hospital. But, in my view it is necessary to consider the evidence concerning C's fractures, their causation and the importance of radiologically significant rickets in this context with some care. It was the acceptance of each of these propositions which prompted the conclusion that C suffered NAIs.

The extent of the fractures

[33] Dr Susan Craw, an experienced consultant radiologist at Dunedin Hospital, assumed the lead role in assessing C's fractures. She also gave important evidence at the Family Court.

[34] Dr Craw concluded that C had a total of six rib fractures, two on the right side and four on two ribs on the left side. She also found classic metaphyseal lesions (CMLs) affecting the limbs. A CML is a fracture, or lesion, at the extremity of a child's long bone where growth occurs from the plate of cartilage (epiphyseal cartilage) at the bone end. Dr Craw concluded that there were CMLs at the left wrist, at both lower femora (knees), at both lower tibiae (ankles), at the lower left radius (wrist) and probably at the lower right radius as well. This is a total of five, or perhaps six, CMLs.

[35] However, Dr Russell Metcalfe, a paediatric radiologist at Starship Hospital who reviewed C's case, concluded that there were healing fractures at four sites on the left ribs and a suspicion of a fifth site. On the right ribs he found three fractures, the healing of which was advanced consistent with older injuries. This is a total of seven rib injuries, compared to Dr Craw's six. With reference to the limbs he considered there were CMLs at both lower tibiae (ankles), a slight suspicion of a

CML in the right knee and that the wrists were unremarkable. This is two CMLs, as compared to Dr Craw's five or probably six.

[36] Ms Levy submitted that the differences between the two radiologists were significant and highlighted the extent to which radiology is a subjective and interpretive process where experienced experts can have legitimate differences of opinion. She also argued that it was dangerous to rely upon radiological evidence as an absolute. I note that the Judge referred to a "slight dispute" between Doctors Craw and Metcalfe as to the extent and nature of C's CMLs.[15] Nonetheless he accepted both witnesses in making a finding that C had six rib fractures in total and four fractures to the metaphyseal regions of one wrist, one knee and both ankles. He also found that the limb injuries occurred at least two weeks prior to C's hospital admission and as a result of probably two separate events.

[37] The term 'radiologically significant rickets' is reflective of the fact that rickets is a progressive disease. It is used to describe advanced rickets which is evident upon radiological examination. Dr Craw explained that for rickets to be observable there has to be at least 40 percent demineralisation of bone density, which will result in fraying and cupping of the metaphyseal region of the long bones of children. Both she, and Dr Metcalfe, considered that C did not have radiologically significant rickets.

[38] The parents called evidence from Dr Charles Hyman, a general and forensic paediatrician in California, USA. He provided evidence in relation to several aspects of rickets. Although not a radiologist he considered that there was clear evidence of radiological significant rickets in C's x-rays. He also, I note, disputed that the CMLs were true fractures, as opposed to a manifestation of rickets. At an early point in his decision the Judge rejected the opinion evidence of Dr Hyman. He found him to be an unreliable expert witness, an advocate for a particular crusade and someone who associated with proponents of theories not in keeping with mainstream scientific thought and practice. He also noted that Dr Hyman had not published any peer reviewed papers of relevance to the aspects about which he expressed opinions.

---

15 At [51].

[39] Whilst I think accepting that some aspects of Dr Hyman's evidence were problematic, Ms Levy argued that total rejection of his evidence was "inappropriately absolute". She submitted there was genuine ongoing scientific debate concerning whether bone injuries considered to be classic signs of child abuse could be associated with rickets.

[40] I am not persuaded it is appropriate to rely on the evidence of Dr Hyman. Judge Coyle observed him giving evidence, albeit by video link from the United States. He concluded it was appropriate to place no weight on the evidence for reasons which are set out in some detail. It is, I think, apparent from the record that Dr Hyman's presentation as a witness was unsatisfactory in several respects. It is concerning that although a paediatrician, he did not confine his evidence to that speciality. For example, he ventured into disputing the evidence of paediatric radiologists. I am also conscious of the fact that there is new evidence on appeal which, although it does not replicate that of Dr Hyman, sheds light in relation to at least some of the disputed areas.

The causation evidence and conclusion

[41] Judge Coyle confronted this fundamentally important issue by asking whether C's fractures occurred from a combination of normal parental handling and severe vitamin D deficiency rickets, or as a consequence of non-accidental injury.[16] He was confronted with a plethora of literature relevant to this aspect. Two of the published papers assumed particular importance in relation to the final conclusion. The first was a paper published by Dr Paul Kleinman et al in 1986.[17] At page 904 the authors reached this conclusion:

> ... metaphyseal lesions usually occur with violent shaking as the infant is held by the trunk or extremities. Any theory to explain these lesions must presuppose this form of trauma. The whiplash forces generated by rapid acceleration and deceleration are delivered to the metaphysis in a shearing fashion, and a plane of fracture through the primary spongiosa is developed.

---

16 At [66].

17 PK Kleinman, SC Marks and B Blackbourne *The metaphyseal lesion in abused infants: a radiologic-histopathologic study* (1986) 146 AJR Am J Roentgenol 895.

Dr Kleinman's name is often used in association with the common understanding that the presence of CMLs is a classic indicator of child abuse.

[42] More recently, however, the wisdom of this understanding has been questioned by some, particularly where an injured infant or child suffered from a condition affecting their bones such as rickets. This led to further research, including the publication of an article by Dr Theresa Chapman et al in 2010.[18] The records of 24 children aged up to 24 months who had suffered from rickets were examined and data relating to 40 children formed the basis of the study. While seven children (17.5 percent) had at least one fracture none of the seven were under six months. Further, the seven children who had suffered fractures all exhibited radiologically overt nutritional rickets. No fractures were observed in a case where there was only mild radiographic signs of rickets. This study became the cornerstone for the Judge's conclusions at [82] of his decision (see [30] of this judgment). Before reaching this conclusion the Judge reviewed Dr Wheeler's evidence referable to the Chapman paper.[19] Judge Coyle also found that all of the experts on behalf of the Ministry were "adamant", in light of this literature, that the metaphyseal fractures were NAIs.[20]

[43] The Judge also placed significant weight on the opinion of Dr Patrick Kelly, a paediatrician at Starship Children's Hospital with particular expertise in the field of child abuse. Dr Kelly, based on the most recent literature and his own extensive experience, considered the thesis that metaphyseal fractures as described by Dr Kleinman and others were not actually fractures, but attributable to vitamin D deficiency, was an:

> ... hypothesis advanced by a tiny minority in the scientific community and supported by little other than speculation.[21]

Hence the Judge was compelled to the conclusion that the rib and limb fractures were NAIs. He also found that there was no basis to suggest these injuries occurred in the course of C's birth.[22]

---

18 T Chapman, N Sugar, S Done, J Marasigan, N Wambold, and K Feldman, *Fractures in infants and toddlers with rickets* (2010) 40 Paediatric Radiology 1184.

19 At [69] - [70].

20 At [72].

21 At [79].

Dr Donald

[44] Dr Terrence Donald is a paediatric forensic physician who headed the child protection unit at the Women's and Children's Hospital in Adelaide, Australia. He stepped down from that position prior to the Family Court hearing in anticipation of his retirement in the next decade or so. I shall return to the assessment and decision-making process employed at the unit later, since it is a matter which captured the attention of Judge Coyle when compared to the processes followed in this case. Dr Donald was called on behalf of the parents. Unlike Dr Hyman, whose evidence was rejected, Dr Donald was received positively. The Judge found his evidence to be "measured" and his presentation to be that of a "true expert"[23]

[45] In his oral evidence Dr Donald stressed C's vitamin D level of 5 nmol/L which he considered to be incredibly low. He had not previously encountered a level as low as this. This led him to question the fragility of C's bones. He noted that C's blood calcium level was normal, meaning that mobilisation of calcium from her bones must have occurred. Yet, there was no radiological evidence of an impact upon C's bones. Dr Donald noted that demineralisation does not occur in adults until about 40 percent of bone calcium has been lost. He considered it was only an assumption that the same applied in infants. Accordingly, given the paucity of research and literature concerning infants of C's age, he considered she was somewhere on a continuum in relation to bone fragility. C had severe vitamin D deficiency but a normal blood calcium level, so she must have a significant level of demineralisation, but the actual level was unknown.

[46] In his opinion fragility would be most apparent in an infant's growth plates, the metaphyseal sites. Dr Donald said this:

> Metaphyseal injury manifests itself in ... the kinds of fractures that we see in children [who] we think have been physically assaulted. But in the case of a child with vitamin D deficiency that is severe, how could you decide whether the injuries were the result of unreasonable force or not? You can't. She has a predisposition. I mean, it's a basic question in any injury you see in a child. Is there anything in this child that could predispose them to injury occurring through less than assaultive forces. And, usually the answer is I can't find anything therefore I think there isn't. But in her case it sticks out

---

22 At [73] –[74].
23 At [76].

> like the proverbial. She's got severe vitamin D deficiency, she's going to get rickets, she's on a continuum – therefore,. And that's kind of my logical thinking. Now it's hypothetical, but it's not in any way speculative in my view.

[47] The hypothesis led Dr Donald to suggest that C's ankle and knee fractures could well have occurred through the normal twisting associated with changing a baby who was vigorously squirming. The wrist injuries, he suggested, could have occurred whilst C was pulled from a prone position by the hands, although the Judge characterised this suggestion as advanced "less than forcefully".[24]

[48] With reference to the rib fractures Dr Donald agreed with Dr Kelly's evidence that a squeezing of the chest or the grasping of the child in a manner to cause a rotating force was required. He accepted in cross-examination that the general rule would be, based on experience if not research, that something other than day to day handling was required.

[49] I shall return to an evaluation of the rib and metaphyseal evidence shortly. It is essential to do so in the context of C's constellation of injuries as a whole.

The skull fracture and the haematoma

[50] Following a review of the evidence of several witnesses the Judge found:

> [91] I prefer and accept the evidence of Drs Wheeler, Craw and Law, that the clarity in the fracture means that it has not occurred at the time of birth. It is my finding, on the balance of probabilities, that it is more likely than not that Cora's skull fracture occurred after birth as a consequence of a significant application of force to her head. The haematoma may have occurred at the same time or may have been as a result of a separate and discrete assault, and there may or may not have been a subsequent re-bleed. I am unable to determine the timing of the subdural haemorrhage(s) on the evidence before me. *What I am quite clear on in the evidence however, is that after C's birth she suffered a severe head trauma resulting in a fracture to her right parietal lobe, and at the time of her admission, she had a subdural haematoma which was directly causative of the seizures which initially alerted L to become concerned enough to take C to her general practitioner, Dr Hall.* (emphasis added)

It is evident that the reference to Dr Craw was an error. The preceding discussion shows that Dr Kelly was intended.

---

[24] At [75].

[51] C had suffered a linear skull fracture running from the back right of her parietal lobe to the forward position of that lobe. She also had a subdural haematoma, but this was on the left side of her skull. The Ministry witnesses gave consistent evidence that the clarity of the fracture line was such that it must have been caused relatively recently, not three months earlier at C's birth. If the fracture was three months old they would have expected much less clarity as a result of the healing process. Most often a subdural haematoma will occur under the site of the trauma which also caused the skull fracture. However, in some cases a traumatic skull fracture occasions a haematoma on the opposite side of the skull. There was uncertainty whether the haematoma was the result of one, or two, events. After one haematoma infants can suffer a re-bleed from minor trauma. Hence, Judge Coyle found "it is possible that C's skull fracture and haematoma were [from] one and the same event, or that the skull fracture and haematoma and any possible re-bleed were discrete events".[25]

[52] Based on the evidence of its witnesses the Ministry's case in the Family Court was that C had suffered a traumatic skull fracture some time prior to her hospital admission, although the witnesses disagreed whether the gap was at least ten days or only a day or so. The suggestion that the fracture could have occurred in the course of the birth process was roundly rejected. By contrast, the parents maintained that the fracture may well have occurred during the birth, occasioning a subdural haemorrhage and that there was a re-bleed at a later point in time.

[53] Dr Andrew Law, a neurosurgeon at Starship Children's Hospital and the clinical director of paediatric neurosurgery, gave the principal evidence on behalf of the Ministry. He considered that C's skull fracture was caused by a traumatic assault to her head within ten days of her hospital admission. He attributed the seizures, including leg twitching at the time of C's admission, to the subdural haematoma. Otherwise, he was guarded in expressing conclusions about the haematoma. It could be interpreted as bleeding from a single event, or perhaps two events. It could not be dated from an MR scan. Dr Law thought it was very difficult to identify the force required to cause the fracture, but a fall from a few feet to a hard surface would have

---

[25] At [89].

been sufficient, although the potential range of force was "huge".[26] He would have expected concussion to have occurred, causing most children to be unwell, irritable and difficult to feed. However, he termed it "a non specific unwellness".[27]

[54] Dr Donald described C's linear fracture as a common presentation in infants because the bone over the parietal lobe is both thin and prominent. Although unable to categorically discount it, he doubted that the fracture occurred at birth. An impact from a fall or the like was more probable. As to causation he said this: [28]

> ... how often do skull fractures occur in infants where there is no explanation and what does that mean in the context of whether or not the child had suffered this skull fracture because of physical assault? And I don't know the answer to that question, but that's really what it comes down to as far as I am concerned. So basically, (C's) got an unexplained skull fracture that's undateable in a young infant and it's due to head impact, I think.

[55] With reference to the haematoma Dr Donald considered there was evidence of more than one episode of bleeding, one relatively recent and the other not recent. As other witnesses had done, Dr Donald referred to a new area of knowledge in relation to subdural bleeding and the birth process. Previously, until about ten years ago, it was understood that about 10 percent of newborns, particularly those delivered with the use of forceps or another extraction technique, had subdural bleeds. More recent studies, however, have shown the figure is closer to 50 percent. Importantly, this figure pertains to children who had normal births. The researchers were only able to rescan some of the affected babies and found many of the haematomas had disappeared within a few months. Dr Donald therefore considered "you can (not) dismiss any more the possibility that children who have got old subdurals didn't get them at birth, when they are as young as C".[29] The study also indicated a predisposition to a re-bleed following a haematoma at birth.

[56] Dr Donald also devoted attention to C's head growth as determinable by head circumference measurements taken and recorded in her first few months of life. She began with a head circumference in the 10th percentile, but by five weeks the circumference was in the 50th percentile and by eight weeks the 75th percentile.

---

26 Notes of evidence, 29 November 2011, at 7.
27 At 8.
28 At 419.
29 At 423.

Dr Donald considered that this could be attributable to the early presence of a haematoma which as it dissipated drew fluid into the subdural space and caused the growth in head circumference. Although he discussed these aspects, Dr Donald still adhered to the view that the skull fracture probably did not occur at birth. Judge Coyle acknowledged the head circumference evidence but preferred the evidence of Dr Kelly "that there was nothing abnormal in that pattern of head circumference growth".[30]

The injury assessment process

[57] After recording findings that he was compelled to the inescapable conclusion that C's injuries were non-accidental and that they must have been caused by one of her parents, Judge Coyle considered the injury assessment process. He said he was attracted to the process used in Adelaide as described by Dr Donald. The forensic paediatricians, as they are called, in consultation with other specialists and after rigorous review reach a conclusion concerning the injuries. Dr Donald put it this way: [31]

> With a child of C's age with an injury or combination of injuries, it usually takes us the best part of a fortnight to come up with an opinion and the opinion is very rarely a diagnosis of – definitive diagnosis of inflicted injury. It is usually an opinion which states the injuries are [explained][32] or they remain unexplained. They are the type that would not be self inflicted, and it must be considered possible or likely that the injuries could have been inflicted.

Dr Donald continued on to say that whether a particular person caused the injuries is not the unit's concern, nor is the decision whether the child is in need of protection. At this point, if not earlier, risk factors are considered, but not by the doctors. Others within the unit undertake a parent capacity assessment and personnel within the Ministry for Families and Communities decide whether a protection proceeding is appropriate.

[58] I note that Judge Coyle referred to a period of up to 14 days before "a definitive diagnosis is made", whereas Dr Donald stressed that very rarely is a

---

30 At [90].
31 Page 415.
32 The notes of evidence record "unexplained", but to make sense of the sentence the witness must have said explained.

definitive diagnosis of inflicted injury reached. This, I think, is an important distinction. The Judge referred to the Adelaide process in contradistinction to what had occurred in C's case. He considered the conclusion that C's injuries were NAIs was reached with unseemly haste and before her vitamin D deficiency rickets was diagnosed. He considered that the parents were rapidly seen as having caused the injuries. The attitude of the paediatrician who made the pivotal decision was described as disturbing. His further conclusion that C's injuries were life threatening was an exaggeration, yet the conclusion was the catalyst for the child's removal from her parents care.[33]

[59] I have referred to Dr Donald's evidence concerning the injury assessment process in Adelaide at some length because it was the comparator used by Judge Coyle. I of course acknowledge that what occurred in C's case may not reflect the normal practice in Dunedin in July 2011, let alone in other parts of the country. It is unfortunate that the process used at Starship Children's Hospital was not outlined by Dr Kelly in any detail.

Discussion

[60] I regard Judge Coyle's observations and findings concerning process as of considerable importance. With respect, I question whether it was appropriate to frame them as an add-on after making the crucial finding that the medical evidence provided compelling proof that C had suffered non-accidental injuries. To my mind, the unseemly haste, the manner of engagement with the parents, and the exaggerated description of C's injuries are aspects which had to be at the forefront of any evaluation of this case.

[61] The record confirms that the expert witnesses were confident in relation to the opinions they expressed. They were also insistent in the view, if not adamant, that C's injuries had been deliberately inflicted. Viewed in isolation the weight of the evidence given by the Ministry's various experts established on the balance of probabilities that C had a number of unexplained injuries, including those to the skull and brain.

---

[33] At [103].

[62] On the other hand, the evidence also raises a number of question marks in my mind. Dr Donald's hypothesis concerning the metaphyseal injuries, the general acceptance that the birth process could not be excluded as a possible cause of the skull fracture and haemorrhages, the suggestion that the medical literature is sketchy in relation to rickets in infants, and the reservations concerning the injury assessment process all cause me to pause. But, it is premature to endeavour to answer the question whether the medical evidence was compelling in this case. It is necessary to first confront the new evidence, to which I now turn.

The new evidence

[63] Strictly speaking this nomenclature is inaccurate. This section concerns two aspects. The first is new evidence introduced by leave on appeal. Leave to introduce this evidence was granted partly as a result of a decision in England involving rickets and alleged child abuse. I shall need to refer to this case as well as the evidence given by Professor Nussey and the reply evidence of Dr Wheeler. The second aspect involves a number of citations from other cases, decided in England, concerning the required approach to child abuse allegations and some of the complications which may arise in this context.

[64] It is convenient to deal with the second aspect first.

Some relevant principles

[65] Coincidentally, six days prior to delivery of the decision in this case a jury in London was directed to acquit the parents of Jayden Wray upon a charge of murder. Jayden Wray had died, aged 18 weeks, with until then undiagnosed severe vitamin D deficiency rickets. The parents' trial occupied several weeks while conflicting expert medical evidence was given. The trial Judge was then persuaded that proof of murder beyond reasonable doubt was not attainable and he directed that the parents be acquitted.

[66] While the parents awaited trial on the murder charge the mother gave birth to a daughter, Jayda, who was immediately taken into care on account of the parents' then predicament. The directed acquittal resulted in a Family Court hearing to

determine whether Jayda should be returned to her parents. Jayda's return was resisted on the basis that the parents conduct in relation to Jayden showed on the balance of probabilities that they were abusive parents. Justice Theis heard four weeks of evidence mainly from doctors covering a range of medical specialties. In a judgment delivered on 19 April 2012 Jayda was returned to her parents. [34]

[67] Care proceedings, as they are known in England, are the equivalent of care and protection proceedings in this country. As Theis J noted in her judgment such cases are by their very nature very fact specific and great caution should be adopted in using any conclusions reached in one case in the context of another. This caveat must be borne in mind in considering whether anything decided in the *Wray* case is of any relevance in this one.

[68] However, a summary of legal principles is conveniently set out at the commencement of Theis J's judgment. The principles were provided to the Judge by agreement, since they were derived from leading cases and were not considered controversial. I am satisfied they are of equal application in New Zealand.

[69] The first principle concerns the approach to be taken to disputed medical evidence, typically concerning whether injuries are non-accidental or not. Based on a judgment of the Court of Appeal in a criminal case[35] Butler-Sloss P in *Re U: Re B* said this:[36]

> ... there is a broad measure of agreement as to some of the considerations emphasised by the judgment in *R v Cannings* that are of direct application in care proceedings. We adopt the following:
>
> (i) The cause of an injury or an episode that cannot be explained scientifically remains equivocal.
>
> (ii) Recurrence is not in itself probative.
>
> (iii) Particular caution is necessary in any case where the medical experts disagree, one opinion declining to exclude a reasonable possibility of natural cause.

---

34 *London Borough of Islington v Al-Alas and Wray* [2012] EWHC 865 (Fam).
35 *R v Cannings* [2004] 1 All ER 725 (CA).
36 *Re U: Re B (serious injury: standard of proof)* [2004] 2 FLR 263 (CA) at [23].

(iv) The Court must always be on guard against the over-dogmatic expert, the expert whose reputation or amour propre is at stake, or the expert who has developed a scientific prejudice.

(v) The judge in care proceedings must never forget that today's medical certainty may be discarded by the next generation of experts or that scientific research will throw light into corners that are at present dark.

[70] In similar vein, and in the context of four appeals against conviction for murder or manslaughter following the deaths of young children, the Court of Appeal noted with regard to evidence given by two medical experts:[37]

> ... when asked a question in the context of the amount of force necessary to cause injuries, [the witness] agreed that the assessment of injuries is open to a great deal of further experimentation and information. He assented to the proposition "we don't know all we should".

And another expert: [38]

> There are areas of ignorance. It is very easy to try and fill those areas of ignorance with what we know, but I think it is very important to accept that we do not necessarily have a sufficient understanding to explain every case.

[71] Reflective of the limits of understanding, Hedley J observed in a decision upon a care application: [39]

> In my judgment a conclusion of unknown aetiology in respect of an infant represents neither professional nor forensic failure. It simply recognises that we still have much to learn and it also recognises that it is dangerous and wrong to infer non-accidental injury merely from the absence of any other understood mechanism. Maybe it simply represents a general acknowledgement that we are fearfully and wonderfully made.

The application was dismissed.

[72] Finally, in the Court of Appeal Thorpe LJ said in dismissing an application for leave to appeal following the making of a care order in the court below: [40]

> Clearly from the forensic stand point, given any degree of uncertainty in the medical and scientific field, the Judge's appraisal of and confidence in the parent is absolutely crucial to outcome. If the Judge could not accept the

---

37 *R v Harris and Others* [2006] 1 Cr App R 5 (CA) at [135].
38 Ibid.
39 In *Re R (Care Proceedings: Causation)* [2011] EWHC 1715 at [19].
40 In *Re L* (Children) [2011] EWCA Civ 1705 at [12].

> mother as a responsible or truthful witness, then the probability of an adverse finding was very much enhanced.

[73] I am not suggesting that Judge Coyle was unaware of these principles. Family Court Judges regularly deal with care and protection applications and no doubt are cognisant of the principles that govern decision making in this anxious area. That said, I think that in the context of this case these principles bear repeating.

The Wray case

[74] There are parallels between the cases of Jayden Wray and C. Jayden was 18 months at the time of his death, while C was 14 weeks when admitted to hospital. After his death Jayden was found to have a severe case of rickets, while C had severe vitamin D deficiency and at least a moderate case of rickets (although described as severe by Judge Coyle).[41] Both mothers, when tested, were found to be vitamin D deficient suggesting that their babies also suffered a deficiency at birth and possibly earlier. Jayden was breast fed, while C was bottle fed but with breast milk. Both were still immobile when admitted to hospital. Jayden's birth was traumatic requiring acute obstetric intervention, while C had a normal birth. No-one observed any injuries, or signs of abuse, before Jayden and C were admitted to hospital. On admission both presented with neurologically abnormal movement of limbs, characteristic of seizures.

[75] With regard to injuries, Jayden had sub-scalp bruising over an area of five centimetres by five centimetres on the right side, associated bleeding over the skull and a thin film of subdural haemorrhage over both hemispheres of the brain. There was also a thin film of subdural haemorrhage, but on the left side. He had a displaced fracture of the right parietal bone, and a suspected underlying fracture of the right occipital bone.

[76] Jayden had also suffered fractures to bones in the left hand, right humerus, right tibia and left radius, some of which had healed. He also had metaphyseal fractures in the left and right elbows, and the left knee. Finally, Jayden had fresh retinal haemorrhages in both eyes and at, and following, the post-mortem injuries to

---

[41] At 43.

the structure of the brain were observed consistent with the bleeding described above.

[77] The pathologist who conducted the post-mortem considered that Jayden died of hypoxic ischemic encephalopathy (lack of oxygen to the brain) and multiple fractures in the context of rickets.

[78] It is apparent that Jayden's rickets was more severe than in C's case. Jayden's blood calcium level was low, whereas C had a normal blood calcium level consistent with a compensating transfer of calcium from bones to the bloodstream. In seeking a care order the applicant contended that the long bone and metaphyseal fractures were inflicted injuries, save for those to one hand and the right tibia. These, it was accepted, were caused by rickets and rough handling. The skull, brain and retina injuries were also said to be inflicted injuries compatible with shaking or trauma. As Theis J put it: [42]

> (The applicants) rely on the medical evidence of fact and opinion to undermine the credibility of the parents.

[79] To my mind the evidence and findings in the *Wray* case are of significance in four areas:

(a) The post-mortem was undertaken by Dr Scheimberg, a paediatric pathologist. At the post-mortem the severity of Jayden's rickets was immediately evident. From 2009 she had started measuring vitamin D deficiency in children who had died with undiagnosed rickets. She considered that the disease had not been diagnosed because "according to the literature ... you start seeing radiological changes after six months, rarely before that". In her opinion this was probably the case with acquired rickets, whereas: "we are now seeing mothers who are vitamin D deficient, which increases the risk of congenital rickets. The difficulties are then compounded if the child is breastfed. That is often not picked up radiologically in young children as

[42] At [89].

radiology is a gross tool; you see shadows not the reality".[43] With regard to bone strength, she said that one of Jayden's ribs snapped with a flicking/twisting motion of her fingers, something she might have expected with a new born baby.[44]

(b) An experienced histopathologist, Professor Malcolm, examined bone samples taken at the post-mortem examination. He concluded that Jayden had suffered from severe rickets, similar in severity to that he had seen in children in Glasgow many years earlier. He was surprised at the effects upon a baby as young as four and a half months. In his opinion some of the limb fractures could be attributable to rickets and rough handling. He accepted that all of Jayden's bones were less robust than normal on account of his rickets, and that the force required to inflict damage could only be inferred. Professor Malcolm expressed surprise that the fractures had not produced visible signs such as bruising.

(c) Theis J found: "from the evidence I have heard (and I accept it is to some extent a developing picture) it is a curious feature of this condition that on occasion it can be readily seen on some imaging, on others not; it is only in the context of post-mortems and/or histological examination can the full extent be seen. This case was a classic example of that. There is an issue as to the extent to which it was apparent on the images taken when Jayden was alive and through the blood tests, it was only when the post-mortem (took) place that the true extent was seen".[45]

(d) Theis J also made a detailed finding in relation to the reliance to be placed on "the Chapman study".[46] She noted that imaging used in the study was limited and did not include skeletal surveys, the data was not definitive in relation to congenital as compared to acquired rickets

---

43 At [92].
44 At [95].
45 At [204].
46 T Chapman et al, above n 18.

> or the level of vitamin D deficiency. Hence, she concluded "in an area where there is limited research and limited clinical experience in situations similar to those found in Jayden the court should be cautious in placing too much reliance on this one study".[47]

This led to the view that most of Jayden's fractures could be a feature of rickets, rather than classic signs of inflicted injury as the Chapman study suggested.

[80] Consistent with the finding that imaging of Jayden taken when he was alive did not reveal obvious signs of rickets whereas the post-mortem and histological examination certainly did, was the release of a statement by the Great Ormond Street Hospital, London, where Jayden was admitted before his death:

> Rickets, as conventionally understood, is diagnosed either from x-rays, biochemical tests, clinical findings or a combination of these. We are confident in the clinical view from our staff that *his x-ray appearances were within the range of normal, and did not show definitive features of rickets*.
>
> Two radiologists reached this view at the time and subsequent independent review by two other radiologists agrees with this view. We understand *the diagnosis of rickets was made after his death, not from any x-ray findings, but through examination of samples under a microscope.* (emphasis added)

The release was made in January 2012, I infer as a result of sensitivity following publicity which surrounded the directed verdict. For present purposes this aspect is relevant to the catch-cry that only children with radiologically significant rickets sustain bone fractures, a point to which I will return shortly.

Professor Stephen Nussey

[81] Professor Nussey gave evidence in the *Wray* case, as he did before me at the hearing of the appeal. As an endocrinologist, his focus was upon the fracture injuries sustained by C, in particular, the conclusion that a link between them and C's medical condition was no more than speculative and hypothetical.

[82] His evidence began with a summary of his expert opinion relevant to this case. He began with the fact that C had nutritional vitamin D deficiency rickets.

---

[47] At [206].

There was also biochemical evidence of the effects of secondary hyperparathyroidism which he considered was likely to be manifest in her bones. That is, the test results showed that calcium stores from C's bone had been mobilised to her blood in response to a lowered blood calcium level. Professor Nussey considered that C's bone strength may well be affected even if this was not (yet) radiologically apparent. He noted that the great variability in the presentation of rickets and the rarity of fractures in patients with the disease, meant that there were likely to be factors involved which were still undefined. There was also, in his view, a lack of data on the force required to fracture human bones in which rickets is present. The *Wray* case provided a practical demonstration of this.

[83] The summary ended on this note:

> Therefore, in my view a conclusion based only on medical evidence that C's skeletal injuries must have been the result of significant force above normal parental handling is not sound. In the absence of other evidence indicative of trauma, the uncertainties regarding the relationships between rickets and fractures are too great to exclude it as a causative factor in this case.

The balance of his affidavit evidence consisted of references to supporting materials and a detailed discussion of the central propositions.

[84] Professor Nussey was cross-examined at some length. One recurring theme to emerge was the adequacy of the available data pertaining to fractures sustained by infants suffering from rickets. To a question that clinical experience, coupled with support from the literature, enabled expert conclusions to be reached Professor Nussey responded: [48]

> If you want to find skull fractures or indeed multiple fractures you have to do skeletal surveys and those studies are not done on adequate numbers to be able to give you an honest and objective measure of fracture, number or rates, or anything else, and it is as simple as that.

He was then asked:

> Q And that's a view that you have and that others obviously don't share I suggest?

[48] Notes of evidence, 15 July 2013, at 17.

> A Well I think there is a problem – there's a problem about that, as a general population about definition. The problem with it is there are grey areas in medicine, the problem that we have is that the law doesn't have grey areas, it's a binary system, "yes" "no" plus minus nought one." And when you push an expert they will quote things that support their view but one has to analyse what they're using to support and that's what I'm doing.

[85] I found Professor Nussey's evidence helpful, considered and credible. He provided a different focus by emphasising that there are limitations in the medical understanding of rickets in infants. This he attributed in part to the circumstance that rickets was a prevalent disease in previous times, but was then effectively controlled through the use of vitamin D supplements. A recent resurgence in the incidence of the disease included an upsurge in infant patients who had probably suffered vitamin D deficiency in utero from a mother who was vitamin D deficient. He considered that medical understanding of patients in this group was particularly limited, as the *Wray* case demonstrated.

[86] I do not consider Professor Nussey a lone voice amongst the expert witnesses who have given evidence in this case. To my mind Dr Donald similarly advocated a need for caution in assessing C's injuries, given her age, history and presentation with undiagnosed rickets. I also note that Professor Nussey did not consider the parents' evidence before preparing his report, although he would have been aware of the effect of that evidence from the Judge's decision. Asked why this was so, he responded: [49]

> ... I could appreciate the emotional difficulty and emotional weight that there is in these situations, but I find it best to approach it from an objective and intellectual level rather than to be involved ... . I think there is an issue around sidedness when there is an adversarial system, and I have always determinedly tried to avoid giving a report that is in any way linked to the side in which I am supposed to be ... .

Dr Wheeler

[87] Dr Wheeler provided an affidavit in reply to Professor Nussey's evidence. He said at the outset that there was nothing new, or of significance, in Professor Nussey's affidavit which affected the views he had expressed during the Family Court hearing. With reference to the *Wray* case he highlighted that C

---

[49] Notes of evidence, at 97.

presented with "no evidence of any x-ray manifestation of rickets", whereas "there were significant radiographic changes to Jayden's bones at presentation". This was clearly wrong. The findings of Theis J, as well as the Great Ormond Street Hospital statement that its radiologists found no definitive features of rickets and that the diagnosis was made after death and not from x-ray findings, show otherwise. Dr Wheeler characterised several of the concerns, or caveats, raised by Professor Nussey as "distractions".

[88] Dr Wheeler's affidavit concluded by saying with reference to Professor Nussey and Dr Donald:

> Both attempt to use minor controversies in the scientific literature to distract from the primary issue. As I stated (earlier), clearly with C there is an effect on bone from her VDDR – we see this in the elevated ALP – we don't need distracting, complicated and conflicting science to help with this. The issue remains, with an anticipated likely small (even if we say moderate) effect to bone from her VDDR, in an immobile child (thus less prone to accidental, and possibly un-witnessed trauma e.g. from walking, falling etc.) is it likely that her bones are so brittle that everyday life leads to multiple fractures, including skull fractures and subdural bleeding?

Hence, his confident conclusion remained that rickets could not explain C's extensive injuries.

Discussion

[89] The legal principles, the *Wray* case and the witness evidence are all to my mind instructive. Judge Coyle, when considering the approach to expert evidence, said that where there was competing evidence it fell to the Court to reach a determination as to what evidence it preferred. This is too stark, as it overlooks the third possibility of an unknown aetiology. It also suggests that the expert evidence is paramount, whereas in my view the whole canvas must be considered, the more so where expert opinion evidence is disputed. This I think is a point of major importance. The Judge first made findings based solely on the medical evidence which were decisive of the end result. He proceeded on the basis that the medical evidence was so compelling that there was no room for doubt. As a result, his assessment of the parents was not put in the balance alongside all of the other evidence. It simply never came to that. I do not see the case in these terms. To my

mind, there are uncertainties in relation to the medical evidence and the appraisal of the parents was therefore a key part of the jigsaw.

[90] The *Wray* case contains lessons. In light of all she had heard, Theis J found the Chapman study, relied upon to show there is no clear link between rickets and fractures in infants, should be viewed with caution. More importantly, the case demonstrates that a central proposition in this case, that fractures in infants only occur when radiologically significant rickets is observed, is flawed. Dr Wheeler sought to distinguish *Wray* on this basis, but he was wrong to do so. This development casts significant doubt upon a central plank of the Ministry's case, that were she not abused C is the first infant in medical history, without radiologically significant rickets, to present with this number of fractures. The *Wray* case debunks this proposition.

[91] I am also influenced by the evidence of Professor Nussey. He did not so much disprove elements of the Ministry's case, but rather emphasised the need for caution because "the uncertainties regarding the relationships between rickets and fractures are too great to exclude it as a causative factor in this case". Dr Donald, I think, expressed similar concerns although in a different manner. His evidence also demonstrated the importance of the injury assessment process, including the need for a parent capacity assessment. I turn therefore to this, the third theme.

Evidence relating to the parents

The Family Court judgment

[92] At an early point in his judgment Judge Coyle described the respective positions of the Ministry and the parents. In relation to L and Q he said that they denied intentionally harming C, attributed the lesions/fractures to her ribs and limbs to rickets, and the skull fracture and haemorrhages to the birth process.[50]

[93] An assessment of L and Q as parents appears late in the judgment under the heading "Other Features". The discussion refers to the parents' background and particularly their recent family history in some detail. The Judge found it was

[50] At [25] – [26].

counter-intuitive that they would have deliberately harmed their daughter. By way of summary he found: [51]

> Neither L nor Q have any criminal convictions, neither have any issues as to substance abuse and/or alcohol abuse, there is no history of domestic violence. They come from a loving and supportive family, have strong social networks, are both intelligent, articulate young people; there is nothing in their presentation to indicate that they presented a risk to C. As (a Ministry social worker) said in her evidence L and Q are fundamentally nice people.

[94] Notwithstanding this assessment the Judge then concluded that the medical evidence compelled him to the view, despite the counterintuitive factors, that C's non-accidental injuries were caused by one of her parents. No-one else had the opportunity to inflict injuries on at least two discrete occasions. The paragraph ended: [52]

> As Dr Kelly simply put it in his evidence, nice people do abuse children on occasions.

Given the approach I have adopted I propose to review the evidence of the parents in somewhat more detail. I will also refer to the supporting evidence from their midwife, general practitioner, C's maternal grandmother and a Plunket nurse.

The parents

[95] L and Q were raised in the North Island in the same town where C presently resides in the care of a paternal aunt. They were friends at high school. In their late teens they moved to Dunedin. L completed a degree in anthropology, and then obtained a diploma in community and social work. She obtained employment as a social worker in the physical and neurological inpatient ward at the hospital. There, she was a member of a multi-disciplinary team providing care to a wide range of persons whose health had caused a significant disruption to their lives. Q studied at the polytechnic, initially as a chef. However, following work experience in that field he retrained at the polytechnic as a landscaper. He obtained a new job in 2009, at which he remained until leaving Dunedin.

---

51 At [98].
52 At [101].

[96] A few years before C was born L and Q purchased a house. They embarked upon extensive alterations, including the creation of extra bedroom space. In August 2010 L's pregnancy was confirmed. A few months later L and Q were engaged and they married in February 2011. C was born in early April, and L remained on maternity leave over the 97 days before C's admission to hospital.

[97] Despite assistance from her midwife L was unable to settle her baby into a breastfeeding routine. After a couple of weeks she expressed milk and fed C from a bottle. When, much later, C's skull fracture was discovered her mother questioned whether her inability to make her daughter comfortable on the breast was somehow related. Otherwise C was an easy baby. She fed well, settled to sleeping in her own room and was seldom irritable. L described the first three months of motherhood as "the best of my life".

[98] L kept a diary in which she recorded day to day activities. A summary of extracts taken from the diary and annexed to L's affidavit demonstrated the extent of L and her daughter's contact with others. There were regular appointments with health professionals, visits from friends including a number of work colleagues, skyping with C's grandparents, antenatal group meetings, and lunch and coffee outings. Barely a day went by when C and her mother did not have visitors or an outing of some description.

[99] On Thursday 7 July 2007 C was taken to the medical centre where she received her second immunisations. L expected there could be some adverse effects, as had happened on the previous occasion. The next day was uneventful, as was Saturday 9 July. On Sunday L and Q took their daughter to an antenatal class where they spoke about their experience as new parents. Later, however, C became irritable, vomited and displayed twitching of an arm. Her parents phoned Healthline and received advice that C should be taken to the doctor on Monday unless she deteriorated in the meantime.

[100] On Monday 11 July, mother and daughter attended the first available appointment with Dr Katherine Hall. This, of course, culminated in C's hospital admission with a suspected bowel problem. L's affidavit contains a day by day

account of the events which followed. C had a MRI on 12 July. The next day a paediatric social worker told L and Q that as a bleed had been discovered she needed to notify Child, Youth and Family Services. Later, they were told by a paediatrician that a skeletal survey and a check of C's eyes were to be performed. The survey revealed the skull and rib fractures. L said she was "in absolute shock". Discussions followed with both the maternal and paternal grandparents, three of whom flew to Dunedin to provide support. That evening L and Q were interviewed at the police station.

[101] On Friday 15 July the maternal grandparents were also interviewed by the police, since they had spent 11 days in May 2011 visiting the family. On one occasion they were alone with C while she was taken for a walk. A Ministry social worker advised L and Q that C was about to be discharged from hospital, but that she would be placed with a caregiver. This reflected that an interim custody order had been made, without notice to the parents, earlier that day.

[102] However, Q's father, a lawyer, intervened and persuaded the Ministry that options for C to be placed with members of the family should first be considered. This resulted in C being discharged into the care of her paternal grandfather and his partner (C's step grandmother) instead. Commencing on Monday 18 July they cared for C in her home, while L and Q were required to reside elsewhere with friends.

[103] There was a discharge meeting on 18 July attended by hospital staff, the Ministry, police and family members. The parents requested that further tests be conducted on C. Blood was taken before her discharge from hospital.

[104] On 27 July there was a meeting at the paediatric assessment unit at which family members were told that C's blood tests showed she had severe vitamin D deficiency. Dr Wheeler explained that this meant C had rickets, a condition with which the parents were unfamiliar. They were told that rickets affected bone development, in particular the strength of the long bones.

[105] Initially this was a cause for optimism within the family. Both of L's parents are qualified and experienced radiographers well used to interpreting x-rays.

However, the family's optimism was short-lived. At a further meeting on 28 July the parents were told that rickets did not explain the injuries in C's case. On Friday 29 July L and Q met with officers of the Ministry who advised them that a care and protection application would proceed. They learnt that a multi-agency meeting had occurred earlier in the week, at which this decision had been reached.

[106] From this point the parents were focused upon making arrangements for C's care in Dunedin pending the court hearing. This was achieved with the assistance of Q's father and stepmother, Q's mother and a paternal aunt. They took turns at caring for C in her home. L and Q resided with friends, but were permitted in terms of the safety plan to see their daughter for three hours per day. The plan was subsequently altered to allow five hours per day. After the Family Court decision in December 2011 C moved to the North Island into the permanent care of her paternal aunt. L moved at the same time so she could have ongoing contact with her daughter. Q remained in Dunedin where he had work and until the family home was sold. He then shifted to the North Island town as well.

The grandparents

[107] L's mother swore an affidavit in support of L and Q. In it she confirmed many of the aspects covered in L's affidavit. She and her husband were "overjoyed", when the diagnosis of rickets was made, because their knowledge of radiology suggested this would counter the allegations.

[108] The grandmother also had 'hard conversations' with her daughter and son-in-law. This followed a conference at which the level of the accusations against them was made apparent. There were separate discussions. L was upset, but mother and daughter examined all possibilities. Q was initially pretty annoyed, but the conversation proceeded. Questions were asked: was it possible, was there opportunity, who would come first C or the other parent, and the like. In light of the discussions the witness concluded that neither parent had caused harm to their daughter.[53]

---

[53] Notes of evidence, at 299 – 303.

Health professionals

[109] L's midwife provided an affidavit and was cross-examined in the Family Court. She described milestones during the pregnancy and throughout the six weeks she visited L on nine occasions after the birth. Most often Q was present during the home visits. With reference to her assessment of the parents, the midwife said this:

> From a midwifery or professional perspective, I couldn't have asked for a more gentle and loving couple to care for. L really looked after herself and accordingly had a healthy, uneventful pregnancy. They always arrived as a couple to their appointments so that Q was as involved as L in their care. Once C was born she was immediately the centre of their world.

[110] The midwife referred to the breastfeeding problem. She described L as calm, focused and determined to establish a breastfeeding routine. However, from the beginning there were problems. When C was held in position to be fed she would stiffen and resist being placed on the breast. Despite taking lactation advice, a successful breastfeeding technique was not achieved. After about two weeks bottle feeding with breast milk became the norm.

[111] L and Q became patients of Dr Hall in 2004. Prior to L's pregnancy she had ten consultations with L. The only attendances of note were during a period when L suffered from anxiety and low mood in early 2010. Medication was prescribed and three weeks later L was much improved. Subsequently the medication was changed on account of side effects and three months later the previous symptoms were controlled.

[112] Dr Hall saw L more regularly after she fell pregnant and following C's birth. In May 2011 she completed a standard six week check of C and found her in good health and normal. C was immunised on 24 May and 7 July but by a practice nurse. The notes recorded that C was normal on both occasions. Dr Hall saw C on 11 July, when she provisionally diagnosed a bowel obstruction and arranged an immediate paediatric appointment. Subsequently, Dr Hall saw C when she was brought to the surgery by her mother accompanied by the paternal aunt who was then responsible for the child's day to day care.

[113] Dr Hall gave this assessment of L:

> At no time did I consider that L was suffering from either post partum depression or antenatal depression. Until I was informed by (the police), I never once considered child abuse as a possible cause for C's condition (and I have diagnosed a previous case of child abuse which was missed by hospital specialists). At all times I considered her behaviour appropriate and I didn't ever suspect or consider her behaviour at any stage to be a threat to her child or place her child at any higher risk of harm.

Dr Hall also observed that L coped well with the stress of the allegations and the care and protection application.

[114] With reference to Q, Dr Hall saw him on six occasions over about six years. The visits were for minor ailments. She assessed Q as caring, concerned and supportive of his wife; and a good father. There was nothing to indicate that he was at risk of harming his daughter.

[115] The lawyer for the child called the Plunket nurse who visited C in the home. She visited L and her daughter on 17 May and 9 June, and saw them at a clinic on 30 June. On the first and third occasions she conducted head to toe assessments of C's body and observed nothing untoward. She also arranged for Karitane nurses to visit L, and there were three such visits on 14 April, 20 April and 25 May mainly in relation to breastfeeding.

[116] The Plunket nurse also visited C at her home on 24 August and 14 September, while the care and protection proceeding was pending making a total of nine contacts. Her overall assessment was: [54]

> L appeared attentive in her parenting practice at all visits. She was responsive to information and suggestions and recommendations that I made. I describe her as showing health seeking behaviour, in that she acted on recommendations in a timely way and was motivated to seek out other health professionals who I suggested could be of assistance to her.

---

[54] Affidavit of Melissa Fay Bull, dated 16 November 2011 at [27].

Discussion

[117] To my mind, the evidence concerning the parents is compelling. The facts speak for themselves. There is simply nothing to indicate a propensity to deliberately cause harm to their daughter.

[118] The first 97 days of C's life was a busy time. Friends, work colleagues and grandparents were all in regular contact with the family. More importantly, L and her daughter were seen by health professionals at regular intervals, including full check-up and head to toe assessments on three occasions. If C had been deliberately harmed on more than one occasion, it is amazing that at least swelling, a bruise, tenderness or some other sign was not observed.

[119] This is a case where, in my view, the assessment of the parents must be brought to bear in reaching a final decision. It cannot be put aside on the simple reasoning that sometimes good people do bad things.

Final conclusions

[120] I can express my final conclusions quite succinctly because they are foreshadowed in the earlier discussions. The starting point is C's admission to hospital. The injury assessment process which followed was rightly criticised by Judge Coyle. I agree with, and adopt, his conclusions that matters proceeded with unseemly haste, including that a conclusion of NAI was reached before the diagnosis of vitamin D deficiency rickets. The treatment of the parents and the circumstances surrounding the initiative to have C removed from her parents care also provide cause for concern. This case, therefore, got off to a bad start.

[121] I accept that the Ministry witnesses provided clear and confident evidence in the Family Court which, viewed in isolation, was well capable of establishing the grounds for the making of a care and protection declaration. However, even at that point I am of the view that there were clear signs that the applicants' case was less than compelling. The evidence of Dr Donald, in particular, called in question not only the process of assessment, but whether this was a case where on account of C suffering from vitamin D deficiency rickets there were real uncertainties.

[122] Now, in light of the new evidence, I am satisfied there is heightened uncertainty in relation to the central conclusion that C's injuries were deliberately inflicted and not related to her medical condition. Professor Nussey, and insights from the *Wray* case, satisfy me that it would be unsafe to act on the medical evidence as compelling, to the virtual exclusion of a searching examination of the evidence pertaining to L and Q.

[123] Once that exercise is undertaken, I am very much of the view that the balance is inclined against the making of a declaration. In short, I am satisfied it is very unlikely that these parents, in the circumstances which prevailed over a short period of about 14 weeks, deliberately inflicted the injuries from which C suffered.

[124] For these reasons the appeal is allowed, and orders are made as set out at the commencement of the judgment. These, I consider, are appropriate because L and Q have had regular ongoing contact with their daughter at all times since she was taken into care. A process of reintegration of parents and child is not required in the circumstances of this case.

Solicitors:
N Levy and P Walker, Wellington
R P Bates, Dunedin
L C Harrison, Dunedin