Neutral Citation Number: [2018] EWHC 2670 (Fam)

IN THE HIGH COURT OF JUSTICE
FAMILY DIVISION

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 28/09/2018

Before :

MR JUSTICE WILLIAMS

- -

Between :

A Local Authority	**Applicant**
- and -	
PT	**1st Respondent**
- and -	
RD	**2nd Respondent**
- and -	
BC	**3rd – 5th**
CD	**Respondent**
DD	

(Re-Hearing of Fact-Finding)

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Nick Goodwin QC and Sara Granshaw (instructed by **The Local Authority**) for the **Applicant**
Jonathan Sampson (instructed by **Rowberry Morris**) for the **1st Respondent**
Anthony Kirk QC and Martha Holmes (instructed by **Griffiths Robertson**) for the **2nd Respondent**
Pamela Warner (instructed by **Creighton & Partners**) for the **3rd - 5th Respondent**

Hearing dates: 3rd - 14th, 28th September 2018

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Judgment Approved

Mr Justice Williams :

1. CD was born on [a date in] 2017. On [a date], when he was only 15 days old, he was admitted to the Y Hospital as an emergency following telephone calls made by his mother, PT to 111 and 999. CT scans showed that he had suffered extensive injury to his brain. His treating clinicians were unsure how this had occurred. A blood sample grew a streptococcus B culture raising the possibility that the injuries were a result of infection. However, the clinicians also identified aspects of the injuries that were not consistent with infection but were consistent with traumatic injury, in particular a shaking injury. Approximately a day after his admission CD's father, RD, told Dr P that CD had banged his head on his (the father's) arm around lunchtime on the day of his admission. Later that day when he was interviewed by police RD told them that CD had fallen off his knee and banged his head on the floor.

2. Care proceedings commenced and CD and BC, his older sister, were placed with foster carers. Although for a period of time CD's life hung in the balance, he pulled through, albeit he continues to suffer with the consequences of the brain injury he sustained. He suffers from right-sided hemiplegia and since his discharge from hospital has required very extensive medical input. In June and July 2017, the designated family judge sitting as a deputy High Court judge heard care proceedings brought by A Council. Over 11 days he heard from five medical experts together with the mother, father, and other witnesses of fact. The local authority's case was that CD had been shaken by his father and that this was responsible for the injuries he had sustained; or at best there had been both an infection and a serious shaking incident with the shaking causing the more severe injuries. The designated family judge was presented with a schedule recording what the medical experts were agreed and not agreed upon. The first item on that schedule recorded that all the experts agreed that CD had group B streptococcal septicaemia. However some of the experts concluded that significant parts of the injuries seen in CD were not consistent with injuries caused by streptococcal septicaemia but rather were consistent with a shaking injury.

3. Having heard from the medical experts and from the other witnesses the designated family judge concluded:

> 'O*n balance, I come to the conclusion that what was seen in the hospital was consequent upon there being a streptococcal B septicaemia and meningitis infection of a very severe nature and that, although some experts cannot explain what was seen other than by non-accidental injury, their experience of this type of infection is limited and, in the same way that we now know that children can be born (and a far greater percentage than we thought) with haemorrhaging, it may be that our skills and expertise and knowledge base is not as sophisticated yet as it will be in the future. I'm satisfied, on balance, that there was no accidental shaking injury.'*

4. By the time the judgment was delivered, CD and BC had returned to live with their mother. As the father had been exonerated by the judgment, the parents resumed their relationship and began to live as a family again. On 17 November 2017 the mother took CD to her GP as she was concerned that his right arm was swollen around the elbow. Her GP referred her on to hospital where x-rays were taken and the mother was told that they showed no damage and that it was likely CD had sprained his arm.

The following morning a radiologist reviewed the x-ray and observed a metaphyseal fracture of the distal right humerus. CD was readmitted to hospital. The mother and father both put forward a possible explanation namely that CD had frequently got his arm trapped in the bars of his cot and that on two recent occasions it had taken considerable effort to free it. Although CD's treating doctors initially thought that this might explain the injury, subsequently Dr S a consultant radiologist reached a different conclusion; namely '*metaphyseal corner fractures have been shown to be associated with physical abuse. Metaphyseal corner fractures are caused by twisting, gripping and pulling forces.'* As such fractures are unusual in non-mobile children and because something like 80% of such fractures are thought to be non-accidental child protection concerns were once again raised in respect of CD. By coincidence of timing on 13 November 2017 Thames Valley police (who were still conducting a criminal investigation into CD's head injury) had received a report from Professor Nigel Klein, a specialist in infectious diseases and immunology based at Great Ormond Street Hospital for children. He concluded that *'the combination of clinical history, clinical features, CRP and radiology is not consistent with a diagnosis of infection. While the growth of the streptococcal B cannot be ignored, the sequence of events does not make clinical sense. It is possible that the blood cultures were contaminated. If the organisms were real and growing in the blood, they hadn't been there for long enough to cause a rise in CRP. Furthermore they hadn't caused DIC which is key to bleeding in severe systemic infection. If the organisms hadn't been present for long enough to cause a rise in CRP, then they wouldn't have been present for long enough to cross the blood brain barrier, let alone cause very severe meningitis. In my view infection, if present, was not responsible for CD's clinical condition with extensive cerebral and ophthalmic bleeding.'* Having seen the full report of the blood test results which showed that the blood sample which had grown the Streptococcus B culture had been contaminated by a Staphylococcus Epidermidis bacteria, Professor Klein concluded that it was likely that the Streptococcus B was also a contaminant rather than evidence of an infection.

5. On 23 November 2017 A Council again applied for care orders in respect of CD and BC. CD was placed with the foster carer who had looked after him during the earlier proceedings. BC remained with the mother, who was by now pregnant, and they were in due course placed in a mother and baby foster care placement. On 31 January 2018 the local authority issued an application seeking to reopen the findings made by the designated family judge in July 2017 on the basis that the conclusions of Professor Klein as to the unlikelihood of CD's injuries being due to infection and the further injury to CD amounted to solid evidence that cast doubt upon the accuracy of the original finding and justified revisiting them. On 12 February 2018 HHJ M allocated the application to be heard by a High Court judge. On 6 July 2018 I granted the local authority's application to reopen the findings of the designated family judge and listed the case for a fact-finding hearing to determine two central issues:

   i) causation of CD's head injury sustained in January 2017,

   ii) causation of CD's humeral fracture sustained in November 2017.

6. On 3 August 2018 DD was born. Care proceedings were initiated. He joined BC with his mother in the foster placement.

Threshold

7. The threshold schedule filed on behalf of the local authority in respect of the head injury was originally filed on 6 June 2017 and was responded to on behalf of the father and mother later that month. The threshold in respect of the arm fracture was contained within the application for a care order and was responded to by the mother on 20 August 2018. The father's response was contained in a position statement filed by him before this hearing commenced.

8. At the conclusion of the evidence the local authority provided an amended schedule of findings as set out below.

January 2017 injuries

1. *CD's brain, spine and retinal injuries were inflicted non-accidentally by F between 1.30pm and 2.12pm on 23 January 2017 through a shaking mechanism involving significant force well beyond that used during normal handling.*

2. *F knew that the force used to cause these injuries was excessive and likely to harm CD.*

3. *F failed to seek medical attention for CD having injured him and lied to the paramedics, treating doctors and M about the cause of injury despite knowing that an accurate and full history was required.*

4. *No findings are sought in relation to the bruises observed on CD during the January 2017 hospital admission.*

November 2017 injuries

5. *The metaphyseal fracture to CD's right humerus was inflicted non-accidentally by F between 3 and 13 November 2017 by pulling and/or twisting the limb with excessive force. For the avoidance of doubt A Council does not seek to include M in a pool of perpetrators. On the balance of probability the court should find that the fracture was likely to have been inflicted by F.*

6. *The bruises observed by Dr. C and Dr. H on 17 November 2017 were inflicted by F on an unknown date through the application of rough and excessive force when handling CD.*

7. *F knew that the force used to cause the fracture and the bruising was excessive and likely to harm CD.*

8. *F failed to seek medical attention for CD having caused his fracture and his bruising.*

9. *M neither witnessed nor knew how CD's fracture and bruising were sustained. No finding is sought that M colluded with F to hide the cause of the fracture from professionals.*

10. *A Council does not seek a finding that M sought to dissuade F from taking CD to hospital on Sunday 12 November 2017. F's evidence about their conversation on Sunday 12 November 2017 is unreliable. M took appropriate action in seeking medical attention when she did.*

11. M continued to advance the 'cot bar' thesis despite knowing CD's arm was unlikely to have been fractured in that way and closed her mind to the possibility that F was responsible:

(a) She knew F had lied to her and to medical professionals during the investigation into CD's brain injuries in early 2017;
(b) She had lost her trust in F during the previous proceedings, continued to have lingering concerns about him even after the designated family judge's July 2017 judgment, re-introduced the children to him gradually thereafter but lost her trust in him again during her pregnancy with DD;
(c) She knew, or ought to have known, from the care and gentleness with which she removed CD's right arm from the cot that she was unlikely to have fractured his arm yet continued to argue that she had;
(d) She knew from the expert evidence of Dr. Halliday and Dr. Rylance that she was unlikely to be responsible for the fracture yet continued to assert that she did not know if this were the case even in her oral evidence;
(e) Despite 11(a)-11(d) above, she failed to challenge F and was reluctant to blame him because to do so would risk splitting up the family for a second time and she relied on him for support;
(f) She struggled with a sense of her own responsibility in allowing F back into the children's lives.

9. There was some considerable debate in submissions about the content of paragraph 11 of the amended schedule. The local authority and the Guardian took the view that such findings would inform the ongoing assessment process and were entirely usual and appropriate. In particular on behalf of the mother, Mr Sampson submitted that it would be wholly inappropriate for the court to make such findings which were more properly reserved to the next stage of the case if it was reached. As I indicated in submissions it seems inevitable that I would have to consider and reach a view on some of the issues raised within paragraph 11 although whether they would formally constitute findings of fact for threshold purposes is another matter.

The Parties' Positions

10. The local authority contended that the father was responsible for CD's head injury through shaking him. The father denies shaking him. Although under no legal burden to provide an alternative explanation he says that his injuries must arise from either an infection, or a low-level fall, or a combination of the two or from an unknown aetiology. The mother's position in relation to CD's head injury in legal terms was that she supported neither the local authority nor the father's positions, being essentially neutral. In human terms she was obviously desperate for an answer.

11. The local authority originally contended that either the mother or the father caused CD's humeral fracture. After the evidence had concluded the local authority withdrew any allegation against the mother and asserted that the father was responsible for the fracture. The father denies being responsible for the fracture. Although under no legal burden to provide an alternative explanation, the father contends that the fracture most likely arose from CD trapping his arm in the bars of the court and the mother's efforts to free it. The mother denied deliberately causing the fracture but contended, both

before and after the local authority's case against her was withdrawn, that it was most likely to have arisen as described by the father.

12. CD and BC's Guardian has been neutral as to causation.

13. Although as a result of the local authority's change of position in relation to whether the mother was responsible for CD's fracture the possibility of permanent separation of the children from both of their parents has now largely disappeared my determination of these issues will clearly have profound implications for all three children. Most particularly in relation to their father it will determine whether he caused a very serious injury to his 15-day-old son through shaking him and whether he fractured his 10-month-old son's arm through yanking it or whether CD's injuries were sustained without culpability on the father's part. The determination of this issue will dictate whether CD, BC and DD return to something close to normal family life with their father or whether their relationship might be severely restricted due to the risk that he might pose to them. However even though the local authority no longer seeks findings that the mother was responsible for CD's fracture, if I determine that the father was responsible for either or both of CD's injuries the threshold for state intervention in the family will have been crossed and inevitably further consideration will need to be given to their future and in particular the mother's commitment and ability to protect them from the father. I should say that the mother has been very clear in her unwavering commitment to putting her children first. She said, and I believe her, that she would die rather than see her children harmed.

14. Over 10 days I have considered evidence from eight medical experts, the mother, the father and two of CD's treating health professionals in order to determine whether the local authority have proved their case against the father. I'm grateful to all of those involved in the case for the assistance they have given me in determining what has been a difficult case.

The Law

The burden and standard of proof

15. In respect of the task of determining whether the 'facts' have been proven the following points must be borne in mind as referred to in the guidance given by Baker J in *Re L and M (Children)* [2013] EWHC 1569 (Fam confirmed by the President of the Family Division in In the Matter of X (Children) (No 3) [2015] EWHC 3651 at paragraphs 20 – 24. See also the judgment of Lord Justice Aikens in Re J and *Re A (A Child)* (No 2) [2011] EWCA Civ 12, [2011] 1 FCR 141, para 26

16. The burden of proof is on the local authority. It is for the local authority to satisfy the court, on the balance of probabilities, that it has made out its case in relation to disputed facts. The parents have to prove nothing and the court must be careful to ensure that it does not reverse the burden of proof. As Mostyn J said in [Lancashire v R 2013] EWHC 3064 (Fam), there is no pseudo-burden upon a parent to come up with alternative explanations [paragraph 8(vi)].

17. The standard to which the local authority must satisfy the court is the simple balance of probabilities. The inherent probability or improbability of an event remains a matter to be taken into account when weighing probabilities and deciding whether, on

balance, the event occurred [Re B (Care Proceedings: Standard of Proof) [2008] UKHL 35 at paragraph 15]. Within this context, there is no room for a finding by the court that something might have happened. The court may decide that it did or that it did not [Re B at paragraph 2]. If a matter is not proved to have happened I approach the case on the basis that it did not happen.

18. Findings of fact must be based on evidence, and the inferences that can properly be drawn from the evidence, and not on speculation or suspicion. The decision about whether the facts in issue have been proved to the requisite standard must be based on all of the available evidence and should have regard to the wide context of social, emotional, ethical and moral factors [A County Council v A Mother, A Father and X, Y and Z [2005] EWHC 31 (Fam)].

19. The court is not limited to considering the expert evidence alone. Rather, it must take account of a wide range of matters which include the expert evidence but also include, for example, its assessment of the credibility of the witnesses and the inferences that can properly be drawn from the evidence. The court must take into account all the evidence and furthermore consider each piece of evidence in the context of all the other evidence. The court invariably surveys a wide canvas. A judge in these difficult cases must have regard to the relevance of each piece of evidence to other evidence and to exercise an overview of the totality of the evidence in order to come to a conclusion.

20. Thus, the opinions of medical experts need to be considered in the context of all of the other evidence. While appropriate attention must be paid to the opinion of medical experts, those opinions need to be considered in the context of all the other evidence. It is important to remember that the roles of the court and the expert are distinct and it is the court that is in the position to weigh up the expert evidence against its findings on the other evidence. It is the judge who makes the final decision. Cases involving an allegation of non-accidental injury often involve a multi-disciplinary analysis of the medical information conducted by a group of specialists, each bringing their own expertise to bear on the problem. The court must be careful to ensure that each expert keeps within the bounds of their own expertise and defers, where appropriate, to the expertise of others. When considering the medical evidence in cases where there is a disputed aetiology giving rise to significant harm, the court must bear in mind, to the extent appropriate in each case, the possibility of the unknown cause [R v Henderson and Butler and Others [2010] EWCA Crim 126 and Re R (Care Proceedings: Causation) [2011] EWHC 1715 (Fam)]. Today's medical certainty may be discarded by the next generation of experts. Scientific research may throw a light into corners that are at present dark. That affects neither the burden nor the standard of proof. It is simply a factor to be taken into account in deciding whether the causation advanced by the one shouldering the burden of proof is established on the balance of probabilities."

21. The evidence of the parents and of any other carers is of the utmost importance. It is essential that the court forms a clear assessment of their credibility and reliability. They must have the fullest opportunity to take part in the hearing and the court is likely to place considerable weight on the evidence and the impression it forms of them [Re W and Another (Non-Accidental Injury) [2003] FCR 346].

22. When seeking to identify the perpetrators of non-accidental injuries, the test of whether a particular person is a perpetrator is the balance of probabilities [Re S-B (Children) [2009] UKSC 17]. It is always desirable, where possible, for the perpetrator of non-accidental injury to be identified both in the public interest and in the interest of the child. Where it is impossible for a judge to find on the balance of probabilities, for example that parent A rather than parent B caused the injury, neither can be excluded from the pool and the judge should not strain to do so [Re D (Children) [2009] 2 FLR 668] and [Re S-B (Children)]. Where a perpetrator cannot be identified, the court should seek to identify the pool of possible perpetrators on the basis of the real possibility test, namely that if the evidence is not such as to establish responsibility on the balance of probabilities, it should nevertheless be such as to establish whether there is a real possibility that a particular person was involved. When looking at how best to protect child and provide for his future, the judge will have to consider the strength of that possibility as part of the overall circumstances of the case [Re S-B (Children) at paragraph 43].

Lies/Withholding Information

23. It is common for witnesses in these cases to tell lies in the course of the investigation and the hearing. The court must be careful to bear in mind at all times that a witness may lie for many reasons, such as shame, misplaced loyalty, panic, fear, and distress. The fact that a witness has lied about some matters does not mean that he or she has lied about everything [R v Lucas [1981] QB 720]. It is important to note that, in line with the principles outlined in R v Lucas, it is essential that the court weighs any lies told by a person against any evidence that points away from them having been responsible for harm to a child [H v City and Council of Swansea and Others [2011] EWCA Civ 195].

24. The family court should also take care to ensure that it does not rely upon the conclusion that an individual has lied on a material issue as direct proof of guilt but should rather adopt the approach of the criminal court, namely that a lie is capable of amounting to corroboration if it is (a) deliberate, (b) relates to a material issue, and (c) is motivated by a realisation of guilt and a fear of the truth [Re H-C (Children) [2016] EWCA Civ 136 at paragraphs 97-100].

25. In Lancashire County Council v The Children [2014] EWFC 3 (Fam), at paragraph 9 of his judgment and having directed himself on the relevant law, Jackson J (as he then was) said:

> "*To these matters I would only add that in cases where repeated accounts are given of events surrounding injury and death, the court must think carefully about the significance or otherwise of any reported discrepancies. They may arise for a number of reasons. One possibility is of course that they are lies designed to hide culpability. Another is that they are lies told for other reasons stop further possibilities include faulty recollection or confusion at times of stress or when the importance of accuracy is not fully appreciated, or there may be inaccuracy or mistake in the record-keeping or recollection of the person hearing and relaying the accounts. The possible effects of delay and repeated questioning upon memory should also be considered, as should the effect on one-person hearing accounts given by others. As memory fades, a desire to iron out wrinkles may not*

be unnatural - a process that might in elegantly be described as 'story-creep' - may occur without any necessary inference of bad faith."

26. All the evidence is admissible notwithstanding its hearsay nature, including local authority case records or social work chronologies which are hearsay, often second or third-hand hearsay. The court should give it the weight it considers appropriate: Children Act 1989 s.96(3); [Children (Admissibility of Hearsay Evidence) Order 1993]; [Re W (Fact Finding: Hearsay Evidence) [2014] 2 FLR 703].

27. When I turn to the evidence, I bear all these factors in mind in reaching my conclusions on whether the Local Authority have proved that the father shook CD and thus caused the brain injury he sustained on 23 January 2017, and whether the local authority have proved that the father caused CD's fracture in November 2017 by pulling and twisting his arm.

The relevance of previous judgments

28. During this hearing I have been undertaking the third of the three-stage approach set out by Mr Justice Charles in [Birmingham City Council v H; H & S [2005] EWHC 2885]; an approach that has been endorsed by Sir James Munby P in [Re-ZZ and others [2014] EWFC 9] and Lord Justice Peter Jackson in [St Helen's Counsel v M & F (Baby with Multiple Fractures – Rehearing) [2018] EWFC 1]. Having decided that the decision reached by the designated family judge should be re-opened and having determined that the process should involve a complete rehearing of the evidence I am not bound by the findings previously made by the designated family judge. I do not think this judgment is the time or the place to explore the perhaps subtle differences in approach to the previous fact-finding judgment evident between Sir James Munby P in re ZZ (above) and McFarlane J (as he then was but now the President) in Birmingham City Council the H and others [2006] EWHC 3062 (Birmingham No 2). I of course have regard to the fact that following a lengthy and detailed consideration of the evidence in July 2017 the designated family judge reached the conclusions that he did for the reasons set out in his judgment. But having determined that that decision should be reopened because there was a solid case for doing so I have approached this case on the basis of considering the case afresh where the burden lies on the local authority to establish its case.

The Evidence

29. I have been provided with the equivalent of some 20 lever arch files of evidence. I have also been provided with a detailed case summary from the local authority, a summary of the law relevant to fact-finding hearings from the father's team (agreed by all parties), a schedule of expert evidence (again I think agreed by all parties or at least on which they have had the opportunity to comment), a medical chronology, a schedule of antibiotics administered, a schedule of telephone calls (drawn from the telephone records), and a family photo album.

30. I heard evidence from eight medical experts, from three of CD's treating team and from the mother and father. Many of them gave evidence by video link which in the main worked surprisingly well.

31. The trial template for the ten-day hearing which had been agreed by the parties provided for the evidence to conclude at the end of day eight and for submissions to be given on day nine. Somewhat to my surprise the template provided for me to give judgment on the morning of day ten. Not being in possession of Hermione Granger's 'Time Turner' (strictly speaking she had it on loan from Professor Dumbledore) I indicated to the parties that I might need a little more time to digest and evaluate the written and oral evidence, to consider the submissions, and to prepare a judgment. I therefore reserved my judgment at the end of day nine. Although it has been said on many occasions before it bears repeating again; trial time estimates must be given on the basis that they incorporate all elements of the court-based process, including sufficient time for judicial pre-reading, oral evidence, the preparation of written/oral submissions and, finally, preparation and delivery of the judgment. In a ten-day case, which would almost certainly have taken the advocates many long hours of preparation, the idea that any judge could do justice to the parties by the delivery of a judgment with almost no preparation time was wholly unrealistic. In overstretched family courts up and down the country it is not fair to either the parties or to the judges to provide unrealistic trial templates which require a judgment to be delivered either off-the-cuff, or to be reserved to be fitted in around the inevitably over-full diaries of judges already coping with very heavy workloads. Although at the end of the day the case did not overrun its trial estimate, better use of the allocated time might have been made had it been possible for specific days to be set aside/found for the preparation of closing submissions and the delivery/handing-down of the judgment, together with any directions that needed to be given consequential to the judgment. Obviously such matters need to be considered at the earliest possible stage in terms of case management.

32. The Chronology at Appendix A sets out those parts of the evidence which I consider it necessary to set the detailed context for this judgment. It cannot of course rehearse all of the evidence that I have heard or consider to be relevant to my findings.

33. The Table of Medical Evidence at Appendix B sets out the parts of the experts' evidence which I consider to be of central relevance to the determination of the issues before me. Again it is but a poor summary of the totality of their very extensive individual and collective opinion. The minutes of the experts meeting held on the 29 May 2018 contain an extremely helpful discussion which was plainly of great value both to the experts themselves in achieving clarification of various points and in allowing them to air, discuss and test their respective opinions. I'm also very grateful to the parties for providing me with an agreed schedule which set out the conclusions reached by each of the six experts in the original and these proceedings.

34. In assessing the credibility of the parties, I have regard to the consistency of their evidence with previous accounts they have given, how internally consistent it is and its consistency with other evidence and known facts. I take into account whether any witness has any motive to give evidence which is other than truthful. I also have regard to their presentation in giving their oral evidence as well as the content of what they said.

The Parties' Credibility

35. The mother gave evidence over the course of two days. By the end of the first day she was clearly very tired and was at that point just embarking on her evidence about 23

January 2017. I adjourned and she resumed the following morning to deal with that aspect of her evidence.

36. The mother was I thought open and frank in the evidence she gave me. The extent of her devotion to the children was palpable. She is clearly highly empathetic and her concern about the impact of events on the children was at the forefront of the evidence. She clearly put their needs and welfare before her own. Her description of how upsetting the changes had been for BC and how confused she had been by separation, reunification and separation from CD, together with her expression of how she would rather it had been she who suffered the brain injury rather than CD were both delivered in a way which demonstrated a real connection with her children's emotional and physical well-being.

37. During her evidence Mother at times struggled to describe the events of the afternoon of 23 January finding it easier to refer to what she had previously said in statements or in evidence. When I urged her to try to take herself back to that day to recall what happened she became very distressed and told me how she found it very difficult to do so because she just pictured CD lying in hospital and her being terrified that he was going to die. The overall impression that I gained from her evidence in relation to the afternoon was that until she took CD from Father she had been relatively unconcerned about his condition. That is hardly a surprise as Father had not told her that anything significant had happened limiting his explanation to saying that CD had vomited and had not been himself and that he was worried. He therefore completely disarmed Mother from being able to make any true assessment of the seriousness of the situation between 14:12 when he called her and about 15:00 when she herself took CD from him. At that point she appears to have appreciated that CD was very poorly and in her oral evidence she accepted that this was so. The content of her calls to 111 and 999 contain some aspects which would suggest that CD was not in such a serious condition. At one point in her evidence she described him having his eyes open at one stage which on Mr Richards evidence would be entirely inconsistent with him having suffered a serious brain injury unless it was simply the eyelids moving up due to gravity whilst CD was on his back. The totality of her descriptions and the evidence of others in my view demonstrates that at no time in the mother's presence was CD conscious. When she was asked about her understanding of unconsciousness in relation to the calls to 111 and 999 Mother described how she didn't believe somebody could be unconscious and moving and thus her description to 111 of him not going to sleep was almost certainly inaccurate. The picture which emerges from the mother's evidence, from her mother's evidence, from the father's evidence and from the 999 calls is of the mother becoming increasingly panicked and frantic as CD continued to experience what almost certainly were fits and as his breathing and condition deteriorated. To the extent that the records of the 111 and 999 calls paint a less serious picture of CD's condition, or perhaps better described an inconsistent picture of CD's condition, I conclude that this is attributable to the mother's propensity to under rather than over exaggerate, her innate desire for everything to be fine both of which were based upon the fact that as far as she was concerned nothing had occurred to CD which would give rise to any reason for concern. This being her second child and she having gone through all of the new parent anxiety in relation to her first child, I have little doubt that she originally thought this was nothing really to worry about. Had she known that CD had in fact been subject to at least a fall and if not something much worse she would no doubt have called 999 shortly after 14:12

and would have rushed home and taken CD immediately to hospital. The father's behaviour in failing to say anything to the mother which might have allowed her to make a more informed decision is quite frankly disgraceful and unforgivable. Thus overall I concluded that the mother was a credible witness who was doing her best to tell the truth albeit at times struggling to recall detail, particularly when it related to events of 23 January 2017. In general her accounts over time have remained consistent with each other and are internally consistent and are consistent with independent contemporaneous evidence.

38. The father was an altogether different witness. I note that the designated family judge concluded at paragraph 61 of his judgment that the father came across as a quiet, gentle man, a man who refused to be riled in cross examination. He noted that he was a man who had been described as chilled and that was the impression the designated family judge got. In the early part of his evidence he was indeed measured, controlled and undemonstrative. He did not at any stage show any obvious emotion when describing what happened to CD or the consequences for CD. However as the questioning went on a different picture emerged and quiet gentle and chilled was not the impression I got. In the witness box he was forthright, argumentative and self-justificatory. Much of his evidence appeared more focused on himself and the impact of events on him than on CD; in distinct contrast to the mother. He accepted that he had a temper although he denied ever being violent. He did not seem to think there was anything wrong in having threatened to kick another parent in the maternity ward; rather he considered himself fully justified. He clearly was needled by Mr Goodwin QC's cross examination of him, particularly when an inconsistency was pointed out. There were aspects of his evidence which were both very hard to follow because they changed but also extraordinary. This was particularly so in relation to his account as to why he did not call 999 after he dropped CD and witnessed him fitting but also in relation to his explanation for why he did not tell the mother, the paramedics, or any of the hospital staff about what he said had happened to CD. His attempts to justify not calling 999 ranged from not knowing their number through to not being able to obtain their number from the Internet through to not thinking to ask the mother or anyone else in the block of flats or outside for help. He also suggested that for cultural reasons he was wary of the emergency services including the ambulance. His explanation for not telling the mother was rather more straightforward; he thought that she would not trust him to look after CD any more. He didn't seem to appreciate that in not telling her he had completely disabled her from making any sensible judgment as to how seriously ill CD was. In his police interview he told them that he had told Mother that CD had hit his head on his arm; that of course was untrue. His explanation for not telling the treating doctors about what had happened there also was highly variable. At one point in his evidence he seemed to be saying that he hadn't understood the importance of telling doctors what had happened; at another he seemed to be saying this was for cultural reasons. However he finally accepted that he had appreciated how important it was for doctors to be told what had happened so that they could make informed decisions. He accepted that he had known this on 23 January 2017. His only explanation then as to why he had not told the treating doctors was that he was worried about how this would make him look. Given that by early evening on 23 January 2017 or at the latest by midnight, he was aware that his son was in a critical state where he might die and where he knew that it was important that doctors understood what had happened to CD in order to deliver the best treatment to him his failure to tell them that he had at

the least dropped CD is an extraordinary demonstration of putting himself before his son; saving his own skin rather than trying to save his own son's life. Of course this does not mean that he has necessarily lied about what happened to CD. Shame, fear, embarrassment are all well recognised drivers of falsehood. Of course in this case though shame and fear might also cover his emotional response to having shaken CD and so I must weave his account and what I can infer from his temperament and his lack of honesty into the other aspects of the evidence which support the alternative explanations for how CD suffered the injury that he did. There were aspects of his evidence which change from one moment to the next. In one breath he would say that he had begged the mother to take CD to hospital; the next he would say that he had not wanted him taken because of the 'wolf eyes' of the paramedics looking at him. When he was asked about the circumstances relating to CD's arm fracture he appeared at times to be adding detail on the hoof. He was sure Mother had told him she used bubble bath on Saturday night; but this was never mentioned to Ms K. He thought CD had started to use his arm less on the Tuesday or Wednesday but he didn't mention it to Ms K he just begged the mother to take CD to hospital again. None of this finds any reflection in his statement or any other contemporaneous documents. In his police interview he said he wanted to check the swelling on CD's arm, in evidence he said he didn't want to check the swelling. He asserted that most days he wasn't even at home and yet when his work patterns are explored at the time of CD's head injury he was at home Sundays to Tuesdays and by the time of his arm fracture he was home Sunday to Tuesday and Thursday. He denied having behaved aggressively towards the foster carer although the contemporaneous notes clearly recorded ways in which he had and his denial of the incident where he was alleged to have threatened her when passing her on his bicycle. (The notes record that a passerby intervened to reassure the foster carer). His accounts were therefore not consistent over time and were not consistent internally or in many respects with external evidence. This is particularly so in relation to January 2017 but also to some degree in relation to November 2017. He did not come across in his oral evidence as open and frank but was often defensive, avoidant of responsibility and far less connected with the impact of events on the children than the mother.

39. The evidence of Dr H, Ms R and Ms K was given in a straightforward fashion as one would expect of health professionals. Their notes were made either contemporaneously or shortly after the appointments. They are likely therefore to be a reasonably accurate record of what occurred.

The factual context

40. My detailed rehearsal of the relevant facts is contained in the chronology as Appendix A.

The medical evidence

41. My detailed summary of the medical evidence is contained in the schedule at Appendix B. Each of the experts instructed were specialists in their fields and highly renowned within their specialisation. The minutes of the experts' meeting provide a fascinating and informative record of the joint discussion which ranged far and wide over the issues engaged in this case. It was a constructive and objective discussion with each expert listening to, deferring to and taking on board the views of the others and exploring the case from all angles. From my perspective it is an invaluable tool to

assist a judge in determining the issues which arise from very complex medical evidence. None of the experts involved considered that an unknown cause was an issue. I would like to extend my thanks to the experts for the measured and objective approach that they have all taken both during that meeting and in giving their evidence.

Discussion

42. In determining whether the local authority has proved on the balance of probabilities that the father shook CD thus causing the severe brain injuries he sustained in January 2017 and later in November 2017 that he injured CD's right arm by pulling and/or twisting it, I have attempted to draw all of the strands of the evidence together; the parties accounts, the contemporaneous and other documentary evidence and the medical evidence in order to generate a comprehensive and broadly based evaluation of what can be established. In undertaking this exercise, I have cautioned myself about relying too heavily on the medical evidence but rather have placed that in the context of the history which emerges from the parties and other contemporaneous documents. In terms of tying in the parties accounts I have of course brought to bear my assessment of their credibility; which in itself in part is linked to how their account fits in with the contemporaneous evidence as well as the medical and other evidence.

43. Mr Goodwin QC on behalf of the local authority has placed very considerable emphasis on the medical evidence both in relation to the head injury but also in relation to the fracture. He is of course entitled to do so and does not have the benefit in making his submissions of having in mind the conclusions I have reached as to the credibility of the parties or the overall historical picture. In relation to the head injury he points to the fact that the overall picture which emerges from the medical experts is that the head injury is not consistent with infection but is consistent with the culture being contaminated and the injuries arising from trauma. He urges me to focus on the process by which the injuries could have occurred physio-pathologically but to weave that into the witness evidence and to avoid compartmentalisation of the medical evidence. In particular he emphasises that the prodrome (the period during which symptoms emerged) or the history given, in reality creates a picture during which CD was seriously unwell from the moment the mother first saw him when she returned home. This he submits is not consistent with an infective process which should be progressive and would demonstrate worsening illness in the course of the day. He pointed out that by the conclusion of his evidence Dr Cartlidge, who had relied heavily on a protracted deterioration as supporting infection, accepted that the shorter period actually involved was more consistent with trauma. Mr Goodwin placed particular emphasis on Professor Klein's evidence, in particular how long it would take for an infection to develop and cross over the blood-brain barrier (20 to 24 hours) and how the CRP could not be normal on admission if a very serious infection causing extensive damage was present at that point in time. He emphasised that the evidence provided from Professor Stivaros in relation to the multi-compartmental bleeds in the subdural space, the bleeding in the ventricles, the blood in the subarachnoid space, the diffusion pattern in the hypoxic-ischaemic injury, the absence of inflammation of the meninges or evidence of vasculitis were all inconsistent with infection and consistent with trauma. He pointed out that spinal bleeding was agreed by Mr Richards and Dr Cartlidge to be likely to result from trauma. He also laid

considerable emphasis on the evidence from Mr Newman that the multiple haemorrhages seen in the eye were not consistent either with infection or with a short fall. Mr Goodwin invited me to conclude that the combined evidence from the mother, the father, the ambulance service and the paramedics pointed to CD being very seriously unwell from soon after 14:00 and that Mr Richards, who along with Dr Cartlidge had the greatest reservations about the explanation, said that the mother's account suggested CD was severely encephalopathic in the course of the afternoon. Mr Goodwin suggested that the father was inexperienced, tired and there was credible evidence of him having a short temper and that his lies (including his failure to disclose) provided a real basis upon which one could conclude that it was more likely than not that he had shaken CD.

44. In relation to the fracture Mr Goodwin submitted that the medical evidence from Dr Halliday and Dr Rylance was completely inconsistent with the injury being sustained by anything to do with the cot bars. I did not interpret their evidence as being quite so absolute. In any event to adopt this approach would be to in effect adopt a linear approach and to exclude any other cause which would disregard any other evidence and would be contrary to the proper approach of placing medical evidence in the context of other evidence. Mr Goodwin QC did emphasise that metaphyseal fractures of this sort in non-mobile children are in the vast majority of cases associated with inflicted or non-accidental injury. He emphasised the sort of forces which are engaged to cause such injuries and that Dr Halliday was clear that there was no evidence of bone weakness caused by the steroid medication CD had been taking. He submitted that the father clearly had the opportunity, the temperament, and (dependent on my finding in relation to the head injury) the propensity to injure CD. He submitted that the lack of a close bond that the father felt for CD also made it more likely that he had injured him. The local authority also relied on the likelihood that the father had lied in various ways as establishing the probability that he had caused the injury. I remind myself that lies insofar as they support a conclusion that an individual has caused an injury could have some direct causal connection with that incident. The fact that the father lied in relation to the January incident does not support a conclusion that he caused the November injury. On the other hand lies about the November injury, if without any other reasonable explanation for them, might do so.

45. On behalf of the mother Mr Sampson took particular issue with the inclusion by Mr Goodwin of paragraph 11 in the amended schedule. He urged me to be very cautious in my approach to the mother's attitude towards the father and to what extent I could hold the matters outlined in paragraphs 11(a) to (f) against her. He emphasised the evidence of those professionals who have had dealings with the mother that supported the conclusion that she was a good mother. He also emphasised that the independent social work assessment reached a similar conclusion. He emphasised that there was nothing to show that the father had a propensity to violence and that the mother's experience of the father caring for the children had been that he was taking to it albeit still lacking in experience.

46. In relation to the fracture Mr Sampson emphasised that Dr Rylance had, contrary to Mr Goodwin's assertion, accepted the possibility that a cot related incident might explain CD's injury. He noted that Dr Rylance accepted that the mechanism of extracting CD's arm could potentially be consistent with the injury and that whilst it might be at the margins the court must acknowledge that medicine is not a precise

science and that doctors and courts must have regard to the possibility of unusual circumstances which might explain the injury or even that there might be an unknown cause. He submitted that the totality of the circumstantial evidence did not establish on the balance of probabilities that the fracture was caused non-accidentally. On the contrary he submitted that the totality of the evidence is that it is unlikely that it was caused non-accidentally. He noted that the mother did not accept that the father had ever urged her to call an ambulance in January 2017 or in November 2017 and that he was lying about this. He pointed out that the contemporaneous evidence did not support the father's recollection of there having been a discussion on the 11 November 2017 about CD catching his arm or the father seeing swelling on the 12 November 2017.

47. Mr Kirk QC on behalf of the father submitted that the prodrome period which was so important for the experts in reaching their conclusions was wholly inconsistent with a serious shaking injury which on Mr Richards assessment ought to have led immediately to CD being in a coma. This assessment of the impact of a shaking event which had caused such extensive injury was supported by Dr Cartlidge. Mr Kirk emphasised that both the father's own account of CD after about 14:00, taken together with the mother's observations (supported by what she said to the ambulance service in the 111 and 999 calls) and those of the paramedics were just not consistent with CD having suffered a very serious brain injury through shaking. Rather he submitted the progress across the course of the afternoon was more consistent with an infection. He submitted that Dr Cartlidge, a consultant paediatrician with huge experience of infection in neonates, had never come across contamination of a blood culture by Streptococcus B. He noted that, as Dr Cartlidge pointed out, Mr Newman's evidence about the significance of bilateral retinal haemorrhages had to be viewed in the context of the reporting bias. He reminded me that Professor Stivaros accepted that the venous sinus thrombosis was more consistent with infection and would commonly develop later in trauma. Overall, Mr Kirk submitted that the father's description of CD vomiting and arching his back, falling to the floor and banging himself indicated that CD was indeed suffering from an infection which caused him to vomit and that the fall to the floor had resulted in a combination of infection and trauma causing the injuries. He submitted that the evidence about the father himself suggested that he was a man who loved his son and who cared for him and thus was highly unlikely to have shaken him in the way alleged. He submitted that the designated family judge had found the father to be quiet and gentle, or chilled and that his inexperience as a father to a new born should not be held against him. It is something that every first-time parent has to adjust to. Mr Kirk QC realistically accepted that the father had not been honest to the mother or professionals. He invited me to conclude that this was through a combination of fear and shame. Fear that the mother would not let him look after CD again and shame that he had dropped his own son on one of the first occasions he was left alone to care for him. Mr Kirk QC said that the father now could see that his failure to be frank was completely wrong and that his actions in withholding the information was explained by fear. He urged me to therefore accept that this was a case where the father had a good explanation for his dishonesty and that I should not hold it against him or infer that he must have done something because he lied about it.

48. In relation to the fracture Mr Kirk QC invited me to conclude that on the balance of probabilities the injury to CD's arm was caused by a cot related incident. He submitted that the medical evidence suggested that the injury had occurred between 3

and 13 November 2017, because the periosteal reaction timed it to that window. He submitted that most likely it occurred on the 11 or 12 of November 2017 which are the dates that the father and mother give for the first serious incident when CD's arm was stuck in the cot bars. Mr Kirk QC invited me to accept that the first incident happened on 11 November 2017 when he was at work because the father recalled telling his work colleagues about it and that there was no reason to disbelieve the father on this. The explanation that the mother gave of pulling and pushing CD's arm in order to free it would provide the mechanism by which such an injury could be caused. The father made clear that he did not suggest that the mother had deliberately injured CD but merely that she the injury may have been caused as she tried to free his arm. He denies having either the opportunity or the inclination or propensity to injure CD.

49. Miss Warner on behalf of the Guardian advanced no positive case in relation to either the head injury or the fracture. She invited me in particular to focus on the parents' evidence of the history in relation to both injuries and to focus on what was clear or uncontentious from the expert evidence and she reminded me that it was possible that CD didn't react in the way that would commonly be expected but that there was some knowledge of an individual rallying after the immediate injury and then deteriorating. She invited me to make observations on the mother's attitude towards the father as suggested by the local authority.

50. Everyone accepts that CD was essentially well up until about 14:00 on 23 January 2017. Apart from the mother noticing that he had some bogeys around his nose when he went to bed on the 22 November 2017 which were still present when she left at about 9 AM on the 23 November 2017 he was well. He had fed well, he had slept, he was not unsettled or whingy he had no temperature; in short there was nothing to suggest that he was anything other than a well baby on the morning of 23 January 2017. The father fed him his mid-morning feed and he then settled himself to sleep in his bouncy chair before waking for his lunchtime feed around 13:30. The father describes him taking his bottle in the usual way and the first sign of difficulty was when CD vomited. I note that the father's account of whether he vomited after 1 ounce or only at the end of his feed differs over time but I don't find any significance in this.

51. It is also clear that by 18:22 when the CT scan was taken that CD had sustained a very severe injury to his brain. The totality of the clinical notes from YH from his arrival there at 16:46 show a seriously unwell baby described as floppy, unresponsive, twitching and with a Glasgow coma score of 3/15. The one reference to him being alert appears in a letter written some time afterwards and I conclude that this is an erroneous reference. The evidence from the ambulance crew starting at 16:39 are consistent with the hospital observations. CD was not then responsive to stimulus, had irregular breathing, irregular heart rate and was observed to be twitching. The blanching rash observed could not be GBS related. So what was CD's condition between about 14:00 and 16:39? The records of the 111 calls the first of which was made at 15:36 shows that the mother was in large measure reporting what the father had told her, hence references to him being sick about 11 AM, and him vomiting his feed. The mother was obviously relaying information the father had given to her. What does emerge is that he was twitching or randomly moving his arms and legs and thus in all probability having seizures resulting from damage to his brain. It also

emerges that he was making a weird breathing noise. The mothers account of how she described him as not being unconscious was clearly linked to her belief that in order to be unconscious one had to be still. Her description of his eyes being closed but him not being asleep, his arms twitching, his legs twitching and him feeling cold are all suggestive of him being very seriously unwell at that point. The fact that he would not feed or make any attempt to suck his dummy or to spit it out also suggest that he had by that time sustained a serious injury to his brain. Given that the mother had no reason to suppose anything had happened to CD whilst she had been out I conclude it is more likely given her general personality that she was if anything underreporting his condition. The mothers evidence is that there had been no real change in CD's condition between her first observing that something was wrong at around shortly before 15:00 and the call to 111. When she came in at about 14:45 she had no reason to suppose that anything was wrong. All she could see of CD was him lying across the father's shoulder apparently asleep. That she then gave BC her snack and put her shopping away all suggest she was unconcerned, and of course she had no reason particularly to be concerned. She thought that the father was getting in a tizz. However as soon as she took CD and saw him twitching she became worried and hence she called her mother at 15:04 mentioning that CD was struggling to breathe. All of this suggests that by no later than 14:45 CD was seriously ill. That therefore leaves the period between 14:00 and 14:45.

52. The medical evidence is not all one-way traffic. However there are aspects of it which do seem to emerge clearly. All of the experts who were able to comment on the issue accepted that one had to look for a process which explained physio-pathologically how the damage to CD's brain could have occurred. The evidence ruled out disseminated intravascular coagulation, a congenital bleeding disorder or an acquired disorder of coagulation. The only remaining process which would explain the bleeding in a case of infection is vasculitis but there was no evidence of vasculitis whether from an imaging perspective or otherwise. In particular Professor Klein and Dr Williams were clear (and ultimately Dr Cartlidge did not disagree) in order to have caused such severe brain injury the vasculitis would have to have been detectable by imaging and would inevitably have been accompanied by a raised C-reactive protein reading. In addition some components of the injuries CD sustained are not consistent with an infective process.

i) The multiple bilateral retinal haemorrhages and the absence of any evidence of infection in the blood vessels in the eyes either at the time or evidence subsequently illustrating infective damage.

ii) The absence of any imaging evidence of vasculitis which would be necessary to explain bleeding in infection

iii) The presence of multicompartment subdural and subarachnoid bleeding is unexpected in infection and common in shaking

iv) the diffusion pattern of the hypoxic-ischaemic injury was the reverse of what would be expected in an infection case

v) the presence of haemorrhage in the lumbosacral spine is only consistent with trauma

53. However the medical experts were all of the opinion that the history as they had understood it of a stuttering or deteriorating baby was not consistent at all with a shaking injury of the sort which had caused this degree of brain injury. It was more consistent by far with an infective process being underway. This aspect of the medical evidence though is of course dependent upon how one interprets both the parents' account and the contemporaneous records. But reduced to the most basic functions, CD was a baby who lived from 14:00 until admission at 17:00 and was breathing and crying, not a child who was obviously floppy, unresponsive or in a coma. As Dr Cartlidge said these things are usually not subtle they are immediately apparent to a carer.

54. The father's own account is that from shortly after 14:00, CD was throwing a fit, kicking his arms and legs in a strange way. The father in his police interview described CD making a strange noise and then going quiet or relaxing. It seems to be significant that the father himself noticed a very sudden change in CD's behaviour rather than a gradual deterioration. This in itself points more to trauma than to infection.

55. The totality of the medical evidence overwhelmingly dismisses as an explanation for these injuries a low-level fall. The multicompartment bleeding, the bilateral retinal haemorrhaging the lumbosacral spinal bleed are all inconsistent with a low-level fall on its own. Furthermore the medical evidence, in particular that of Dr Williams and Professor Klein is that an infection together with a low-level fall could not explain the injuries because in order for a low-level fall to have contributed in any way it would have had to be in combination with a highly advanced infection where vasculitis would be evident both in imaging and in the blood tests. If an infection could not be evidenced then it could not have been of a severity which could in any way have combined with a low-level fall to cause the injuries seen.

56. I have to then ask myself whether the father's failure to tell the mother what had happened or to tell any of the treating professionals what had happened between 14:00 on the 23 January 2017 and about 17:00 on the 24 January 2017 is of any significance. Was his lie to the mother and to the treating professionals that nothing had happened other than CD bumping his head against his arm a lie which was understandable and explicable or was it something told in order to cover up a far more sinister truth? Is the failure explicable by reference to the father's fear of the mother's reaction or his shame at being labelled an incapable father? In some circumstances a court might readily conclude that a lie of this sort was explicable by fear or shame and that no inference should be drawn from it. However in a situation where from about 17:00 on the 23rd it appeared that CD's life hung in the balance and where the father knew that the medics needed to know what had happened to CD his failure to tell them his account of CD falling and banging his head becomes very hard to rationalise in any way. To only offer the account to the police in interview strongly suggests the father protecting himself rather than protecting his son. When your child's life is at risk for most, indeed I would suggest all, parents the child's welfare becomes the absolute priority and all personal considerations take second place. Thus any shame or fear of dropping a baby would be overcome by the desperate urgency of the baby's health. What might not overcome that desperate urgency is the shame or fear of the personal consequences of having done something which would merit a far, far higher level of condemnation or indeed criminal liability. I therefore consider in this case

that the father's failure to give an explanation to the mother and the treating professionals and then to give a dishonest explanation falls outside the parameters of 'Lucas' and may corroborate other evidence supportive of a shaking event.

57. It is of course the case that Professor Klein is very clearly of the opinion that the Streptococcus B culture that was grown from the blood sample taken at 17:20 on the 23 January was a contaminant. All of the other experts have deferred to his opinion although that is not determinative from the courts point of view. Dr Cartlidge of course was of the view that he had never in his professional career treated a blood test result finding of GBS as anything other than a genuine one and which warranted antibiotic intervention. However that of course is quite different to whether a GBS culture was a true reflection of an infection which might lead to septicaemia and/or meningitis. Professor Klein's opinion is of course based on an evaluation of all of the components that he would expect to find in an infection case and their absence in this leads to the conclusion that this was a contaminant. The presence of another contaminating organism supports his conclusion but is not essential to it; he reached that conclusion before he had seen that there was another contaminating organism in the blood sample. He thought it was significant that the prodrome was in his view not at all consistent with an infective process.

58. On the basis of my conclusions as to CD's condition from about 14:00 on 23 January 2017 and that he suddenly became very seriously unwell with evidence of fitting and altered consciousness which was observed by the mother from about 15:00 onwards and which is verified by her accounts during the 111 and 999 calls and subsequently verified by the paramedics and the admitting team I conclude that CD suffered some serious injury to his brain at around 14:00. The medical evidence looked at in its overall effect, adding the various components and weighing explanations which are more consistent with infection, shaking, or dual pathology overwhelmingly point away from infection as an explanation and towards a traumatic shaking injury. The fact that CD did not immediately experience a lights out, immediate coma state may be explicable by the rallying thesis advanced by Dr Cartlidge or maybe a reflection of some strength of his constitution. The evidence as to CD's sudden deterioration and condition from about 14:00, taken together with the overall picture created by the medical evidence including the likelihood of contamination and absence of infection together with the father's dishonesty over what had happened to CD at around 14:00 all coalesce to generate the conclusion that it is far more likely than not that the father subjected CD to a serious shaking incident at about that time. Given the father's failure to come clean about what happened one can only speculate as to what caused him to behave in that way. Having seen him and accepting that he would not willingly or deliberately harm his child I conclude that a combination of tiredness, and/or frustration and/or, shortness of temper and something which occurred whilst he was caring for CD caused him to pick CD up and losing self-control to subject him to a severe shaking which caused immediate injuries to CD's brain which progressed over the course of the afternoon until identified by the CT scan which showed such severe injury. He then failed to tell anyone what he had done because he well understood that the symptoms CD was exhibiting were a result of him shaking CD and that there would be serious repercussions for him had he disclosed the truth of what he had done. He no doubt hoped against hope that he had not seriously injured CD and hence did not immediately seek medical attention. Perhaps CD rallying or his innate constitutional strength reassured the father to some degree and fortified his instinctive

decision to protect himself rather than seeking immediate medical attention. However as time passed and it became clear that CD was very seriously unwell, perhaps close to death, his failure to disclose the truth or even his version of it was shameful. I therefore find that the local authority have established to the appropriate degree paragraphs 1, 2, and 3 of the amended schedule.

59. Turning then to the fracture that CD sustained in November 2017. Have the local authority established on the balance of probabilities that the fracture was inflicted non-accidentally by the father between the 3 and 13 November 2017 by pulling and/or twisting the limb with excessive force? Can they establish that the bruises observed were also inflicted by the father on an unknown date through the application of rough and excessive force when handling CD?

60. The medical evidence is that the fracture was caused at the latest by 13 November 2017 but more probably more likely to be between the 3 November 2017 and 12 November 2017. The nature of the fracture is that it is caused by pulling and/or twisting movement operating on the distal end of the bone. The force used to cause it is considerably more than would be used in normal handling. In non-mobile children the vast majority (80% plus) of these injuries are caused in a non-accidental manner; usually by an adult yanking on a child's arm or swinging them by the arm or some similar mechanism. However, these fractures are not associated with much of a pain response.

61. The picture of CD's presentation in relation to this injury could not be more starkly in contrast to that which was the case in January 2017. Far from an injury suddenly becoming apparent this injury remained unobserved, on the mother's case until Thursday, 16 November 2017. On the father's case he was aware of an injury, namely swelling, on 12 November 2017. During the period from 3 November 2017 through to 17 November 2017, CD saw some six health professionals including a specialist in paediatric neuro rehabilitation and a physiotherapist. None of them noted CD experiencing any difficulty with his right arm or experiencing pain. Until the mother raised the issue with Miss R and then her health visitor and GP nobody had picked anything up. And yet we know for a fact that at some point between the 3 and 13 November 2017, CD suffered a fracture to the distal end of his right humerus. The local authority asserts that the injury must have been caused by the father pulling and/or twisting CD's arm. Although the father maintains that he would not have had the opportunity to do this, still less the inclination, the evidence demonstrates that for considerable periods of time he was at home with CD either with or without the mother. It would take very little time to perpetrate the deed and on the evidence of Dr Rylance CD might not have shown distress even at the time of the injury being sustained still less afterwards.

62. The evidence clearly establishes that CD experienced issues connected with the use of his right arm. Both Dr H and Ms R noted the issues with his awareness of his arm and his use of it. Ms R noted that he was neglectful of his arm and could get it into awkward positions but was seemingly unaware of this. Other professionals including Ms K were aware, as described by both the mother and father of CD appearing to have altered sensation or experience of pain in some respects.

63. The contemporaneous records appear to corroborate the parents' account of CD experiencing issues with putting his arms and or feet through the cot bars. This was

not a new revelation by 18 November 2017 but appears to have been something which was ongoing since at the latest early November 2017. Ms R was clear that she was aware of the issue prior to her appointment with CD on 17 November 2017. She had seen him on 9 November 2017 and 16 October 2017.

64. The evidence from the mother, Ms K, and VA taken together all point to there having been an incident when CD got his arm stuck in between the cot bars on Sunday, 12 November 2017. The mother's account is more consistent with Ms K and VA's accounts than the father's and given that I consider her to be a more reliable historian anyway I'm satisfied that there was an incident on the evening of Sunday, 12 November 2017 when CD got his arm stuck. The description that the mother gave of that incident in her police interview with CD having got his arm caught above the elbow and having twisted his body so that it was at an angle through the bars is understandable in the context of Ms R's observation that CD was capable of getting his arm into awkward positions and being unaware of it because of his lack of awareness of his right arm generally. We know from the measurements of the distance between the cot bars and the evidence of the circumference of CD's arm around his elbow that it is entirely conceivable that his arm could get stuck around the elbow particularly when one takes account of the 'cushingoid' issue arising from the steroid medication he was taking. I did not find Dr Halliday's evidence on the point at which the arm might get stuck persuasive. She appeared to suggest that it would be more likely to get stuck around the upper arm which was the widest part of the arm but that does not take into account the fact that at the upper arm the soft tissue is compressible whereas around the elbow the bones are at their widest and not compressible.

65. It seems from the mother's description of the incident and in particular Ms K's recall of how the mother had seemed panicked and had spoken of taking a saw to the cot that this was something that was enough to make this mother seriously worried. Given what she had already been through and her familiarity with childcare I do not get the impression that she is someone easily rattled. Thus, for her to be describing feeling panicked suggests she was really quite worried. Whilst children might commonly put their arms and legs out through cot bars, hence cot bumpers and nets, it is most unusual for them to get a limb stuck. Hence it is almost unheard of in the medical literature of reported cases for a child to suffer an injury including a fracture from this sort of mechanism.

66. So, it appears that there was one incident of CD getting his arm stuck on Sunday evening. The medical evidence from Dr Rylance is that metaphyseal fractures aren't associated with much of a pain response. Given that Ms R was able to manipulate CD's right arm during a physiotherapy session without generating any pain response from him it is entirely conceivable that any person caring for CD might have been unaware through normal activity that he was carrying a fracture at some point prior to 18 November 2017.

67. Given the contemporaneous evidence from 17 November 2017 together with the account of the mother I'm satisfied that there was a further incident with CD getting his arm stuck in the cot on Wednesday, 15 November 2017 which also took considerable effort, including the deployment of bubble bath, to free.

68. So, which of the two options placed before the court seems more probable? Although the father is not obliged to offer any explanation and it is for the local authority to

establish their case on the preponderance of probabilities I do have an alternative explanation as to how this injury might have been sustained.

69. It is right that the father's account of CD's injury has been inconsistent and indeed I conclude that he has probably lied about aspects of it. His assertion that he begged the mother to take CD to hospital on Sunday 12 November 2017 or Monday 13 November 2017 simply does not ring true. His account of CD's arm getting stuck on the Saturday and he seeing swelling on the Sunday is inconsistent with the balance of the other evidence. However, his general account of their being issues to do with CD experiencing difficulties with getting his limbs through the bars of the cot and getting them stuck is generally consistent with the mothers account; it is the timing and what was seen and done that is the issue. In this respect I conclude that the father's inaccuracy is a product not of dishonesty but of unreliability as a historian tinged with a desire to present himself in the most favourable light as somebody who cared for CD. In respect of his lies is this a case where I ought to infer guilt? In this respect I do not feel the same compelling reasons for inferring anything from the father's lies as I did in respect of the head injury. Having gone through care proceedings from January to July 2017 the father was acutely aware in respect of any injury (as indeed was the mother) that social services would be involved and the finger of suspicion might be pointed at him. For him to give an account seeking to show himself in a favourable light as a concerned parent is understandable. Given he is not the most honest of witnesses his adding some embellishment to present himself in a good light does not lead to the inevitable or likely conclusion that he was lying to cover up his own reprehensible actions.

70. True it is that he is capable of losing his temper, that he was less skilled in settling CD who was capable of having tantrums with carers other than his mum, that he was not as connected to his son as the mother was and true it is that he had previously injured his son and so might be said to have a propensity to injure him again. The medical evidence does indeed demonstrate that the very significant majority of this sort of injury is inflicted by an adult using excessive force by pulling or yanking their arm or swinging them by their arm. Does all this in combination demonstrate that it is more likely than not that the father caused CD's injuries in November 2017? This cannot be answered in a vacuum. The other possible alternative explanation must also be brought into account and both considered alongside each other to determine which seems the more probable.

71. We know that CD experienced two episodes of getting his arm caught in between the bars of the cot. The first of those episodes appears to me to have been the more significant although both involved the arm truly being stuck. If CD's arm was stuck in the bars it seems to me that the most likely place would be just above or around the elbow as the soft tissue (fat) would allow it to move unhindered but at the point of the elbow which is the widest part of the bony structures, it could become stuck or might not pass easily through the bars particularly if at an angle. The mechanism is certainly consistent with the medical evidence as to the mechanics of such injuries. The issue which troubles me is the force that Dr Halliday and Dr Rylance both said would be necessary. Both thought it unlikely that sufficient force could be generated by freeing the arm albeit Dr Rylance considered the possibility was at the margins of what medically was conceivable. However, the medical evidence alone does not determine the matter. I have to take account of the bigger picture. It seems to me that if the arm

was twisted by CD subsequently moving it might generate forces within the joint which might combined with the force used by the mother to free the arm be sufficient to cause a fracture. Given that we know from the mother's descriptions to others that she felt panicky it is of course entirely possible that whilst doing her best to be careful that in her anxiety she may have used more force than in retrospect she recalls. I consider I must also factor into the overall evaluation the possibility that the steroid medication played some role, notwithstanding Dr Rylance was clear that he thought it was most unlikely to have played a role.

72. The medical evidence was that the fracture and the bruising/swelling above and below the elbow were unlikely to be connected. This was not a case of a fracture causing bleeding into the surrounding tissues and thus swelling. So there were two separate incidents either two incidents of trauma or two other incidents whereby injury could have been caused. The mother describes a second incident when CD got his arm stuck in the bars on Wednesday 15 November 2017. It was sufficiently stuck to require baby lotion to free it. The bruising and swelling could not be dated but this second incident of the mother having to use some degree of force to free his stuck arm might have been the cause. It would be surprising if CD had two episodes of trapping his arm in the cot bars around the elbow which might potentially have caused bruising and swelling but which did not; and at the same time to have been subjected to an assault of some sort which did cause such bruising along with an earlier assault which caused the fracture.

73. Taking all of the evidence into account, the parents' accounts, the medical evidence, contemporaneous documentary evidence and stepping back and seeking to evaluate all of that in the round I conclude that it is more likely than not that CD accidentally sustained a fracture on the Sunday night as a result of trapping his arm in the cot bars, twisting into an awkward position and the mother having to use a degree of force to free it. No culpability attaches to her whatsoever; she did not use excessive force. It was an unlucky combination, perhaps a unique combination of circumstances. I also conclude that it is more likely than not that CD accidentally sustained some mild bruising and swelling around his elbow as a result of getting his arm trapped again between the bars on the Wednesday night. Again no culpability attaches to the mother. The bruising and swelling was relatively minor in nature but in combination with the underlying fracture in the course of Thursday, CD began to demonstrate through crying when he rolled onto his side and through crying when dressed or undressed that there was a problem with his right arm. The mother acted promptly in relation to this by arranging a GP's appointment for the Friday morning. She acted entirely appropriately. In tandem with this, self-evidently I conclude that it is less likely that CD sustained the arm fracture by having his arm pulled or twisted with excessive force by his father sometime between the 3 and 13 November 2017. I also conclude that it is less likely that CD sustained the bruising around his elbow as a result of the application of rough and excessive force when the father was handling CD. I therefore do not find that paragraphs 5 to 8 of the amended schedule are established by the local authority.

Conclusions

74. I hope it is apparent from this judgment taken as a whole that I regard the mother as someone who cares deeply for her children and has their best interests very much at heart. I have made clear that I consider that she puts their interests before her own.

The father I have also made clear is a deceptive man who puts his own interests first. Whilst it is clear that the mother was aware that the father had lied to her about what had happened on 23 January 2017 he was of course subsequently absolved of any responsibility for those injuries by the judgment of the designated family judge. It is no surprise therefore that she forgave the father at that point in time. To anyone who 'knew' he had not injured CD they might well have accepted his reasons for not saying that he had dropped CD. As I have said above in my Lucas analysis shame and fear might have explained his lack of candour in that context. The mother cannot be criticised for having taken him back. She obviously wanted her children to have a father in their lives. The concerns that she had about the father were laid to rest by the July judgment. Having concluded that CD's injury in November was indeed caused by the cot bar thesis the mother of course cannot be criticised for advancing that thesis. The mother taking a common-sense view throughout the proceedings understandably could only see the cot bar thesis as a probable explanation. As these proceedings have progressed and as she was obliged to consider the expert evidence in relation to CD's head injury inevitably she came to question whether he had indeed been responsible for it notwithstanding the judgment of the designated family judge. Ultimately those concerns led her to end the relationship. That can hardly have come as a surprise to the father. It comes as no surprise to me. Loss of trust is a powerful corrosive element. How many relationships could survive a lurking suspicion that one party had been responsible for causing life changing injuries to their child?

75. I therefore conclude that:

    i) The father was responsible for CD's brain injuries which he caused by shaking CD

    ii) no one was responsible for CD's arm fracture which was caused in a unique and unlikely to be repeated set of circumstances

    iii) no criticism attaches to the mother as alleged for her attitude to the father and for her advancing the cot bar thesis in relation to CD's arm fracture.

76. It seems likely that some further assessment of the mother may be required in relation to her response to these findings and her attitude to the father consequent upon this judgment. Plainly further assessment of the father will be necessary.

77. That is my judgment.

CHRONOLOGY: Appendix A

24 Oct 1988	F born. Works as a market trader	
3 Jun 1992	M born	
12 Jun 2008	M and siblings placed in care.	
30 Oct 2013	BC born. Her biological father has played no role in her life. Lived with M. No child protection concerns	
Late 2016	M and F commence a relationship. They do not formally	*Y-I220*

	cohabit but F stays over with M and BC on a regular basis. M says father was involved in BC's care; for instance, taking her to nursery on occasions and undertaking other tasks. She describes him as chilled.	
8 Jan 2017	CD BORN Born at term, healthy with normal Apgar scores of 8 at 1 minute and 10 at 5 mins. Weighed 3.708 kgs; head circumference 35cms; on 50th centile. Intramuscular Vitamin K administered and no abnormalities were noted. At about 17.00 hours Staff Nurse hears F twice threaten another person in Bed 2D in maternity unit 'If you brush against me again, I'll just kick you." F says that another father in maternity unit bumped into him several times whilst he was holding CD and he threatened him in order to get him to stop. He considered this was appropriate.	I 52 Y -P445
9 Jan 2017	M discharged home. F stays with M and BC and CD. F describes M generally looking after CD during the day and he looking after CD during the night. F was at this stage working Wednesday to Saturday inclusive. M says CD was hard to wind and needed to be winded after each ounce of milk he drank. He would drink 4 ounces both breast and formula. She said she would feed him at least twice during the night	*Evidence* *Y-I221*
16 Jan 2017	F looks after CD whilst M takes BC to nursery and undertakes other chores. M says she had to show F how to do some things but F took to caring from CD well as a new father. M says that F was a bit of a worrier and tended to be more rather than less concerned.	*Y-I220 evidence*
20 Jan 2017 (Friday)	Health Visitor visited CD and M at home and undertook a Family Health Needs Assessment. M says that she reported a small lump on his head, but no further concerns raised.	*J28-34; I25*
	MGGM dies	
22 Jan 2017	M has her family over for Sunday dinner. Notes CD has bogies and can hear his breathing. Other than this she thought he was well. Went to bed at same time as CD. There was no evidence as to whether CD awoke during the night and had his usual two bottles.	*Y-I221*
23 Jan 2017	M says she rose before it was light. CD was asleep. He still had bogies up his nose. M prepared his bottle and gave BC breakfast. F got up and dressed BC and M told F to give CD his bottle when he woke up. M then took BC out. M goes out at 8:59. As far as she was concerned CD was well. M goes to shopping centre. Her telephone records show a series of missed calls	*Y-I221* *Agreed Schedule*

	which she attributed to actions of a previous boyfriend. The telephone records show no calls between M and F in the course of the morning. M said she did some shopping and then dropped BC at nursery for 12:15 before going to her English class. During the lunch break at 13:37 the records show M called F but he did not answer. M says it rang but then cut off. She thought she had lost the signal	
Morning	Although F's account varies slightly as between his police interview, his statement and his oral evidence the overall picture that he gives is as follows. F says that CD had his bottle at about 10:30 AM. Following that he changed him and then put him in his reclining bouncy chair. He said he didn't play with him on the floor as he was not comfortable playing with him in that way. He said CD went to sleep in his bouncy chair and stayed asleep throughout the morning. Whilst CD was asleep the father said he watched Top Gear episodes back to back and had something to eat. He said nothing untoward had occurred and as far as he was concerned CD was well throughout the morning. He was asked whether he had smoked any cannabis that morning which he denied. He accepted that he was tired.	
1.30 PM	F gives a concise account in his witness statement for the first proceedings. He gives a much fuller account in his police interview. The account is broadly the same. F says that CD awoke at about 1:30 PM. He says he made up his bottle and got everything ready on the settee where he would feed him. He says that he fed CD in his arms. In his statement he says that he gave CD about an ounce, winded him until he burped and then gave him most of the rest of the bottle. (The record of what F told the hospital at 18:20 varies slightly in that it records that F said he took a small amount and then vomited this.) F says that this process took roughly half an hour F says that he then rested CD upright on his left knee with his right hand on his tummy and went to put the bottle on a cabinet behind his right shoulder. He says that CD then was violently sick, arched his back and fell backwards off his knee onto the floor which had a thin carpet over a hard surface. He says that CD then started crying. F says he then put CD on the changing mat and went to get a new baby grow for him.	*Y-C28/Y-I48* *Y-P496*
14:00	F says that he '...noticed he was kicking his arms and legs in a strange way...' or '...he was like just throwing this fit...' He said that he then carried him into the bedroom and took one of the cushions from the top of the bed and put it in the (think) middle of the bed and put him on top of it. In his police interview he said '...and he just wasn't stopping. He was just still going. Hardly, he	*Y-C28/Y-I49*

	was like, just hardly crying. When he was crying, he was like [unintelligible noise], and where like, no, something is wrong, something is wrong...' He says he then took him back into the living room and sat down on the couch but one of the cushions next to him and put CD on it 'he was just relaxing, sleeping'. In his police interview he says that M then came in and was like '...know something is wrong...' and she took him from me and he was still doing the fit in her arms he was doing it. The father is clearly wrong in this part of the timing in his police interview.	
14:12	F called M. The call lasted two minutes 55 seconds. F says he did not know what was happening with CD and he phoned M. He says he told her CD was not settling and she said she would be home soon so he decided to wait for her. *Self-evidently F did not tell M anything about CD having had a fall to the floor or any other incident or accident.* M says that F sounded panicky and said something is wrong with CD '...I'm worried...' and told her that CD was crying and wouldn't settle and didn't seem himself. She says she could hear CD crying but it was a quiet cry (in her police statement she said it sounded like a normal cry). M says that because F was in her view very protective over CD she thought that he was overreacting and she told him should be back soon and to make him another bottle. *Although concerned there was no reason for M at this stage to be particularly worried given F did not say anything had happened to CD. Her belief that F was overprotective in respect of CD no doubt reassured her that there was nothing really to worry about*	*Agreed schedule* *C31*
	F says in his statement that after the call he sat on the bed with his shirt off and rested CD against his chest. He says this calmed him for a short while and then he began twitching again. In oral evidence, F demonstrated the movements He went back into the living room and put him on his knees with a cushion. He then put him over his shoulder and says this seemed to calm him. 'In his police interview he described him as fitting out and breathing weird'. In evidence he said his head was going, his body was going his legs and arms one when another, his breathing was wheezy and abnormal. Then CD would then relax and stop breathing in an abnormal way before starting to twitch and breathe unusually again.	*Y-I90*
	F said in evidence that after calling M he called his friend T. In T's statement which was made on 17 March 2017, he says that F called him and told him that he had accidentally dropped the baby and that M was on her way home. T says he referred to calling an ambulance. T	*Y-I250*

	says F told him that he was crying one minute then closing his hands and punching his arms. I did not hear T give evidence as he was not called. When the Designated Family Judge heard the case, he concluded that T was 'a completely unreliable witness' and he could not determine what really was said. The phone records record the telephone call is taking place at 16:14. F is adamant that the call took place at 14:14 but there is no reason to doubt the accuracy of the telephone records.	
14:30	M's English class ends and she makes her way home. On the way home she received a call from her mother and made a call to Annette. M's mother says that she received a call whilst at a funeral parlour and that M told her she thought something was wrong with CD. She says that M told her that F kept ringing her. The telephone records do not show repeated calls.	Y-I214 Y-I238
14:45	M arrives home with BC. M's accounts show slight variance but the general impression is consistent. M says that she saw CD on the father's shoulder and he appeared to be asleep; albeit it seems she could not see his face as he had his back to her. She says she suggested CD might need a bottle and F said that ever since he had had his last bottle and been sick, he hadn't been himself. F said CD had been moving his arms and legs in an unusual way. The impression given is that at this point she still remained essentially unworried. She put her shopping away and gave BC a pre-prepared snack before returning to CD. Whilst doing this she was talking with F asking him whether he thought CD was okay and whether they needed to call someone. F says he thought they should call someone. At this point M took CD from F and put him on the changing mat and she describes his arms and legs moving in a way that she had never seen him do before and which didn't to her seem normal. She said he did it for a couple of seconds and then stopped. As she started changing his nappy he started moving his arms and legs again in an unusual way. F says that when M came home he told her that something was wrong and he describes how she took him from him and that he was still doing the fit in her arms he was doing it. He told her that something was wrong and said, 'just call the ambulance because something is wrong.'	
15:04	M calls her MGM. Her statement records that M told her CD was flapping and that she mentioned he was struggling to breathe. She told her to call 111.	
15:36	M calls 111 who subsequently transfer her to 999 *<u>111</u>* *Sick about 11am...about midday... cried and twitching hands and kicking his legs...Not unconscious or*	*Q22* *Q1*

	fitting...he wont go to sleep…feels a little cold and making weird noise…breathing ok…a bit cold...not hot in the last 12 hours...His arms are going all over the place – his eyes are closed but he is not asleep… *[NB - operator says she can hear the baby crying]* *<u>999</u>* *...he's lying there and he's got his eyes closed but he's not asleep...is arms twitching and so are his legs...He feels quite cold I'm so worried about him*	
15:39	M calls MGM to say the ambulances still not there M is crying *MGM calls 999 and says CD has stopped breathing.*	
16:08	999 call M *<u>Andrew (clinician)</u>* *He won't drink his bottle...he's onto it then he isn't… he's just there twitching...hands and... sort of crying...been like this since afternoon time...he's not breathing...he's making a weird noise... [Andrew listens to breathing and upgrades the call] ...He's cold*	
	M says after call she tried another bottle and he wasn't taking the teat properly. Throughout this period the mother was clearly becoming more and more anxious and panicked, she was tearful and was desperate for the ambulance to arrive. She described how she was going to ask her father to drive she and CD to hospital when the ambulance didn't arrive	
16:14 – 16:19	F calls T. The telephone records make it clear that it was at this point that the father called T. The length of the call between the mother and father earlier also means that F could not have called T at 2:14 PM. Given The Designated Family Judge's findings about T's credibility and my conclusions about the timing of the call it is difficult to know what was said at this point in time. Clearly the ambulance was on its way by then which must have been known to the father as was the fact that CD was seriously unwell.	*I251*
16:23	Ambulance despatched	*Q22*
16:39	Ambulance arrives [M's mother was on phone to 999 to find out where they were when ambulance arrives] <u>Ambulance records</u> *History:* *patient been unwell since last feed this afternoon, patient vomited post feed/has since not been breathing as normal. As per parents' patient has been twitching on and off all afternoon states they've never seen him do this before* *presenting condition* *meningitis?*	

	o/A *patient in parents' arms, mottled skin, not responsive to stimulus. Airway self-maintained.* *Vital signs checked between 1657 and 1659* *General Assessment: On Examination* *Pt breathing...respiratory rate irregular… Placed on oxygen to minimal effect, irregular heart rate 90 to 140 bpm apyrexic …. mottled blanching rash to front abdomen limbs and chest … Normally more alert than the moment. While being assessed patient started twitching then stopped and settled down and repeated for longer intervals… Patient conveyed under emergency conditions* The fact that CD was not considered responsive to stimulus by the ambulance crew the evidence of his intermittent twitching and his irregular respiratory and heart rate are consistent with CD being unconscious and being very severely brain injured at this point in time. Mr Richards in particular confirmed in his evidence that the descriptions given by the father and mother and the ambulance records were consistent with CD being very unwell. He noted both the fact that CD did not respond normally to attempts to communicate or stimulate him, the fact that he did not feed or suck his dummy and the intermittent twitching as being signs that he had by this stage sustained serious injury to his brain.	
16:24	F calls T (2 seconds)	
16:46	CD arrived at the hospital [hand-over complete at 17.01]	*Q22*, L768
	Paediatric nursing assessment and observation chart - increased respiratory rate seizure decreased *temperature floppy* - *baby at home with father today. Mother found baby having a[n] unresponsive episode/? Seizure. Ambulance called. They be brought to a and E. Baby floppy, unresponsive, GCS 3/15 eyes one verbal one motor one ICU called and present in A&E on baby's arrival...Father very distressed and talking loud at times mother ha has a three-year-old daughter.*	*L677*
16:50	Paediatric Initial Assessment Form. Initial entries are derived from ambulance crew *16:50* - *twitching on recess trolley* - *IO access requested* - *IV access to right-hand attempted and established* - *cefotaxime and amoxicillin requested* - *bloods from right cannula*	*I124/L681*

	16:54 *- temperature 34 SP o2 100% on-02 via face mask, pulse 139* *16:55* *- I/O in preparation* *- second cannula in left hand* *16:57* *- ECG monitoring setup* *16:59* *pink I/O inserted right shin* *17:00* *I/O in situ* *second left-hand cannula in situ* ***bloods sent for analysis*** Professor Klein described the likely scene as being one of very considerable activity with a number of medical practitioners undertaking various tasks in respect of a very sick baby where there was a fear that the baby might die. In those circumstances he was of the view that the conditions existed in which contamination might occur as the usual preparatory steps for inserting a cannula such as the cleaning with an alcohol wipe might not necessarily have been achievable and in any event the clinicians may have picked up a source of contamination whilst either inserting the cannula or the blood container or the extraction mechanism. He said that strep B is a inhabitant of the gut and thus any sick or faeces would be a ready source of contamination. The fact that the culture was contaminated with staphylococcus epidermis showed that contamination was possible from that bacteria which lives on the skin naturally. Usual careful preparation for taking blood would usually mean that staphylococcus epidermis would not contaminate a specimen but it is the most commonly encountered contact compliment**.** *17:01* *rhythmic twitching on left side noted* *capillary refill noted to be okay* *17:02 venous gas results* *17:03* *Mum away making phone call*	

	1704 *Cefotoxime and amoxicillin infusions prepared* *17:05* *Cefotoxime and amoxicillin given* (seemingly by an intravenous cannula inserted in the left [L691]	
16:55 – 17:02	F calls M unanswered until 17:02 when they have a two-minute conversation. (See 17:03 entry above)	
17:06	- *Left foot cannulation attempted* - *baby moving rhythmic left arm twitching* *17:08 ECG leads reapplied, atropine administered* *17:10 Dr Watt* *17:12 history from mum* *Sucky (sicky?) baby, twitching bilateral all limbs lifeless appearance eyes closed but not asleep normally enjoy sleeping after a feed not himself.* *Earlier in day threw up his bottle (early afternoon), milk only in vomit; refused feeds, starting shaking arms and legs; cared for by partner during day (partner not living with mother), worried as CD crying/not sleeping during day; contacted mother with concerns approx 1430* *17:18* *laryngoscopy performed Dr J arrives.* *17:20* *CT head scan requested by Dr Jaya Powell stop Dr Watt explained to mother [treatment plan]. Transfer2 paediatric intensive care unit explained (Oxford or Southampton)* *17:20 blood test results;* ***CRP recorded as less than one*** Dr J letter of 30 Jan to LA states: *"…CD's initial examination was performed by Dr W during resuscitation…On initial presentation, CD was alert and active but intermittently having focal seizures and significant pauses in his breathing...Due to the poor general condition of CD with poor respiratory efforts and low heart rate he was sedated, intubated and ventilated as part of acute resuscitation. "Our initial differential diagnoses include neonatal sepsis, metabolic and neurological causes like stroke or trauma leading to bleeding in the brain, including the possibility of Non-accidental injury (NAI)."* [F23] This is the only reference to CD being alert and active at	L674*;* L679-693 *F23* L688 F23

	hospital. There is nothing in the notes of either the ambulance service the paediatric nursing notes of the emergency department clinical notes which at any stage refer to CD as being alert and active. In fact, the content of the notes all pointed to him being unresponsive to stimulus. It seems likely that this was written by Dr J in error.	
18:20	Dr W writes his notes. History from mum initially - *…Well breast/bottle-fed until today no temperatures mum returned at around 2:30 PM. CD was intermittently shaking legs and arms not responding normally… Mum notice breathing was irregular whilst waiting for ambulance mum reports that her partner had been concerned about CD because he had been unsettled, not sleeping, vomited his last bottle of milk.* Further history from Dad on arrival - *reports that CD was fine when he??? At 9 AM took his bottle as normal. When he was due for second bottle, only took a small amount then vomited this. After this he seemed very unsettled, dad tried to reposition him on his front and on his back he was throwing his arms and legs about will stop at that point mum came home.*	
18:22	CT scan of head (report by Dr. R at 8.18pm): she states: *"I am not a paediatric nor neuro radiologist. The images have been sent to Oxford for urgent specialist opinion and the patient is being transferred.* *There is extensive acute subarachnoid haemorrhage and I think left extra-axial haemorrhage overlying the left frontal temporo-parietal region. There is midline shift of approximately 4 mm and effacement of the anterior and posterior horns of the left lateral ventricle "*	L698
	Dr J discusses case and imaging with Mr L a consultant neuro- surgeon at TH Hospital (TH). He suggested an urgent neurosurgical transfer be undertaken	L696
19:35	Blood samples taken.	P74 & H121 - letter
	Later in evening when Dr J explained CT head scan results to parents, M. said she had noticed a lump on left side of back of CD's head a few weeks earlier and she had mentioned it to his H/V and nothing was done about it.	*Y- F22*
	Becky (?) who accompanied F to hospital says F said to her 3 times over the course of the evening, including once on the presence of M that CD hit his head on his arm. At the time F said this in M's presence it was at TH and M was withdrawn and in shock. She says F was very distraught saying 'Please God let him be alright'	I236

20:47	CD was transferred to TH	
21:24	CD arrives at TH and admitted to the Paediatric Intensive Care Unit (PICU). Urgent CT scans were requested.	
22:14	CT head scan at 10:14pm (Dr. U, Consultant Radiologist*). "Conclusion: extensive supratentorial injury and subarachnoid haemorrhage. Reported in conjunction with CTA."* Addendum at 11:16pm: *"High attenuation seen in the straight sinus and superior sagittal sinus suggestive of acute sinus thrombosis there is a filling defect in the CT venogram..."* Addendum at 9:47pm the next day: *"On further review with clinicians there is indeed some dural the heamorrhage over the left convexity and over the tentorium on the left."*	L29-31, L662-665
22:40	Meeting between M Mr L and paediatric intensive care unit consultant Mr M. M upset and asking how this had happened. Mr L asked M if there was any possibility of trauma to which M said no and said that F doted on him.	
23:19	CT Angiogram Intracranial scan (report verified by Dr. U, consultant radiologist): *"Conclusion: Probable superior sagittal and straight sinus thrombosis, pial dural fistula is less likely."*	L496
23:40	Mr L completes notes. By this time a further meeting had taken place after F had arrived and both M and F had been informed that CD's condition was life-threatening and that also surgical intervention was an option if the pressure continued to rise it might not be enough to save his life and might not be the correct intervention.	*L513/L518*
23:40	Blood tests at (full blood count, clotting tests) and at 11.41pm (biochemistry). Blood test at 11.52pm established blood group O positive [L52].	L12, L15, L41, L44, L51 - results
24 January 2017		
00:45	CD was notably fitting; therefore Dr N rang Dr P, Consultant Paed. Neurologist and he advised on seizure management. At 8.30am Dr P saw CD (intubated and ventilated). Dr S examined CD and noted a 2x1cm bruise on left wrist/hand and a 2.5cm x 0.2cm linear bruise on his back. X-ray of chest: heart and lungs normal (Dr T).	L767 L73, L767, L528 L539-541 (body maps) L5 & L32
12:34	MRI scan of head and spine (typed by Dr. E at 12:34pm and verified at 2:02pm):	L5-7 & l34, L493-495

	"Impression: *1.Appearances are in keeping with extensive bilateral ischaemic damage to the cerebral hemispheres, worse on the left compared to the right hemisphere, and tiny occipital haemorrhage.* *2. features of non-occlusive venous sinus thrombosis.* *3. Left frontal, temporal and parietal and right temporopolar subdural haematomas causing mild (approx. 5mm) shift of the midline to the right* *4. Extensive subarachnoid haemorrhage with small volume of intraventricular blood.* *5. Extra-axial bleed on both sides of the tentorium and in the retrocerebellar space down to the foramen magnum* *6. Extra-axial acute haematoma in the thoracic, lumbar and sacral regions.* *I would advise a discussion with the paediatric neuroradiologist and paediatric radiologist."*	
	Dr P was informed by YH Hospital (YH) that the blood-cultured organism was a streptococcus that was recognised as a cause for severe neonatal infection. Dr P discussed the case with Dr K, Paediatric Infectious Diseases consultant.	L770
14:00	Strategy meeting attended by treating clinicians, police social care et cetera. By this time TH had been notified by our BH that the blood culture had grown a streptococcus culture the strategy meeting notes this may be a contaminant and invasive streptococcal disease was not in the opinion of the treating clinicians present. The treating clinicians thought trauma/shaking is the most likely explanation. This appears to be the first suggestion that the streptococcus be culture was a contaminant.	E76
17:00	Dr P discussed with the parents' events leading up to CD's admission in the presence of the PICU consultant Dr. F, a rep. of the TH safe guarding team, and PC from the CP Unit at TVP. *I asked parents if there had been any trauma or injury. Dad mentioned?? Bump against his arm but I said this was very unlikely to cause the bleeding seen here. Parents are aware that further investigations will be required from police and social services.*	L769-770 *F13-14* *L552*
17:36	Blood tests at 5.36pm (biochemistry & toxicology) the C- Reactive protein at 34.6.	L15 & L45 - results
18:47	Blood tests (biochemistry & immunology) . Extended clotting screen was requested from the C Hospital. The absence from any later blood tests of streptococcus be culture growth is not considered significant because antibiotics had been administered very soon after CD had been admitted.	L15, L16, L45, L778 - results

	F arrested at TH on suspicion of causing grievous bodily harm with intent.	
21:49	F interviewed. *…That's what I'm saying M is going to hate me for this, but he didn't hit my arm, he fell right off my lap will stop literally fell off my lap. After I finish stroking his back I was moving everything from behind, where the couches...I was going to put him there. He was sitting right here and I was on the edge of the couch. I was going to move him over, so I took everything up, put this side and he just went down like that...My hand wasn't there, I couldn't stop it, I literally I could not go down and catch him he was, he was already down there...His whole body was leaning forward, but when he puked, he went, he went down...He went straight on the floor and just hit, roll on the side and I was like no no no no no no son no stop because I'm-they know me. I would never, never hit him, never. As he hit the floor, he just started crying. The only option in my mind I want to get him out of the puked garments he was in, like, so I put him on the changing mat, which was literally right over on my righthand side, from-I just put him right there, running the room to get some changing things came back out, he was like, just throwing this fit...And he just wasn't stopping. He was just still going stop hardly, he was like, just hardly crying. When he was crying, he was like [unintelligible noise] and were like know something is wrong something is wrong...I put a pillow right there and put him on it, and then he just like, he was just relaxing their sleeping, and then M came in and was like know something is wrong and she took him from me and he was still doing the fit in her arms he was doing it and I told her something is wrong. Just call the ambulance because something is wrong. That's when she called the ambulance.* F went on to explain that he had not told M this account he had told her that he hit his hand. He said CD hit his head on the carpeted floor. He explained that CD wasn't sucking his dummy and wasn't doing things he normally did. When questioned about why he hadn't said anything he said the paramedics didn't come to him they went to M. F suggested that he hadn't told M or the medical professionals because of the impression it would give of him one saying *how's it look you dropped your first child? Just look at it from my side, yeah, my first kid…. I do not hit I will not hear any of the kids I told you everything I got nothing to hide.* During the interview F said that he hadn't told anyone anything different.	I41/I102

23:11	Interview concluded	
23:30	TH Call received from police. F's account had changed. The records record F's account of CD falling backwards off his knee after vomiting.	L555
25 January 2017		
	Dr P discussed the case with Dr Z, senior paed. Neuroradiologist. *"She thought sepsis was a possibility and said she had seen this sort of change with meningitis but acknowledged this was rare. The neuroradiological differential included trauma including non-accidental trauma but she felt there was more abnormality than we usually see even in this diagnosis. I therefore think we now need to be cautious about defining the cause of this presentation. Non-accidental injury remains in the differential and must remain an important consideration but will be a diagnosis that will be hard to confirm from an evidential point of view unless specific abnormality is found on the skeletal survey.*	*F16*
10:42	Blood sample taken. This grew no streptococcus be culture.	
26 Jan 2017	CT head scan (radiology report verified by Dr J., consultant radiologist, at 4:52pm): *"Comment: New parenchymal haemorrhage of the left temporal lobe with increased mass effect and midline shift. No significant change in extra-axial haemorrhage. Increased loss of grey white differentiation which now diffusely involves the whole supratentorial compartment."* Ultrasound of abdomen as concern about mass in right side of abdomen. Ultra-sound was normal (report verified by Dr U at 12:11pm). Police meet with Dr P: he informs them that CD has Group B strep infection (common and easily picked up from skin) and he was going to contact Infectious Diseases for an opinion. Dr P was of the view that a fall from the sofa would not account for the trauma and sickle cell would not be an issue.	L3 & L29 L11-12 & L40 *I 32*
27 Jan 2017	Blood tests at 6:10am (full blood count and clotting tests), 1:47pm (immunology) & 6:41pm (toxicology). The C-reactive protein result was 22.6.	L12, L15, L16, L474-476, L778 - results
28 Jan 2017	Blood tests at 5:54pm (toxicology) & 5:57pm (biochemistry)	L15, L13, L43, L45 - results
	M gives statement to police (see above)	I222
30 Jan 2017	Blood tests at 11:49am & 11:53am (biochemistry & toxicology).	L13, L15, L43, L45 - results

31 Jan 2017	Second Strategy Meeting – held at TH and Dr P and police attended. Dr P confirmed that further specialist opinions were being sought as to whether injuries caused by trauma or Group B strep infection. Analysis of specimen/test results	*I 35* L491
1 Feb 2017	Analysis of specimen/test results	L491
3 Feb 2017	XR skeletal survey: (radiology report verified by Dr Kaye Platt, consultant radiologist): *"Conclusion: the sutural widening in the skull vault visible in previous CT scans is seen again. no other bony abnormality to suggest an injury is identified. Further views of at least the chest would normally be suggested at 10-14 days from initial presentation with suspected non-accidental injury, however I note that this investigation is already performed at 10 days from first CT scanning here and therefore unless there are further clinical concerns, repeat imaging of the ribs for healing rib fractures is not required."*	L33-34, L73, L464
4 Feb 2017	Blood tests at 1:24am, 8:06pm, 8:10pm & 8:11pm (biochemistry & endocrinology). Results analysed by Sheffield Children's Hospital.	L43, L44-45, L467, L469-473, L480, L485-487 L491-492 - results
6 Feb 2017	Confirmation received from microbiology at TH that blood culture at YH had grown Group B Streptococcus on sample taken on 23/01/17.	L73
7 Feb 2017	Blood tests at 10:17am (endocrinology)	L44, L466 - results
21 Feb 2017	Dr J referred CD to the Community Paediatric Opthalmologist and the Visual Consortium Team due to concerns about CD's visual inattention.	P83-87
23 Feb 2017	CD discharged from YH into foster-care.	P77-79
28 Feb 2017	CD assessed by Dr J in outpatient clinic. Dr J handed the case over to Dr E, consultant community paediatrician in neuro-disability [P90].	P89-91
27 March 2017	CD assessed by Dr E, consultant paediatrician in neuro-disability and report provided.	P95-101
June 2017	Children return to M's care	
June 2017	Fact-finding commences before The Designated Family Judge and takes place over 12 days. Judgment reserved	
21 June 2017	Dr E assessed CD (aged 6 months) in clinic.	H123-126
6 July 2017	Final Judgment of Designated Family Judge. Concludes that CD's condition was due to streptococcal B septicaemia and meningitis of a very severe nature.	F14-27
7 July 2017	GP made referral for CD to Occupational Therapy at D Specialist Children's Centre.	H171
July 2017	F begins to visit M at home and relationship resumes.	

13 Sept 2017	Outpatient review with Dr E: medication for epileptic fits was to be reduced and then stopped.	P68-69; H129-130; H131-133
9 Oct 2017	M. reported further abnormal movements to CD's GP (Dr Cunningham) who wrote to Dr E for advice.	P66
10 Oct 2017	CD was admitted to YH for management of seizures. EEG (measuring the electrical activity of the brain) showed that CD had continuous subclinical fits; i.e. the brain activity was in a convulsive pattern but the fits were not apparent by simple observation.	P65
15 Oct 2017	CD was prescribed a short and tapering course of steroid medication and discharged from hospital. This was described by Dr Rylance as a substantial dosage	P61-63
16 Oct 2017	CD had physiotherapy review.	H195
24 Oct 2017	Health visitor visited CD at home.	C139; J211
7 Nov 2017	CD attended Occupational Therapy appointment & Speech & Language appointment. They observed limited function and use in clinic but that M reported some use at home. They observed that M interact well and attend appointments on time and is well presented.	H165; J209; J206
8 Nov 2017	Dr E reviewed CD in clinic. Further EEG arranged for 2 days' time and orthoptics appointment was expedited. Developmental review arranged in December 2017.	P59; H137-138
9 Nov 2017	CD attended appointment with physiotherapist. The records contain nothing unusual in relation to how CD presented on that occasion. She said that M had mentioned prior to 17 November that CD was getting his arm stuck in the cot bars. F at home. CD looked after by F whilst M goes to Slimmers World.	H198; J206
10 Nov 2017	CD has an appointment with sensory consultant at 13:15 pm. Portage worker cancels appointment for Monday F at work and then out during the evening	
11 Nov 2017 (Saturday)	F's account - He was working and M rang him and said CD got his arm caught - Later he said they should call ambulance and she said no we'll deal with the portage worker, - He saw it was red and swollen. - On Sunday morning he asked to see it F was adamant that he received a call on the Saturday and that he had seen that CD's arm was swollen. M says she did some shopping during the day and F then came over for dinner before F went out during the evening	Evidence C45/C260
12 Nov 2017	M says they did some shopping as a family and then had a roast dinner in the late afternoon before F went out with T.	

12 Nov 2017	F says M said CD had got arm caught the day before and it was swollen. F says M said she needed to use bubble soap to pull it out. He says he saw it that evening before he went out and it was swollen and red. F says he said they should go to hospital but she said she'd speak to portage worker. F's oral evidence about this was at times hard to follow. He was unable to explain satisfactorily why it was that he had not insisted that CD was taken to see a doctor In his police interview and his oral evidence F says that on one occasion CD had both his arms pushed through the bars but he was easily freed.	C55/J120
12 Nov 2017	M says she manoeuvred his arm back into the cot as she pushed it through. *There have been two occasions…when I have had to really pull out…I don't how you can sleep like that…he can sleep...he has gone like that…CD I am going to wake you up [and she demonstrates pushing and pulling]* *I've squeezed through and put my hands on top of his hand and pushing and pulling back* *[She demonstrates pushing the arm through and pulling the body back]* *It was tender from just above elbow to just below elbow* *He pushes and he rolls and the arm goes in, he rolls on his side and he twists his body.* In her witness statement at C 55 she described that she was able to easily free his arm this statement was given on 12 December 2017. It is quite different to the description given in the police interview which was given on 22 November.	Evidence C55 J19 J27 J30 J50
	8:20pm M-F: *you gone out yet again like you have for the past 3 days and I am left sorting things out for the kids. Thanks* F out during the evening	N45
13 Nov 2017	VA says M told her that CD got himself wedged in his cot night before CD left with V when M's sister goes into labour. F collects BC from nursery	J192
	M says F took BC to nursery while she stayed at home with CD. F then returned home and they spent the day together.	
14 Nov 2017	CD visited by Portage worker '*M and F said to me that they were concerned that CD seemed to have a habit of hitting himself in the face with his hands and would bang his legs on the floor, and whilst in his cot. M then told me that on one occasion a few days ago CD whilst in his cot got his non-mobile right arm completely stuck in between the bars, and her*	J213/C233

	words were that if she had a saw she would have used it to free his arm as it was so stuck. M said that she had to help pull his arm free. M said she was keeping an eye on his arm after and said that she would take him to the doctors if it appeared that his arm was giving him any problems.' F says they looked at the swelling. [C45] which neither M nor portage worker recall In evidence she said that the mother engaged appropriately and had a good understanding of CD's issues and was towards the upper end of the spectrum of interested and engaged parents in her experience. She also said the father seemed interested. She said that M brought up about CD hitting himself in the face and banging his feet. She said she didn't seem overwhelmed by looking after him. In relation to the instant when CD got his arm stuck in the bars she said she got the impression that M had been panicked by it, saying she would *have used a sore on the cot if she had had one.* Her evidence suggests that the incident which is now pin-pointed to the Sunday evening (which would seem to be consistent with the expression the "the other day") did involve the arm getting properly stuck but didn't get the impression it was an on-going frequent issue (otherwise she would have advised as to safety matters as she did in relation to CD hitting himself and kicking the floor.	
15 Nov 2017	M spoke to health visitor on the telephone and Ms M recorded they discussed CD's recent EEG brain scan and the application for Disability Living Allowance. CD underwent an EEG at TH. Dr K, consultant neurophysiologist, noted "*an ongoing prediliction for focal seizures" and "an absence of physiological activities over both cerebral hemispheres in keeping with diffuse cortical dysfunction and marked dysmaturity."*	C139; J211 H119
	M says CD caught arm in cot bars *She describes putting CD to bed and then having left the room went back into see how he was and saw that he had got his arm stuck between the cot bars. She described that he had twisted his body. She said she had to get some bubble bath to put on his Babygro to help free the arm* *I was slowly pulling it* *I didn't want to jolt it* *I didn't like want to really force it out like doing it a little bit at a time and talking to him and it wasn't like that*	C49/J67

	(sudden movement) F says he saw CD's arm this evening and it was still swollen.	J124
16 Nov 2017	F at home M's family come over during the afternoon including her sister and new baby. M goes to Slimmers World from 5.30-7pm she says when she was getting CD ready for bed she thought his arm looked tender although CD wasn't in any pain and didn't seem distressed but it looked slightly red.	
17 Nov 2017	At 9.30am M rang the health visitor to report CD had got his arm stuck in the bars of his cot on 2 occasions in the past week. M said she was concerned he was not moving his right arm as much as before and appeared to become upset when rolling on to his side and she could not get an appointment with the GP. The health visitor arranged an appointment with the GP.	J275 J275; C138; J211
	At 10am CD was seen by a physiotherapist. M. told her CD got his right arm *"caught in cot bars and she had to pull it out."* She noted: *"Checked arm no colour change or change of posture but advised that good idea to get arm checked."* In evidence she described quite vigorous manipulation of CD's right arm. She said he did not display any discomfort during the session notwithstanding her description of what they did clearly must have involved movement around the elbow joint. She described how CD lacked awareness of his right arm and didn't use it much. He was neglectful of it. She described him getting into awkward positions, for instance lying on his right arm, and wouldn't necessarily be able to get out of them. She recalled M discussing in getting his arm stuck and there was a discussion about cot bumpers. She thought M had only mentioned one incident of him getting his arm stuck but she did not have a clear recall of what M said about it.	J259; H197
	M took CD to the GP appointment and reported CD getting his arm stuck in the cot bars twice. *Reports that about a week ago found him with right arm stuck up to shoulder between bars of cot and this was repeated a couple of days later. Says she had to forcefully remove arm because it was stuck. Since has noticed seems upset when rolling onto right arm and? Swelling at elbow* The GP noted: - 2cm oval bruise on the inner aspect of his wrist - 2 circular bruises measuring 1-2cms just above the right elbow.	J 275/ J215/P4

	Redness and swelling and CD becoming very upset when GP tried to examine this area The bruises were "brown, green and yellow in colour." He was noted to be distressed when handled for dressing on this side and on rolling on to his right side. He tolerated firm palpation all along the arm GP noted redness and swelling in her police witness statement, but only swelling in her GP records. The GP wrote a referral letter to the YH stating: *"Mum reports that he has pushed his right arm through the gaps in his cot over the past week causing it to get stuck. Mum has to pull his arm out last week but since then the distal humerus seems swollen and he is crying when he rolls onto that side."* In her evidence M could not recall seeing CD distressed rolling on his right side nor particularly him being upset when she took him out of his snowsuit or putting him back in. She produced photographs of him lying on his right arm when it was fractured and of him using it; neither apparently inducing pain.	H37 P56
	By this time CD had completed the course of steroid medication prescribed on 15/10/17 [J275]	
	At 4pm Dr O, consultant paediatrician, undertook a medical assessment and recorded M saying CD had put his arm through cot bars on Sunday 12th and Wednesday 15th November (at 7.30pm) when his arm was wedged. He noted: - "*marks on CD's right arm which was very slightly bigger than the left. These were subtle and faint.* *1. approximately 2x3cm faint bruise above the elbow joint on the front (over the bicep)* *2. 0.5x0.5cm darker bruise overlying mark described in 1* *3. approximately 2x3cm faint bruise below the elbow joint on the forearm."* *Explained injury consistent with mechanism; accidental injury.* The body map reports cushingoid appearance An X-ray was taken of CD's arm. Dr. O considered X-ray to be normal and CD was discharged home. Photographs were taken in hospital of CD's arm.	H91 J275-276; H41-43; H103 (body map) H143/144 P58; H19; H117; H216-218 - images H212-215 - photos
	M discharged home	
18 Nov 2017	A radiologist (Dr Y) reviewed the X-ray and observed a metaphyseal fracture of the distal right humerus. CD was recalled and admitted for observation and skeletal survey. A periosteal reaction was noted indicating the fracture	P41, J259-260; H141; H143-146

	was at least 4 days old at the time of the X-ray. Dr O prepared a Child Protection Assessment Report and concluded: *"Whilst I am of the opinion that fracture appears in keeping with the proposed mechanism I would like to take the opinions of colleagues in Radiology and Orthopaedics. I also feel that a threshold has been reached to perform further investigations."*	 H43
19 Nov 2017	CD's X-ray confirmed a healing metaphyseal fracture. CD remains in hospital. It appears F may have been refused contact with him.	J 261& J292; H219 (X-ray photo) H147-149 notes
20 Nov 2017	Skeletal survey is normal, save for the healing fracture. Strategy Meeting at YH attended by Dr O (Consultant Paediatrician), EB (Health visitor), AL (nurse consultant), RD & ND (consultant paed. orthopaedic consultant), E (consultant paed. in neuro-disability), social worker & police officer from CAIU of TVP. It was acknowledged that the mechanism M described could account for the injury Following the meeting (4:30pm) M. reportedly told Nurse AL that on 15/11/17 she found CD with his arm caught in his cot bars (above the elbow) and used a lubricant to release it. She used a doll to demonstrate this. Jo Nurse JH was present. M. also said he had his arm through the bars on the previous Sunday and Monday but it was not stuck.	J 262; H220-246 - images F6-10; H31-35 H29; C110; C115
	BC voluntarily accommodated with M's friend.	
21 Nov 2017	Follow-up strategy meeting at YH attended by H/V, Occupational therapist, nurse consultant, consultant orthopaedic surgeon, paediatrician, police & social worker. Dr S, consultant radiologist at TH, reviewed CD's X ray taken on 17.11.17 and skeletal survey dated 20.11.17, noted normal bone density and no excess of wormian bones and concluded: *"The X-Ray humerus from 17.11.2017 demonstrates a periosteal reaction. This is highly unlikely to be seen before 4 days following injury...Conclusion: Isolated right lateral distal humeral metaphysical corner fracture. Metaphyseal corner fractures have been shown to be associated with physical abuse. Metaphyseal corner fractures are caused by twisting, gripping and pulling forces. This fracture demonstrates a periosteal reaction. Metaphysical corner fractures are difficult to date and heal differently to long bone fractures".*	F11-13 H247-249

22 Nov 2017	Nurse L recorded measurements of CD's arms. 18cm around elbow and 15.4cm around the left. (Diameter is 5.72cm) (Width of bars is 5.5cm) Left arm (dominant) 15.4 around elbow.	H151
	M interviewed on voluntary basis without legal advice but under caution.	J1
23 Nov 2017	Report by Dr E for Children's Services in relation to CD's development and health needs. *CD has presented recently with a fracture of his right arm which has not had an explanation consistent with the injury provided, although it is clear that he has had episodes of trapping his arm in the cot.* *CD has a right hemiplegic. He holds his right arm in a flexed (bent towards his body) positioning, and often can have his hand closed. He has reduced awareness of his right arm, meaning he might complain less than expected of pain, and may be less able to protect his arm from harm. His right leg is also affected but less so than his arm.* It became clear in her evidence that she had not conducted a sensory awareness examination of CD and so was unable to give a clear opinion on whether he had reduced sensation in his right arm; this obviously being relevant both to him demonstrating pain on the injury occurring or subsequently and thus the likely awareness of his carers that he was carrying an injury. She confirmed that she was aware that he banged his head	P51-54; H252-256
	District Judge: ICO.	
24 Nov 2017	CD discharged from hospital to a foster-placement.	H258
Nov 2017	Letter from Paediatric Orthopaedic and Trauma Team at YH setting out events and their opinion which was that the injury was highly likely to be non-accidental and the mothers account of the arm being stuck on the 15th was not consistent with the dating of the injury by reference to the periosteal reaction	H27-28
27 Nov 2017	Father interviewed under caution on voluntary basis [account included earlier]	J116
1 Dec 2017	HHJ M. CMH	
6 Dec 2017	CD attended outpatient appointment at orthopaedic clinic. X-ray showed the healing fracture. Plan to discharge from clinic as fracture healing.	J 262; H263-264 - images
13 Dec 2017	Developmental Review undertaken by Dr E.	P28-33; H271-272
	Recorder S. CMH	
14 Dec 2017	F aggressive	K58
28 Dec 2017	F aggressive F accepts he was aggressive and said he was justified.	*K100*
3 Jan 2018	F aggressive to FC	*K130*
12 Jan 2018	HHJ M CMH	

12 Jan 2018	F alleged to shout at FC. F denies this occurred	*K154*
31 Jan 2018	Local authority application to reopen the findings of fact	
12 Feb 2018	HHJ M: transfer to High Court	
26 Feb 2018	M and BC placed in specialist foster placement	
8 May 2018	Williams J directions	
29 May 2018	Experts meeting	
6 July 2018	Williams J: order: fact-finding reopened	
3 Aug 2018	DD born	
Late Aug	M ends relationship with F but contact with CD continues to take place together.	

Appendix B: summary of medical evidence

Head injury: January 2017

Abnormality	Mr Richards Consultant Neurosurgeon	Mr Newman Consultant Paediatric Ophthalmologist	Professor Stivaros Consultant Paediatric Radiologist	Professor Klein Consultant in Paediatric infectious diseases	Mr Cartlidge Consultant Paediatrician	Dr Williams Consultant Haematologist
Extensive acute bilateral subdural haemorrhage over both cerebrally hemispheres and in the posterior fossa	Infection Multi-compartment bleeding is unexpected in infection. Trauma Multi-compartment bleeding is common in shaking Dual pathology An infected brain might be more vulnerable to bleeding from a lower level of trauma.		Infection Multi compartment bleeds are not consistent with infection. Never seen subdural and subarachnoid haemorrhages in GBS without a clotting disorder which is not found. Trauma They are seen in trauma – shaking. In low level fall you would expect evidence of impact trauma on the head and SDH at the site not wide dispersal as here	Infection In order to create bleeding, it must come from either a clotting disorder or inflammation of the blood vessels resulting in the escape of blood. The blood tests (detailed JRH and early RBH) rule out a clotting disorder and the radiological evidence of the eyes and brain do not show inflammation of the blood vessels. *Cont.*	Infection Children with severe meningitis will not commonly have CT or MRI scans but will have ultrasound scans which do not identify the nature of the injury to the brain in the same way. Trauma this is consistent with trauma and shaking injuries	Infection Strep B septicaemia can cause Disseminated Intravascular Coagulation which results in bleeding but all the blood tests did not show any evidence of DIC. In addition, there is no evidence of CD having either a congenita bleeding disorder or an acquired disorder of coagulation which caused or contributed to the haemorrhages. The test results which were outside the normal ranges...

						Cont.
Subdural haemorrhage in the lumbosacral spine	Infection Inconsistent – may see pus in spine but not blood. A possibility it could track down; but why not in cervical or thoracic spine; possible it could track down without leaving trace higher. Trauma This bleeding must be traumatic in origin. Consistent with shaking injury		Infection Not recognised in infection in any way, shape or form. Trauma Low Level Fall Not from low level trauma. Shaking Consistent	…Strep B does not itself cause bleeding – it is the host response to infection either through clotting disorder (disseminated intravascular coagulation) or inflammation that does. Bacteria needs to multiply over time to reach levels where a host response of... *Cont.*	Infection It could be pus not blood. If it is blood less consistent with infection. Trauma Spinal bleeding would likely be result of trauma although it could track down. There are two schools of thought in paediatric radiology; one denies tracking, the other accepts it.	.. do not show evidence of any 'bleeding or coagulation disorder; in particular they do not support VWF but are in keeping with a 'sick' child. They are non-specific. The increased monocyte count points towards infection but can arise from other…
Extensive acute bilateral subarachnoid haemorrhage over both cerebral hemispheres	Infection He had never heard of multi-compartment bleeding in infection. But not an absolute Trauma Multi compartment bleeding is common in shaking		Infection Subarachnoid fluid in infection will be pus or other fluids not blood. This bleeding is not consistent with infection Not consistent Trauma Not consistent with low level fall as would expect localised bleeding proximal to the impact site. The multi-compartment bleeding arises from	...haemorrhage might be reached. Typically, at least 12 hours to cross the blood/brain barrier and 8-12 hours to get inflammatory response in the brain. So the organism must be in the blood for at least 12 hours. The history is not of a baby slowly showing signs of gradual deterioration to infection over a period of many hours	Infection As above Trauma this is more consistent with trauma	…causes. The C Reactive Protein readings in children with septicaemia I've seen are in their 100's. To get the level of infection causing this extensive injury a raised CRP would be expected. The raise later is mild and can be raised by inflammation or other non-specific

			the shaking sheering vessels throughout the brain. consistent with shaking it is arterial blood and not linked to the VST.	*Cont.*		conditions. The routine and specialised coagulation tests were within the normal neonatal ranges. In addition the thrombophilia tests did not demonstrate any defect.
Acute extra axial blood on both sides of the tentorium and in the retro-cerebellar space down to the foramum Magnum				But a rapid collapse between 1.30 and 4.30. In any event to get to haemorrhage state... *Cont*		There is no evidence of capillary fragility syndrome which only causes minor bleeding and you need to get to vasculitis to explain the bleeding but there is no evidence of a vasculitic process
A small parenchymal haemorrhage in the medial left occipital lobe			<u>Infection</u> Not consistent because to occur would need abnormal blood vessels or an abscess and neither are visible. <u>Trauma</u> Consistent, arising from the VST as there	...the infection must be at a high stage of progression and you must contemporaneously *Cont.*		

			is evidence of engorgement of the left side.			
extensive acute bilateral hypoxic ischaemic damage	Infection Can be caused by GBS Trauma Can be caused by trauma		Infection Usually see regional (localised and small) infarcts not global as in this case. Expect damage in the nucleus and at the surface in infection. Trauma Expect the opposite in trauma which we have here.	With the damage occurring have an elevated CRP. You cannot have extensive haemorrhage of this sort without elevated C Reactive Protein. The CRP at admission was less than 1 which is normal. *Cont.*		
non-occlusive thrombosis of the large venous sinuses	Infection Highly consistent, notorious in GSB, the infection itself causes swelling in the vessels which affects blood flow and causes VST. Trauma Not inconsistent but usually comes later as it is a result of swelling		Infection This is commonly seen in infection cases; mostly it is linked to infection in the ears. You need a very infective process to develop VST. A thrombosis can sometimes explain bleeding in other areas of the brain but in this case the site of the VST and it being non-occlusive means there is no link between the VST and bleeding in	CRP is produced in the liver in response to an insult (trauma or onset of infection) with six hours passing from insult to raised CRP. The normal CRP level on admission is not consistent with an infection which has been developing for perhaps 20 hours to cause this level of damage in the brain. It is consistent with a trauma occurring less	Infection This is more consistent with infection trauma This can be found in trauma	The blood tests included thrombophilia and there was no susceptibility so it is not caused by a blood disorder.

			distant parts of the brain Trauma VST can develop as a consequence of a brain injury . The more serious the brain injury the more likely VST will develop.	than six hours earlier. The later raised CRP levels are consistent with a response to trauma. If you treat Strep B with Anti-Bio the organism remains and continues to damage or leave traces which are not present here. No vasculitis		
Extensive bilateral retinal haemorrhages		Infection: Infection might lead to haemorrhage but of different appearance (cotton wool infarcts), microscopic infective changes would lead to minor haemorrhages not these. Not consistent as (absent clotting disorder which is not present _ for haemorrhage to occur need damage to blood vessels and none visible. No clinical or reported support for infection		Infection The extent and nature of these are not consistent with infection cases. In order to get haemorrhages from infection the blood vessel must be damaged and there is no evidence of damage. You can have extensive hypoxic ischaemic injury with infection but that is caused by changes in the blood vessels which cause bleeding	Infection Defers to Mr Newman and accepts his conclusion the findings are not consistent with infection	

		causing B-LRH. Reporting bias to some degree but (i) screening programme has resulted in no known cohort of eye damaged children from GBS and no case he has examined for unknown and found abnormality subsequently told its GBS <u>Raised Intra-Cranial</u> Not consistent with process as RICP leads to haemorrhages different in position and nature <u>Trauma</u> Not consistent with low level fall - usually unilateral, localised not diffuse, limited to posterior pole superficial and few in number. Consistent with shaking injury given		or damage to the vessels which prevents oxygen getting to the brain. There is no evidence in imaging which supports this.		

		process b by which haemorrhage takes place and multiple compartment Dual Pathology Inconsistent: If infection played a role in weakening them and then low-level fall would expect to see visible damage to blood vessels. Undetermined Shaking explains it. Can't rule out.				
A 2.5 cm linear bruise and a 5 mm bruise in the left shoulder blade region					This is most likely linked to events during resuscitation	
Other relevant medical comments	Severity of this damage would expect immediate coma if trauma and for the child to remain unconscious and so unwell it prompts immediate 999 call. You can have brain injury with slower downward progression	Retinal haemorrhages might be seen in meningococcal infections where there is overwhelming sepsis or life-threatening and disordered bleeding. Neither of these are present.	No evidence of inflammation of the meninges or of the blood vessels (vasculitis). You would see areas of the veins widening and narrowing, whiteness of irritation on the surface, infarctions, hydrocephalus abscess	The blood culture is contaminated by Staphylococcus Epi. It is easy to see how Strep B could also have contaminated. Staph Epi lives on the skin and so its presence shows the sample was not taken cleanly. In the	Must take an overview rather than focusing on one particular expert. Never known a case of GSB contamination. Always treats with antibiotics. Defers to Prof Klein on how long it takes	

	but unusual with this severity of damage. Up until the end of feed no suggestion of brain injury. Feeding involves a complex neurological process. A stuttering deterioration (as described by father and to an extent mother but not the records) is consistent with infection. The detail of M's account from her return home as to state of consciousness, twitching, abnormal breathing is consistent with an injured unconscious child. Parents observations are consistent with serious brain injury of a deteriorating type Eyes would usually be closed but eyelids could drift up from gravity. Had experience of 1 case where infection	The blood vessels are directly visible in the eye and so are easily examined. Inflammation of the blood vessels is readily detectable. In infection the blood vessels and tissues suffer necrosis and when the infection has resolved visible damage remains or blood vessels are blocked with no blood in them. There is no visible damage in the later retinal scans. In the eye we are not looking at vessels which are quite thick, like Mr Richards' vessels, but single capillaries without supporting walls, so you see the inflammation a lot quicker with the naked eye than you would see, the brain or big vessels.	ventricilitis. No evidence of any. Inconceivable you could have inflammation to extent where bleeding into the brain could occur without visible radiological evidence. Could not reconcile all of the injuries arising from vasculitis in any event, even if there was evidence of it I cannot reconcile how a vasculitis could cause the constellation of features from a neuro-imagin from infection and nor can I reconcile that with lack of evidence on meningitic breakdown – enhancement of meninges or breakdown of blood-brain barrier which would given the appearance of meningitis on the scans. The neuroimaging	resuscitation environment with all the urgency it is easy to see how contamination occurs. As strep B lives in the gut any sick or faeces on the clothes of CD could easily have transferred onto his skin or the hands of a clinician and thus entered the sample through the needle or the sample bottle as they were handled. I thought it was contamination even before I saw the report from RBH which showed contamination with Epi. None of the other signs – CRP, BRH, SDH, SAH and no visible inflammation and the short onset are all inconsistent with infection. Certain this is contamination. Hypothermia on	CRP to develop and agrees with his reasoning. He accepts Prof Stivaros view that you can always see vasculitis which in absence of DIC is necessary to patho-physiologically explain brain bleeding He originally understood CD had become unwell around 11 AM. The shorter the prodrome the less consistent with infection it becomes but it is still a long prodrome or period for a very severe traumatic head injury. It is only just consistent with a head injury. GBS can cause severe brain damage but he could not specify the nature of the damage as they only scan with ultrasound. It would usually be confirmed	

	led to apparent fragility in blood vessels and a vessel bled unexpectedly from slight contact. A unique and puzzling case. Very severe damage which could have led to death	Would still expect to see abnormality. Can I completely exclude a low-level fall and low level infection– no	results cannot be explained by what we know about the physiological processes in the brain linked to infection. You would have to accept the infection had no other manifestation in the scans other than the damage itself GBS in neonates can be quite devastating and I see 6-12 a year. To the extent that the scans show any change over time it is an expected evolution consistent with trauma. The original trauma causes damage to cells which released toxins which cause damage to surrounding cells. The scans over time are not consistent with the progressive damage caused in infection cases	admission in infection is caused by sweating or lack of fluid intake and not evidence of this None of the other blood test results are inconsistent with trauma. GBS is not associated with a rash. If there was a coexisting infection any contribution it might have made would have been small. A minor infection does not predispose a person to haemorrhage. In infection you have an ongoing process of damage. Antibiotics do not halt the infection or the host response causing the damage immediately. With this level of damage you have lots of organisms and dead or alive those organisms stimulate inflammation and	by lumbar puncture fluid producing a strip be culture The twitching described could be 'jitters' which can be seen in meningitis. The severity of the damage on the scans would lead one to think CD should have been far more unwell than the 111 and 999 calls suggest. He should be suddenly and profoundly unwell which would be obvious to a person familiar with him. It isn't subtle it's frightening The reports of the period between 1.30 and his arrival at hospital are inconsistent. You can have a head injury with mild rallying but the child would not be approaching normality The infection would need to be particularly	

				ongoing host response. The imaging evidence does not suggest ongoing damage.	rabid to cause that damage and it doesn't fit for it to have got so bad in such a short period of time. He has seen infection cases where the CRP had not gone up in a neonates but was unable to say whether it was in such a severe case. If CD was crying normally that is inconsistent with serious brain injury. For infection you would expect several hours of the baby not being quite right and then 2 hours for the baby being notice to be unwell then developing meningitis.	
OVERALL	Can't say whether there is or is not infection I still don't know what caused it. The history given is not entirely typical of	Most consistent with shaking injury. Retinal haemorrhaging very unlikely to be the result of GSB. No evidence of	Some of the brain injury can be explained by infection but the totality cannot. Some are completely incompatible with infection.	Very confident this is not an infection. Nothing fits with it being damage from an infection. The only issue which is consistent is the	I can't say no it's not trauma but it is more consistent with meningitis than trauma. The history and findings aren't wholly	GSB is an infrequent contaminant Papers on Strep B do not describe sub-dural, sub-arachnoid or spinal bleeding. Never seen extensive

	such a severe head injury has one would expect immediate collapse Defers to Prof Klein on whether this is likely to be contamination but there would still be features which are not entirely typical of trauma.	vasculitis Prof Klein's conclusions consistent with his findings. Defers to Prof Klein on whether this is likely to be contamination	I fail to see how an impact trauma could combine a physiologically with an infection to cause this constellation Defers to Prof Klein on whether this is likely to be contamination He can explain everything on the basis of trauma but not on the basis of infection.	culture result. Prof Klein sees 6 to 700 children a month and most of the issues are whether the presenting complaint is an infection. In my view having seen thousands of cases – 100s of meningitis and septicaemia – ½ my job is research on vascular injury by infection – it just happens to be my interests. I cannot think of a mechanism to explain how this organism could have caused this bleeding without injuring the host blood vessel or clotting. There are features which are atypical of trauma but far more which are atypical for infection	consistent with infection but it isn't consistent with trauma either. It might be a dual pathology - most logical sequence would be child crying excessively due to infection then shaken by intolerant carer. Defers to Prof Klein on whether this is likely to be contamination. Contamination is consistent with Mr Newman and with Prof Stivaros	haemorrages in septicaemia or meningitis without haemostatis abnormality. Without DIC bleeding doesn't makes sense from an infection so most likely this is trauma Defers to Prof Klein on whether this is likely to be contamination.

Metaphyseal fracture of the right humerus

Dr	Age	mechanism	force	Sensory Issues	Medication issues	Conclusion
Halliday	The earliest the periosteal reaction may rarely be seen is four days, usually by seven days and always by 11 days. Fracture couldn't have happened on 15th. The fracture is probably more than four days old and probably from the x-ray appearance not more than 14 days	CD could not have caused this himself by relying on his arm. This is the area of the bone which is growing very quickly; cartilage is forming bone at the most rapid rate of a person's life stop as a result this is a vulnerable area It can be by pulling or by twisting or both. You can pull on the forearm and break the end off. If you pulled on the upper arm and the four arm was stationary or fixed it might explain the mechanism but the elbow would need to be caught. [Her evidence as to the width of the arm; it is widest at the upper arm and narrower at the elbow did not take account of the fact that the	Considerable force involved such that it would be obvious to any adult that it was excessive. Accidental injuries can be caused for instance pulling on a limb during birth or during physiotherapy for clubfoot when forcing a limb into position. M's description of how she freed the elbow from a flexed position stuck around the elbow joint is not consistent with the force required	You can't detect a metaphyseal fracture by examination People with congenital insensitivity to pain do sustain more injuries.	Steroid medication might make bones a bit weaker as might lack of use but the x-rays show really healthy density and cortical thickness. If the bones are weak it is usually very obvious on the x-rays although you can get weakness without it being visible. Where the bone is weak it is more usual to see shaft (diaphyseal) not metaphyseal fractures	These are usually caused by pulling and twisting actions. 80% nonaccidental. Rare in non-mobile children. Cot bar injuries are very rare; she had never come across a documented injury from this mechanism

		bones at the elbow are the widest whereas the upper arm bone is narrower and the surrounding soft tissues are compressible]				
Rylance		Pushing the forearm from outside the cot and pulling the arm would not cause a metaphyseal fracture unless there was some restriction of the arm below the lower part of the humerus bone. The elbow would have to be fixed in some way. The commonest mechanism is pulling on the lower arm against the upper arm which is fixed at the body. The maximum diameter of the around the elbow is 5.7 cm. The soft tissues would compress as the arm passed through the cot	They don't occur with normal or even rough handling. They require very significant forces Does not require an adult pulling with all their might. Cannot identify the amount of force required you don't get fractures from normal handling. You have to allow for cases at the margins You can have just a pulling mechanism to cause it although commonly it is pulling and twisting M's description of 15 November does not involve enough force to account for the fracture stop she used a lubricant. Her description is of a	Metaphyseal fractures aren't associated with much of a pain response. Usually parents may not have seen pain demonstrated with such fractures; at rest or normal movement won't result in demonstrable pain. There may be limited pain on active movement or pressure being applied.	The steroids might cause bloating 'Cushingoid' features. He was on a big dose for a child his age and weight There are examples of children with unexpected shaft fractures who were on steroids but with no imaging evidence of weakness. Cannot exclude a cause related to steroid therapy but most unlikely.	The swelling found is not likely to be caused by the fracture. It could have been caused at the same time by impact trauma or by an adult squeezing the area very strongly. As it is around the elbow it could arise from the arm being stuck in the cot. There could be two separate occasions for the injuries.

		bars. There is less soft tissue around the elbow	controlled movement			