IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2018 2777

FINDING INTO DEATH WITH INQUEST

Form 37 Rule 63(1)

*Section 67 of the **Coroners Act 2008***

INQUEST INTO THE DEATH OF MATHEW JAMEEL

Findings of:	Coroner Jacqui Hawkins
Delivered on:	17 June 2021
Delivered at:	Coroners Court of Victoria 65 Kavanagh Street, Southbank, Victoria, 3006
Hearing date:	26 February 2021 & 19 March 2021
Counsel Assisting the Coroner:	Senior Sergeant Jenette Brumby, instructed by Ms Anna Dalling, Coroner's Solicitor of the Coroners Court of Victoria
Counsel for Jameel Family:	Ms Meredith Schilling of Counsel and Ms Tahlia Ferrari of counsel instructed by Ms Paula Shelton and Ms Jyoti Haikerwal, Adviceline Injury Lawyers

BACKGROUND

1. Baby Mathew Jameel was seven months old at the time of his death. He lived with his parents Duraid Jameel and Noora Al-Shankol, four year old brother, MJA[1], and grandmother, Ylevea Alabbas in Roxburgh Park. They had only been in Australia for 18 months after migrating as refugees from Iraq in 2016. Mr Jameel and Ms Al-Shankol speak Arabic, the Kalkdan dialect and have limited understanding of English.

2. Records confirm that Mathew's birth was normal, as was his growth and development. He was described by his mother as a happy and quiet baby.

3. On the evening of 6 June 2018, Mathew suffered an unwitnessed serious injury and was rushed to hospital with severe head injuries. He died on 10 June 2018 at the Royal Children's Hospital.

CORONIAL INVESTIGATION

Jurisdiction

4. Mathew's death constituted a *'reportable death'* pursuant to section 4(2)(a) of the *Coroners Act 2008* (Vic) (**Coroners Act**), as his death occurred in Victoria and it appears to have been unexpected, unnatural or violent or to have resulted, directly or indirectly, from an accident or injury.

Purpose of the Coronial Jurisdiction

5. The jurisdiction of the Coroners Court of Victoria (**Coroners Court**) is inquisitorial.[2] The purpose of a coronial investigation is to independently investigate a reportable death to ascertain, if possible, the identity of the deceased person, the cause of death and the circumstances in which the death occurred.

6. The cause of death refers to the medical cause of death, incorporating where possible, the mode or mechanism of death.

7. The circumstances in which the death occurred refers to the context or background and surrounding circumstances of the death. It is confined to those circumstances that are sufficiently proximate and causally relevant to the death.

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[1] MJA is spelt as MJA and MJA throughout the evidence, for the sake of consistency I have referred to him as MJA.
[2] Section 89(4) *Coroners Act 2008.*

8. The broader purpose of coronial investigations is to contribute to a reduction in the number of preventable deaths, both through the observations made in the investigation findings and by the making of recommendations by coroners. This is generally referred to as the prevention role.

9. Coroners are empowered to:

   (a) report to the Attorney-General on a death;

   (b) comment on any matter connected with the death they have investigated, including matters of public health or safety and the administration of justice; and

   (c) make recommendations to any Minister or public statutory authority or entity on any matter connected with the death, including public health or safety or the administration of justice.

   These powers are the vehicles by which the prevention role may be advanced.

10. It is important to stress that coroners are not empowered to determine the civil or criminal liability arising from the investigation of a reportable death and are specifically prohibited from including a finding or comment or any statement that a person is, or may be, guilty of an offence.[3] It is not the role of the coroner to lay or apportion blame, but to establish the facts.[4]

Standard of Proof

11. All coronial findings must be made based on proof of relevant facts on the balance of probabilities.[5] The strength of evidence necessary to prove relevant facts varies according to the nature of the facts and the circumstances in which they are sought to be proved.[6]

12. In determining these matters, I am guided by the principles enunciated in *Briginshaw v Briginshaw*.[7] Further, the Victorian Court of Appeal noted that "*that standard of proof*

[3] Section 69(1). However, a coroner may include a statement relating to a notification to the Director of Public Prosecutions if they believe an indictable offence may have been committed in connection with the death. See sections 69(2) and 49(1) of the Act.
[4] *Keown v Khan* (1999) 1 VR 69.
[5] *Re State Coroner; ex parte Minister for Health* (2009) 261 ALR 152.
[6] *Qantas Airways Limited v Gama* (2008) 167 FCR 537 at [139] per Branson J (noting that His Honour was referring to the correct approach to the standard of proof in a civil proceeding in the Federal Court with reference to section 140 of the *Evidence Act 1995* (Cth); *Neat Holdings Pty Ltd v Karajan Holdings Pty Ltd* (1992) 67 ALJR 170 at 170-171 per Mason CJ, Brennan, Deane and Gaudron JJ.
[7] (1938) 60 CLR 336.

must be responsive to the gravity of the facts in issue and the consequence of the ultimate decision".[8] The effect of this and similar authorities is that coroners should not make adverse findings against, or comments about, individuals or entities, unless the evidence provides a comfortable level of satisfaction that they caused or contributed to the death.

13. Proof of facts underpinning a finding that would, or may, have an extremely deleterious effect on a party's character or reputation demands a weight of evidence commensurate with the gravity of the facts sought to be proved.[9] Facts should not be considered to have been proven on the balance of probabilities by inexact proofs, indefinite testimony or indirect inferences. Rather, such proof should be the result of clear, cogent or strict proof in the context of a presumption of innocence.[10]

Sources of Evidence

14. This Finding draws on the totality of the coronial investigation into Mathew's death. That is, the court records maintained during the coronial investigation, the Coronial Brief and any further material sought and obtained by the Coroners Court, the evidence adduced during the Inquest and submissions.

15. In writing this Finding, I do not purport to summarise all of the evidence but refer to it only in such detail as appears warranted by its forensic significance and the interests of narrative clarity. The absence of reference to any particular aspect of the evidence should not lead to the inference that it has not been considered.

CIRCUMSTANCES OF DEATH

Background circumstances

16. On 6 June 2018 at about 8pm Ms Al-Shankol strapped Mathew into his highchair and his brother MJA started playing with him. She turned away to prepare some food in the kitchen, heard Mathew cry and then saw that the highchair had tipped over. In her statement to police she said she didn't know what happened.[11]

17. Ms Al-Shankol immediately picked up Mathew who appeared to be unconscious, and ran outside to the neighbour's house to seek assistance. The neighbours advised her to

[8] *Nom v DPP* 38 VR 618 at para 103.
[9] *Anderson v Blashki* [1993] 2 VR 89, following *Briginshaw v Briginshaw* (1938) 60 CLR 336.
[10] *Briginshaw v Briginshaw* (1938) 60 CLR 336 at pp 362-3 per Dixon J.
[11] Exhibit 7, Coronial Brief, p 13.

go to hospital. Mr Jameel then drove Ms Al-Shankol and Mathew to the Northern Hospital.[12] According to Mr Jameel, his wife who was a nurse in Iraq, commenced CPR on Mathew whilst enroute to hospital.[13]

18. Mathew and his parents arrived at the Northern Hospital Emergency Department at 8.45pm. His parents reported to the hospital that he had fallen from the highchair after being pushed by his brother.[14]

19. He was unconscious and assessed to have a Glasgow Coma Score (**GCS**) of 3 which indicates severe impairment to his neurological function.[15] He was cold and apnoeic on arrival. He was intubated, resuscitated, given anticonvulsant medication, before being urgently transferred by ambulance and the Paediatric Infant Perinatal Emergency Retrieval (**PIPER**) team to the Royal Children's Hospital suffering severe head trauma.[16]

20. On arrival at the Royal Children's Hospital, an urgent CT brain revealed that Mathew had an acute and extensive subdural haemorrhage on the left side of the brain and a smaller subdural haemorrhage on the right in addition to signs of hypoxic ischaemic brain injury.[17] He was taken to surgery for a craniotomy, which is a removal of part of the skull bone to decompress the brain to allow for swelling and evacuation of the bleeding to his brain. During surgery, Dr Juliet Clayton, Consultant Paediatric Neurosurgeon, observed significant brain swelling which required an extension of the craniotomy. She also noted fresh bleeding in addition to subdural blood that was excavated and observed some aspects of the cortex were becoming friable and losing architecture.[18]

21. Post operatively Mathew remained in the paediatric intensive care unit **(PICU**) where his condition remained unstable, requiring high level nursing care and constant monitoring.[19]

22. On 8 June 2018, Mathew was examined by an ophthalmology specialist, Dr Anu Mathew and found to have extensive multi-layered retinal haemorrhages in all four

[12] Exhibit 7, Coronial Brief, p 13.
[13] Exhibit 7, Coronial Brief, p 17.
[14] Exhibit 7, Coronial Brief, p 53.
[15] The level of an alert neurologically normal person is 15.
[16] Exhibit 7, Coronial Brief, pp 52-3.
[17] Exhibit 7, Coronial Brief, p 53.
[18] Exhibit 7, Coronial Brief, p 53.
[19] Exhibit 7, Coronial Brief, p 53.

quadrants, with bilateral retinal detachments.[20] The haemorrhages were too numerous to count.[21]

23. Due to his extensive injuries and extremely poor prognosis a Suspected Child Abuse and Neglect (**SCAN**) meeting was held on 8 June 2018 and attended by the PICU, Neurosurgery and Victorian Forensic Paediatric Medical Service (**VFPMS**) staff in addition to a representative from the Department of Health and Human Services (**DHHS**) Child Protection. Victoria Police were unable to attend.[22]

24. On 9 June 2018, DHHS issued a Protection Application seeking to remove Mathew's brother from the family home owing to concerns for his welfare as any criminal offending/negligence issues had not yet been excluded. MJA was placed in the care of relatives pending that application.

25. Over the next few days Mathew underwent a number of medical assessments in relation to his injuries. Following discussions with his family, life support was withdrawn on the afternoon of 10 June 2018 and he passed away peacefully in his mother's arms and in the presence of his father and other family members a short time later at 6.45pm.

VICTORIA POLICE INVESTIGATION

Initial police investigation

26. At 12.46am on 7 June 2018, Senior Constable (**SC**) Erin Birchall from the Sexual Offences and Child Abuse Investigation Team (**SOCIT**) received a call from Mallanie Manning at DHHS in relation to a report about Mathew.

27. Clinicians at the hospital were concerned about the timing of the bleeding and that it did not appear to be consistent with the parent's time frame of the incident.[23] The parents told staff at the Northern Hospital that the incident had occurred 10 minutes prior to them attending the hospital.[24] The DHHS investigator, Abbey Conlin, stated that the neurosurgeon who reviewed Mathew's scans believed that the bleed on the brain was suspicious as the bleeding appeared older in time and consistent with a previous bleed.[25]

[20] Exhibit 7, Coronial Brief, p 53.
[21] Exhibit 7, Coronial Brief, p 40.
[22] Exhibit 7, Coronial Brief, p 54.
[23] Exhibit 7, Coronial Brief, p 85.
[24] Exhibit 7, Coronial Brief, p 86.
[25] Exhibit 7, Coronial Brief, p 86.

28. SC Birchall and Detective Senior Constable (**DSC**) Karen Moore of SOCIT attended the Royal Children's Hospital at 4.22am and were informed that Mathew was out of surgery and in a critical condition. SC Birchall was joined by Ms Conlin and another DHHS investigator, Alex Petch. They spoke to the parents in the presence of Dr Atheel Alexander, a cousin of Mr Jameel, who helped translate why they were there and their role.[26]

29. Police and DHHS then attended a meeting with Dr Juliet Clayton, Dr Katrin Rabiei, Registered Nurse, Hannah Delahunty and the Registrar of PICU, Dr Mike Pervis-Smith and explained the purpose of the meeting.[27] Dr Clayton advised that Mathew's condition was extremely dire and he was unlikely to survive.[28] She informed police that it was a very severe head injury and that it was not a usual injury seen in a baby.

30. The next morning DSC Bria Share and Detective Acting Sergeant (**DA/S**) Paul Woods were tasked to continue the investigation and attended the Royal Children's Hospital and received a briefing from head of ICU, Dr James Tibballs at about 8.50am.[29] Dr Tibballs advised police that Mathew:

    a) Had sustained a severe head injury and brain damage;

    b) Was likely to die in the next few days;

    c) Advised there was no evidence of previous injuries to Mathew; and

    d) At that stage he believed that the head injuries were consistent with the version of events given by the parents.[30]

31. The investigator who was tasked with the investigation, DA/S Woods stated in evidence that at that stage "*... there was nothing to suggest that what the parents were telling the doctors was inconsistent with the injuries of the child*".[31]

32. Whilst still in the very early stages of the investigation, the parents were subsequently separated and police commenced taking statements from them.[32] DSC Share attempted to speak to MJA however was unwilling to speak to police, therefore they were not able

[26] Exhibit 7, Coronial Brief, p 86.
[27] Exhibit 7, Coronial Brief, p 88.
[28] Exhibit 7, Coronial Brief, p 88.
[29] Exhibit 7, Coronial Brief, pp 94, 97.
[30] Exhibit 7, Coronial Brief, p 97, Transcript of evidence, p 12.
[31] Transcript of evidence, p 12.
[32] Exhibit 7, Coronial Brief, p 94.

to conduct a disclosure interview with the child.[33] DA/S Woods also sent police to conduct a crime scene analysis.[34]

33. Evidence of DA/S Woods was that they "*weren't suspicious of the parents but … wanted to keep an open mind because in my experience, investigations can change quite quick[ly] and you want to [be] prepared for anything*".[35] He said the family were very cooperative throughout the investigation.[36]

34. On Sunday 10 June 2018, DA/S Woods was advised that Mathew had passed away.

IDENTITY OF THE DECEASED

35. On 10 June 2018, Mathew Duraid Jameel was visually identified by his father Duraid Jameel. Mathew's identity was not in dispute and required no further investigation.[37]

MEDICAL CAUSE OF DEATH

36. On 12 June 2018, Dr Joanna Glengarry, Forensic Pathologist at the Victorian Institute of Forensic Medicine conducted an autopsy on Mathew's body and reviewed the Victoria Police Report of Death Form 83, post mortem CT scan, medical deposition from the Royal Children's Hospital, Section 27 Police application for immediate autopsy, discussions with DA/S Woods, Dr Melanie Kitagawa and Dr Anne Smith from the Royal Children's Hospital. Additional records obtained after the autopsy including medical records of Royal Children's Hospital, Westmeadows Medical Centre and expert reports of Dr Linda Iles and Professor Penny McKelvie and scene photographs.[38]

37. Dr Glengarry reported Mathew was a well-nourished, normally developed seven month old male.

38. Dr Glengarry reported there were head injuries as the direct cause of death.[39]

39. Dr Linda Iles, Neuropathologist conducted a neuropathological investigation on Mathew's brain which revealed multiple areas of acute subdural blood clot causing mass effect. This mass effect caused compression of the underlying brain, brain

[33] Exhibit 7, Coronial Brief, p 95.
[34] Transcript of evidence, p 13.
[35] Transcript of evidence, p 13.
[36] Transcript of evidence, p 14.
[37] The Statement of Identification refers to Matthew, however, the Release Application which is the legal document required to confirm his Death Certificate refers to Mathew. Therefore, he is referred to in this Finding as Mathew.
[38] Exhibit 7, Coronial Brief, p 380.

swelling and abnormal shifts in the brain anatomy which compromise brain functioning and blood flow in and out of the brain. This caused death of the brain tissue which is also known as hypoxic ischaemic encephalopathy and infarction. Dr Glengarry summarised Dr Iles' report with the following comments:

a) *The pattern of injury is that of a traumatic head injury. However, the exact mechanism and manner of injury cannot be determined by pathological findings alone and correlation with other investigative data is required.*

b) *There was no evidence of a skull fracture and there was no bruising beneath the scalp (except at the operative site). Head impacts may cause fractures or scalp bruising, but are not universal findings and it is recognised that head impact may occur without soft tissue or bony injury. It is also possible that bruising sustained at the time of head injury, may no longer be apparent during the autopsy examination due to the time elapsed. Therefore, a blunt force impact to the head, or impact of the head against a firm surface is not excluded.*

c) *Shaking as a mechanism to generate the injuries noted has been considered. I note that MRI imaging during life suggested ligamentous injury to the neck. No haemorrhage or injury to the ligaments of the neck was demonstrated by the autopsy examination, however, the post-mortem examination is a less sensitive investigation for this type of injury and the negative findings do not negate the presence of neck injuries. Neck injuries may occur from any mechanism that forcibly flexes or extends the neck. A fall or shaking are possible explanations.*

d) *In isolation, the pathology findings do not allow one to determine if the neck and head injuries are as a result of a blunt force impact to or by the head, or, are due to shaking. It is noted that the presence of a mass-forming subdural haematoma (as in this case) is unusual in cases where shaking is cited as the sole mechanism of injury.*[40]

40. Dr Iles' examination also demonstrated thin, chronic subdural membranes of varying maturation. A chronic subdural membrane is a healed or healing subdural haematoma. It was noted that:

> *this finding is indicative of a previous episode of subdural haemorrhage but does not provide insight as to the aetiology of this. The precise aging of subdural membranes is difficult and contentious. It is recognised that the birth process may produce subdural haemorrhage and the sequelae of this, namely a chronic thin subdural membrane, may persist for an unknown duration, possibly months to a year. Conversely, a chronic thin subdural membrane may also represent the consequence of previous accidental or inflicted head trauma.*[41]

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[39] Exhibit 7, Coronial Brief, p 383.
[40] Exhibit 7, Coronial Brief, p 383.
[41] Exhibit 7, Coronial Brief, p 384.

41. Ophthalmological opinion was sought from Professor Penny McKelvie (ophthalmic pathologist) and found that examination of the eyes showed widespread, bilateral retinal haemorrhages (bleeding at the back of the eyes) and optic nerve sheath haemorrhage (bleeding around the visual nerve the exits the eye). The pattern is in keeping with a traumatic pattern injury.[42]

42. Dr Glengarry reported that "*whether short falls in children can cause subdural haematomas, retinal haemorrhages and hypoxic encephalopathy is the subject of debate in the literature on this topic*".[43] Studies demonstrate that these types of injuries in the manner described are rare, but can occur.[44] Dr Glengarry explained "*the description of the fall, as it is currently known to me, indicates the possibility of an accelerated occipital impact. In my opinion, this event cannot be excluded as a plausible mechanism to explain this infant's head injuries*".[45] She further noted that "*it is not the sole possible explanation and other possibilities exist including blunt force head trauma and shaking*."[46] Therefore she could not rule out non-accidental injury as the cause of this infant's head injuries.

43. Bruises were observed on the elbows and an abrasion of the right upper back. However, Dr Glengarry explained the pathological examination does not allow one to precisely estimate the age of these injuries, whether they occurred before admission to hospital or as a consequence of medical treatment.[47]

44. A skeletal survey performed prior to autopsy showed no evidence of old or recent fractures.[48]

45. There is no natural disease or congenital abnormality detected by the autopsy examination or ancillary testing to account for this child's presentation and autopsy findings.[49]

46. Meaningful testing for coagulopathy (abnormal bleeding tendency) is subject to artefact in the post mortem setting.[50]

[42] Exhibit 7, Coronial Brief, pp 384-404.
[43] Exhibit 7, Coronial Brief, p 384.
[44] Exhibit 7, Coronial Brief, p 384.
[45] Exhibit 7, Coronial Brief, p 384.
[46] Exhibit 7, Coronial Brief, p 384.
[47] Exhibit 7, Coronial Brief, p 384.
[48] Exhibit 7, Coronial Brief, p 384.
[49] Exhibit 7, Coronial Brief, p 384.
[50] Exhibit 7, Coronial Brief, p 385.

47. Toxicological analysis of ante and post mortem blood did not detect alcohol. Medications documented as having been given during resuscitation measures included morphine, midazolam and levetiracetam were present[51] which were in keeping with therapeutic use.

48. Dr Glengarry provided an opinion the medical cause of death was 1(a) *Head injury.*

POLICE INVESTIGATION AFTER DEATH

49. After Mathew's death, Victoria Police immediately commenced an investigation into the circumstances of his death. Following the autopsy procedure Dr Glengarry informed police that her preliminary findings were that there was no previous/historical injuries to Mathew and that the parents' version of events was entirely plausible as a cause of death.[52]

50. On 14 June 2021 a second SCAN meeting was held at the Royal Children's Hospital with representatives from VFPMS, the Royal Children's Hospital, DHHS and police. The purpose of the meeting as described by DA/S Woods was "*a sharing of ideas just to make sure nothing had been lost and we're all on the same page*".[53] Dr Clayton and Dr Mathew raised concerns there were some injuries to the child that weren't consistent with the parent's version of events and weren't consistent with a fall from a highchair and the injuries could potentially have occurred earlier (approximately 12 hours) than what had been provided by the parents. DA/S Woods said "*they were quite vocal in their concerns that the injuries could possibly be associated with shaken baby syndrome*".[54] Police informed the attendees of the meeting of Dr Glengarry's preliminary findings which was at that stage she "*could not rule out a fall from the highchair, the parents' version of events, as not being the cause of the injuries*".[55] The clinicians expressed their concerns that the injuries were inconsistent with what the parents were saying.[56]

51. During the police investigation, DA/S Woods was consulting on a regular basis with DS Julio Salerno from the Homicide Squad.[57] They had daily discussions about the

[51] Exhibit 7, Coronial Brief, p 385.
[52] Exhibit 7, Coronial Brief, p 98.
[53] Transcript of evidence, p 18.
[54] Transcript of evidence, p 19.
[55] Transcript of evidence, p 20.
[56] Transcript of evidence, p 20.
[57] Transcript of evidence, p 22.

investigation. Police kept an open mind and at that stage, they weren't heading down the path of a criminal investigation.[58]

52. As part of the investigation, police needed to take a Video and Recorded Evidentiary (**VARE**) statement from MJA. Police initially tried to talk to him in the presence of the parents at the hospital but he was too traumatised to talk.[59] DA/S Woods explained that they always try and conduct an initial disclosure conversation, where police speak to the child in an attempt to build some rapport and gauge the future direction of the investigation.[60] A VARE with MJA was scheduled for 24 June 2018 at the Fawkner Police Station but was delayed for a number of reasons including that MJA was living with a carer, had a birthday, and needed an interpreter and an intermediary person.[61]

53. On 19 July 2018 police were contacted by DHHS who advised that a second Protection Application was going to be heard at the Broadmeadows Magistrates Court on 23 July 2018. DHHS advised that in order to argue their application they would seek to disclose the results of a confidential Victorian Forensic Paediatric Medical (**VFPM**) Report. Police informed DHHS that the release of that report would potentially prejudice the ongoing police investigation and that consequently any attempt to release the report by DHHS would be strongly opposed. Police were requested to attend the hearing to make an application seeking suppression of the report.

54. On 23 July 2018, Police attended the hearing at Broadmeadows Magistrates Court. Upon arrival police were informed that Counsel for DHHS (unbeknownst to police) had provided the report to the parents of Mathew. Given the material had been released, the police withdrew their application.

55. After receiving the VFPM report, the family declined to assist the police investigation any further and withdrew their consent for MJA to participate in a VARE interview, which seemed to impede any further police investigations.[62]

Video footage of MJA

56. An essential element of the police investigation was to consider the issue of whether the parents' version of events of what occurred to Mathew as reported to clinicians and

[58] Transcript of evidence, pp 21-2.
[59] Transcript of evidence, p 23.
[60] Transcript of evidence, pp 38-9.
[61] Transcript of evidence, p 23.
[62] Transcript of evidence, pp 27-8.

other officials - that MJA pushed the highchair over which caused the injuries to Mathew, was possible.

57. Whilst the incident as reported by the parents was unwitnessed, they reported what they thought occurred to a number of people including Dr Alexander, clinicians at both hospitals, DHHS and police. Whilst some of the versions of events were reported slightly differently it appears that they believe MJA pushed the highchair over which caused the injuries to Mathew.

58. The coronial investigation revealed that MJA who was four years old at the time, was an active child. In her statement to police, Ms Al-Shankol advised that she had a video on her phone of MJA playing rough with Mathew including when he was in the highchair.[63] I was subsequently provided with six videos of MJA playing with Mathew. I reviewed this footage several times.

59. The videos depict MJA acting in a boisterous manner with Mathew. Some of the videos show Mathew in his highchair (not strapped in) and MJA is seen to jump up and down, bang his head and swing his arms in close proximity to Mathew. At times he grabs hold of the highchair. Other videos depict MJA rolling around on the floor or on a bed holding Mathew and rolling over him. These videos raised the question of whether it was possible for MJA to have caused the injuries sustained by Mathew.

60. To assist my investigation, I sent a copy of the six videos to Dr Glengarry and two clinicians involved in this case: Associate Professor Warwick Teague and Dr Anne Smith and requested them to review the videos and provide a written report to address the issue – whether on the balance of probabilities they considered the injuries sustained by Mathew could plausibly have been caused by MJA using force and pushing the highchair over onto the tiles.

61. Acknowledging that she had not been privy to all the investigative material, Dr Glengarry could say the "*possibility of an accelerated fall from a knocked over highchair onto the tile floor is a plausible mechanism to explain this infant's head injuries. It is not the sole explanation and other possibilities exist*".[64] Dr Glengarry conceded that she is not an expert in assessing behaviour of a child but commented that "*MJA appears to be a very active young boy in these videos and one might speculate*

[63] Exhibit 7, Coronial Brief, p 15.
[64] Exhibit 6, Hot Tub Brief, p 407.

that the highchair being knocked over accidentally as part of this vigorous play is not an unreasonable possibility."[65]

62. Associate Professor Teague reviewed the videos and was prepared to say on the balance of probabilities the following:

> a) *I consider the injuries sustained by Mathew to most likely represent those of abusive head trauma, constellation of inflicted injuries caused by acceleration-deceleration forces, which with few exceptions are attributed to someone forcefully shaking the infant. This cause is highly plausible.*
>
> b) *I consider the injuries sustained by Mathew are unlikely to represent those of focal, blunt head trauma, including the example of a fall from a low height with the head striking the tiles if an infant's highchair were pushed over or infant fell from the highchair. … this cause is considered not plausible*.[66]

63. Reasons for his opinion included first, the absence of features of injuries consistent with blunt, focal head trauma, which he said supports an alternative diagnosis of abusive head trauma and secondly,

> *a key consideration prior to reaching the opinion of abusive head trauma, is whether or not the identified injuries could instead be attributed to an accidental mechanism such as a fall resulting in blunt, focal head trauma, or indeed a confounding medical condition*".[67]

64. Associate Professor Teague outlined a summary of Mathew's injuries including hypoxic ischaemic brain injury, bilateral subdural haemorrhages, bilateral retinal haemorrhages together with vitreous haemorrhages, retinoschisis and retinal folds, and ligamentous injury to the cervical spine.[68]

65. Abusive head trauma denotes a triad of injuries that were present including hypoxic ischaemic brain injury, subdural haemorrhages and retinal haemorrhages. Associate Professor Teague said that whilst not pathognomonic for abusive head trauma, there are additional features which further support the opinion that "*these injuries have been inflicted, and constitute abusive head trauma*".[69] He further commented that when considered together, the "*constellation of Mathew's diagnosed injuries is highly*

[65] Exhibit 6, Hot Tub Brief, p 407.
[66] Exhibit 6, Hot Tub Brief, p 71.
[67] Exhibit 6, Hot Tub Brief, p 72.
[68] Exhibit 6, Hot Tub Brief, p 72.
[69] Exhibit 6, Hot Tub Brief, p 72.

suggestive of abusive head trauma".[70] There was a particular lack of features consistent with blunt, focal head trauma including:

a) There was no scalp swelling.

b) No scalp (or facial) bruises or haematoma.

c) No scalp (or facial) lacerations or abrasions.

d) No skull fractures.

e) Subdural haemorrhages which were not unilateral or focal.[71]

66. Dr Smith also reviewed the video footage of MJA playing with Mathew and considered in her opinion that it was possible. She noted that in the sixth video, MJA is seen to grab the table of the highchair with both hands while he is jumping up and down, reporting his behaviour generally appears to involve the use of energy and force. Dr Smith's opinion was that "*MJA appears to be capable of generating sufficient force to push or tip over the highchair containing Mathew onto the tiles*."[72] However, she questioned whether this mechanism was a plausible explanation for Mathew's injuries. "*Plausible can be defined as 'seeming likely to be true', or 'able to be believed' which are not to my mind the same thing*."[73]

67. Dr Smith argued that there were several findings at the time that seemed incompatible with, or not easily attributable to a fall of this type, including:

a) Multifocal locations of the subdural haemorrhages.

b) The rapidly increasing severe cerebral oedema combined with friability and loss of architecture observed by the neurosurgeon that caused her to suspect trauma at a time prior to that alleged.

c) Retinal haemorrhages, folds and retinoschisis in a pattern almost always attributed to vitreoretinal traction caused by acceleration-deceleration forces.

d) The absence of any sign of impact to the scalp or skull.

[70] Exhibit 6, Hot Tub Brief, p 73.
[71] Exhibit 6, Hot Tub Brief, p 73.
[72] Exhibit 6, Hot Tub Brief, p 62.
[73] Exhibit 6, Hot Tub Brief, p 62.

e) Ligamentous injury to the neck.[74]

68. Dr Smith remained concerned that a number of findings seemed incompatible with, or not easily attributed to a fall of this type, based on the current understanding of the pathophysiology of infant head injury, but she conceded the mechanism could not be entirely excluded as the cause of Mathew's injuries.[75] She concluded that based on the combination of injuries seen in this case "*it seems reasonable to question whether a third party has subjected Mathew to rotational and acceleration-deceleration forces at a time shortly before his alleged fall in the highchair*".[76]

69. Dr Smith explained from viewing the videos it seemed reasonable to speculate that MJA might have grabbed and vigorously shaken the highchair such that Mathew was shaken within the highchair resulting in his head experiencing acceleration-deceleration and rotational forces. That said, however, she found it difficult to imagine how MJA could have generated sufficient force to cause Mathew such severe retinal injuries.[77] Finally, "*an accelerated fall in a highchair in combination with rotational and acceleration-deceleration forces such as would occur during shaking of the infant … would account for almost all of the findings in Mathew's case*."[78] However, she said a fall in a highchair four days previously could not have caused chronic subdural membranes.[79]

CORONIAL INQUEST

Coronial Inquest

70. Section 52(2)(a) of the Coroners Act requires that a coroner must hold an inquest into a death if the coroner suspects the death was the result of homicide. As the circumstances as to how Mathew sustained injuries to his head were unclear, I was unable to rule out homicide as a potential cause for his death, therefore, I considered his death required a mandatory inquest. On the basis on the differing views of experts, specifically in relation to whether MJA could have caused the injuries, I determined to conduct a limited inquest to assist if I could determine the mechanism and cause of Mathew's head injuries.

[74] Exhibit 6, Hot Tub Brief, p 63.
[75] Exhibit 6, Hot Tub Brief, p 64.
[76] Exhibit 6, Hot Tub Brief, p 69.
[77] Exhibit 6, Hot Tub Brief, p 69.
[78] Exhibit 6, Hot Tub Brief, p 70.
[79] Exhibit 6, Hot Tub Brief, p 70.

Witnesses

71. Witnesses were called to give *viva voce* evidence at the Inquest, including DA/S Woods, the Coroner's investigator.

72. The following expert witnesses participated in giving concurrent evidence, also known as a "Hot Tub":

    a) Dr Joanna Glengarry, Forensic Pathologist, Victorian Institute of Forensic Medicine.

    b) Dr Linda Iles, Head of Pathology, Victorian Institute of Forensic Medicine.

    c) Dr James Tibballs, Consultant Paediatrician, Royal Children's Hospital.

    d) Dr Juliet Clayton, Consultant Paediatric Neurosurgeon, Royal Children's Hospital.

    e) Dr Jennifer Smith, Medical Director, Consultant Paediatrician, Victorian Forensic Paediatric Medical Service.

    f) Associate Professor Warwick Teague, Director, Trauma Service, Consultant Surgeon, Department of Paediatric Surgery, Royal Children's Hospital.

    g) Dr Anu Mathew, Consultant Ophthalmologist, Royal Children's Hospital.

73. Mathew's parents were provided an opportunity to give evidence at the inquest but declined.

Scope of Inquest

74. The scope of the inquest was to investigate the cause and manner of Mathew's injuries and death.

    a) What were Mathew's injuries?

    b) What was the cause and mechanism of Mathew's injuries?

    c) What does the combination and pattern of injuries suggest?

    d) What was the timing of the injuries?

    e) Should the medical cause of death be changed?

Mathew's injuries

75. To assist my understanding of a potential mechanism of injury, it was important to forensically analyse Mathew's injuries and their significance.

76. After a thorough examination and medical intervention at the Royal Children's Hospital and as part of an autopsy examination, Mathew was found to have suffered the following four significant injuries:

    a) Hypoxic brain injury;

    b) Subdural haemorrhages;

    c) Ligamentous injury to neck; and

    d) Retinal haemorrhages.

77. At inquest, Dr Smith provided an overview of Baby Mathew's injuries including:

> *recent craniocervical trauma without significant external signs of injury. In particular, there is evidence [of] intracranial bleeding with subdural haemorrhages that were observed by the neurosurgeon as active bleeding as well as clot. The subdural haemorrhages were located over predominantly the left hemisphere, frontal vertex and sides and there was also subdural haemorrhage over the right hemisphere. There was a severe widespread hypoxic ischaemic encephalopathy which is a brain injury caused by deficiency of oxygen or blood flow or both. Retinal haemorrhages that were severe, bilateral involving all four quadrants of the retinas of both eyes, multi layered and involved retinoschisis and macular folds*".[80]

78. At autopsy there was also evidence of optic nerve sheath haemorrhage and injury to the neck ligaments, epidural haemorrhages as well as a subdural haemorrhage.[81] Overall, Dr Smith explained it was a complex pattern of injury "*involving the brain, the eyes, the neck and the spine without signs of external injury nor any evidence to internal organs or bones."*[82] Significantly the injuries present were all consistent with trauma.[83] This was the consensus view of all the experts.[84]

[80] Transcript of evidence, p 42.
[81] Transcript of evidence, pp 42-3.
[82] Transcript of evidence, p 43.
[83] Transcript of evidence, p 43.
[84] Transcript of evidence, p 43.

Hypoxic brain injury

79. According to Dr Smith, there are many causes of hypoxic ischaemic brain injury including head trauma.[85] The common mechanism of brain injury is a lack of blood flow to the brain and/or a lack of oxygenation of brain tissues.[86] She said the brain's response to injury is complex and incompletely understood, however in Mathew's case "*it is evident that he had a sudden catastrophic traumatic insult to [the] brain*".[87] Further, "*causes of hypoxic ischaemic brain injury other than trauma are not in keeping with the clinical and radiological findings in this case*".[88]

80. In evidence, Dr Smith explained the brain becoming friable and losing its architecture (as reported by Dr Clayton) "*means it's breaking apart easily, it's not maintaining its integrity, its shape, its structure*."[89] The significance of which is that it raised questions about the age of the injury.[90] Dr Clayton described that the friability and loss of architecture of the brain is contributed by a few factors, including:

> *the degree of force that causes the swelling in the first place, and that obviously is linked to how quickly pressure will develop, the age of the child will also contribute, and babies/infants have a higher water content in their brains, so they have less structural architecture.*[91]

81. She described the degree of swelling was the most extreme that she had have ever experienced, which reflected *"a significant mechanism of injury and rapidly progressive cerebral oedema picture*.[92]

82. According to Dr Clayton, Mathew's brain continued to expand during and after surgery. In many cases a neurosurgeon can close the brain up, but in Mathew's case, "*unfortunately, the degree of cerebral oedema was such that [we] were not able to close the scalp over his herniating brain and his herniating brain loss architecture, and we lost brain*."[93]

83. In relation to the brain swelling Dr Iles said in her experience:

[85] Exhibit 6, Hot Tub Brief, p 55.
[86] Exhibit 6, Hot Tub Brief, p 55.
[87] Exhibit 6, Hot Tub Brief, p 55.
[88] Exhibit 6, Hot Tub Brief, p 55.
[89] Transcript of evidence, p 96.
[90] Transcript of evidence, p 97.
[91] Transcript of evidence, p 97.
[92] Transcript of evidence, p 97.
[93] Transcript of evidence, p 99.

> *from time to time, we do see individuals who have brain swelling which is really disproportionate from the known stimulus. So there are some individuals and I think that's been alluded to, whose brains swell much more significantly - exceptionally compared to others … I don't know for sure that that is at play in this instance but there are some cases where we get really disproportionate brain swelling in terms of the trauma or the force that been applied*.[94]

84. According to Dr Tibballs the time between Mathew's severe hypoxic insult and neurosurgery was several hours which could account for the amount of swelling to the brain.[95] Nevertheless, Dr Clayton said Mathew's case was out of keeping with their usual management of severe head injuries.[96]

Subdural haemorrhages

85. Subdural haemorrhages can be caused by trauma.[97] Mathew's subdural haemorrhages were multifocal. According to Dr Smith, this means that they were located in several locations within the skull, including:

a) Left frontal and parietal regions (left front and side) with minimal extension into the left temporal region;

b) Right fronto-parietal fossa;

c) Right middle cranial fossa;

d) Shallow subdural haemorrhages in right parietal region;

e) Thin parafalcine subdural haemorrhages in the right parietal region ... with extension of this subdural haemorrhage along both right and left sides of the tentorium cerebelli.[98]

86. In her statement, Dr Smith said:

> *the multifocal subdural haemorrhages in combination with severe hypoxic ischaemic brain injury and an absence of injury to scalp or skull, generated a high degree of suspicion about inflicted trauma caused by a shaking mechanism with or without impact trauma*.[99]

[94] Transcript of evidence, pp 104-5.
[95] Transcript of evidence, p 99.
[96] Transcript of evidence, p 99.
[97] Exhibit 6, Hot Tub Brief, p 56.
[98] Exhibit 6, Hot Tub Brief, p 56.
[99] Exhibit 6, Hot Tub Brief, p 56.

87. Dr Smith said that in Mathew's case "*the findings were in keeping with a recent catastrophic traumatic event resulting in head injury*".[100] She said in this case accidental trauma and inflicted trauma both needed to be considered.[101]

Ligamentous injury to the cervical spine

88. The MRI indicated a ligamentous injury to the cervical spine. Dr Smith explained that ligamentous injury to the neck can occur as a result of accidental trauma and it can occur as a result of non-accidental (inflicted) trauma. The mechanism of injury involves stretching and tearing of these ligaments as a result of forces that flex, extend or rotate the head about the neck. Ligamentous neck injuries of this type may be seen as a result of forceful shaking that has caused the infants head to move backwards and forwards into flexion and extension.[102]

89. In evidence, Dr Smith said that ligamentous injury to the neck "*indicates flexion extension forces applied to the neck. Such forces are in excess of forces commonly used in normal handling of infants*".[103] However, Dr Smith explained that "*we don't have a strong evidence base that will enable us to differentiate causes or determine the size of the forces involved*".[104] All the experts agreed.

Retinal haemorrhages

90. One of the most concerning features of Mathew's injuries was the presence of extensive bilateral multi-layered retinal haemorrhages. Dr Smith said that "*this pattern of retinal haemorrhage is very uncommon and is extremely strongly associated with acceleration-deceleration forces as the causative mechanism."*[105] In her opinion this particular pattern of retinal injury is *"almost always attributed to a shaking mechanism*".[106]

91. At inquest, Dr Mathew said her:

> *findings at the time were multiple extensive retinal haemorrhages in multiple layers, retinal, pre-retinal so right in front of the retina and vitreous which is the jelly in the eye, … in both eyes and retinoschisis which involves splitting of the layers of the retina and macular folds*".[107]

[100] Exhibit 6, Hot Tub Brief, p 56.
[101] Exhibit 6, Hot Tub Brief, p 56.
[102] Exhibit 6, Hot Tub Brief, p 57.
[103] Transcript of evidence, p 42.
[104] Transcript of evidence, pp 43-4.
[105] Exhibit 6, Hot Tub Brief, p 58.
[106] Exhibit 6, Hot Tub Brief, p 58.
[107] Transcript of evidence, p 62.

92. When images of Mathew's eyes were shown on screen at the inquest she explained that "*there [were] no areas of normal retina all the way out into the periphery in both eyes*".[108] Her evidence was that there were multiple layers of haemorrhage.[109]

Other injuries found on examination

93. During Dr Smith's extensive medical assessment and examination of Mathew she did not observe any injury to his face or neck. There was no sign of trauma in or on his nose. She noted some smaller types of bruises and pinprick marks that were consistent with medical treatment. No other injuries were detected.[110]

94. Bruises were found during the autopsy on Mathew's left and right elbows and there was also an abrasion on his lower back. At inquest Dr Glengarry stated that the diagnosis and timing of these injuries is difficult because Mathew had the incident that caused the head injuries, had been transported to hospital, had multiple episodes of imaging, surgery and been moved around two hospitals, therefore she was unable to draw any conclusions about these smaller injuries.[111]

What was the cause and mechanism of Mathew's injuries?

Lack of skull fracture

95. The evidence is that Mathew did not receive a skull fracture. The significance of this was further considered at inquest. Specifically, Mathew had no "*soft tissue injuries or fracture patterns with this internal brain injury*".[112] According to Dr Glengarry, if a soft tissue injury and a fracture are present – this indicates an impact to that site.[113] However, she reasoned "*the lack of soft tissue injury and fracture does not exclude an impact, because if an impact has occurred over a broad or cushioned surface, that may not cause a soft tissue injury or fracture, despite the impact having occurred"*.[114]

96. Dr Glengarry considered that:

[108] Transcript of evidence, p 62.
[109] Transcript of evidence, p 62.
[110] Exhibit 6, Hot Tub Brief, pp 46-7
[111] Transcript of evidence, p 92.
[112] Transcript of evidence, p 48.
[113] Transcript of evidence, p 48.

> *there are multiple causes of injury, mechanisms of injury causing this type of internal head injury. … for example, shaking, shaking with impact, shaking without impact, and if … an infant is shaken, ... you would not expect soft tissue injury or fracture.*[115]

97. Dr Glengarry said it was important to note that "*the internal injury itself was not just a consequence of an impact per se, but it's actually the acceleration/deceleration forces acting on the brain, so those are equally important as the impact*".[116] Acceleration and deceleration was needed in this case because "*we're talking about brain injury as well*".[117]

98. The experts agreed that despite the absence of any soft tissue injury or skull fracture they were not able to rule out blunt force trauma to the head.[118]

Mechanism required for injury to eye

99. Consistent with the injuries to the brain, Dr Mathew said that:

> *impact for a short fall causes the brain to move in linear direction, which causes less damage outside of the focal contact area than compared to when the brain and eyes are subject to rotational forces. There are no absolute values for the angular acceleration forces required to produce retinal haemorrhages, but there is evidence that this must be a considerable force. This … force is unlikely to be cause[d] from a head strike onto a plastic headrest, and it is unlikely to be cause[d] during play in a highchair, even if rough play*".[119]

100. There was unanimous agreement with the experts.[120]

101. Dr Mathew explained "*the extent of the haemorrhages and involvement of multiple layers, retinoschisis and paramacular folds increases the likelihood of head trauma associated with repetitive acceleration and deceleration injury with or without blunt trauma*".[121] Further, Dr Mathew said that "*retinoschisis and paramacular folds are very seldom seen in accidental head trauma cases*".[122] The experts were in consensus about this issue.

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[114] Transcript of evidence, p 48.
[115] Transcript of evidence, pp 48-9.
[116] Transcript of evidence, p 49.
[117] Transcript of evidence, p 49.
[118] Transcript of evidence, p 47.
[119] Transcript of evidence, p 65.
[120] Transcript of evidence, p 65.
[121] Transcript of evidence, p 63.
[122] Transcript of evidence, pp 63-4.

102. Dr Mathew was asked at inquest whether surgery can cause retinal haemorrhages and she said "*increased intracranial pressure does not cause the diffuse retinal haemorrhages commonly associated with head trauma … Studies have shown that there is no correlation between increased intracranial pressure and retinal findings*".[123] The experts all agreed with this.

103. In dissent, Dr Tibballs stated "*we don't actually know what the acceleration/deceleration forces are associated with a child's head striking a floor … we don't know the force. So, I think it's possible that striking the floor, the head striking the floor could generate the similar signs as seen in shaking baby syndrome*".[124] However, he agreed he had not seen it in his experience and it was noted that he is not an ophthalmologist.[125] He conceded that he was not "*accustomed to examining the eyes in such detail as to identify all the – the particularities associated in this particular case, but the medical literature does describe the very thing*".[126] Dr Tibballs referred to a paper by Shuman et al[127] that refers to a case of a fall from a low height associated with retinoschisis.[128]

104. Under cross examination, Dr Mathew was asked whether paramacular retinal folds and traumatic retinoschisis have been identified in cases not involving abusive head trauma. Dr Mathew's response was that this was referring to the case mentioned by Dr Tibballs and in that case the macular fold was found post mortem. She explained that it is difficult to assess retinal findings post mortem because there is often a lot of artifact: "*retinal folds – macular folds and retinoschisis needs to be assessed when the patient is awake. And to my knowledge, this constellation of findings is highly suggestive of non-accidental trauma*".[129]

105. Dr Smith respectfully also disagreed with Dr Tibball's opinion and opined that:

> *a great preponderance of the evidence is that retinoschisis and macular folds have only rarely been associated with … severe - or falls from a great height, motor vehicle accidents, crash injury and retinoschisis and macular folds are a particular type of injury that we believe is indicative of vitreoretinal traction or shearing forces to form the globe so it's not*

[123] Transcript of evidence, p 64.
[124] Transcript of evidence, p 66.
[125] Transcript of evidence, p 67.
[126] Transcript of evidence, p 67.
[127] Shuman, M and Hutchins, K; "Severe Retinal Hemorrhages with Retinoschisis in Infants are Not Pathognomonic for Abusive Head Trauma", *J Forensic Sci*, May 2017, Vol 62, No. 3.
[128] Transcript of evidence, p 68.
[129] Transcript of evidence, p 91.

something that the literature reports as being associated with accidental injuries other than in those contexts.[130]

106. The experts agreed that there had to be at least two mechanisms needed to explain the constellation of injuries – head trauma involving acceleration/deceleration force and rotational force and these could occur with or without an impact.[131]

Combination and pattern of injuries

107. As indicated earlier in this finding, there was some tension in the medical evidence adduced prior to the Inquest regarding what could be inferred about causation, when considering the pattern and combination of the injuries Mathew experienced.

108. Dr Glengarry concluded in her report that the possibility of the event described by the parents, blunt force head trauma and shaking could not be excluded as possible causes of the injuries.

109. Prior to the Inquest, several experts expressed that the pattern and combination of injuries were more commonly associated with non-accidental trauma, than with the type of scenario described by Mathew's parents.

110. In her first statement, Dr Smith said the combination of injuries and the "*absence of any sign of focal head injury to the scalp or skull is almost certainly indicative of abusive head trauma*".[132] She further explained a motor vehicle collision or a complex, high energy impact and fall might account for some of the findings in combination but is considered "*highly unlikely to account for the particular combination of findings*".[133]

111. When considered as a whole, Associate Professor Teague stated "*the constellation of Mathew's diagnosed injuries is highly suggestive of abusive head trauma*".[134]

112. Dr Clayton said the injuries and examination findings do not appear consistent with a fall from a high chair and indicate that a significant earlier injury occurred. She said the *"pattern of injuries demonstrated would be consistent with non-accidental injury by shaking".*[135]

[130] Transcript of evidence, p 67.
[131] Transcript of evidence, pp 74-5.
[132] Exhibit 6, Hot Tub Brief, p 59.
[133] Exhibit 6, Hot Tub Brief, p 59.
[134] Exhibit 6, Hot Tub Brief, p 73.
[135] Exhibit 6, Hot Tub Brief, p 39.

113. When asked to describe an alternative event to that described by the parents that could account for the injuries, the experts unanimously agreed that *"violent shaking with or without impact"*[136] or *"a shaking mechanism plus or minus impact"*[137] could cause Mathew's constellation of injuries.

114. At inquest there was consensus among the experts that this case was indicative of abusive head trauma, in that *"all of the injuries evident for Mathew can be explained by the single unifying cause of an episode of being shaken."*[138]

115. Dr Tibballs expressed that whilst he was in agreement with this sentiment, he wanted to be clear that this did not exclude the possibility of other causes. He said that a *"severe blunt head trauma could also explain the signs…it's not just shaken baby syndrome that is responsible for the findings."*[139] He explained – "*blunt trauma plus or minus –plus the possible acceleration/deceleration injury on striking the tiles or the plastic board ah – backboard of the highchair .., could be an alternative explanation*".[140]

Potential explanations for injuries

116. A number of potential explanations in relation to whether and how the involvement of the highchair may have caused Mathew's injuries were explored at inquest.

117. Particularly, the issue of whether the internal head injury could have been caused by Mathew being pushed with force whilst seated in a highchair. Dr Iles responded that the experts took this question to mean being pushed backwards and forwards – and on that basis they did not consider Mathew could have sustained the head injury this way.[141]

118. Another possible explanation considered was whether the highchair being pushed backwards and then Mathew falling and hitting his head on the plastic part at the back of the highchair. Dr Iles agreed this may make a difference but stated the group of experts *"lacks the biomechanical expertise to answer that question with any precision, given there are a number of potential variables, so none of us has the expertise to answer that question*."[142]

119. Dr Glengarry agreed:

[136] Transcript of evidence, p 60.
[137] Transcript of evidence, p 48.
[138] Transcript of evidence, p 73.
[139] Transcript of evidence, p 74.
[140] Transcript of evidence, p 74.
[141] Transcript of evidence, p 46.
[142] Transcript of evidence, p 47.

> *we do not have the biomechanical expertise to really address the issues with regards to the highchair or the floor … but, yes, it does make a difference in general because a broad cushion surface is going to get different forces than an edged or narrow surface with regards to the head. It changes the forces applied to the head and therefore changes … the risk of soft tissue injury or fracture. What the magnitude of those changes are, however, is beyond our expertise.*[143]

120. The experts agreed.

121. The experts also considered whether it was feasible that if the rear of the highchair struck the floor it could create a bouncing movement and cause Mathew's head to move backwards and forwards. Associate Professor Teague responded to this question and said that:

> *given the seat back and … headrest structure, it is possible that Mathew's head may have bounced off the moulded plastic, but not with repeated and equivalent acceleration/deceleration forces due to the expected dissipation of force. This is distinct from the expected repeated and equivalent acceleration/deceleration forces on an infant's … head when shaken.*[144]

122. The experts were in agreement about this issue. [145]

123. The issue of whether a fall from a highchair or whether Mathew could have been pushed over in the highchair was also considered. Dr Glengarry stated that:

> *we know that not all impacts cause fractures. The lower the forces that are involved, the lower the risk of fracture. And we know that severe head injury and short falls is rare but can happen, but that most low-level falls do not cause serious head injury.*[146]

124. Dr Clayton added that "*we do agree that if the injury occurred from a highchair being pushed backwards with force, that this would be more complex than a fall from the highchair itself*".[147] She agreed that the severity of the head injury would likely be higher if a child was pushed from a highchair rather than fell from a highchair.[148] Further, she explained "*its hard to say whether he struck the rear plastic headrest or the tiled floor and even if he was strapped in, [and] depending on how tightly he was strapped in*".[149]

[143] Transcript of evidence, p 50.
[144] Transcript of evidence, p 47.
[145] Transcript of evidence, p 47.
[146] Transcript of evidence, p 49.
[147] Transcript of evidence, p 51.
[148] Transcript of evidence, p 51.

125. Dr Mathew suggested:

> *impact for a short fall causes the brain to move in a linear direction, which causes less damage outside the focal contact area than compared to when the brain and eyes are subject to rotational forces. There are no absolute values for the angular acceleration forces required to produce retinal haemorrhages, but there is evidence that this must be considerable force. This force is unlikely to be cause[d] from a head strike onto a plastic headrest, and it is unlikely to be cause[d] during play in a highchair even if rough play.*[150]

126. This was the consensus of the experts.

127. In relation to whether it was possible that MJA shaking Mathew in the highchair would cause the injuries observed, Associate Professor Teague stated "*we do not consider it possible*".[151] He said "*there is no evidence we are aware of on which to base an opinion that this is possible*"[152] – even having watched the video of MJA's interaction with Mathew in the highchair. The experts were in complete agreement.[153] Dr Smith agreed and rhetorically asked *"is it possible that the brother could've shaken Baby Mathew continuously and caused the injuries and our consensus opinion was that that was not possible".*[154] Dr Mathew agreed she thought the brother vigorously shaking the baby in the highchair was unlikely.[155]

128. Dr Tibballs noted *"to me the question is which party tipped over the chair rather than or shook the baby, okay… an adult or a child could have tipped over the chair but only an adult could have shaken the baby to such a degree to create the injuries if that is the explanation"*[156]

129. In cross examination that further considered the potential combinations of movements and forces that could be generated by the reported fall from the highchair, Dr Smith noted *"I think we can speculate a range of different scenarios… There are a range of possibilities, I can't rule any more likely than others."*[157]

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[149] Transcript of evidence, p 52.
[150] Transcript of evidence, p 65.
[151] Transcript of evidence, p 59.
[152] Transcript of evidence, p 59.
[153] Transcript of evidence, pp 59-60, 83.
[154] Transcript of evidence, p 83.
[155] Transcript of evidence, p 83.
[156] Transcript of evidence, p 85.
[157] Transcript of evidence, p 105.

Is parents' explanation possible or plausible?

130. Given that a number of various and possible mechanisms involving the highchair were explored at inquest, it was important to address whether the parents' explanation about MJA playing rough with Mathew and knocking him over in the highchair was a possible or plausible explanation. As there were differences of opinion, the experts opted to give their own separate answers to this issue.

131. In her opinion, Dr Smith thought it was possible – "*for most of the injuries, yes, but I have some injuries that I'm finding difficult to reconcile*".[158] Namely, *"the eye injuries, retinoschisis and macular folds and the severity of the eye injuries*".[159] She added "*the other finding that causes me some disquiet is the finding of … old membranes*"[160] however she was uncertain of their significance.[161]

132. Consistent with Dr Smith, Dr Mathew found it "*difficult to reconcile the history provided with the retinal injuries [she] saw and documented at the time*".[162]

133. Associate Professor Teague considered the explanation provided by the parents regarding how the injuries occurred as possible. Nevertheless, he did not consider it "*the most likely explanation of the full range, nature and severity of the injuries for this specific child, whose injuries on the balance of probability (sic) are more readily explained by being shaken or other abusive head trauma."*[163] His impression was *"reinforced by the absence of specifically sought features that would have positively supported the alternative explanation offered by the parents*".[164]

134. Dr Clayton agreed that is was not plausible to account for all the injuries because she considered "*a higher mechanism of injury*"[165] was needed. She also noted

> *… it doesn't sit comfortably to me that the … stated mechanism of injury would result in such extreme severe … cerebral swelling that was … completely uncontrollable at the time of surgery. … that to me would suggest potentially another injury or a – a different mechanism of injury*.[166]

[158] Transcript of evidence, p 53.
[159] Transcript of evidence, pp 53-4.
[160] Transcript of evidence, p 55.
[161] Transcript of evidence, p 55.
[162] Transcript of evidence, p 55.
[163] Transcript of evidence, p 56.
[164] Transcript of evidence, p 56.
[165] Transcript of evidence, p 56.
[166] Transcript of evidence, p 93.

135. Dr Tibballs considered the explanation offered by the parents was quite possible as the true mechanism of the injury.[167] He argued all of the features observed in this case *"have been described in medical literature as occurring in so-called accidental injury*."[168] Regarding whether it is plausible or not, he said it was if the word plausible was interpreted as being believable - he thought it was believable[169]. When:

> *looking at the video, reading about the manner of the injuries and considering that there might be an acceleration – deceleration force associated with falling from a highchair onto a tiled floor at considerable height when considering the size of the infant. I do know that serious head injuries and death has resulted from falls of this nature in infants many times before*.[170]

136. Dr Iles thought it was possible Mathew's injuries were sustained in the manner described. Her evidence was:

> *if he was rocked backwards and forwards and then the chair pushed over, this would replicate a significant deceleration injury with a rotational element. A subsequent acceleration of the head associated with neck flexion when the chair hit the ground could possibly produce flexion injuries observed in the cervical ligaments. In essence these types of movements and forces are those that are theorised to cause shaken baby syndrome, for want of a better expression, … and I'm allowing this possibility because we do not have biomechanical models to give us a quantum of force required to produce a spectrum of injuries seen thus I consider it possible*.[171]

137. Equally, Dr Glengarry believes the explanation is possible. Further, "*we know that short falls may cause serious head injuries … and the explanation in my mind constitutes an accelerated fall*".[172] She added:

> *I cannot entirely exclude the current explanation but I do acknowledge it isn't the sole explanation for the injuries and there are features which … – don't necessarily sit as well with the offered explanation, particularly the eye findings. But I do believe it is possible that the accelerated fall from the highchair has caused the injuries*.[173]

138. Most of the experts considered the parent's explanation as possible but there was a significant level of discomfort about whether it could have explained *all* of the injuries, particularly the significant injuries to Mathew's eyes.

[167] Transcript of evidence, p 75.
[168] Transcript of evidence, p 57.
[169] Transcript of evidence, p 57.
[170] Transcript of evidence, p 57.
[171] Transcript of evidence, pp 57-8.

Would an adult have need to be involved to causes those injuries?

139. The experts were asked whether an adult would need to be involved to have caused the injuries to Mathew. Associate Professor Teague's evidence was that you:

> *would expect an amount of force that would not be consistent with a child … we couldn't qualify an older child or a teen or someone else who had physical capacity to render such force but we are acknowledging words such as violent force.*[174]

140. Associate Professor Teague explained "*an adult or a child could have tipped over the chair but only an adult could have shaken the baby to such a degree to create the injuries if that is the explanation*".[175]

141. Dr Smith agreed that you cannot differentiate between an adult and a teen - but it would need to be someone big enough and bigger than MJA.[176] Dr Mathew was unable to say who would cause those injuries, but "*they would definitely have to be significant*".[177]

142. Dr Tibballs agreed with the other experts and said, *"If the cause was shaken baby syndrome, it would require the intervention of an adult but alternatively, who could've tipped over the chair, a child could've tipped over the chair."* [178] Dr Iles similarly says "*in my view, was - if the explanation is from tipping the chair, um another party would be required and does not need to be an adult".*[179]

Other possible causes

143. Other possible causes of the injuries were also considered by Dr Glengarry and the treating clinicians.

144. Dr Smith said the history and findings were not compatible with birth trauma. Further, "*infection, coagulation disorders, vascular malformations and metabolic/genetic causes were not suspected on clinical grounds*".[180]

145. In relation to whether coagulopathy could be a potential explanation, Dr Clayton explained that "*we're not aware of any pre-existing coagulopathy*".[181] Dr Smith opined

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[172] Transcript of evidence, p 58.
[173] Transcript of evidence, p 58.
[174] Transcript of evidence, p 84.
[175] Transcript of evidence, p 85.
[176] Transcript of evidence, p 83.
[177] Transcript of evidence, p 83.
[178] Transcript of evidence, p 84.
[179] Transcript of evidence, p 85.
[180] Exhibit 6, Hot Tub Brief, p 56.

that an underlying blood coagulation problem hadn't "*been excluded but this is not the sort of presentation that one might associate with either of those two conditions*".[182]

146. Dr Clayton explained many blood tests were taken to assess Mathew's clotting during the period he was managed. Notwithstanding:

> *he was found to have a coagulopathy that developed which was entirely consistent with a very severe head injury. During his operation he required a whole blood volume replacement with other blood factors such as cryoprecipitate and fresh from frozen plasma to try and optimise his bleeding, which was ongoing and meant keeping him stable during the case very challenging*.[183]

147. This was confirmed by Dr Glengarry, as previously stated that the autopsy examination and ancillary testing did not detect any natural disease or congenital abnormality.[184]

Can the timing of the injuries be ascertained?

148. The degree of cerebral oedema, brain swelling and extent of brain injury suggested the brain injuries may have been sustained earlier in time. The radiological findings suggested there was acute/hyperacute blood. This finding suggested that bleeding may have occurred within hours to days prior to the CT brain.[185] The inquest examined whether it was possible to explore the timing of the injuries.

149. Dr Clayton explained that:

> *hypodense areas of subdural indicate that the subdural is in a liquid state which can either be explained by active bleeding or by chronic fluid. Hyperdense blood in the subdural space indicates a solid clot. I would only be enabled to give an answer as to the nature of the hypodense at operation which was found to be active*.[186]

150. Dr Clayton explained that a clot can form within minutes and last for a few days.[187]

151. Dr Iles commented that "*the rapidity and degree of brain swelling in this instance is atypical for the time interval in question and raises the possibility of a longer time*

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[181] Transcript of evidence, p 60.
[182] Transcript of evidence, p 61.
[183] Transcript of evidence, p 60.
[184] Exhibit 7, Coronial Brief, p 384.
[185] Exhibit 6, Hot Tub Brief, p 51.
[186] Transcript of evidence, p 44.
[187] Transcript of evidence, p 45.

period between trauma and presentation. It does, however, not preclude the scenario as presented".[188] The experts were in agreement.

152. Dr Clayton indicated that:

> *there was discordance between the extreme degree of cerebral swelling and oedema experienced at surgery than that expected from the reported mechanism at the time stated. Reconciling with this discordance may be possible by considering the possibility of an earlier injury or a different cause of injury such as shaking. I do acknowledge that there is a variability reported, however, between the timing of development of cerebral swelling with cases of trauma, depending on the specific case.*[189]

153. The experts agreed.

154. According to Dr Tibballs there was a small series of cases (5) reported in medical literature that indicates that it is possible to have severe brain changes and swelling within [a] short period of time from one to five hours after a severe brain injury.[190]

155. Given the extent of his injuries, an important aspect to consider in terms of understanding the cause and mechanism of Mathew's injuries, was how he would have presented with this combination of injuries. Given the CT scan showed severe global hypoxic injury, it was Dr Clayton's opinion that "*he would be expected to be severely unwell, apnoeic with a loss of consciousness and possibly have a pupillary change*."[191] He may also have had seizures, and potential haemodynamic instability.[192] In terms of timing and how Mathew would have presented, Dr Clayton said that:

> *… if he sustained an injury earlier in the day … he would not be expected to appear completely normal during the day, he may have generalised non-specific signs initially, such as lethargy, irritability, tiredness, sleepiness, perhaps vomiting or seizures, and progressively worsening picture.*[193]

156. However Dr Iles noted:

> *Taking aside the subdural membranes which are remote from any acute injuries, and also taking aside the secondary ischaemic effects of the brain, which are a downstream effect of ... the trauma, there's nothing that*

[188] Transcript of evidence, p 69.
[189] Transcript of evidence, p 70.
[190] Transcript of evidence, p 71. Dr Tibballs was referring to Steinbok, P, Singhal, A, Poskitt, M, & Cochrane, D "Early Hypodensity on Computed Tomographic Scan of the Brain in an Accidental Pediatric Head Injury", *Neurosurgery*, Vol 60, No. 4, April 2007.
[191] Transcript of evidence, p 44.
[192] Transcript of evidence, pp 44-5.
[193] Transcript of evidence, p 72.

> *precludes … the majority of these injuries or these injuries but occurring at a single point in time*.[194]

157. There was some evidence that the subdural membranes indicated an earlier event may have contributed to this either as part of the birth process or an accidental head injury. Dr Smith agreed with Dr Glengarry on this issue. Although Dr Iles said it is difficult to age them. She further elucidated this point:

> *it becomes difficult when you have membranes that are apparently of different age but you don't know the size of the original haemorrhage. So it becomes really quite difficult unless they are extremely very different to say that they definitely occurred a different points in time which is why I've made that clarification in my statement*.[195]

158. Dr Iles said she could "*allow the possibility of this spectrum of injuries being produced via the mechanism of the tipping of the chair because of the potential for an acceleration, a significant deceleration and acceleration injury in that mechanism, and it also involve a rotational element*".[196] However "*the presence of chronic subdural membranes which clearly do not have anything to do with this acute event is of concern, because it indicates some previous bleeding around the membranes of the brain, the cause for which is unclear*".[197] Significantly - it's not related to this head trauma.[198] She explained that she could not give any precision as to when those occurred but probably weeks prior. Meaning a completely separate event, at a completely separate point in time - could not be ruled out.[199]

159. The experts indicated that if violent shaking was a contributing cause of Mathew's injuries, they would not be able to determine the time at which the shaking occurred in relation to any other mechanism of injury. That is, were a fall and shaking involved they would not be able to determine which injury preceded the other. However, there was agreement that normal resuscitation attempts would not involve sufficient force to contribute the pattern of head injuries seen.[200]

Should the medical cause of death be changed?

160. Some of the clinical findings associated with Mathew's head injuries are consistent with what is sometimes referred to as shaken baby syndrome or abusive head trauma.

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[194] Transcript of evidence, p 72.
[195] Transcript of evidence, p 87.
[196] Transcript of evidence, p 78.
[197] Transcript of evidence, p 78.
[198] Transcript of evidence, p 78.
[199] Transcript of evidence, p 78.

161. In evidence, Dr Iles explained what the term shaken baby syndrome is taken to mean:

> *its …. a constellation of findings of some or all of the three elements of subdural haemorrhages, retinal haemorrhages and encephalopathy as a result of mechanical trauma applied to the head and neck. Encephalopathy is a generalised brain injury consequent to the cascade of hypoxia and brain swelling observed in this setting.*[201]

162. In evidence, Associate Professor Teague considered "*this case is representative of shaken baby syndrome or as it is now termed abusive head trauma. As all the injuries evident for Mathew can be explained by the single unifying cause of an episode of being shaken*".[202]

163. Controversy surrounds the term shaken baby syndrome and modern literature uses the term 'abusive head trauma'.[203] Shaken baby syndrome implies more precision about the biomechanical mechanisms than currently exist.[204] All the experts agreed.

164. This means there are limits to exact causes of injury. Dr Iles explained that there is not an accurate biomechanical model to assess this and it is one of the difficulties associated with using the terms abusive head trauma or shaken baby syndrome – because the precise quantum of force is not identifiable because those models don't exist.[205] This means there are limits of what medical clinicians are able to say "*based on the current level of evidence*".[206]

165. The issue of shaken baby syndrome is contentious according to Dr Iles because there is a lack of control studies to "*prove that X causes Y, obviously because we are dealing with severe injuries in children*".[207] She further explained the medical conundrum is that:

> *the sort of Level 1 evidence that you would normally use is – is clearly not appropriate in this instance. … there are no accurate biomechanical models that allow us to answer the question whether shaking and/or impact can produce this constellation of injuries and as a consequence we cannot give any accurate estimate of the quantum or the minimum quantum forces required to produce this spectrum of changes and this … type of brain injury. So therefore the evidence base if you like behind the abusive head trauma, shaken baby diagnosis is based on clinical observations of children who quite clearly have suffered traumatic injury because there are injuries*

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[200] Transcript of evidence, pp 81-2.
[201] Transcript of evidence, p 74.
[202] Transcript of evidence, p 73.
[203] Transcript of evidence, p 74.
[204] Transcript of evidence, p 74.
[205] Transcript of evidence, p 88.
[206] Transcript of evidence, p 88.
[207] Transcript of evidence, p 76.

outside of the head and neck which indicate trauma and also through confessional studies about people admitting that they have injured their child.[208]

166. Dr Iles, however, warned that confessional studies need to be treated with caution because they are subject to all sorts of problems such as recall bias and other biases.[209] For these reasons, it is a controversial diagnosis from the point of view of the level of evidence required.[210]

167. Therefore when giving evidence about force that may be required to cause the head injuries – the only thing that can be said is that "*they are significantly in excess of normal handling simply because we do not see these types of injuries with normal or even vigorous handling of infants and children*".[211]

168. It was the opinion of Dr Glengarry that the current cause of death given as head injury should not be changed as it reflected the findings, which was the consensus of the group of experts.[212]

Submissions on behalf of the family

169. It was submitted by Counsel who represented the Jameel family that the following matters must be taken into consideration when making findings and conclusions in this case:

a) There was no history of violence recorded by either Victoria Police or the DHHS.

b) There was no history of previous family violence or intervention orders either in Victoria or Australia wide.

c) The Royal Children's Hospital records of the SCAN meeting held on 8 June 2018 stated mentioned the "*family's distress, of loving and caring interactions with Mathew's older sibling MJA and of no significant red flags raised about the family (father with significant trauma history in Iraq but no mental health issues, no drugs or recent stressors identified)'*.

d) DA/S Woods stated that Ms Al-Shankol and Mr Jameel were "*very cooperative, more than cooperative*" with the police investigation into the circumstances of

[208] Transcript of evidence, p 76.
[209] Transcript of evidence, pp 76-7.
[210] Transcript of evidence, pp 77.
[211] Transcript of evidence, p 88.
[212] Transcript of evidence, p 77.

Mathew's death until July 2018, including initially consenting to MJA's VARE interview.

e) Dr Glengarry's autopsy findings include that Mathew was a well-nourished, normally developed seven month old male.

f) Dr Glengarry also noted that the skeletal survey showed no evidence of old or recent fractures.

g) Dr Smith stated that Mathew appeared to be well-grown infant and there were no external injuries detected.[213]

170. It was further submitted that these matters were consistent with the parents' account of the circumstances of Mathew's injuries.[214] The experts agreed that it was 'possible' that Mathew's injuries were caused by rotational forces generated by a fall from the high chair. Dr Glengarry said it was "plausible".[215]

171. It was submitted that I should be satisfied on the balance of probabilities that the mechanism of Mathew's death was a fall from the high chair and that I cannot be satisfied that Mathew died due to shaking and or abusive head trauma.[216] It was further submitted that if I was unable to reach a conclusion about the mechanism of death - a fall from a high chair could not be ruled out as a possibility.[217] I was urged to make an open finding on the circumstances of death.

FINDINGS AND CONCLUSIONS

172. Having investigated the death of Mathew Jameel and having held an Inquest in relation to his death on 26 February and 19 March 2021 at Melbourne, I make the following findings and conclusions, pursuant to section 67(1) of the *Coroners Act 2008*:

a) that the identity of the deceased was Mathew Duraid Jameel, born on 29 October 2017;

b) that Mathew died on 10 June 2018, at Royal Children's Hospital, from 1(a) *Head injury*;

[213] Submissions on behalf of Noora Al-Shankol and Duraid Jameel dated 17 March 2021, pp 13-4.
[214] Submissions on behalf of Noora Al-Shankol and Duraid Jameel dated 17 March 2021, p 14.
[215] Submissions on behalf of Noora Al-Shankol and Duraid Jameel dated 17 March 2021, p 14.
[216] Submissions on behalf of Noora Al-Shankol and Duraid Jameel dated 17 March 2021, p 14.
[217] Submissions on behalf of Noora Al-Shankol and Duraid Jameel dated 17 March 2021, p 14.

c) in the circumstances set out above.

173. I would like to express my sincere condolences to the Jameel family for the loss of their baby, Mathew.

174. As previously discussed, for me to make any formal findings based on all the evidence I must be comfortably satisfied based on clear and cogent evidence. Facts should be proven on the balance of probabilities and not based on inexact proofs, indefinite testimony or indirect inference. The evidence I accept when considered and balanced in its entirety, needs to be more than possible, more than plausible and more than believable – it needs to be probable - meaning it requires an actual persuasion – a state of personal belief that the fact was more likely to have occurred than not.

175. Prior to his death Mathew was a healthy, well-nourished, normally developed seven month old child.

176. I find that on 6 June 2018 Mathew received a constellation of extensive and severe head injuries including hypoxic ischaemic brain injury, bilateral subdural haemorrhages, bilateral retinal haemorrhages together with vitreous haemorrhages, retinoschisis and retinal folds, and ligamentous injury to the cervical spine. The injuries were consistent with trauma. The injuries were internal, with no fracture, laceration or open wound. Whilst this could imply there was no direct impact to the head – such an impact could not be ruled out. However, there was an absence of any external injuries that positively corroborated a fall, or push, out of a highchair as the mechanism of injury which was concerning in light of the severity of the internal injuries.

177. The experts acknowledged that a fall or push out of a highchair could not be excluded as an explanation, but for most experts it did not comfortably account for the array of extensive head injuries that Mathew received. The experts suggested that short falls as a mechanism to cause these injuries are rare – but can occur. The experts also considered that an accelerated fall from being pushed over in a highchair represented a more complex mechanism of injury than what might be termed a short fall, but the degree or significance could not be determined. However, the majority of experts agreed that there were a number of findings particularly the extensive injuries to the eyes that seemed incompatible with a short fall. Further, due to the rapidity and degree of brain swelling a separate earlier event was unable to be ruled out.

178. Despite a thorough and independent examination of the medical evidence, I am unable to ascertain the mechanism which caused the injuries, other than to say at least two mechanisms were needed to explain the constellation of injuries – head trauma involving acceleration/deceleration force and rotational force, and these could occur with or without an impact. The experts unanimously agreed that a possible explanation for the injuries would be violent shaking with or without impact. The evidence was that the shaking would need to be significantly in excess of normal handling of a child.

179. The preponderance of evidence was highly suggestive that Mathew's extensive head injuries were caused by a non-accidental injury – meaning an adult or a teenager would have had to have been involved. The experts agreed that MJA could have pushed the highchair over, but the majority of experts considered that he would not have had the ability to create the degree of force required to cause the injuries by shaking. Further, most experts had serious concerns that a fall from the highchair alone as described by the parents could not easily account for the constellation of injuries. Therefore, the balance of the expert medical evidence does not support a finding that MJA caused these injuries, alone, or at all.

180. It follows therefore, that I am not comfortably satisfied that the version of events provided by the parents to clinicians and police in the hours and days after Mathew presented to hospital (which I note has not been tested or subject to any examination), provides an adequate explanation for the combination of injuries suffered by Mathew. However, no other explanation has been given. Consequently, I am unable to ascertain whether or not any other person was either directly or indirectly involved in causing the injuries to Mathew. Based on all the available evidence, I am unable to ascertain the exact circumstances or mechanism of the cause of injuries.

181. Pursuant to my obligation arising from section 49 (1) of the Coroners Act, I consider it is appropriate to refer this case to the Director of Public Prosecutions because I believe that an indictable offence may have been committed in connection with Mathew's death. Whilst I am conscious of the equivocal nature of the evidence, that is not the test.

182. I wish to express my gratitude to the clinicians involved in the expert medical panel whose professionalism and expertise enabled me to understand the complex medical issues and evidence in this case. I acknowledge the trauma associated with investigating these cases and that they can have a profound impact on treating clinicians, forensic pathologists, child protection workers and police.

COMMENTS

183. Pursuant to section 67(3) of the Coroners Act, I make the following comments connected with the death.

184. The unexpected death of a child in suspicious circumstances is utterly devastating for parents, families, clinicians and the community as a whole.

185. These cases are difficult and challenging to investigate for paediatric clinicians, forensic pathologists, child protection workers and police, particularly when there is a lack of biomechanical based evidentiary studies in relation to the degree of force required to explain multiple and extensive traumatic head injuries in a child. The medico-legal aspects of these types of cases cause concern and consternation to many. I acknowledge there is a large body of knowledge including criminal cases, medical, legal and academic articles and studies on the use of terms such as shaken baby syndrome and abusive head trauma - many with opposing positions. As with other aspects of forensic and clinical medicine and science, there has been an evolution of knowledge in this area which continues to this day – but remains equivocal. I accept there is much controversy surrounding these issues and have been particularly mindful of it in my deliberations.

186. What is required however in the investigation of these types cases is an open mind and for medical clinicians, forensic pathologists, child protection workers, and police to continue to work collaboratively together in a thorough and clinically objective way.

187. I direct that a copy of this finding be provided to the following:

    The family of Baby Mathew Jameel

    Dr Joanna Glengarry, Forensic Pathologist, Victorian Institute of Forensic Medicine

    Dr Linda Iles, Head of Pathology, Victorian Institute of Forensic Medicine

    Dr James Tibballs, Consultant Paediatrician, Royal Children's Hospital

    Dr Juliet Clayton, Consultant Paediatric Neurosurgeon, Royal Children's Hospital

    Dr Jennifer Smith, Medical Director, Consultant Paediatrician, Victorian Forensic Paediatric Medical Service

Associate Professor Warwick Teague, Director, Trauma Service, Consultant Surgeon, Department of Paediatric Surgery, Royal Children's Hospital

Dr Anu Mathew, Consultant Ophthalmologist, Royal Children's Hospital

Ms Kerri Judd QC, Director of Public Prosecutions, Office of Public Prosecutions

Ms Annabelle Mann, General Counsel, Royal Children's Hospital

Ms Sandy Pitcher, Secretary for Department of Families, Fairness and Housing

Ms Leng Phang, Managing Principal Solicitor, Legal Services Branch, Department of Families, Fairness and Housing

Ms Liana Buchanan, Commissioner for Children and Young People

Coroner's Investigator, DA/S Paul Woods, Victoria Police.

Signature:

JACQUI HAWKINS
CORONER
Date: 17 June 2021