IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2015 0846

FINDING INTO DEATH WITH INQUEST

Form 37 Rule 60(1)
Section 67 of the Coroners Act 2008

Deceased:	**NOAH ZUNDE**
Findings of:	**JUDGE SARA HINCHEY, STATE CORONER**
Delivered on:	14 June 2017
Delivered at:	Coroners Court of Victoria, 65 Kavanagh Street, Southbank
Hearing date:	22 March 2017
Appearances:	Nil
Counsel assisting the Coroner:	Jodie Burns, Senior Legal Counsel
Catchwords	Homicide, no person charged with an indictable offence in respect of a reportable death, mandatory inquest, expert evidence in relation to the physiology and cognitive neuroscience of the human memory system

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HER HONOUR:

BACKGROUND

1 Noah Zunde (**Noah**), born 29 April 2013, is the youngest child of Romy Sai Zunde (**Romy**) and Andrew Peter Krespanis **(Andrew)**. Their oldest child, Noah's sister, is Aniko Zunde (**Aniko**).

2 On 19 February 2015, Noah died, almost 22 months of age, from heatstroke, after he was inadvertently left in the family motor vehicle by his mother, Romy.

THE PURPOSE OF A CORONIAL INVESTIGATION

3 Noah's death constituted a '*reportable death*' under the *Coroners Act 2008* (Vic) (t**he Act**), as his death occurred in Victoria, and was both unexpected and unnatural.[1]

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

5 It is not the role of the coroner to lay or apportion blame, but to establish the facts.[3] It is not the coroner's role to determine criminal or civil liability arising from the death under investigation, or to determine disciplinary matters.

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

7 For coronial purposes, the phrase '*circumstances in which death occurred'*, refers to the context or background and surrounding circumstances of the death. Rather than being a consideration of all circumstances which might form part of a narrative culminating in the death, it is confined to those circumstances which are sufficiently proximate and causally relevant to the death.

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 of the Court.

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[1] Section 4, *Coroners Act 2008.*
[2] Section 89(4) *Coroners Act 2008.*
[3] *Keown v Khan* (1999) 1 VR 69.

9 Coroners are also empowered:

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

(b) to 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) to make recommendations to any Minister or public statutory authority 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 All coronial findings must be made based on proof of relevant facts on the balance of probabilities. In determining these matters, I am guided by the principles enunciated in *Briginshaw* v *Briginshaw*.[4] The effect of this and similar authorities is that coroners should not make adverse findings against, or comments about individuals, unless the evidence provides a comfortable level of satisfaction that they caused or contributed to the death.

11 Detective Senior Constable Scott Riley from the Homicide Squad was the appointed coroner's investigator and prepared the coronial brief. I thank him for his diligent and professional assistance in the investigation and for compiling a comprehensive coronial brief.

12 This finding draws on the totality of the material produced for the coronial investigation into Noah's death. That is, the investigation and coronial brief in this matter, the statements, expert reports and Inquest evidence. All this material, together with the Inquest transcript, will remain on the coronial file. 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.

MATTERS IN RELATION TO WHICH A FINDING MUST, IF POSSIBLE, BE MADE

Identity of the Deceased pursuant to section 67(1)(a) of the *Coroners Act 2008*

13 The Deceased was visually identified by Ms Allison Evans on 19 February 2015 to be Noah Zunde, born 29 April 2013.

14 Identity is not in dispute in this matter and therefore requires no investigation.

[4] (1938) 60 CLR 336.

Medical cause of death pursuant to section 67(1)(b) of the *Coroners Act 2008*

15 On 19 February 2015, Dr Matthew Lynch (**Dr Lynch**), Senior Forensic Pathologist with the Victorian Institute of Forensic Medicine, performed an autopsy upon Noah's body. Dr Lynch provided a written report, dated 17 June 2015, which concluded that Noah died from '*heat stroke*'.

16 In his report, Dr Lynch, commented that heat stroke or heat injury is an acute life threatening circumstance which occurs when a person's core body temperature exceeds 40.6°C and their thermoregulatory mechanism is overwhelmed. He noted that infants and young children are more susceptible to developing hyperthermia from a hot environment and thus, are prone to heat stroke because of their high metabolic rates, their incompletely developed hypothalamic thermoregulatory centres and their inability to extricate themselves from unsafe environments.

17 A full toxicological analysis conducted on leg blood, identified trace levels of paracetamol which did not cause or contribute to Noah's death.

18 I accept the cause of death proposed by Dr Lynch.

Background to the circumstances in which the death occurred

19 At the time of his death, Noah was a healthy child who did not have any pre-existing medical conditions.

20 Noah's parents had their first child, Aniko, on 11 February 2010. After Aniko's birth, Romy suffered from severe postnatal depression. In September 2010, Romy was admitted to the Mental Health Clinical Unit, Parent Infant Program at Austin Health, where she was diagnosed and treated for, amongst other things, Major Depressive Disorder, a postnatal episode of moderate severity and General Anxiety Disorder.

21 In July 2012, Romy, Andrew and Aniko moved to a property in Kyneton.[5]

22 When she was eight weeks pregnant with Noah, Romy had a recurrence of anxiety and depression. However, after Noah's birth, she did not experience any postnatal anxiety or depression.

23 Romy describes herself as an anxious mother, "*helicoptering her children all the time trying to do as best as she could to care for the two children.*"[6]

[5] Coronial brief, page 52.

24 In June 2014, Noah commenced attending 'Care for Kids', a child care centre in Woodend. He attended every Wednesday and Friday along with his sister, Aniko.

25 In August 2014, Noah commenced attending 'Bambini Child Care Services' (**Bambini**) at 3 Acacia Street, Kyneton. This child care centre was operated by Allison Evans (**Ms Evans**). Noah attended there every Tuesday between 9.00am and 3.00pm.

26 In December 2014, Andrew purchased a second-hand 1999 Toyota Hilux dual cab utility (**the vehicle)**. Previously, Romy and Andrew had been driving a Subaru Forester.

27 In 2015, Aniko commenced primary school. This required Romy to change her previous routine to making two separate 'drop offs' - one at school and the other at childcare, either in Kyneton or Woodend.

28 As part of the school induction program Aniko, along with the other 'prep' students, for the month of February, had each Wednesday as a non-attendance day.

29 From February 2015, Noah attended Bambini in Kyneton every Monday and Wednesday and Care for Kids in Woodend on each Friday. This required Romy to change her previous routine for Noah's child care.

The week commencing Monday 9 February 2015

30 Romy states that the week commencing Monday 9 February 2015 "*was a stressful one. Noah's sleep had been disturbed and he was very needy, we guessed due to teething*." [7]

31 On Tuesday, 10 February 2015, a dog attacked Romy and Andrew's pet pigs on their property. This incident caused Romy distress due to the injuries suffered by the pigs. Romy states:

> "*We put them on antibiotics and I tended their wounds that week, which I found distressing*." [8]

32 Romy was also distressed by the fact that the dog was subsequently destroyed by the ranger.

33 Andrew reports that:

> "*Romy has been exhausted for the last few days. She is always exhausted but has been in a dire state since an incident involving a dog attacking our pet pigs…Both our pet pigs*

[6] Coronial brief, page 232.
[7] Coronial brief, page 313.
[8] Coronial brief, page 313.

were injured and required treatment. A vet came out and saw them. This created additional stress for Romy who is very sensitive to things of this nature."[9]

34 On Wednesday 11 February 2015, Aniko turned 5 years old.

35 On Thursday 12 February 2015, Noah commenced attending Bambini, on a temporary basis each Thursday. This required Romy to make further changes to her previous routine for Noah's child care.

36 Toward the end of this week Romy and Andrew, recognising that they were worn-out and in need of a rest, decided to accept Romy's parents Christmas gift of a weekend away. They arranged to have Romy's parents come to their house to care for Aniko and Noah for the following weekend, so they could go to Wilsons Promontory.

37 On Friday 13 February 2015, Andrew came home from work feeling ill and nauseated. Noah was irritable and appeared to be teething. Romy stated that she "*was feeling depleted and stressed.*"[10]

Sunday, 15 February 2015

38 On Sunday 15 February 2015, Andrew was feeling better and the family went swimming at the Macedon Reservoir. This was Noah's first time swimming.

39 By mid-afternoon Romy was feeling nauseous. At about midnight she started vomiting violently which continued for the next twelve hours. As the illness progressed she developed diarrhoea.

Monday, 16 February 2015

40 On Monday 16 February 2015, Andrew did not attend work so he could look after Romy.[11] He took Aniko to school and then took Noah to Bambini in Kyneton.

41 Andrew then went to a chemist to collect some prescription medication.[12] While at the chemist he asked if there was anything he could give to Romy to stop her from vomiting. Upon hearing how frequently she was vomiting he was advised to take her to a doctor and have an injection to stop the vomiting. This ultimately proved unnecessary as Romy stopped vomiting shortly afterward.

[9] Coronial brief, page 52.
[10] Coronial brief, page 52.
[11] Coronial brief, page 52.
[12] Coronial brief, pages 52 - 53.

42 Later that day Aniko started to feel nauseous. She started vomiting that night and continued to vomit frequently throughout the night. Romy stayed up caring for Aniko, despite still feeling sick herself.

Tuesday, 17 February 2015

43 Andrew said that by Tuesday 17 February 2015, they had "*been through every towel in the house and Romy was clearly a wreck from all the cleaning and comforting she had done during the night. I wanted to take Tuesday off as well to look after the family but Romy told me to go to work. I had arranged to take Friday off because we were going to have [a] long week end this weekend. We were planning on going on a holiday with Romy to Wilson's Prom. Our first time ever away from the kids.*" [13]

44 On this day, Aniko did not attend school and Romy cared for her at home. While Aniko had stopped vomiting she was generally unwell. Aniko did not eat much, but Noah was eating well and did not show any signs of falling ill.

45 On Tuesday night Aniko continued to struggle with illness, but was not vomiting. Aniko slept poorly and cried often, requiring constant comfort from Romy.

46 Noah also had significant difficulty sleeping, to the extent that Andrew slept in his room to provide constant comfort. Noah is reported to have had approximately 10 episodes of broken sleep during the night.

Wednesday, 18 February 2015

47 On Wednesday 18 February 2015, Andrew went to work as usual. Romy took Noah to Bambini in Kyneton at about 9.00am. She returned home with Aniko as it was a non-attendance for her at the school. Romy spent time with her daughter, but it was more sedate than usual because she was still unwell and feeling weak.

48 Aniko and Noah had dinner that night at the usual time which was between 5.30pm and 6.00pm. Romy did not eat as she was still feeling too nauseous to eat.

49 On Wednesday night Romy said:

> "*Noah was impossible to put to sleep. Andrew came home, while I was trying to settle him and because Noah was in high distress, we brought him into our bedroom and distracted him for some hours with books and toys and photos. Any attempt to settle him resulted in*

[13] Coronial brief, page 53.

a return to his distressed state so around midnight we decided to just let him sleep in our bed. What followed was a restless few hours of him wanting to lie on top of me and sit up, he slept a few hours, although I could not." [14]

50 Romy further states that *"Noah had a really – almost unprecedented night of not sleeping"* [15] and that she felt like she *"needed help"* [16] due to her fatigue, but could not ask for it. She also states *"I didn't really sleep at all so come Thursday I was really wiped out."* [17]

Circumstances in which the death occurred pursuant to section 67(1)(c) of the *Coroners Act 2008*

Thursday, 19 February 2015

51 On Thursday 19 February 2015, the outside weather temperature ranged between 20.1 degrees at 9.00am and 31.6 degrees at 3.00pm.[18]

52 Romy said that she was "*totally exhausted*". She was, however, feeling somewhat better after her illness and had no signs of gastro. She was relieved that she would be able to catch up on chores that had been let go during the week, before her parents arrived the next day for her weekend away.[19]

53 Andrew decided to catch the early train that morning because he planned to have Friday as an annual leave day.

54 Andrew was running late due to having had interrupted sleep. Romy decided to drive Andrew to the Kyneton train station to save him time. Romy also took Aniko and Noah on this journey. Aniko was partially dressed, Noah was still in his bed clothing and Romy was in her pyjamas when she left the family home to drive Andrew to the train station.

55 When they arrived at the train station, Andrew realised that he had left his Myki pass at home. Andrew states:

> "*[Romy] was considerably distressed by this, as it had thrown off her morning schedule.*"[20]

[14] Coronial brief, page 314.
[15] Coronial brief, page 252.
[16] Coronial brief, page 252.
[17] Coronial brief, page 253.
[18] Official Meteorological records of the Commonwealth of Australian, Australian Data Archive for Meteorology at the closest observation point (Redesdale).
[19] Coronial brief, page 314.
[20] Coronial brief, page 53.

56 Romy drove Andrew back to the family home where he collected his Myki pass and they returned to the train station. In saying his goodbyes, Andrew kissed Noah on the forehead before catching the 7.20am train to Melbourne.

57 Romy drove back to the family home and took Aniko and Noah inside. She dressed and finished preparing the children for school and child care. At approximately 8.40am, Romy placed both children into the vehicle for the purpose of taking Aniko to school and Noah to child care.

58 Aniko was placed in her forward facing booster seat, positioned in the back of the vehicle directly behind the driver's seat. Noah was placed in his rearward facing child restraint, positioned directly behind the front passenger seat. Noah was not visible to the driver when secured in his child restraint. Romy drove to Aniko's school which is approximately 11 km from the family home, a 10 minute drive.

59 When Romy arrived at the school, she took both children out of the vehicle. As Romy was walking into the school she stopped and had a brief conversation with another mother, Caroline Sarah (**Ms Sarah**), who was walking out after having taken her child into the Prep classroom. Romy and Ms Sarah discussed the fact that their respective families had been sick. Romy stated to Ms Sarah that she had had a "*hellish week.*" [21] Ms Sarah states that she got the sense that Romy was tired and probably overwhelmed. Ms Sarah also states:

> "*I did not get the feeling that she was tired to the point that she shouldn't be driving. It was a general sense that she was very fatigued.*" [22]

60 After leaving the classroom with Noah, Romy placed him into his rearward facing child restraint and placed his lunchbox on his lap. Noah had become attached to his lunchbox since Aniko had started school and he liked to hold it. Previously, Noah's lunchbox had been placed in the front of the vehicle in a position where Romy could see it.

61 Romy then drove back toward Kyneton. During the drive Romy listened to an audio book. Romy states:

> "*The last thing I clearly remember on that drive was hearing a nice poem on an audiobook I was listening to… despite being tired feeling happy that I was coming out of gastro in time for a weekend away. I can't remember anything between that and starting the chores at home. Alli's house* [Noah's child care] *is very close to ours, a left turn directly opposite the right turn to our house. I can only assume I automatically made a right turn instead of left, in the haze of sleep deprivation. It is almost certain Noah was*

[21] Coronial brief, page 96.
[22] Coronial brief, page 96.

asleep in the car after his tough night, because he usually made noise in the back and always, always squarked with excitement when we came into the drive after I turned off the engine. He made no noise on that day." [24]

62 The evidence indicates that Romy drove the vehicle home arriving at approximately 9.08am and parked in the usual place near the door at the east of the house, which is used as the main entrance. She got out of the driver's seat and went inside the family home.

63 During the day Romy undertook a number of routine chores. Romy wanted the house to be clean for her parents when they arrived to care for Aniko and Noah on the weekend.

64 Romy's evidence is that she had lunch for the first time in a number of days, did some painting and sent an email to her publisher at 10.49am. At approximately 2.38pm Romy left the family home in the vehicle. She had realised that morning that she needed to get cereal for the children's breakfast and also bananas, as Noah enjoyed eating them. She allowed herself enough time to go to the supermarket so she could collect Noah from his child care at 3.00pm.

65 Romy reports that as she left the family home in the vehicle, she stopped in the driveway and got out of the vehicle to give the pigs some water. She then got back into the vehicle and drove to the Woolworths Supermarket located in Jennings Street, Kyneton. She went inside at approximately 2.44pm and selected a number of items. At 2.48pm she attended the self-serve register and purchased the items. She then left the store, returned to the vehicle and drove to Bambini.

66 Romy arrived at the child care at 2.54pm. Romy states that she got out of the vehicle and went to the front door. When the door was opened she expected to see Noah running up to the door along with the other children, as he would normally do. However, she did not see Noah. Ms Evans asked Romy why she was at the child care centre that day. Ms Evans's evidence is that she said to Romy, "*Noah's not here today you didn't drop him off*" [25] and Romy responded "*I dropped him here.*" [26] Ms Evans replied, "*No you didn't*"[27] and Romy asked "*Where is he?*" [28] Ms Evans then asked Romy "*What have you done today?*" [29]

67 Romy repeated a number of times to Ms Evans that she was really tired and had not slept. Romy put her hands on her head and looked confused. Ms Evans states:

[24] Coronial brief, page 314.
[25] Coronial brief, page 98.
[26] Coronial brief, page 98.
[27] Coronial brief, page 98.
[28] Coronial brief, page 98.
[29] Coronial brief, page 98.

"*you could see by her facial expression that she was asking herself what the hell have I done with him. You could just see that she was confused.*" [30]

68 Romy states:

"*I was so confused. I had a clear memory of dropping him off. I think, now, that my memory was recalling the day before. I started to freak out on the lawn asking Alli what day it was, thinking maybe it was Friday and he was at the Woodend Care for Kids centre he attended on a Friday. Then I started to panic that I had left him at Aniko's school. The car was the last place that occurred to me, and I raced over to it. When I opened the door I remember being shocked that he was there; I hadn't expected him to be.*" [31]

69 As Ms Evans ran towards the vehicle, she saw Noah in his child restraint and rang 000. Ms Evan states that Noah looked like he was asleep. Romy opened the door, undid Noah's restraint and lifted him out. She cradled him on her shoulder and tried to wake him but he did not respond. Romy took Noah inside the house to the kitchen tap and tried to give him water but he was non responsive. Ms Evans remained on the phone to 000 as Romy laid Noah down on a mat in the children's playroom at the rear of the house.

70 A short time later Ambulance paramedics arrived at the child care centre. They observed Noah to be lying supine in the lounge room with one woman performing cardiopulmonary resuscitation (**CPR**). CPR efforts were unsuccessful, Noah was unresponsive and showed signs of rigor mortis. Noah was declared to be deceased. Noah's body temperature was recorded to be 40.6 degrees.[32]

71 Police officers also attended the child care centre and immediately commenced investigating the circumstances of Noah's death. Romy told Sergeant Mark Bell, one of the first responding police officers, that her family had been unwell and she had sleep deprivation. She also told him that she had needed help but did not know where to get it from.[33]

72 Romy later told the coroner's investigator, Detective Senior Constable Scott Riley, during a recorded interview:

"*I was really just exhausted. But I kind of, you know, like I couldn't call in any back up for help because I didn't want anyone to catch gastro so I didn't ask the grandparents to come and plus they were coming that weekend to look after the kids while we were away so I didn't ask for help and I really needed help but I felt like I couldn't ask anyone for help.*" [34]

[30] Coronial brief, page 103.
[31] Coronial brief, page 315.
[32] Coronial brief, page 116.
[33] Coronial brief, page 131 and 252.
[34] Coronial brief, pages 251-252.

73 Also during this recorded interview, Romy described the weeks leading up to Noah's death as tiring and depleting.[35]

VICTORIA POLICE HOMICIDE INVESTIGATION

74 Immediately after Noah's death, Victoria Police commenced a criminal investigation because his death was considered to be a homicide.[36] Despite conducting an extensive investigation, Victoria Police, has not charged any person with an indictable offence in relation to Noah's death.

75 It is not the purpose of a coronial investigation to investigate possible criminal conduct to compile a brief of evidence in preparation for a future criminal trial. Section 69 of the Act expressly prohibits a coroner from including in a finding or a comment any statement that a person is, or may be, guilty of an offence.

76 The Act does allow a coroner to notify the Director of Public Prosecutions (**DPP**) if they form the belief that an indictable offence has been committed in connection with a death. While I am satisfied on the available evidence, that Noah's death meets the definition of a homicide, I am not satisfied that an indictable offence has been committed in connection with his death. Accordingly, I do not exercise my referral power to the DPP.

REQUIREMENT TO HOLD AN INQUEST

77 Section 52(2) of the Act provides that it is mandatory for a coroner to hold an Inquest into a death if the death or cause of death occurred in Victoria and a coroner suspects the death was as a result of homicide (and no person or persons have been charged with an indictable offence in respect of the death), or the deceased was immediately before death, a person placed in custody or care, or the identity of the deceased is unknown.

78 While Noah's identity was not disputed and he was not a person placed in "*custody or care*" as defined by section 3 of the Act, I consider his death to be a homicide. Therefore, it is mandatory to conduct an Inquest into the circumstances of Noah's death as no person or persons have been charged with an indictable offence in respect of his death.

79 Regardless of this legislative requirement, I consider it important to hold an Inquest to explore issues related to public health and safety.

[35] Coronial brief, page 313.
[36] The act or omission of one human being, which ends the life of another.

THE INQUEST

80 On 22 March 2017, I held an Inquest into Noah's death. The Scope of the Inquest was:

(a) to examine the physiology and the cognitive neuroscience of the human memory system;

(b) to apply the physiology and the cognitive neuroscience of the human memory system to the known circumstances of Romy's life in the lead up to her leaving her son, Noah, in the family motor vehicle on 19 February 2015;

(c) to explore whether there are any prevention opportunities that arise out the evidence given at the Inquest.

81 In the course of my investigation, I received two expert opinions from Associate Professor Matthew Mundy (**A Prof Mundy**), a memory expert practising at the School of Psychology and Psychiatry, Monash University.[37]

82 A Prof Mundy was the only witness called at the Inquest. I did not call Romy or any other person involved with Romy or Noah immediately prior to Noah's death, as their accounts of the circumstances that led to Noah's death were consistent and, for the most part, corroborated.[38]

83 Having heard evidence from A Prof Mundy, I accept Romy's evidence that she did not deliberately leave Noah in the vehicle on the day he died. Therefore, I did not consider it to be either necessary or appropriate to cross examine her or any other witness in respect of their evidence regarding the events of the day that Noah died.

The Human Memory System

84 A Prof Mundy gave the following evidence:

(a) the human memory system is comprised of three mains systems:

(i) the 'Hippocampus' which is also known as the 'long term memory storage system' and allows a person to remember facts and events over a period of hours to many years; and

(ii) the 'Prefrontal cortex' which is also known as the 'short term memory system' or 'working memory' and allows a person to retain a small amount of information over a period of seconds; and

[37] The first report is dated 2 November 2016 and the other 21 February 2017.
[38] CCTV footage obtained from four separate locations is consistent with the Romy and other witness accounts.

(iii) the Basal ganglia which is also known as the 'habitual memory system' and governs repeated and subconscious actions;

(b) the Prefrontal Cortex (short term memory system) retains the memory of a short sequence of items for a short period of time, before those items are forgotten. The human short term memory is severely limited in the '*capacity*' that can be stored at any given time and the '*duration*' of time this information can be held. The short term memory has the capacity to remember 5-7 items at any given time. If a person exceeds that capacity, items will begin to be forgotten;

(c) the short term memory system is engaged when a person is required to recall for example a shopping list, a telephone number or a sequence of events to perform a temporary action. If distracted from rehearsing the shopping list or telephone number, if only for a matter of seconds, that distraction can be enough to erase the memory. This is because the brain cells in the Prefrontal Cortex tasked with recording the short term memory, stop firing when a person stops rehearsing the memory;[39]

(d) a person can perform complex tasks by utilising other short term memory, without the need to store vast amounts of information. Utilising the short term memory in this way is very 'resource intensive';

(e) the short term memory is highly susceptible to interference from both internal and external factors. While such internal and external factors can be many and varied, in general they include:

(i) diverted attention or distraction;

(ii) sleep deprivation; and

(iii) stress, both acute and chronic;

(f) the more instances of internal and external interference, the more likely a person's short term memory will be compromised. A Prof Mundy said that there only need be one interference from either an external or internal factor, to compromise the short term memory;

(g) a busy and stressful lifestyle can overload short term memory capacity. While a person's routine actions are governed by their habitual memory system (e.g. the mechanics of

[39] Coronial brief, page 327.

driving a car, navigating a known route, and the steps involved in a morning routine) it can take over the short term memory system if that system becomes overloaded or compromised for any reason;

(h) the objective 'importance' of an item sought to be remembered in the short term memory is of no consequence to the likelihood that it will be forgotten. That is, due to the nature of the processes of the short term memory system it does not discriminate between each item. Consequently, even items of high significance are as readily forgotten as less important matters;

(i) the phenomenon of a 'false memory' is thought to occur when a person recalls an event that did not happen, but is personally convinced that it did. This phenomenon comes about when a memory failure occurs in the short term memory system. It is then possible for a person's long term memory to '*fill in the blank*'. A person replaces a missing item with a memory from a previous event which has been stored in the long term memory;

(j) this can particularly occur during activities that engage a person's habitual memory system, because such a system is engaged and enacted subconsciously (i.e. no new memories are formed each time they are performed) and when 'blanks' occur in a person's daily routine, they can be filled with a memory from a previous experience.

Factors that may have contributed to the lapse in Romy's memory

85 A Prof Mundy identified the following five factors that may have contributed to the fact that Romy did not remember that Noah had not been delivered to child care and remained in the vehicle:

(a) that there had been recent changes to a weekly child care routine;

(b) that Romy was severely sleep deprived;

(c) external stressors, including:

(i) both Romy and her family's illness;

(ii) an attack on the family's pet pigs;

(iii) the fact that the dog was subsequently euthanised;

(iv) disruption of the usual family routine on the morning of Noah's death;

(v) Romy's concern that Aniko would be late for school;

(d) the false memory phenomenon which caused Romy to 'fill in' the missing information and conspired to prolong Romy's belief that Noah was at child care. This can be explained by the fact that the journey and the act of dropping Noah at child care would have been repeated a number of times in the past;

(e) the lack of external 'cues' to alert Romy to the presence of Noah in the vehicle together with a series of 'distractions' including;

(i) the absence of any audible cue as to Noah's presence in the vehicle;

(ii) the absence of any visual cue as to Noah's presence in the vehicle;

(iii) the distraction of the audio book;

(iv) the distraction of thoughts of leaving the children for the first time;

(v) the distraction of thinking about all of the things that needed to be done at home before her parents arrived the next day.

Prevention

86 A Prof Mundy was asked his opinion of the use of the term 'Forgotten Baby Syndrome'. He stated that he considered that the use of the word 'syndrome' was inaccurate as it infers some kind of pathology at play in the brain, which is not the case. A Prof Mundy explained that in the circumstances experienced by Romy, the brain is working as it normally does, but this normal functioning can in certain circumstances (including, eg. stress and lack of sleep) precipitate the loss of memory described.

87 A Prof Mundy was asked about measures which might be effective to assist a person to avoid the catastrophic outcome which Romy experienced on 19 February 2015.

88 He observed that while child and infant car seats have developed in recent years to offer increased protection in the event of a car accident (e.g. greater padding, head and neck support, side impact support), it has also had the effect of reducing visibility of the child from the driver of the motor vehicle.

89 A Prof Mundy stated that without a specific 'cue' or reminder to a child's presence, in certain circumstances, as occurred in relation to Noah's death, a parent or carer can fail to remember the child is there, especially if the child is asleep.

90 A Prof Mundy said that anything that assisted a person by creating cues or reminders that a child remains within a motor vehicle, would be very helpful. In particular, A Prof Mundy clearly preferred products or engineering controls that did not overload or add to the stressors being experienced by that person. Therefore, he preferred those interventions that were 'hard-wired' into the motor vehicle or child restraint, as each of these products were designed to provide an audio or text reminder (or cue) that a child remained in the motor vehicle.

91 A Prof Mundy said that some of the products available on the market for reminding a parent or carer that a child is in a vehicle rely upon the user having a mobile phone capable of receiving a warning message. He considered that such solutions provide scope for user error in the form of loss of the phone or a flat battery, or inconvenience in use, leading to the user disabling or not otherwise using the system.

92 It was A Prof Mundy's view that in general terms the safest and most effective of all systems, were those that are permanently fitted to the car or car restraint as they were harder to disable or neglect.

93 In his second report, A Prof Mundy stated that a worthy consideration for visibility of a child in a modern rearward facing child restraint is suction cup mirrors which can be angled to provide visibility, or electronic video monitoring systems which can beam a video of the child back to the driver.

COMMENTS PURSUANT TO SECTION 67(3) OF THE *CORONERS ACT 2008*

94 In the last ten years, there have been five children who have died as a result of being left in a motor vehicle. Ambulance Victoria statistics reveal that in 2016, emergency services responded to 1907 requests for assistance related to a child being left in vehicle. Of those 1907 requests, 28 requests resulted in the child being transported by ambulance for medical treatment.[40]

95 While the Ambulance Victoria statistics do not distinguish between those cases where a child was inadvertently left in a motor vehicle and those which were not, A Prof Mundy's evidence

[40] Coronial brief, pages 340-341.

is clear that when a person's short term memory is compromised, it is possible that the tragic events involving Noah's death could happen to anyone.

96 Noah's tragic death was however, clearly preventable and therefore I consider it important to make a number recommendations to ensure that no other children die in similar circumstances.

97 It is clear from A Prof Mundy's evidence that a multi-level response is required to avoid these types of deaths.

98 I accept A Prof Mundy's evidence that engineering controls are the best option to ensure that a child sitting quietly in their child restraint, is not forgotten by their parent or carer.

Australian Design Rules

99 As part of my investigation, I made inquiries of the Commonwealth Government as to whether there are any current proposals to mandate safety features for motor vehicles[41] which alert a person to the fact that a child has been left in a child restraint system/motor vehicle. I was advised that there are no current proposals to regulate or mandate rear seat reminders for vehicles, either in Australia or internationally.

100 I note the development of the Australian Design Rules (**ADRs**) continues as part of a normal program of review and revision. The program includes monitoring international developments and involves regular consultation with key stakeholders. This identifies implementation issues or changes in factors affecting existing ADRs, as well as any need to introduce new ADRs. The ADRs are also subject to a full review, where possible every ten years, to ensure they remain relevant, cost effective, and do not become a barrier to importation of safer vehicles and vehicle components.

101 While I do not possess the power under the Act to make a recommendation in relation to this matter, I consider that the Commonwealth Government should review the ADRs to ensure that they include safety features that prevent a child from being inadvertently left in a motor vehicle.

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[41] The Australian Government's *Motor Vehicle Standards Act 1989* (**MVS Act**) requires that all new road vehicles comply with national vehicle standards known as the Australian Design Rules (**ADRs**) before they can be offered to the market for use in transport. The ADRs are the national standards for vehicle safety. The current standards, the Third Edition ADRs, are administered by the Department for Infrastructure and Regional Development (Commonwealth) under the MVS Act. This Act requires all road vehicles, whether they are newly manufactured in Australia or are imported as new or second hand vehicles, to comply with the relevant ADRs at the time of manufacture and supply to the Australian market. When a road vehicle is first used on Australian roads the relevant state or territory government's legislation generally requires that it continue to comply with the relevant ADRs as at the time of manufacture.

RECOMMENDATIONS PURSUANT TO SECTION 72(2) OF THE *CORONERS ACT 2008*

Standards Australia

102 Mindful of A Prof Mundy's evidence regarding the need for specific 'cues' to remind a person that a child has been inadvertently left in a motor vehicle, I consider that it would be desirable for Standards Australia[42] to review the Australian and New Zealand standards which relate to the safety of child restraints for the purpose of determining whether the introduction of hard wired safety features in a child restraint will deliver an overall benefit to the Australian community.

103 For that purpose, I RECOMMEND that:

(a) Standards Australia a review Australian and New Zealand Standard AZ/NZS 1754 'Child restraint systems for use in motor vehicles' and any other relevant standard within its portfolio for the purpose of determining whether the introduction of hard wired safety features in a child restraint will deliver an overall benefit to the Australian community (**the review**);

(b) if it is concluded that the review would deliver an overall benefit to the Australian community, that Standards Australia take such steps as are necessary to modify AS/NZS 1754 'Child restraint systems for use in motor vehicles' and any other relevant Standard to ensure that hard wired safety features are introduced where appropriate.

Public awareness campaign

104 I commend the public awareness campaign currently being conducted by the Department of Education and Training (**the Department**) in relation to children being left in motor vehicles. Given that the Department's own literature describes the phenomenon of "*Fatal Distraction"* as being *"not well understood*", it is my opinion that it would be beneficial for the Department to review A Prof Mundy's expert opinion and evidence in this case and ensure the awareness campaign includes information to alert parents and carers to the circumstances in which a child may inadvertently be left in a motor vehicle.

[42] Standards Australia is the peak non-government, not-for-profit, standards development organisation in the nation. Standards Australia facilitates the development of Australian Standards® and adoption of International Standards in Australia. Australian Standards® are developed by Technical Committees through a process of consensus and transparency. Standards Australia forms technical committees by bringing together relevant parties and stakeholders from government, business, industry, community, academia and consumers. Committee Members volunteer their time and technical expertise. Standards Australia does not enforce, regulate or certify compliance with the standards it produces. Australian Standards® are voluntary documents which do not become mandatory unless they are referenced in regulation or legislation.

105 For that purpose, I RECOMMEND:

(a) that the Department of Education and Training expand its current public facing awareness campaign related to children being left in motor vehicles to include circumstances that involve a child being inadvertently left in a motor vehicle; and

(b) that the Department of Education and Training develop a fact sheet and/or risk assessment tool for relevant professionals that addresses the physiology and cognitive neuroscience of the human memory specific to the circumstances similar to those involved in Noah's death.

The difficult role of first responders

106 The death of a child is an extremely difficult time for the child's family and loved ones. It is also important to acknowledge that these types of deaths have a significant and life-lasting impact on the first responders involved. In this case, that was Ms Evans, the police officers and the ambulance officers who attended Bambini and did their utmost to revive Noah. I commend their respectful and professional responses to Noah's death.

107 In particular, I commend the actions of Sergeant Mark Bell, who spent approximately six hours with Romy and Noah's body prior to the Homicide Squad attending and professionally demonstrated extraordinary empathy during this time, while still discharging his duties as a police officer.

FINDINGS AND CONCLUSION

108 Having investigated the death of Noah Zunde and having held an Inquest in relation to his death on 22 April 2017, at Melbourne, make the following findings, pursuant to section 67(1) of the *Coroners Act 2008*:

(a) that the identity of the deceased was Noah Zunde, born 29 April 2013; and

(b) that Noah died on 19 February 2015, at an unknown location, from heat stroke, in the circumstances set out above.

109 I convey my sincerest sympathy to Noah's family and loved ones.

110 Pursuant to section 73(1) of the *Coroners Act 2008,* I order that this Finding be published on the internet.

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

(a) Noah's parents.

(b) Detective Senior Constable Scott Riley, Coroner's Investigator.

(c) Detective Inspector Michael Hughes, Homicide Squad, Victoria Police.

(d) The Honourable Darren Chester MP, Minister for Infrastructure and Transport and responsible for the regulation of the Australian Design Rules.

(e) Administrator of Vehicle Standards (GPO Box 594, Canberra City, Australian Capital Territory, 2601).

(f) Australian New Car Assessment Program (ANCAP).

(g) Mr Jason Chambers, Kidsafe Victoria.

(h) Mr Colin Grant, Manager Professional Standard, Ambulance Victoria.

112 I direct that a copy of this finding be provided to the following persons for a response to my recommendations:

(a) Deputy Premier and Minister for Education, the Hon. James Merlino MP.

(b) Ms Gill Callister, the Secretary for the Department of Education and Training.

(c) The Board of Directors, Standards Australia.

Signature:

JUDGE SARA HINCHEY
STATE CORONER
Date: 14 June 2017