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TITLE OF COURT:	Coroner's Court
JURISDICTION:	Darwin
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HEARING DATE(s):	31 May and 1 June 2010
FINDING OF:	Mr Greg Cavanagh SM
CATCHWORDS:	Unexpected baby death, acute heat stress, circumstances unknown, open finding

REPRESENTATION:

Counsel:

Assisting:	Jodi Truman

Judgment category classification:	B
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IN THE CORONERS COURT
AT DARWIN IN THE NORTHERN
TERRITORY OF AUSTRALIA

No. D0085/2008

In the matter of an Inquest into the death of
MICHAEL AUBREY CAMPBELL
ON 18 APRIL 2008
AT ROYAL DARWIN HOSPITAL,
DARWIN

FINDINGS

Mr Greg Cavanagh SM

INTRODUCTION

1. Michael Aubrey Campbell ("Michael") was a Caucasian male born on 7 August 2006 at the Royal Darwin Hospital in the Northern Territory of Australia. Michael was the second child to Kate Byfield and Michael Keith Campbell. Michael died at approximately 4.25pm on 18 April 2008 at the Royal Darwin Hospital after cardio pulmonary resuscitation (CPR) ceased following discussions with his father. He was 20 months of age at the time of his death.

2. His death was unexpected and thus reportable to me pursuant to s12 of the *Coroners Act* ("the *Act*"). The holding of a public inquest is not mandatory but was held as a matter of my discretion pursuant to s15 of the *Act*.

3. Pursuant to s34 of the *Act*, I am required to make the following findings:

"(1) A Coroner investigating:

a. A death shall, if possible, find:

(i) The identity of the deceased person.

(ii) The time and place of death.

(iii) The cause of death.

(iv) Particulars required to register the death under the *Births Deaths and Marriages Registration Act*"

4. I note that section 34(2) of the *Act* also provides that I may comment on a matter including public health or safety connected with the death being investigated. Additionally, I may make recommendations pursuant to section 35 as follows:

> "(1) A Coroner may report to the Attorney General on a death or disaster investigated by the Coroner.
>
> (2) A Coroner may make recommendations to the Attorney General on a matter, including public health or safety or the administration of justice connected with a death or disaster investigated by the Coroner.
>
> (3) A Coroner shall report to the Commissioner of police and Director of Public Prosecutions appointed under the Director of Public Prosecutions Act if the Coroner believes that a crime may have been committed in connection with a death or disaster investigated by the Coroner"

5. Counsel assisting me at this inquest was Ms Jodi Truman. I thank Ms Truman for her assistance. There were no other formal appearances, although it is noted that Ms Kate Byfield (the mother of the deceased), Mr Michael Campbell senior (the father of the deceased) and Mrs Kay Byfield (the grandmother of the deceased) were all in attendance at the inquest.

THE CONDUCT OF THE INQUEST

6. A total of 7 witnesses gave evidence before me. Those persons were:

a. Detective Sergeant Jason Bradbury, the Officer in charge of the Coronial Investigation.

b. Kate Byfield, the mother of the deceased.

c. Kay Byfield, the grandmother of the deceased.

d. Mr Warren Purse, a Paramedic for St John Ambulance.

e. Mr Antoni Kwiatkowski, a Paramedic for St John Ambulance.

f. Dr Terence Sinton, Forensic Pathologist at the Royal Darwin Hospital.

g. Dr Terence Donald, Paediatric Forensic Physician at the Women and Children's Hospital in Adelaide.

7. A brief of evidence containing 7 civilian statutory declarations and 12 statutory declarations from police officers, together with numerous other reports, photographs, police documentation and medical records were tendered into evidence ("exhibit 1"). The death was investigated by Detective Sergeant Jason Bradbury who prepared a thorough investigation brief and I thank him for his assistance.

FORMAL FINDINGS

8. On the basis of the tendered material and oral evidence received at this Inquest I am able to make the following formal findings:

i. The identity of the deceased person was Michael Aubrey Campbell born 7 August 2006 at the Royal Darwin Hospital in Darwin in the Northern Territory of Australia.

ii. The time and place of death was approximately 4.25pm on 18 April 2008 at the Royal Darwin Hospital.

iii. Particulars required to register the death:

a. The deceased was a male.

b. The deceased's name was Michael Aubrey Campbell.

c. The deceased was of Caucasian descent.

d. The death was reported to the Coroner.

e. A post mortem examination was carried out by Dr Terence Sinton who investigated and considered possible causes of death.

f. The deceased's mother was Kate Byfield and his father was Michael Keith Campbell.

g. The deceased lived at 20 Stasinowsky Street in Alawa in the Northern Territory of Australia.

9. The actual cause of death however is a matter of particular concern and controversy. I will return to this issue later in these findings, however, in my view it is clear on the medical evidence that the deceased infant died as a result of acute heat stress.

CIRCUMSTANCES SURROUNDING THE DEATH

10. At the time of his death Michael was 20 months of age and living with his mother and sister, Precilla who was about 3 years old, at 20 Stasinowsky Street in Alawa. Michael's parents lived in a de facto relationship and cohabitated periodically together at that address, however Michael was cared for primarily by his mother.

11. The house in which Michael resided was a Territory Housing Commission home of general living standards. Michael had his own room and slept in his own bed. The medical records tendered before me did not indicate that Michael had any particular health concerns, nor that he had required regular attendances upon medical professionals.

12. As a result of a coronial investigation conducted by police there were no signs found of any maltreatment or malnutrition prior to Michael's death.

There was also no domestic violence history recorded between the parents and no previous involvement with Family and Children Services (FACS). I note that during the course of their investigations police also canvassed the local area and spoke with neighbours. There were no recordings of any particular difficulties by the neighbours in relation to the care or welfare of Michael or his sister.

13. According to Michael's mother, Kate Byfield, Michael woke at about 7.30am on 18 April 2008. He ate his breakfast and appeared generally fit and healthy and watched some television and then played with his sister both inside the house (in the play room) and outside the house (in the sandpit and slide area). His mother noted nothing unusual about him during this time.

14. Kate Byfield gave evidence that sometime between 9 and 10am she drove herself and the children to her parents' home at 20 Jabiru Street in Wulagi. I heard evidence that it was not an unusual occurrence for the children and their mother to visit the grandparents' home. On this particular occasion, Kate gave evidence that she was going to attend at Mitre 10 in company with her father whilst leaving the children in the care of their grandmother.

15. Kate Byfield drove a 1996 grey/blue Toyota Camry that had 2 toddler seats in the back for each child. She placed the children in their seats before driving to the grandparents' home in Wulagi. Kate gave evidence that this journey took only approximately 5 minutes and that when she arrived her parents, namely Kay and Geoffrey Byfield, were both at home and came out of the house to greet them. Kate gave evidence that 18 April 2008 was a "*cool morning and then by lunchtime it got nice and sunny*". As a result, she had dressed Michael in a blue ¾ t-shirt and nappy.

16. I heard evidence from Michael's grandmother, Kay Byfield, that she noticed "nothing of significance" in the presentation of Michael that day. She stated that it appeared as if he "had a little bit of a cold" and she put that down to

"him probably teething". I pause to note that Kay Byfield is a qualified and practicing nurse of "40 odd years" experience and a registered midwife of "approximately 35 years experience". Kay gave evidence that the children appeared happy and healthy whilst playing at her residence. They played under the cover of the garage on their bikes, in the sandpit, and with play-doh and crayons. They drank water, had ½ a banana each and an ice cream. Kay described her grandson as appearing "perfectly fine … a perfectly healthy little boy".

17. Kate Byfield gave evidence that when she returned with her father the children appeared happy and she gave them some "Burger Rings", which she had purchased whilst she was out. At no time during the period in which Michael and his sister were at the grandparents' home did Michael appear unhappy, unhealthy or unwell in any way.

18. I heard evidence that just before 1pm Kate and the children left to return home. I heard evidence that this coincided with Kay leaving her home to commence work. Kate stated she put Michael into his seat and her father placed Precilla into the car. There appeared to be nothing unusual about Michael other than he was a bit "whingey", but it was close to his time for a nap.

19. Kate Byfield stated that it took between "4 and 8" minutes to drive home. Upon her arrival at home, she got out of the car and got the mail, leaving the car still running. She then drove "around the side back area" of the house and parked the car. Precilla got herself out of the car and Kate "got Michael out of the back". Kate agreed in evidence that as a result of turning off her car, the air conditioner switched off and the windows remained shut, and there was no cover where the vehicle was parked.

20. Once inside the house she "got Michael organised, picked him up and took him into his room". She stated she put him down in his cot and then went back out to the car to get his bottle and then gave it to him, and there was

nothing unusual with the bottle that she gave Michael, that he took it straight away and appeared to go to sleep.

21. Kate Byfield's evidence is that the fan was on in Michael's room on a low setting and the curtains, on one side, were closed. In her statement Kate said this was how the room had been from the previous night and she did not consider the room uncomfortably hot, or otherwise she would have turned the fan up and opened the window.

22. Also tendered in evidence before me was a list of temperature recordings in and about Darwin on 18 April 2008. As to be expected for that time of year, the maximum temperature on that day was 33.2 degrees, with 32.6 degrees at 3pm. Not unusual temperatures in Darwin during the month of April.

23. In her statement to the police, Kate Byfield stated that she also put her daughter Precilla down in her room and intended on having a rest herself. Instead she received a phone call from her de facto partner, Michael and by the end of that call, Precilla had come out of her room and wanted to play in the sandpit. As a result, Kate went outside and played with Precilla.

24. Kate set out in her statement that at about 3.15pm she decided to go and check on Michael. She gave evidence before me that this was because Michael had been down for a little while and she thought he was due to wake. Kate set out in her statement that she took Precilla into Michael's room and recalled having to push the door open when she got there. Kate stated she assumed the door must have closed because of a draught, but although it was closed she did not have to turn the handle to open it.

25. Kate stated that when she got to Michael's cot she could see immediately that there was a "big problem". She recalled that Michael was on his side and appeared "bluish" and "veiny" in colour. She recalled repeatedly saying "no" and then realised Precilla was in the room, leaning over the cot and saying her brother's name. Kate stated that she picked Michael up and

could feel immediately that he was “really, really hot”, much hotter than she expected. She saw vomit around his nose and mouth. Kate described Michael as “unconscious and stiff” and stated he was not breathing.

26. As a result, Kate stated that she ran straight into the shower and turned on the cold water to try and cool Michael down. Kate was standing under the shower holding Michael and trying to open his eyes and mouth. Kate recalled that it was extremely difficult to get Michael’s mouth open in order to clear his airway and he appeared completely unresponsive.

27. Approximately five minutes later, Kate took Michael out of the shower and into the lounge room. She remembered being freezing cold under the shower. She took Michael into the lounge room, laid him down on the lounge and tilted his head back. Kate stated that she felt for a pulse, but was unable to find one. She attempted CPR, but did not get any response. During this time Kate also tried to open Michael’s eyes with her fingers and she recalled his skin as feeling “really strange” in texture. She noted that her attempt at trying to open Michael’s eyelids left a mark on his skin and his skin remained blue in colour. Kate stated that she realised there was nothing else she could do and that she needed to get help.

28. Kate stated that she believed that she could get Michael to the hospital quicker than calling an ambulance and decided to drive herself to the hospital. She stated that she put Michael into his car seat and then called out to Precilla, but Precilla would not come. As a result Kate had to go back into the house to get Precilla, who was by then extremely frightened. Kate stated she had to return outside to put Michael in the front seat, as she did not want Precilla to be sitting with Michael in the back. As she moved Michael, Kate stated she recalled one of the car seat straps tearing at the skin on Michael’s leg.

29. Once she had placed Michael in the front passenger seat, Kate continued calling out to Precilla. Again Precilla would not come. As a result Kate ran

back inside and found Precilla hiding. Precilla was shaking and crying and kept pushing her mother away. Kate stated that she grabbed Precilla by one of her arms, took her out to the car and put her in the back of the vehicle between the 2 toddler seats.

30. Kate stated to the police in her statement that she left Michael in the front seat for about 5 minutes whilst she was getting Precilla. When she got back she gave evidence that she gave Michael "another 5 quick breaths", but there was still no response. She then placed Michael in her lap, reversed out of the driveway and began driving towards the hospital. As she neared the St John Ambulance depot on Dripstone Road, Casuarina, Kate saw an ambulance in the driveway. As a result she drove in behind the ambulance and started pressing on the car horn.

31. Present at the St John Ambulance depot that day were paramedics Warren Purse and Antoni Kwiatkowski. Both officers gave evidence before me. Mr Purse gave evidence that he heard the sound of a horn and someone yelling from the driveway and went out and saw a female who appeared upset talking with another worker. He opened the side door of the parked ambulance and saw a child lying on the stretcher. He noted that the child was not breathing and when he attempted to clear his airway, he noted the child's jaw was locked. Mr Purse began CPR and saw the child's chest rise and fall. He felt for a pulse, but there was none. As a result Mr Purse began compressions with the assistance of another St John Ambulance officer, namely Annette Ingham.

32. Mr Purse gave evidence that Officer Ingham took over the airway and started breathing for the child by way of a bag mask. Mr Purse stated that he saw Ambulance Officer Ian Keane place the defibrillator pads on the child's chest and turn on the monitors. When this occurred, the monitor indicated that the child was in an asystole rhythm which "was basically what we would call 'flat line' so there was no electrical or pumping activity

within the heart". Mr Purse stated the heart "had no electrical activity at all and had no pumping action at all either".

33. Mr Purse stated that the next thing that he did was place a tourniquet on the child's left arm in an attempt to find a vein for intravenous drug access. Mr Purse was unable to find a vein and as a result he performed an intraosseous procedure into Michael's right tibia. Mr Purse gave evidence that this procedure is the process of drilling a needle directly into the bone to get access into the marrow to administer medication when it cannot be done intravenously.

34. After performing the procedure, Mr Purse gave evidence that he administered atropine and adrenalin to the child. Once those medications were administered, Mr Purse noticed "just probably two ectopic beats where they just went 'beep' and nothing else". Michael thereafter remained in asystole rhythm.

35. Mr Purse confirmed that he had completed a St John Ambulance card in relation to this death. That card was tendered in evidence before me as part of exhibit 1. It recorded the arrival of the child at the ambulance depot at 3.44pm and at the hospital at 3.50pm. Upon arrival at the hospital, Mr Purse gave evidence that the care of the child was handed over to hospital staff who continued CPR.

36. Mr Purse gave evidence that during the time that he was with the child he noticed:

> "both fists were clenched with abrasions noted on the knuckles. Other injuries noted were an abrasion on the right cheek, an abrasion … or a burnt skin on the right quadriceps, an abrasion on the left quadriceps".

Mr Purse also stated:

> "the child was blue on the lower limbs – cyanotic and the toes were also clenched and the legs were very hot to touch".

and

> "relatively recent because there was a little bit of blood still on one of the wounds".

and

> "very similar to like a heat burn" and that "it was very similar to the way skin comes off with a burn".

37. Mr Antoni Kwiatkowski also gave evidence about his observations of the mother upon her arrival at the ambulance depot. He stated that he became aware of the mother when he was parking the ambulance and heard a vehicle blowing its horn behind him. As a result he got out of the vehicle and found a female screaming words to the effect of "Please help me, my baby's not breathing". Mr Kwiatkowski stated that the child was in the mother's arms and he saw her give the toddler to Officer Ian Keane. Mr Kwiatkowski stated that he saw Mr Keane place the child on a stretcher in the back of the ambulance and noted that the child was "very hot to touch - not breathing and had no pulse".

38. Mr Kwiatkowski drove the ambulance to the hospital and recalled noticing the child had what he described as:

> "like a burn kind of injury to a cheek and one of his thighs".

39. The hospital records were also tendered in evidence before me. They record the deceased arriving at the hospital at 3.51pm and that at that stage he was "in full arrest". CPR continued at the hospital and all efforts were made to resuscitate Michael. Unfortunately those efforts were to no avail and after discussions with Michael's father, CPR was ceased at approximately 4.25pm.

40. I pause to note here that discussions were only held with Michael's father because staff were unable to find the mother. Kate Byfield gave evidence

before me that she had in fact left the hospital whilst the doctors were still attempting to resuscitate Michael because at the time:

> "I'm pregnant and my clothes were all wet. I had no control of helping my son at the hospital. And I'm – basically I'm cold, I don't want to get sick with my baby, I needed to change my clothes and I needed to get the other bottle because I knew that this – it would go for a while, we'd be there for a while. And I had the shower going and – yeah, basically I was freezing, I had no power, I had to go".

41. Kate took her de facto's utility motor vehicle and drove to the ambulance depot where her car was located. She stated that she left her de facto's vehicle at the depot and took her car home. In her statement she detailed that upon her arrival at home she turned off the shower, changed her clothes, made a bottle for Precilla and then returned to the hospital. Upon her return doctors told Kate that Michael had passed away.

CAUSE OF DEATH

Dr Terence Sinton

42. Dr Terence Sinton gave evidence before me. He conducted the autopsy upon the child on 19 April 2008 and provided a report that was tendered in evidence before me as part of exhibit 1. Dr Sinton noted that the significant autopsy findings were as follows:

> "i. Numerous irregular areas of skin on the head, trunk and limbs showing recent epidermal skin loss and slippage.
>
> ii. Irregular subcapsular and petechial-like haemorrhage on the lungs and on the thymus gland at the base of the neck.
>
> iii. Fluid in the small bowel of an appearance consistent with early ischaemic damage.
>
> iv. Pelletised faeces in the large bowel and rectum consistent with dehydration.
>
> v. Discolouration of skeletal muscle in a manner and appearance consistent with recent denaturation."

43. In relation to those 5 significant findings, Dr Sinton confirmed that 3 were significant factors supporting a contention that there had been acute heat stress, namely:

> "i. The irregular subcapsular and petechial – like haemorrhage on the lungs and thymus gland;
>
> ii. The pelletised faeces; and
>
> ii. The discolouration of the skeletal muscle.
>
> The other significant findings were key indicators that something was going "very wrong" within the body."

44. Within his report, Dr Sinton noted that there was no autopsy evidence to indicate the direct involvement of another party in Michael's death. He further noted that there was no evidence of any recent bony injury or any recent soft tissue trauma which might have caused or contributed to the child's death.

45. Dr Sinton noted within his report that he was unable to determine a clear scientifically supported cause for Michael's death. Other than the key indicators of acute heat stress, Dr Sinton opined that other options of a possible cause were "staphylococcal scalded skin syndrome" or "other vesiculobullous (blister forming) skin conditions."

46. In relation to staphylococcal scaled skin syndrome, Dr Sinton stated in evidence that it was "quite uncommon to the point of being rare". Dr Sinton stated that due to the circumstances of this death he had essentially ruled the syndrome out as a possible cause of death. In relation to other blister forming skin conditions, Dr Sinton gave evidence that "across the board these are relatively uncommon conditions, most of them being of genetic origin". Again in the circumstances of this death, Dr Sinton agreed that he had also effectively ruled them out as a possible cause of death.

47. In relation to Michael's condition, Dr Sinton agreed that the child's physical condition at the time of his death was awful, and he believed that Michael would have been in extremis. Dr Sinton opined that Michael's condition was probably brought about from dehydration and acute heat stress. He stated that it was his understanding that in order for the child to exhibit the kinds of signs that he saw on his body, Michael's body temperature would had to have reached probably the low 40's with the normal body temperature being around 37.

48. Dr Sinton stated he was aware that it had been recorded that a child could reach temperatures in the low 40's simply being placed in his cot under a thin sheet, with a t-shirt on, fan on and windows slightly open, however it was in his opinion "very rare". When asked his opinion as to how Michael could have reached the sorts of temperatures required to exhibit the signs that he saw in him, Dr Sinton stated as follows:

> "In my opinion the child has been exposed to heat stress somewhere, somehow, circumstances beyond my knowledge and involvement. But without question in my mind this is a heat stress related death based on the history as I understand it and on the autopsy findings. Where that heat came from, I'm not in a position to say, I don't believe".

Dr Terence Donald

49. Dr Terence Donald also gave evidence before me. Dr Donald is a Paediatric Forensic Physician at the Women and Children's Hospital in Adelaide. He has been employed in that capacity for the last 22 years and specialises in child protection. Dr Donald provided a report dated 31 January 2010, which was tendered in evidence before me as exhibit 6. That report carefully reviewed all of the material tendered in evidence before me, including the statements of all relevant persons, the medical file and autopsy report, as well as all photographs taken of the deceased.

50. Dr Donald stated that one of the matters he took into account when reviewing Michael's death was the atmospheric or environmental conditions on the day. Dr Donald stated the reason he did this was because one of the concerns raised, at the time he conducted his review, was whether the temperature in the environment might have contributed to Michael's death. As a result Dr Donald had established that the environmental temperature in Darwin on the day of Michael's death were approximately 32 or 33 degrees according to the Bureau of Meteorology. As a result Dr Donald stated that:

> "It would be reasonable to presume that it would be somewhere in that vicinity in the child's bedroom, in the house".

51. Despite this, Dr Donald noted that at the hospital the child's temperature was recorded at 4.09pm as being 38 degrees. Dr Donald stated that this:

> "Is significantly elevated … in the context of him having been held by his mum under the cold shower for about 10 minutes within the previous quarter of an hour".

Dr Donald also stated that:

> "Normally being under a cold shower for that length of time you would expect the temperature, if it had been close to normal at the time which is 37 degrees, you would expect it to be significantly lower than the 38 degrees, particularly in the context of Michael's condition at the time he was admitted to the hospital".

Dr Donald went on to say:

> "You would expect that his temperature would have been quite low if it had been normal at the time of the episode in the shower which suggests that as his mother said when she first found him, he was very, very hot. I would think significantly greater than 38 degrees. There is no way that I can speculate how hot he was, but clearly it was significantly greater than that".

52. In terms of the evidence regarding the temperature in the room I note that by virtue of the statement given by the mother to the police, and also her evidence before me, there is no evidence to indicate that the temperature

within that room was unduly hot at any time. Nor is there any evidence that Michael had been wrapped in such a way as to cause him to become extremely hot.

53. In relation to the skin slippage on the child's body, Dr Donald stated that skin slippage was most commonly associated with things like scalds where the skin blisters. Dr Donald went on to state that there were:

> "a whole range of conditions that are associated … with blistering". He stated that "most of them are very rare in the sense that generalised blistering is a very uncommon phenomenon".

54. Dr Donald stated that the most common condition in children was staphylococcal infection, with the most common known as scalded skin syndrome. Dr Donald went on to state however that such a syndrome was:

> "quite rare" and had "a particular clinical presentation which is different to the clinical presentation that was seen with Michael. It's usually associated with … a small area of infection … and then it slowly spreads to involve more parts of the skin".

55. Within his report Dr Donald also noted that skin slippage could occur where the child was suffering hyperpyrexia, or an abnormally high fever. However Dr Donald stated that he would have anticipated that Michael's temperature would have been elevated for some time prior to his death if this had been the case and this was not recorded as having occurred in relation to Michael. Dr Donald also noted that he was not aware of any report where a child with a significantly high internal fever had then suffered from skin slippage. Dr Donald stated that to his knowledge epidermal separation or skin slippage, only ever occurred in relation to children who had been placed in persistent, high environmental temperatures.

56. Within his report Dr Donald also considered the possibility of toxic epidermal necrolysis, which is an immunological reaction to viral infections. Dr Donald noted that this condition was extremely rare and invariably involved the mucous membranes, and this had not occurred in relation to

Michael. Dr Donald also noted that toxic epidermal necrolysis causes full thickness epidermal necrosis and skin splitting at the junction between the dermis and epidermis. In terms of Michael the skin separation was superficial and therefore he considered that the possibility of toxic epidermal necrolysis was extremely low. Dr Donald was clear in his evidence that he did not consider Michael had any of the rare skin infections that he had noted as possibilities in his report.

57. In terms of the version of events given by the mother that the child had been seen and described as very healthy with no signs of illness or distress of any kind in the hours before his death, and had simply been placed down in his cot in his room with no particularly abnormal temperatures noted, Dr Donald stated that Michael's condition could not be explained with that kind of history. Dr Donald stated that he could not understand how the child had died based on his mother's version of events because it gave no explanation of where the very high temperatures, that were required, had come from in order to adequately account for how he had developed the skin slippage.

58. In relation to Michael's condition, and the temperatures required, Dr Donald gave the following evidence at transcript page 45:

> "MS TRUMAN: And in terms of this child reaching the state and condition that he did, can you identify for the Court what would be required to have had happened to Michael in order for him to reach the physical condition that he was in?---Well, I think that the condition he was in was resolved with a very high temperature. Now, what - what I mean the condition that he was in, I'm talking about the finding of the skin slippage. Now, the seizures and so on that he had could easily have been secondary to the high temperature. But there's no explanation and nothing in the information that I was provided that indicates whether - where the very, very high temperature came from. Like the room that he was in was not unduly hot. He was minimally covered. I mean there are examples of children generally a lot younger than him usually infants who are so tightly bundled up and often with additional heating applied to them who do get hyperthermic(sic), in other words, get a very high temperature and consequent on that might die. But he had a thin cotton blanket over him and he was in a very - a room that was - it

sounded like it was quite comfortable as far as the temperature was concerned. It would have been somewhere around 30 degrees, I guess. I don't believe that if he - if he had seizures in their own right, they would have produced the degree of temperature that was necessary to produce a clinical picture of the skin slippage.

THE CORONER: So, what would have explained it?---I beg your pardon, your Honour?

Sorry. So, what would have explained it in terms of getting to that high temperature?

---He would have had to have been in a much higher environmental temperature than he was reported to have been.

MS TRUMAN: And in terms of the space or the kind of heat needed, are you able to offer any opinion in that regard?---Well, the highest temperatures that we see common - well, it's not common, but the highest temperatures we see are associated with children like Michael are in - in closed spaces, particularly places that are exposed to radiant and conducted heat. Because as I mentioned, the problem of children being over covered is usually a problem of infancy, not a problem of children of his age. So, the - some other kind of enclosed space that we're not aware of.

When you say, doctor, that we would need an enclosed space which was exposed to radiant and conducted heat, are you able to give an example of what you mean?

---Well, this is his picture, a picture of his condition when he was seen in the hospital in autopsies, what we see in those children who occasionally died from being a motor car that's been closed, particularly when the atmospheric temperature is somewhere in the middle or mid 20s through to the mid 30s. And those cars can, you know, can get to 60 - 50, 60 degrees celsius within a relatively short space of time and that's what is harmful to children."

DECISION

59. Only Michael's young sister, Pricilla, and his mother were at home with him from 1pm on 18 April 2008.

60. During the course of her evidence, Michael's mother was asked directly by me whether she left Michael in the back of her vehicle. Kate Byfield was adamant in her denials at this suggestion.

61. It is clear from Kate Byfield's evidence that Precilla was upset and scared by the events that day.

62. The evidence of Detective Sergeant Bradbury indicates that on the evening of Michael's death the forensic member, Tim Sandry "seized a number of items of clothing and a blanket and conducted a number of searches over the house and took a number of photographs". The following day, Tim Sandry "took a number of photographs and checked the vehicle … and basically took a number of swabs and things of the vehicle …".

63. I note that the swabs taken by Police were not tested as Police had "nothing to test for based on the toxicology and pathologists' report".

64. Despite the lack of testing, the medical evidence which I accept, is clear that the most likely cause of the skin slippage on Michael's body was acute heat stress.

65. There were two competing possible explanations for the acute heat stress:

    a. The explanation given by his mother that Michael was simply placed in his cot, in his room, on a normal Darwin day with nothing extraordinary noted in relation to his temperature or the environmental temperature, and he inexplicably passed away from acute heat stress.

    b. That Michael was in fact left in an enclosed space and exposed to necessary radiant and conductive heat which brought about his death.

66. The medical evidence questions the plausibility of Michael's mother's explanation and suggests that the most likely scenario was Michael was left in a vehicle, however, there is no direct evidence to support such a conclusion.

67. I acknowledge that Michael's mother's behaviour in leaving the hospital whilst her son was being resuscitated was unusual. She did not simply drive home to do the things she said she needed to do, but in fact drove her defacto's car to St John Ambulance depot to collect her motor vehicle and then returned home. This behaviour is not determinative of the preceding events and there is no evidence to indicate that Michael was at risk prior to his death. It is clear on the evidence that Michael was a much loved member of his family.

68. The purpose of this coronial inquiry was to make every endeavour to obtain evidence to allow the inquiry to arrive at a positive finding in relation to the manner of Michael's death.

69. Unfortunately, it is impossible on the evidence before this inquest to determine the cause of the acute heat stress which led to Michael's death. I am left with no alternative but to make an opening finding and conclude that the cause of the heat stress is undetermined.

70. I understand that an open finding is not satisfactory to relatives and family of the deceased, and to the community. It does not solve the puzzle of a death or provide finality. Unfortunately, this is a factor beyond my control due to the lack of evidence surrounding the specific circumstances leading up to Michael's death.

71. Before concluding, I note that during the course of this inquest there were steps that were not taken during the course of the autopsy, or by the police in conducting the coronial investigation. In particular Dr Donald noted within his report that there were no early cultures of sites where epidermal loss had occurred and no blood cultures taken. Dr Donald set out in his report that the taking of such cultures was a part of the "International Standard Autopsy Procedures" and he would have expected them to occur here.

72. Dr Sinton gave evidence in response that although he was aware of such procedures, he did not take cultures from the skin because he required a "more sophisticated" test to work out what it meant and even without that test the clinical history did not support a staphylococcal infection.

73. I accept Dr Sinton's reasoning that he did not consider that such tests needed to be taken and make no criticism. However, I note that the coronial investigation undertaken by Police is in part reliant on toxicology, pathology and post mortem results.

74. As at the date of Michael's death there were no Northern Territory Police policies or procedures in place in relation to the investigation of the unexpected death of children, which is still the case.

RECOMMENDATION

75. I am aware that a draft policy is being developed and I recommend that the Northern Territory Commissioner of Police give attention to finalising this draft policy in conjunction with the Department of Health of Community Services, who is responsible for the Forensic Pathology Unit. I consider that such a policy has the potential to significantly assist members of the NT police to deal with and investigate these types of deaths, particularly in what can only be described as extremely difficult circumstances for all involved.

Dated this 1st day of September 2010

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GREG CAVANAGH
TERRITORY CORONER