CORONERS COURT
OF NEW SOUTH WALES

Inquest:	Inquest into the death of Kyran Day
Hearing dates:	2,3,4,5,6,9,11 May 2016
Date of findings:	21 December 2016
Place of findings:	State Coroner's Court, Glebe
Findings of:	**Deputy State Coroner, Magistrate Teresa O'Sullivan**
Catchwords:	CORONIAL LAW – Paediatric resuscitation Training and Assessment; Children and Infants with Gastroenteritis - Acute Management' Guidelines Dehydration in Children Between the Flags charts Newborn and Paediatric Emergency Transport (NETS) Ambulance Intussusception REACH program
File number:	2013/319015

Representation:	Mr P Griffin SC: Counsel Assisting instructed by Mr S Hogan, the Crown Solicitor's Office. Dr I Butcher for Naomi Towey, Grant Day, Jane Carratt, Pilar Otero. Mr M Lynch for Illawarra Shoalhaven LHD, NSW Ambulance, Sydney Children's Hospitals Network (NETS), Paramedics Christopher Rayes and Andrew Fulton. Mr R Weinstein SC for Dr Toby Greenacre, Dr Richard Allen and Dr Gandy. Ms M Moody for Registered Nurses Forlano, Burns, Dove, Phillips and Selby. Ms P Robertson for Registered Nurse Lameks.

Findings:	**Identity of deceased**: The deceased person was Kyran Day **Date of death**: Kyran Day died on 22 October 2013 **Place of death**: He died at the Intensive Care Unit, Sydney Children's Hospital, Randwick in NSW **Manner of death:** Kyran Day died after those treating him failed to detect the ileocaecal intussusception with malrotation of the bowel and respond to his condition in a sufficiently timely manner. **Cause of death:** The medical cause of the death was complications of hypoxic ischaemic encephalopathy. Antecedent causes: (i) Recurrent episodes of cardiopulmonary arrest and resuscitation. (ii) Complications of ileocaecal intussusception with malrotation of the bowel, including hypovolaemia.

Recommendations:	**Recommendation 1** That the New South Wales Minister for Health: (a) Examine the policy and training programs that have been activated by the ISLHD (as reflected in paragraph 17.3) and give consideration as to whether a similar policy and training programs should be implemented in any other Local Health Districts in New South Wales. (b) Advise the Coroner in writing of the result of the exercise referred to in (a) above no later than 30 June 2017. **Recommendation 2** That the NSW Ambulance Service advise the Coroner as soon as the Medical Priority Dispatch System ("MPDS"), Protocol 33 and Protocol 37 have been implemented. If implementation has not been completed by the end of 2016 the Coroner be immediately advised and a timetable for implementation be provided. **Recommendation 3** That the NSW Ambulance Service and the NSW Department of Health give consideration to more effective ways in which the qualifications of paramedics, and the categories employed by the Ambulance Service to delineate calls to the Service for assistance, can be better communicated to all health professionals who may be required to book an ambulance, or be involved in the process of booking an ambulance. The Coroner be advised by the NSW Ambulance Service and the NSW Department of Health of the particulars of any proposal (when finalised) to better communicate the qualifications of paramedics, and the categories employed by the Service to delineate calls to the Service for assistance, to all health professionals who may be required to book an ambulance, or be involved in the process of booking an ambulance. In the absence of the above recommendation being implemented that the NSW Ambulance Service and the NSW Department of Health advise the Coroner of the reason why the recommendation has not been implemented.

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The Coroners Act 2009 (NSW) *in s81 (1) requires that when an inquest is held, the coroner must record in writing his or her findings as to various aspects of the death.*

These are the findings of an inquest into the death of Kyran Day.

1. Introduction

In preparing my findings, I have been greatly assisted by the extremely thorough Submissions of Counsel Assisting, Mr Patrick Griffin SC. I have adopted much of the wording from his submissions in the reasons for my findings.

I have taken into account the following submissions prepared by the parties of sufficient interest:

1. Submissions on behalf of the Family of Kyran Day dated 9 September 2016.

2. Submissions on behalf of Registered Nurses Phillips, Selby, Burns, Forlano, Dove and Lameks dated 23 September 2016.

3. Submissions on behalf of Sydney Children's Hospitals Network (NETS); NSW Ambulance; and Illawarra Shoalhaven Local Health District (ISLHD) dated 28 September 2016.

4. Submissions on behalf of Dr Richard Allen and Dr Toby Greenacre dated 28 September 2016.

5. Supplementary Submissions on behalf of Dr Allen and Dr Greenacre dated 4 October 2016.

6. Supplementary Submissions on behalf of Sydney Children's Hospitals Network (NETS); NSW Ambulance; and Illawarra Shoalhaven Local Health District (ISLHD) dated 7 October 2016.

I am grateful to the parties for the effort and thought that has gone into preparing the submissions.

The Inquest

An inquest is different to other types of court hearings. It is neither criminal nor civil in nature and the coroner does not make determinations and orders that are binding on the parties, such as in civil litigation, nor determine whether a person is guilty or not guilty of an offence, such as in criminal proceedings.

The formal findings that need to be made are: who, when, where, how and why a person has died. For Kyran's family, understanding how he died is important in trying to understand if anything could have been done better or differently. Kyran's family is also very keen to ensure that lessons can be learned from the tragic death of their much loved baby son.

2. Kyran Day

2.1 Kyran Day was born at Shoalhaven District Memorial Hospital, Nowra, on 11 April 2013 to parents Naomi Towey and Grant Day.

2.2 In September 2013 he was diagnosed with bronchitis and treated by Dr Toby Greenacre, Paediatrician, at Shoalhaven District Memorial Hospital and was an inpatient overnight. He was discharged the following morning and it appears that he returned to normal health within a few days.

2.3 Kyran was pale and lethargic when he woke at approximately 5:30am at home on Saturday 19 October 2013. According to his parents Kyran vomited during the day. They decided to take Kyran to Shoalhaven District Memorial Hospital.

3. Shoalhaven District Memorial Hospital

3.1 At approximately 3:45pm on 19 October 2013, Naomi Towey and Grant Day arrived with their son Kyran at Shoalhaven District Memorial Hospital.[1]

3.2 Upon arrival Kyran was triaged by RN Giuseppe Forlano and placed in the paediatric emergency bay.[2]

3.3 At approximately 4:30pm Kyran was assessed by RN Sharon Burns in the paediatric bay. She commenced him on a trial of oral fluids while he awaited review by a medical officer.[3]

3.4 At approximately 5:00pm Kyran was examined in the Emergency Department (ED) by Dr Richard Allen. Dr Allen states that he was given a history that Kyran had been lethargic that day and had vomited several times. He was also told that Kyran had not suffered any diarrhoea and had passed one formed stool that day, and suffered no blood loss.[4]

[1] Exhibit 1, Vol 1, Tab 19, Statement of Naomi Towey; Exhibit 1, Vol 1, Tab 20, Interview with Grant Day.
[2] Exhibit 1, Vol 1, Tab 12, Statement of Giuseppe Forlano RN.
[3] Exhibit 1, Vol 1, Tab 9, Statement of Sharon Burns RN.
[4] Exhibit 1, Vol 1, Tab 17A. Letter of Dr Richard Allen.

3.5 Dr Allen believed - based on the history and his examination of Kyran - that gastroenteritis was the most likely diagnosis for three reasons:

(i) rotavirus vaccination was given only one week earlier and gastroenteritis symptoms are not uncommon in the week following;

(ii) it is not uncommon for diarrhoea to be delayed, or not to occur at all, after vomiting in gastroenteritis; and

(iii) Kyran's abdomen remained soft and non- tender, and did not appear at the time of examination distended.

3.6 Dr Allen suggested that a trial of oral fluids be conducted. Over the next hour or so Kyran took some fluids at regular intervals but then vomited at around 6:00pm - the vomit was yellowish in colour.

3.7 Dr Allen states that given Kyran's failure to tolerate oral fluids and the continued absence of diarrhoea, he decided to admit him to hospital and contact the on-call paediatrician, Dr Toby Greenacre. He believes that he telephoned Dr Greenacre between approximately 6:15pm and 6:30pm. Dr Greenacre confirms that Dr Allen called him at home.[5]

3.8 At approximately 7:15pm the on-call paediatrician, Dr Greenacre, arrived at the Emergency Department of the hospital to review Kyran. Dr Greenacre states that he was informed that Kyran was previously well and had become unwell that morning with non-bilious vomiting. He also states there was no history of diarrhoea, pain or abnormal bowel motions and that Kyran's observations were stable. Dr Greenacre had a discussion with Dr Allen about the likely diagnosis before he made a provisional diagnosis of gastroenteritis at this point.[6]

3.9 In summary Dr Greenacre based his diagnosis on the following:

(i) Kyran had been unwell since 5am;

(ii) he had no pain or discomfort;

(iii) there was no bilious vomiting; and

[5] T. 04-05-16, p.54, line 6.
[6] Exhibit 1, Vol 1, Tab 6, Statement of Dr Toby Greenacre;T. 04-05-16, p.54, line 4.

(iv) his state of hydration appeared to be satisfactory.[7]

3.10 It was agreed that Kyran should be admitted to the hospital with fluids to be administered either intravenously or nasogastrically. Due to Kyran being a chubby baby with only a few veins visible, it was decided to give continuous nasogastric feeding. Dr Greenacre prescribed 40 mls/hour. At 7:17pm on 19 October 2013, based upon the observations and history of four vomits, Dr Greenacre concluded that Kyran "was either not dehydrated or minimally dehydrated" and when he ordered fluid for him he allowed for a 2% to 3% level of dehydration.[8]

3.11 Kyran was admitted to the hospital and remained in the Emergency Department. RN Sharon Burns - with the assistance of another nurse - inserted a nasogastric tube at approximately 7:30pm. At about 8:00pm Kyran was ready for transfer to the Children's Ward. However due to apparent room cleaning requirements the Children's Ward was not available to receive Kyran at that time. Accordingly, RN Burns commenced nasogastric (hydrolyte) before Kyran left the Emergency Department. Dr Greenacre gave instructions to RN Burns that Kyran's management would be in accordance with the 'Children and Infants with Gastroenteritis - Acute Management' guidelines of the NSW Department of Health dated 3 February 2010.[9]

3.12 At about 9:00pm Kyran vomited up a purplish coloured fluid which was the colour of the hydrolyte he had been given. RN Burns noted that this was the second time that Kyran had vomited in the Emergency Department. She also noted that Kyran had had no significant urine output.

3.13 Kyran was eventually admitted to the Children's Ward at about 9:30pm. RN Christine Dove, and an emergency nurse, commenced continuous fluid hydration and connected a kangaroo pump, bag and line. The line was very tangled inside the bag and had to be untangled before it could be connected to the kangaroo pump.[10]

3.14 Between approximately 10:45 and 11:00pm, RN Dove handed over the care of Kyran to the night shift staff, Clinical Nurse Specialist (CNS) Carlson and RN Phillips. At the commencement of the night shift CSN Carlson divided the patient load between herself and RN Phillips. RN Phillips was allocated to care for Kyran.[11]

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[7] T. 04-05-16, p.35.
[8] T. 04-05-16, p.36, line 7.
9 Exhibit 1, Vol 1, Tab 9, Statement of Sharon Burns RN; Exhibit 5, Policy Directive. 'Children and Infants with Gastroenteritis - Acute Management'. Document Number PD2010-009].
[10] Exhibit 1, Vol 1, Tab 11, Statement of Christine Dove RN.
[11] Exhibit 1, Vol 1, Tab 8, Statement of Jane Phillips RN.

3.15 According to RN Phillips at handover she was told:

> "Kyran was a six month old boy who had a history of vomiting since that morning. He had had no diarrhoea. He'd had no bowel action. He'd had some lethargy and his parents had brought him to casualty and he had failed a trial of oral fluids. In casualty he'd been assessed by the senior casualty doctor plus the paediatrician."[12]

3.16 During her first round of patients at approximately 11:00pm, RN Phillips reported the kangaroo pump to be infusing at 40mls per hour and observed the nasogastric tube to be well secured. She states that Kyran was breathing comfortably at this time and his pulse rate and oxygen saturation levels were within the normal range.

3.17 At approximately 11:30pm, RN Phillips was called to Kyran's room by his mother and observed that he had vomited up a clear fluid and looked pale but alert. RN Phillips turned off the kangaroo pump. She said:

> "I was observing Kyran from the time I turned the light on and I suggested to Naomi that she might like to give him a bath just to freshen him up … Naomi was giving Kyran a bath and the other reason why I suggested a bath was it was a good opportunity for me to have a good look at Kyran. I knew the nursing staff hadn't been [able] to do that because he'd been asleep and she didn't want to disturb him, so I thought that was a good opportunity for me to have a look at him after the bath before he was dressed."[13]

Following the bath, RN Phillips palpated Kyran's abdomen and observed that it "didn't look distended".[14]

3.18 At about 12:15am on Sunday 20 October 2013 it is understood that a nursing decision was made to let Kyran rest until approximately 2:00am and then restart the kangaroo pump at a slower rate of 20 mls/hour, gradually increasing the rate over the next few hours as Kyran tolerated it.

3.19 Between 2am and 5am RN Phillips observed Kyran every thirty to sixty minutes. She observed that:

> "He was settled and asleep, breathing comfortably. He was attached to the monitor. His observations were good. I didn't see - he wasn't

[12] T. 05-05-16, p.53, line 30.
[13] T. 05-05-16, p. 55, line 4.
[14] T. 05-05-16, p. 55, line 26.

unsettled. I didn't see any evidence that he had pain. The tube stayed in situ and continued to infuse at 20 mls an hour. At 5 o'clock I increased it to 30 mls an hour."[15]

3.20 Between approximately 5:30am and 6:00am on Sunday 20 October 2013, RN Phillips saw that Kyran's urine collection bag was half full. She took the bag away for ward urinalysis. The urinalysis results were: Specific Gravity (1030), Ketones (large) and Protein (1 plus (+)).

3.21 Kyran's mother states that around 5:30am she noticed that Kyran was moaning and had pulled the naso-gastric tube from his nose. RN Phillips states she was told by Kyran's mother at approximately 7:15am - when she was about to finish her shift - that Kyran had pulled out the nastro-gastric tube. RN Phillips then turned off the kangaroo pump and informed the day staff what had happened. She states that she offered to stay and replace the nastro-gastric tube so that the gastrolyte could continue but was told to go home as her shift was over. The care of Kyran was then transferred to the morning shift nursing staff.

3.22 At 7:30am EN Wilton attended to Kyran's general observations. RN Selby states that:

> "Well, I wasn't informed that his heart rate was 165 because the enrolled nurse had done the observations and I wasn't told but he was monitored and every time I looked at the screen his heart rate was below that." [16]

3.23 These observations were recorded, however, RN Selby expected that she would have been told of the observations by EN Wilton. When asked if she was aware of the observations she would have done anything different, she said:

> "Well, the heart rate is in the blue zone and what is supposed to happen is you do another obs about like half an hour or an hour later but that on (sic) itself not necessarily cause it's just that you repeat it and then see how it goes. Yes."[17]

3.24 A decision was made to leave the nastro-gastric tube out and commence Kyran on a trial of oral fluids. RN Selby was allocated the care of Kyran during that morning shift. At approximately 8:30am, RN Selby gave Naomi Towey a bottle containing gastrolyte with which to feed Kyran. However he

[15] T. 05-05-16, p. 56, line 33.
[16] T. 05-05-16, p. 76, line 17.
[17] T. 05-05-16, p. 76, line 36.

vomited a clear fluid shortly afterwards and looked pale.[18] RN Selby justified this decision as follows:

> "The fact that he had gone eight hours without any vomiting and the fact that if the nasogastric tube went down again and Dr Greenacre when he did the round might say, "Well, let's see how he goes with orals", then we'd be taking it out and because he'd gone - yeah, just basically because he'd done eight hours without vomiting and normally especially with gastroenteritis they often are on the mend and they will tolerate oral fluids."[19]

3.25 At this time RN Selby advised Naomi Towey that he would probably need to have a drip put in and that Dr Greenacre would be coming to the Children's Ward to review Kyran. RN Selby understood that Dr Greenacre was expected in the Ward shortly. Apparently there was no paediatric registrar on call for the hospital over the weekend. RN Selby states it was not usual practice to call the general resident medical officer to attend on paediatric patients on the weekend unless the paediatrician was not easily contactable or expected to attend. RN Selby states that Kyran's mother was worried and she told her that Dr Greenacre was soon to arrive.

3.26 RN Selby gave evidence that in hindsight she should have called Dr Greenacre as soon as she realized that the nasogastric tube had been pulled out. She agreed that re-inserting the nasogastric tube would not have taken long to do. She thought Dr Greenacre would come in soon. However there were other patients to be attended to who were unwell with high acuity.[20] RN Selby agreed that she should have called Dr Greenacre when he had not arrived by 9am but she did not because it was "busy and hectic".[21]

3.27 At approximately 10:00am on Sunday, 20 October 2013, Dr Greenacre attended the Children's Ward to perform a ward round. Dr Greenacre spoke with the on duty nursing staff and determined that he should see the more urgent cases first, and that no concerns had been expressed about Kyran's progress. He also states that he was not contacted about Kyran's condition overnight.[22]

3.28 However between approximately 10:30am and 10:45am Dr Toby Greenacre was approached by Jane Carratt - Kyran's paternal grandmother - who expressed concerns about Kyran's condition. Dr Greenacre immediately went

[18] Exhibit 1, Vol 1, Tab 10, Statement of Michelle Selby RN.
[19] T. 05-05-16, p.75, line 50 to p.76, line 5.
[20] T. 05-05-16, p.77, line 25.
[21] T. 05-05-16, p.77, line 34.
[22] Exhibit 1, Vol 1, Tab 6, Statement of Dr Toby Greenacre.

to see Kyran and noticed that his condition had clearly changed at some point overnight. He states that Kyran seemed to have periodic discomfort, looked very pale and seemed drowsy and lethargic. He believed that this was consistent with small bowel obstruction and the most likely diagnosis at that point was intussusception. He also considered volvulus as a possible diagnosis, which he said could have explained the change in his condition. On examination, Dr Greenacre found that Kyran had decreased bowel sounds and what appeared to be dilated loops of bowel visible through the abdominal wall but no palpable mass present in the abdomen. He noted that Kyran had had several bilious vomits since the early morning but had not had any abnormal bowel motions or passed a "red currant jelly" stool.[23] In a Supplementary Statement Dr Greenacre states;

> "If this symptom [red currant jelly stool] was reported to me I would have considered it significant, and I would have made a note of it, including in my transfer letter, and would have taken immediate steps in response to this symptom."[24]

3.29 Dr Greenacre observed that from the evening of 19 October until the morning of 20 October there had been a change in Kyran's hydration status, however; "… it was very difficult to assess the exact level given the fact we didn't know how much urine had passed or how much of the fluid he had been given he had retained or how much of the fluid he had been given was still sitting in his gut, so called third space losses."[25]

3.30 There was some ambiguity in the 'Children and Infants with Gastroenteritis - Acute Management' Guidelines. They provide a flowchart of management. They state several times that occasional vomiting does not indicate that nasogastric rehydration or oral hydration has been a failure. Dr Greenacre understood the guidelines to state that one or two small vomits do not indicate that intravenous hydration should be brought in. In his view "… the guidelines do not provide a direct end point to the point where intravenous rehydration is necessitated."[26]

3.31 An issue arising in the Inquest concerned Dr Greenacre's instructions to the nurses working the night shift commencing on 19 October 2016. In justifying his lack of documentation of these instructions Dr Greenacre referred to the guidelines regarding gastroenteritis and expressed the view that the senior members of the clinical team, being himself and the senior nurse, had a

[23] Exhibit 1, Vol 1, Tab 6, Statement of Dr Toby Greenacre.
[24] Exhibit 1, Tab 6A, Supplementary Statement of Dr Toby Greenacre dated 28 April 2016 at paragraph 6.
[25] T. 04-05-16, p.36, line 18.
[26] T. 04-05-16, p. 37, line 36.

common understanding regarding the management of what seemed to be mild gastroenteritis. It was an accepted practice between Dr Greenacre and the night nurses that they would implement the general management practice set out in the guidelines.[27]

3.32 Following his examination, Dr Greenacre decided that Kyran required transfer to a tertiary hospital as Shoalhaven Hospital no longer had an interventional radiology service or a surgical service able to provide emergency treatment of intussusception.[28]

3.33 Dr Greenacre telephoned the Newborn and Paediatric Transport Service ("NETS") to arrange for Kyran to be transported to the Sydney Children's Hospital via helicopter. He spoke with the NETS consultant on-call, Dr Tracey Lutz. Dr Lutz then arranged for Dr Robert Gandy, a Registrar from Sydney Children's Hospital at Randwick, to join in the telephone conversation. Dr Lutz explained that a helicopter was not available to transport Kyran to Sydney at that time. The issue of Kyran's medical state and suitability to be transferred to Sydney by road ambulance instead was discussed between Doctors Greenacre, Lutz and Gandy. At the end of the telephone discussion it was determined that Kyran should be transported to Sydney Children's Hospital at Randwick by way of road ambulance.[29]

3.34 Dr Greenacre then requested the nursing staff to arrange an ambulance transfer as soon as possible. RN Selby could not remember the exact words used by Dr Greenacre but said "…I was of the opinion that it was fairly urgent for either it was said or that was the general feeling that it was fairly urgent".[30] He then returned to Kyran while awaiting his transfer to Sydney Children's Hospital. Dr Greenacre placed Kyran on nil by mouth and arranged for a nasogastric tube to be inserted by nursing staff - performed at 11:00am. Dr Greenacre inserted an intravenous cannula. In oral evidence he noted that Kyran "was a sick baby, he was pale and lethargic, as one would expect to see in a child with intussusception" and "I thought Kyran had a bowel obstruction most likely to be intussusception but possibly other diagnoses such as volvulus."[31] The nasogastric tube drain aspirate suggested that a bowel obstruction was likely. He also arranged an ultrasound - conducted at 11:59am - and an abdominal x-ray (AXR) - conducted at 12:31pm.[32]

[27] T. 04-05-16, p.39, line 1.
[28] Exhibit 1, Vol 1, Tab 6, Statement of Dr Toby Greenacre.
[29] Exhibit 1, Vol 1, Tab 6, Statement of Dr Toby Greenacre; Exhibit 1, Vol 2, Tab 25, Written transcript of the telephone conversation between Dr Greenacre, Dr Tracey Lutz and Dr Robert Gandy.
[30] T. 05-05-16, p. 82, line 27.
[31] T. 05-05-16, p.12, line 15.
[32] Exhibit 1, Vol 1, Tab 6, Statement of Dr Toby Greenacre.

3.35 Dr Greenacre states that the AXR showed typical features of mechanical bowel obstruction but did not confirm intussusception. As to the ultrasound study, the sonographer contacted Dr Greenacre and reported his findings as "target lesion, diagnostic of intussusception." The on-call general surgeon then happened to attend the Children's Ward on his rounds. Dr Greenacre discussed Kyran's condition with him and he reviewed the ARX and ultrasound and agreed that transfer remained Kyran's best option and so no formal consultation was arranged. Further details regarding Dr Greenacre's management plan pending the arrival of the ambulance are set out in his statement.[33]

3.36 Dr Greenacre believes that he left the Children's Ward just after 1:00pm to attend to other sick children in the hospital. He states that in accordance with the usual hospital practice he expected the nursing staff to contact him when the ambulance arrived. He also states that when he returned to the Children's Ward between approximately 2:30pm and 2:45pm to review Kyran he was surprised to learn that the ambulance had arrived, taken over Kyran's care and had departed the hospital.[34]

3.37 Dr Greenacre states that the last time he saw Kyran, some-time prior to his ambulance transfer, he believed that Kyran was stable enough to be transferred by road ambulance as this really was the only option for treatment of his surgical condition. Dr Greenacre also states that Kyran's electrolyte picture and other blood indices on the specimen taken on 20 October 2013 when the cannula was inserted did not suggest severe electrolyte disturbance and his observations also did not suggest that Kyran was suffering severe dehydration.[35]

3.38 In his first statement at page 4, paragraph 4, Dr Greenacre said that even with the benefit of hindsight he would not have altered his management plan. Under cross-examination by Dr Butcher he elaborated on this view stating that there were aspects of Kyran's management that he would have done differently, such as being "more specific about the following of the gastro guidelines".[36] Dr Greenacre also stated that it may have been helpful if he had been telephoned when Kyran vomited at midnight on 20 October 2013. However he qualified this statement by saying that Nurse Phillips' management decision not to call him was "perfectly justified both according to our usual practice and according to the gastro guidelines…". Dr Greenacre stated that even if he had been contacted and told that Kyran had had a further large vomit at midnight, he is not sure that he would have altered

[33] Exhibit 1, Vol 1, Tab 6, Statement of Dr Toby Greenacre.
[34] Exhibit 1, Vol 1, Tab 6, Statement of Dr Toby Greenacre.
[35] Exhibit 1, Vol 1, Tab 6, Statement of Dr Toby Greenacre.
[36] T. 05-05-16, p.5, line 2.

anything given his knowledge of the gastro guidelines and the level of experience and expertise of the nurses on duty that night.[37]

4. NETS. Newborn and Paediatric Transport Service

4.1 The Newborn and Paediatric Emergency Transport Service is known as NETS. It is the emergency service for medical retrieval of critically ill newborns, infants and children in NSW. It provides advice to hospitals requesting transport for a patient too sick for care to continue in that hospital. NETS brings clinicians together by conference call to discuss acute problems and plan their solution. It provides a point of clinical triage by connecting clinicians to discuss the best treatment and the appropriateness of transfer or retrieval. There are three specialist children's hospitals primarily utilised by NETS, two in Sydney and the other in Newcastle.

4.2 The usual procedure is that a specialist team is sent by aircraft, helicopter or ambulance to treat, stabilise and transport the patient. The team is usually comprised of a specialist medical practitioner and a specialist registered nurse.

4.3 NETS is administered and managed by the Sydney Children's Hospitals Network.

4.4 One of the issues flagged for consideration at the commencement of the inquest was the decision that was made during the course of the telephone discussion between Dr Toby Greenacre, Dr Tracey Lutz and Dr Robert Gandy to transport Kyran from the Shoalhaven Hospital to the Sydney Children's Hospital at Randwick by the NSW Ambulance Service.

4.5 Dr Tracey Lutz is a specialist in general paediatrics and neonatal/perinatal medicine. She was the NETS on-call consultant in relation to discussions relating to Kyran. She provided the inquest with two statements and gave oral evidence.[38]

4.6 On 20 October 2013 at 11:05am there was a telephone discussion, initiated by Dr Toby Greenacre, between himself, Dr Tracey Lutz and Dr Robert Gandy, the Surgical Registrar on call at Sydney Children's Hospital. Following a discussion of the clinical details they agreed that;

[37] T. 05-05-16, p.5, lines 3-35.
[38] Exhibit 1, Vol 1, Tab 14, First Statement of Dr Tracey Lutz dated 17 July 2015; Tab 15, Second Statement of Dr Tracey Lutz dated 13 October 2015; T. 06-06-16, pp.1-8.

> Kyran was haemodynamically and clinically stable for immediate transfer via road ambulance to Sydney Children's Hospital Randwick for further assessment and management. At the time of the call there was no NETS team available; waiting for a team would have delayed patient transfer. As the treating clinician, Dr Greenacre made arrangements for booking the ambulance transfer.[39]

4.7 In her Second Statement Dr Lutz further elaborated that it was agreed that intravenous fluids were to be commenced and continued throughout the transfer, with a paramedic in attendance. With the suspected diagnosis of intussusception, timely transfer was important.[40]

4.8 The expert paediatric evidence before the inquest did not include any criticism of the conduct of Dr Lutz or the subsequent performance of the NETS ICU Consultant or the NETS Retrieval Team involved in treating Kyran at Shellharbour Hospital and transporting him to Sydney.

4.9 In appears that the quality and timeliness of the service, and medical care, provided to Kyran by NETS was exemplary.

5. Ambulance Transfer and the Paramedics

5.1 The issues raised at the commencement of the inquest included an examination of the quality and the adequacy of the medical care that was provided to Kyran by the paramedic crew of the road ambulance.

5.2 Statements were admitted from the two paramedics who had responsibility for the transfer of Kyran, namely, Christopher Rayes and Andrew Fulton.[41] Paramedic Rayes gave oral evidence [42], and Probationary Paramedic Fulton also gave oral evidence at the hearing.[43]

5.3 At the relevant time Paramedic Rayes had been a fully qualified Level P1 paramedic for six years with a Diploma in Paramedical Science.[44] Paramedic Fulton was a Level 1 Probationer who had been on the road for approximately

[39] Exhibit 1, Vol 1, Tab 14, First Statement of Dr Tracey Lutz dated 17 July 2015, paragraph 6.
[40] Exhibit 1, Vol 1, Tab 15, Second Statement of at paragraphs 7and 8.
[41] Exhibit 1, Vol 1, Tab 17, First Statement of Christopher Rayes dated 10 June 2014; Exhibit 1, Vol 1, Tab 18A. Second Statement of Christopher Rayes dated 16 April 2016: Exhibit 1, Vol 1, Tab 18. Statement of Andrew Fulton dated 24 July 2014.
[42] T. 06-05-16, pp.9-51.
[43] T. 06-05-16, pp.52-59.
[44] Exhibit 1, Vol 1, Tab 17, First Statement of Christopher Rayes, paragraph 2.

ten weeks. His role was to provide clinical care under the mentorship of Paramedic Rayes.[45]

5.4 At Bomaderry all ambulances have the same equipment so the only difference is the experience and skills of the paramedic crew on duty.[46] Whether or not a nurse escort is required depends upon the needs of the individual job.[47]

5.5 On 20 October 2013 at 11:05am ADON Karen Hill made the first request for an ambulance. She telephoned the Ambulance Centre and provided some information about Kyran. She also told the operator that she would arrange for a nurse from the Children's Ward to call to provide further information about the exact mode of transport that would be required.[48] A few minutes later RN Selby telephoned the Ambulance Centre and provided more details about Kyran's condition, including the fact that Dr Greenacre had that morning diagnosed bowel obstruction or intussusception. RN Selby states that the Ambulance Centre asked whether a nurse escort was required. She asked Dr Greenacre who said that if the ambulance officers were paramedics then a nurse escort was not required. RN Selby also informed the Ambulance Centre that Kyran had intravenous fluids. She was told by the Ambulance Centre that the paramedics would only manage intravenous normal saline infusions if there was no nurse escort.[49]

5.6 For unknown reasons the booking that had been made at 11:22am did not eventuate. A second ambulance was booked for the same job, however the paramedics requested that they be allowed to have lunch and that ambulance was also taken off the job.

5.7 At 1:44pm a further booking was made for the same job and was allocated to an ambulance crewed by Paramedic Rayes and Probationary Paramedic Fulton. They were advised of a R3 transfer with a child going to Sydney. However, these paramedics firstly had to finish another job and then go back to Bomaderry ambulance station to collect a child capsule and also have lunch. It took forty-five (45) minutes to do this and they arrived in their ambulance at Shoalhaven Hospital at 2:25pm.[50]

[45] Exhibit 1, Vol 1, Tab 18, Statement of Andrew Fulton, paragraph 2.
[46] Exhibit 1, Vol 1, Tab 17, First Statement of Christopher Rayes, paragraph 3.
[47] Exhibit 1, Vol 1, Tab 17, First Statement of Christopher Rayes, paragraph 5.
[48] Exhibit 1, Vol 2, Tab 31, Transcript of NSW Ambulance call.
[49] Exhibit 1, Vol 1, Tab 10, Statement of Michelle Selby RN.
[50] Exhibit 1, Vol 1, Tab 17, First Statement of Christopher Rayes; Exhibit 1, Vol 1, Tab 18, Statement of Andrew Fulton.

5.8 Upon arrival at Shoalhaven Hospital Paramedic Rayes received a handover from the nursing staff. He described the atmosphere as "no urgency about it, everyone was talking, the nurses were fairly blasé about it. The handover was fairly brief - just that they needed further investigations".[51]

5.9 Paramedic Rayes states that when they arrived at the hospital he was informed by a nurse that Kyran was not ready as the staff were still administering intravenous antibiotics and he would have to wait 5 or 10 minutes. He states that the nurses did not mention that NETS had been involved and that originally a helicopter had been requested. He was not informed of any rectal bleeding. He believes that if he had known these things then he would not have taken Kyran in the ambulance.

5.10 Kyran was placed in the ambulance and the IV 'Imed' saline pump that the hospital had provided was hooked up - as Kyran was nil by mouth - and an on-board oxygen probe was also attached. It is understood that neither paramedic was trained in the use of the automated pump. It is also suggested that the on-board oxygen probe was designed for adult patients and was too big for Kyran. However Paramedic Rayes states that he could get a reading when he held the device in place. He states that Kyran was too small for blood pressure cuffs.

5.11 At 2:44pm the ambulance departed with the two paramedics, Kyran and his mother on board. When the ambulance got to about Kiama, Paramedic Rayes noticed that Kyran's nasogastric tube was getting some free flowing fluid which had a strong bowel smell to it. The fluid started free flowing even more and at this point in time Kyran was taking agonal breaths, i.e. short breathing, occasional breaths and not normal respirations. Paramedic Rayes commenced resuscitation procedures. He states that Kyran was not blue, still had a pulse and a heart rate. The ambulance was diverted to Shellharbour Hospital.

6. Shellharbour Hospital

6.1 One of the issues flagged for consideration at the commencement of the inquest was the nature and quality of the medical care provided to Kyran at the Shellharbour Hospital.

6.2 At 3:38pm the ambulance arrived at Shellharbour Hospital Emergency Department. Paramedic Rayes noted that when Kyran was transferred from

[51] Exhibit 1, Vol 1, Tab 17, First Statement of Christopher Rayes, paragraph 7.

the stretcher to the resuscitation bed his heart rate had stopped and the hospital staff commenced cardiopulmonary resuscitation.

6.3 As the hospital staff undressed Kyran, Paramedic Rayes noticed that he had bleeding from the rectum. He says that when Kyran's mother saw the rectal bleeding she said that this had also occurred earlier in the day.

6.4 Dr George Chimpanda, the Senior Doctor in Charge of the Emergency Department at Shellharbour Hospital, provided two statements to the inquest and gave oral evidence.[52]

6.5 In summary Dr George Chimpanda gave the following evidence:

(i) The ambulance transferring Kyran diverted to Shellharbour Hospital arriving just after 3pm.

(ii) Upon arrival he was unresponsive, without cardiac output and hypoglycaemic. Cardiopulmonary resuscitation was commenced immediately along with bag and mask ventilation. Kyran was successfully resuscitated.

(iii) Dr Chimpanda received a handover from the paramedics as outlined in his Second Statement.[53] He documented his observations of Kyran.[54] He made a provisional diagnosis of bowel obstruction secondary to intussusception.[55]

(iv) The care of Kyran was directed by the NETS ICU Consultant from Sydney Children's Hospital.[56]

(v) At 4:36pm on 20 October 2013 the NETS helicopter arrived at Shellharbour Hospital.

(vi) A NETS Retrieval Team came from Sydney and Kyran went into cardiac arrest whilst in their care.[57] He had a spontaneous return of circulation and it was decided to transfer him to Sydney.[58]

(vii) He was in a critical condition when he left Shellharbour.[59]

[52] Exhibit 1, Vol 1, Tab 7, First Statement of Dr George Chimpanda dated 5 February 2014; Exhibit 7, Second Statement of Dr George Chimpanda dated 3 May 2016; T. 05-05-16, pp.29-31.
[53] Exhibit 7, Second Statement of Dr George Chimpanda, paragraph 10.
[54] Exhibit 7, Second Statement of Dr George Chimpanda, paragraph 13.
[55] Exhibit 7, Second Statement of Dr George Chimpanda, paragraph 14.
[56] Exhibit 7, Second Statement of Dr George Chimpanda, paragraph 16.
[57] Exhibit 7, Second Statement of Dr George Chimpanda, paragraph 22.
[58] Exhibit 7, Second Statement of Dr George Chimpanda, paragraph 25.
[59] Exhibit 7, Second Statement of Dr George Chimpanda, paragraph 27.

6.6 This evidence was corroborated by the evidence of Dr Kevin Swil, a Paediatric Intensive Care Specialist at the Sydney Children's Hospital at Randwick.

6.7 When contacted and briefed by NETS between 5:00pm and 5:30pm Dr Swil advised not to delay the transfer unnecessarily as review with surgical intervention remained a priority.[60]

6.8 Dr Swil was further contacted by NETS between 6:30pm and 7:00pm. NETS advised him that Kyran had a further cardio-respiratory arrest and that CPR was in progress. Dr Swil's clinical impression was that Kyran most likely had a necrotic bowel secondary to the bowel obstruction.

6.9 At approximately 7:48pm on 20 October 2013 the NETS helicopter departed from Shellharbour Hospital with the NETS Registrar - Dr Rita Nyanga - and the NETS nurse - RN Keith Nkazana - together with Kyran and his mother on board.[61]

6.10 The paediatric experts who gave evidence to the inquest had no criticism of Dr George Chimpanda or other medical or nursing staff at Shellharbour Hospital in relation to their treatment of Kyran.

7. Sydney Children's Hospital at Randwick

7.1 The inquest examined the nature and quality of the medical care that was provided to Kyran at the Sydney Children's Hospital, Randwick.

7.2 The NETS helicopter arrived at Sydney Children's Hospital at approximately 8:45pm on 20 October 2013.

7.3 Kyran came under the care of Dr Swil, a Paediatric ICU Specialist. On arrival he apparently experienced another cardiac arrest - or "pulse-less electrical identity". Cardio pulmonary resuscitation was performed for approximately 27 minutes before a pulse returned.

7.4 Dr Anthony Dilley, a Paediatric Surgeon at the Sydney Children's Hospital, provided a statement to the inquest.[62] He indicated that Kyran arrived with a diagnosis of intussusception and had sustained at least two periods of cardiac arrest requiring resuscitation. Kyran was assessed and his condition

[60] Exhibit 1, Vol 1, Tab 13, Statement of Dr Kevin Swil dated 22 July 2014.
[61] Exhibit 1, Vol 1, Tab 16, Statement of Keith Nkazana RN.
[62] Exhibit 1, Vol 1, Tab 17D, Statement of Dr Anthony Dilley dated 28 January 2016.

discussed by the Children's ICU team. Dr Dilley formed the opinion that Kyran "was critically unwell and that the only reversible problem present was the intussusception.[63]

7.5 During the subsequent successful laparotomy it was found that Kyran did have an intussusception that was easily reduced. He also had a malrotation and consequently a Ladd's procedure was performed.[64]

7.6 Dr Dilley noted that the cause of death entered on the Death Certificate was irreversible brain injury. He comments;

> My understanding is that the brain injury became evident after the procedure and after his condition had stabilized from a cardiac viewpoint. The reasonable explanation of the brain injury, given the circumstances, is that the brain had been deprived of oxygen (hypoxia) during one or more of his arrests where the delivery of oxygen to the brain is impaired.[65]

7.7 However at about 5:00pm on 21 October 2013, Kyran's pupils became fixed and dilated to light. A CT brain scan was performed which indicated a clinical picture of brain death. Over the next 24 hours Kyran developed a clinical picture of severe hypoxic ischemic cerebral injury secondary to his cardiac arrest. Kyran was removed from the ventilator on 22 October 2013 and passed away shortly after that time.

7.8 The expert evidence before the inquest indicates that there is no basis for any criticism of Dr Dilley or the Children's ICU team at Sydney Children's Hospital.

8. Autopsy

8.1 Dr Rebecca Irvine performed an autopsy at Glebe at 11:40am on 2 October 2013.

8.2 The Limited Autopsy Report records the direct cause of death as "complications of hypoxic ischaemic encephalopathy". The antecedent causes are identified as "recurrent episodes of cardiopulmonary arrest and resuscitation" and "complications of ileocaecal intussusception with malrotation of the bowel.[66]

[63] Exhibit 1, Vol 1, Tab 17D, Statement of Dr Anthony Dilley, paragraph 6.
[64] Exhibit 1, Vol 1, Tab 17D, Statement of Dr Anthony Dilley, paragraph 7.
[65] Exhibit 1, Vol 1, Tab 17D, Statement of Dr Anthony Dilley, Paragraph 8.
[66] Exhibit 1, Vol 1, Tab 4, Limited Autopsy Report.

9. Expert Paediatric Evidence

9.1 Oral and documentary expert evidence was admitted in the Inquest from the following consultant paediatricians:

(i) Associate Professor Timothy Bohane, former Professor and Head of Paediatrics at Notre Dame University, specialising in paediatric gastroenterology. Briefed by the Coroner.

(ii) Dr Scott Anthony Dunlop, Consultant General Paediatrician. Briefed by the Family.

(iii) Dr Keith Howard, Paediatrician. Briefed by Dr Toby Greenacre.

9.2 The evidence from these experts consisted of:

Dr Scott Dunlop.

(i) Letter from HCM Lawyers to Dr Scott Dunlop dated 2 January 2015.[67]

(ii) First Report of Dr Scott Dunlop. Consultant Paediatrician dated 30 January 2015.[68]

(iii) Letter from HCM Lawyers to Dr Scott Dunlop dated 4 April 2016.[69] (This letter bears an incorrect date of 18 April 2016).

(iv) Second Report of Dr Scott Dunlop. Consultant Paediatrician dated 14 April 2016.[70]

Dr Keith Howard.

(i) Letter from HWL Ebsworth Lawyers to Dr Keith Howard dated 6 April 2016.[71]

(ii) Report of Dr Keith Howard. Curriculum Vitae dated 7 April 2016.[72]

(iii) Letter from HWL Ebsworth Lawyers to Dr Keith Howard dated 20 April 2016.[73]

[67] Exhibit 1, Vol 2, Tab 34.
[68] Exhibit 1, Vol 2, Tab 35.
[69] Exhibit 1, Vol 2, Tab 36.
[70] Exhibit 1, Vol 2, Tab 37.
[71] Exhibit 1, Vol 2, Tab 38.
[72] Exhibit 1, Vol 2, Tab 39.
[73] Exhibit 1, Vol 2, Tab 40.

(iv) Second Report of Dr Keith Howard dated 22 April 2016.[74]

Associate Professor Timothy Bohane.

(i) Letter from the Crown Solicitor to Associate Professor Timothy Bohane dated 26 February 2016.[75]

(ii) Report of Associate Professor Timothy Bohane, Consultant in Paediatric Gastroenterology, dated 22 March 2016.[76]

9.3 Due to the fact that each expert had been briefed by different parties, at different times and was asked to opine on different issues it was difficult to ascertain their respective views in relation to some issues.

9.4 Consequently, they were called to give oral evidence on 11 May 2016.

9.5 Counsel Assisting suggested a particular method of adducing the evidence from these experts which was not opposed by any of the legal representatives of the parties. This consisted of a three stage process:

(i) a private conclave of the experts moderated by Counsel Assisting in the absence of the legal representatives of the other parties;

(ii) an oral briefing by Counsel Assisting to the legal representatives of the other parties reporting on the result of the conclave; and

(iii) concurrent evidence by the experts in court.

The experts were encouraged to interact with each other and questions posed were open to all three to respond to in turn.

10. Questions for the Experts

10.1 In summary their evidence was to the following effect:

10.2 Level and Timeliness of Medical Care Provided to Kyran at Shoalhaven Hospital.

[74] Exhibit 1, Vol 2, Tab 41.
[75] Exhibit 1, Vol 2, Tab 32.
[76] Exhibit 1, Vol 2, Tab 33.

(1) Initial Triage Process.

All three experts had no criticism of the initial triage process.[77].

(2) Examinations carried out by Dr Richard Allen.

Both Associate Professor Bohane and Dr Howard had no criticism of these examinations which Associate Professor Bohane said were conducted "in a very timely and professional manner".[78] Dr Dunlop agreed with Professor Bohane but raised a concern as to the lack of documentation of the examination and Kyran's state of hydration.[79] In his Report he is critical of the documentation created by both Dr Allen and Dr Greenacre following their examinations and particularly the lack of evidence of consideration of a differential diagnosis.[80]

(3) Examinations and Care provided by Dr Toby Greenacre.

Dr Howard says that Dr Greenacre's attendance was prompt on 19 and 20 October 2013.[81] This was not disputed by the other experts.

On the issue of hydration Dr Dunlop said that hydration at maintenance plus 2% was appropriate in the circumstances to treat mild hydration. Both other experts agreed.[82]

With respect to the physical examination of Kyran, Dr Dunlop says it was "unreasonable" that Dr Greenacre did not examine the abdomen.[83] He agreed with Counsel for the Family that the fact Kyran was asleep "would have given a good opportunity to palpate the abdomen".[84] Associate Professor Bohane would have expected Dr Greenacre to examine the abdomen but observed that if Kyran was asleep he may not want to disturb him. However, he and Dr Howard conceded that a sleeping baby "would have given a good opportunity to palpate the abdomen.[85]

(4) Transfer of Kyran from the Emergency Department to the Children's Ward.

[77] T. 11-05-16, p.28.
[78] T. 11-05-16, p.28.
[79] T. 11-05-16 p.28.
[80] Report dated 26 January 2016, p.3.
[81] Ex 1, Tab 39, p.1.
[82] T. 11-05-16, p.32.
[83] T. 11-05-16, p.32.
[84] T. 11-05-16, p.41.
[85] T. 11-05-16, p.41.

Associate Professor Bohane noted that there was a slight delay due to the sterilising of the ward, but this was an appropriate measure given that he was presumed to have gastroenteritis.[86] Dr Howard made no comment and Dr Dunlop was not critical of the transfer.[87]

(5) The Care provided by the Registered Nursing Staff.

Associate Professor Bohane said it would have been useful, when nursing staff examined Kyran at 23:30, for them to have referred to changes in the fluid balance chart in addition to mucous membranes, however the chart itself "wouldn't be the thing you'd rely on".[88]

Dr Dunlop observed that "If there was a medical officer on site overnight, nursing staff should have notified them of ongoing vomiting despite naso-gastric rehydration. Kyran's vomiting and liquid replacement overnight and into the morning was "underappreciated by nursing staff".[89]

Fluid management throughout the night was "unquestionably inadequate".[90]

Dr Howard made no comment.

(6) Should Dr Toby Greenacre have been contacted by nursing staff in light of declining dehydration and increasing pulse rate?

All three experts said yes and agreed with the proposition that if on the morning of 20 October 2013 the nurses assumed that Dr Toby Greenacre was arriving at 8am, it was not unreasonable for them to delay passing on information about deterioration, e.g. tachycardia, in Kyran's health.[91]

In particular Dr Dunlop said the nurses should have called Dr Toby Greenacre at 11.30pm.[92] In light of the inadequate fluid intake during an 18 hour period the nurses should have sought the advice of a consultant.[93]

[86] T. 11-05-16, p.41.
[87] T. 11-05-16, p.36.
[88] T. 11-05-16, p.47.
[89] Exhibit 1, Vol 2, Tab 35, Report dated 30 January 2015, p.5.
[90] Exhibit 1, Vol 2, Tab 35, Report dated 30 January 2015, p.6.
[91] T. 11-05-16, p.66.
[92] T. 11-05-16, p.50 and Report dated 30 January 2015, p.6.
[93] T. 11-05-16, p.62.

Dr Howard expressed the view that it would have been appropriate to give Dr Toby Greenacre the opportunity to review Kyran at around 7.30am on 20 October 2013. During the night the presumptive diagnosis of viral gastroenteritis did not change and given the established relationships between the nurses and Dr Toby Greenacre, he thought it appropriate that he was not called.[94]

Regarding Kyran's non-bilious vomit of fluids at 11:30pm, Dr Greenacre stated that it would have been "helpful" in the circumstances to be made aware of it, but he was not critical of the nurses for not informing him.[95]

In respect to the trial of oral fluids by RN Phillips, Dr Greenacre stated that "I couldn't specify everything that she should do under every circumstance but I knew that she and I were guided by the gastroenteritis guidelines."[96]

(7) Should an abdominal x-ray have been ordered by Dr Greenacre as part of the diagnostic investigations?

Dr Dunlop said that in this case an abdominal x-ray was mandatory in order to exclude obstruction.[97]

Associate Professor Bohane said that if an infant presents with pain and vomiting but no diarrhoea it may have been appropriate to do an x-ray or ultrasound, but not with infants who only present with vomiting, irritability and lethargy.[98]

Dr Howard largely agreed with views of Associate Professor Bohane. He said that the first investigation would be an x-ray of the abdomen, potentially followed by an ultrasound.[99] In his Second Report Dr Howard stated that although an abdominal x-ray is the investigation of choice for suspected bowel obstruction, it does carry risks of radiation and may have been unhelpful in causes for bowel obstruction other than intussusception.[100]

[94] T. 11-05-16, p.63.
[95] T. 04-05-16, p.39, line 41.
[96] T. 04-05-16, p. 62, line 43.
[97] T. 11-05-16, 55.
[98] T. 11-05-16, 55.
[99] T. 11-05-16, 55.
[100] Exhibit 1, Vol 2, Tab 41, p.1, Report dated 22 April 2016.

(8) Assessment and diagnosis by Dr Greenacre on 20 October 2013 at approximately 11am.

The experts had no criticism of the assessment and diagnosis of Dr Greenacre.[101]

(9) The stabilisation of Kyran in preparation for transfer.

Dr Howard said it was imperative to get IV access and begin fluids.[102] Dr Dunlop observed that making a number of attempts to insert the IV drip was not unreasonable given Kyran's condition. He did not necessarily require imaging at that point.[103] Associate Professor Bohane had no criticism of what was done and noted the fact that Kyran was "chubby" could make it more difficult to insert the drip.[104]

(10) Decision made to transport Kyran from Shoalhaven to Sydney Children's Hospital by road ambulance.

In respect to the mode of transport Dr Dunlop said it was difficult to determine the appropriateness of the ambulance staff who attended. He said it was very rare for a paediatrician to escort a patient in an ambulance. "I didn't think there was indication at this time for Dr Greenacre to get in the back of the ambulance".[105] A nurse escort would have been helpful but would not have necessarily changed the outcome.[106] In his Report Dr Dunlop states that Kyran should have been transported "with a nurse escort at a minimum".[107]

Associate Professor Bohane agreed with Dr Dunlop's analysis. Being mindful of the concern that the bowel might infarct and become septicaemic, this would warrant the fastest ambulance to make sure that the trip was safe.[108]

Dr Howard added that the fastest transport to Sydney Children's Hospital was required. It was a matter for Dr Toby Greenacre to decide whether to go immediately with any available ambulance officers or wait for two hours for more qualified paramedics.[109]

[101] T. 11-05-16, p.68.
[102] T. 11-05-16, p.68.
[103] T. 11-05-16, p.68.
[104] T. 11-05-16, p.68.
[105] T. 11-05-16, p.70.
[106] T. 11-05-16, p.70.
[107] Exhibit 1, Vol 2, Tab 35, Report dated 30 January 2016, p. 7.
[108] T. 11-05-16, p.71.
[109] T. 11-05-16, p.70.

(11) Decision made between NETS and Dr Toby Greenacre.

All the experts thought that the joint decision made by Dr Toby Greenacre, Dr Tracey Lutz and Dr Robert Gandy was appropriate.[110]

(12) Categorisation of Kyran's condition at 11am by the paramedics .

Dr Howard and Dr Dunlop agreed that Kyran's condition warranted a Category R1 because of the potential that the gut blood supply was compromised.[111] See paragraph 11.4 for a description of the ambulance response code categories.

(13) Quality of the handover of Kyran by Shoalhaven Hospital staff to the ambulance crew.

All the experts agreed that Dr Greenacre acted reasonably in delegating the task of calling an ambulance to another staff member.[112]

(14) Communication of the urgency of Kyran's condition.

Associate Professor Bohane assumed that the first nurse who was given the delegated task by Dr Greenacre would have been told it was urgent. He was concerned that the second nurse who actually called the ambulance may not have appreciated the level of urgency. In this sense there was a communication problem.[113] In his Report he says that he had no criticism of the handover by nursing staff to the ambulance officers as they clearly believed the transfer was for more specialised investigations and treatment. He also states that he had no criticism of the nursing staff's instructions to the ambulance officers as they did not have the impression from Dr Toby Greenacre that there was particular urgency.[114]

Dr Dunlop said there was a failure to communicate Kyran's poor condition, which removed the potential for earlier transfer to a tertiary facility.[115] He noted that the "multiple people involved diluted the urgency to the point where what [Dr Greenacre] thought was

[110] Associate Professor Bohane at Exhibit 1, Vol 2, Tab 33, p.9; Dr Dunlop at Exhibit 1, Vol 2, Tab 35, p.7 and Dr Howard at Exhibit 1, Vol 2, Tab 39, p.2.
[111] T. 11-05-16, 70.
[112] T. 11-05-16, p.72; Exhibit 1, Vol 2, Tab 39, p.2 Report of Dr Howard dated 7 April 2016.
[113] T. 11-05-16, p.82.
[114] Exhibit 1, Vol 2, Tab 32, p.10. Report dated 22 March 2016.
[115] Exhibit 1,Vol 2, Tab 35, p.8. Report dated 30 January 2016.

happening wasn't happening".[116] Dr Howard agreed with Dr Dunlop. It is important to close the "communication loop" between doctors and nurses in the context where the outcome of the call would alter the doctor's expectation about how quickly an ambulance should arrive.[117]

Dr Greenacre understood that RN Karen Hill was present during relevant conversations and understood that the provisional diagnosis was bowel obstruction. He said "I think she understood that he was sick and that I suspected he was obstructed.[118]

(15) Would you expect a paediatrician to be present at the handover in a Category R1 situation?

All the experts had the expectation that a paediatrician would be present at the handover in a Category R1 situation. Dr Dunlop indicated that this assumed there were no other medical staff to whom this task could be delegated.[119]

(16) Timeliness of the service provided by the NSW Ambulance Service.

Associate Professor Bohane expressed the view that the "Service was not timely … Need to prioritise bookings after adequately seeking the facts around each case, particularly when a child is in hospital under medical care".[120]

(17) Quality of the medical care provided to Kyran by the road ambulance crew.

Associate Professor Bohane expressed the view that the crew provided appropriate clinical care based on the information that it was a Category R3 transfer. He had no criticisms of the clinical involvement during the trip between Shoalhaven Hospital and Shellharbour Hospital.[121]

Dr Dunlop said that Kyran was not transported with continuous monitoring, due to equipment unavailability, which led to a delay in noting that he was cyanotic and critically unwell.[122]

[116] T. 11-05-16, p.73.
[117] T. 11-05-16, p.73.
[118] T. 04-05-16, p.42, line 44.
[119] T. 11-05-16, p.73.
[120] Exhibit 1, Vol 2, Tab 32, Report dated 22 March 2016, p.11.
[121] Exhibit 1, Vol 2, Tab 32, Report dated 22 March 2016, p.12.
[122] Exhibit 1, Vol 2, Tab 35, Report dated 30 January 2016, p.8.

(18) Quality of care provided to Kyran at Shellharbour Hospital.

The experts did not have any criticism of the quality of care provided to Kyran at Shellharbour Hospital.[123]

(19) Quality and timeliness of the service and medical care provided to Kyran by NETS.

The experts did not have any criticism of the quality and timeliness of the service and medical care provided to Kyran by NETS.[124]

(20) Quality and timeliness of the care provided to Kyran at the Sydney Children's Hospital.

The experts did not have any criticism of the quality and timeliness of the care provided to Kyran at the Sydney Children's Hospital.[125]

11. NSW Ambulance Service

11.1 The inquest received both written and oral evidence from Graham McCarthy, Director of Patient Safety and clinical Quality for the NSW Ambulance Service.[126]

11.2 Mr McCarthy referred to a review conducted by the Health Care Complaints Commission, ("HCCC"), into the involvement of the Ambulance Service with Kyran. In summary the Ambulance Service responded to the recommendations made by this review as follows[127]:

(i) A review into child transport equipment identified a need to replace aging child capsules and to address the insufficient number of paediatric harness restraints. Consequently, every Ambulance station has been supplied with a child seat. Previous paediatric harness restraints have been replaced with an improved version. "As at the end of May 2016, all ambulances will be equipped with DHS multi fit

[123] For example, Report of Associate Professor Bohane dated 22 March 2016, Exhibit 1, Vol 2, Tab 32, p.12.
[124] T. 11-05-16, p.24; Report of Associate Professor Bohane dated 22 March 2016, Exhibit 1, Vol 2, Tab 32, p.12.
[125] T. 11-05-16, p.24. Report of Associate Professor Bohane dated 22 March 2016, Exhibit 1, Vol 2, Tab 32, p.13.
[126] Exhibit 6, Statement of Graham McCarthy dated 4 May 2016; Exhibit 9, Supplementary Statement dated 9 May 2016; T. 09-05-16 pp.37-56.
[127] Exhibit 6, Statement of Graham McCarthy dated 4 May 2016 at paragraphs 5 and 6.

paediatric restraints which can be attached to the full range of DHS drop stretchers as well as the Stryker powered stretcher." Finally, a Clinical Safety Notice was issued to provide updated guidance to paramedics about restraints.[128]

(ii) Discussions between the Illawarra Shoalhaven Local Health District, ("ISLHD"), the Ambulance Service and NETS resulted in the development of a policy entitled "Transfer to Higher Level of Care including Neonatal, Paediatrics and Adults" to improve communication between these entities.[129]

(iii) The Medical Priority Dispatch System ("MPDS"), Protocol 33 is a system in which structured clinical questions determine the priority to be given to an individual patient when a medical practitioner or nurse is booking an ambulance. Protocol 37 is an equivalent document in relation to inter hospital bookings. Mr McCarthy indicated that these protocols will be able to be implemented by December 2016.[130]

(iv) Mr McCarthy outlined further educational improvements in relation to the taking of observations, the information required on handover and the skill required to operate an Agilia Volumat Fluid Pump.[131]

(v) Finally, the Ambulance Service reviewed and revised its Protocol A5; Recognition of the Sick Baby or Child.[132]

11.3 In his Supplementary Statement Mr McCarthy detailed events surrounding the booking and dispatching of the ambulance to Shoalhaven Hospital on 20 October 2013.

In summary of the telephone contact between the Shoalhaven Hospital and the Ambulance Service was:

(i) First call from the hospital at 11.22.

(ii) Second call from the hospital at11.33. Decided to wait for two (2) until vehicle dispatch.

(iii) Third call from the Ambulance Service to the hospital at 12:37 to check on progress.

[128] Exhibit 6, Statement of Graham McCarthy, paragraphs 7-9.
[129] Exhibit 6, Statement of Graham McCarthy, paragraph 10.
[130] Exhibit 6, Statement of Graham McCarthy, paragraphs 11-13.
[131] Exhibit 6, Statement of Graham McCarthy, paragraphs 14-22.
[132] Exhibit 6, Statement of Graham McCarthy, paragraph 23.

11.4 Mr McCarthy says:

> The Ambulance Service has a response code that goes from R1 to R9. R1 relates to urgent triple zero calls with a lights and sirens response. R2 relates to time sensitive triple zero calls with no lights and sirens and R3 relates to time critical cases, less than 60 minutes to 4 hours. The booking for the transport of Kyran Day was managed under the R3 response code. R4 to R9 response codes are not applicable in this case.[133]
>
> In oral evidence Mr McCarthy indicated that the time applicable to R3 "less than 60 minutes to 4 hours" actually "means from zero minutes to four hours."[134]

11.5 It was apparent from the evidence of medical and nursing witnesses at the inquest that they were not aware of the various categories outlined above and consequently had difficulty in communicating what different levels of transportation were available and required.

Use of the title 'paramedic'

11.6 It became apparent during the course of the inquest that witnesses were often confused by the meaning of the term "paramedic".

11.7 In his Supplementary Statement Mr McCarthy clarified the situation by advising that in December 2007 the terms 'ambulance officer' and 'paramedic' were changed to 'paramedic' and 'intensive care paramedic'.[135] Thus all 'ambulance officers' became 'paramedics'.

11.8 Despite a public launch, notifying all Area Health Services and placing the information on the Ambulance website it was apparent during the inquest that there was limited understanding of the change.

11.9 The fact that there were 'paramedics' and 'intensive care paramedics' did not seem to be well known. For example, both Dr Toby Greenacre and Dr Susan Piper were not familiar with the terms or the fact that there was such a distinction. It is clear that more needs to be done to rectify this situation.[136]

11.10 The skill sets of a 'paramedic' as opposed to an 'intensive care paramedic' in 2013 were outlined by Mr McCarthy in his oral evidence. He observed that

[133] Exhibit 6, Statement of Graham McCarthy, paragraph 10.
[134] T. 09-05-16, p.42, line 35.
[135] Exhibit 6, Statement of Graham McCarthy, paragraph 13.
[136] T. 09-05-16, pp.45-6.

the difference in actual clinical skill was quite small and it is unlikely that the advanced skills would have been used in Kyran's case.[137] This evidence was further clarified in re-examination.[138]

12. Illawarra Shoalhaven Local Health District ("ISLHD")

12.1 Dr Susan Piper, Paediatrician, undertakes various roles with the Illawarra Shoalhaven Local Health District ("ISLHD"). She provided a statement and gave oral evidence.[139]

12.2 In her Statement Dr Piper outlines steps that have been taken to implement the recommendations of the HCCC review.

The first group of recommendations concerned education and/or training for Shoalhaven Hospital medical and nursing staff in respect to the following issues:

(i) When interpreting observation recordings in the NSW Health 'Between the Flags' Standard Observation Charts, recognising that not all deteriorating patients in reality will breach the 'yellow' or 'red' criteria. If observations are in the 'blue' zone staff should always consider calling for an early review and consider the complete clinical picture of the patient and not the readings in isolation.

It is noted that Dr Toby Greenacre prepared for the inquest a coloured 'Between the Flags' chart containing timeline observations of Kyran.[140]

The relevant training program is called "DETECT Junior" and its scope is summarised by Dr Piper.[141]

Dr Piper advised that as of 23 November 2015 at least 95% of all paediatric nursing staff and all paediatric Visiting Medical Officer (VMO) clinicians have completed "DETECT Junior" and that all paediatric nursing staff and paediatric VMO's have completed the "Resus 4 Kids" training program.[142]

[137] T. 09-05-16, p.53, lines 37-44.
[138] T. 09-05-16, pp.55-56.
[139] Exhibit 1, Vol 3, Tab 42, Statement of Dr Susan Piper dated 22 April 2016; T. 09-05-16, pp.20-36.
[140] Exhibit 1, Vol 1, Tab 6A, attachment to Supplementary Statement of Dr Toby Greenacre dated 28 April 2016.
[141] Exhibit 1, Vol 3, Tab 42, Statement of Dr Susan Piper, paragraph 7.
[142] Exhibit 1, Vol 3, Tab 42, Statement of Dr Susan Piper, paragraph 8.

In addition a procedure entitled “Paediatric Resuscitation Training and Assessment Requirements” has been drafted and the consultation process preceding its implementation is expected to be completed by September 2016.[143]

(ii) The risk factors associated in a child diagnosed with viral gastroenteritis.
This recommendation has been implemented.[144]

(iii) The use of fluid balance charts in situations where a paediatric patient on a trial of fluids is transferred from the emergency department to the ward and the need to ensure continuity in the charting of fluids in and out so that a complete picture can be ascertained.

This recommendation has been implemented.[145]

(iv) Awareness of what constitutes a trial of fluids, at what point it is considered to be failing and who to inform at that point.

This recommendation has been implemented.[146]

(v) Nursing staff to be formally reminded that they must not cease with specifically ordered hydration therapy for paediatric patients unless authorised by a medical practitioner.

The response to this recommendation was a formal memorandum to this effect from the Director of Nursing to staff.[147]

(vi) All staff to be reminded of the differences in qualifications in NSW Ambulance personnel.

Initially there was a discussion between the Ambulance Service and NETS to agree upon what information they required from hospital staff seeking the transfer of a patient. The communication strategy now in place is reflected in a document entitled “Transfer to Higher Level Care, including Neonatal, Paediatrics and Adults”, CLIN PROC 95, that was ratified in September 2015.[148]

[143] Exhibit 1, Vol 3, Tab 42, Statement of Dr Susan Piper, paragraph 10.
[144] Exhibit 1, Vol 3, Tab 42, Statement of Dr Susan Piper, paragraphs 12-13.
[145] Exhibit 1, Vol 3, Tab 42, Statement of Dr Susan Piper, paragraphs 14-16.
[146] Exhibit 1, Vol 3, Tab 42, Statement of Dr Susan Piper, paragraphs 14-16.
[147] Exhibit 1, Vol 3, Tab 42, Statement of Dr Susan Piper, paragraphs 17-18.
[148] Exhibit 1, Vol 3, Tab 42, Statement of Dr Susan Piper, paragraphs 20-21 and Attachment 6.

(vii) The ISLHD reviews the intravenous pumps used for patient transfer and communicates with NSW Ambulance as to the pumps compatibility and effectiveness during transport of a moving vehicle.

The pumps used by Shoalhaven Hospital, and all facilities within ISLHD, are the Fresenius Kabi pump, and the Volumat MC Agilla pump which is the standard pump currently used throughout the State. It is fit for all transport environments. During the past five (5) years there have been no reported concerns relating to the operation of these pumps during ambulance transfer.[149]

(viii) A recommendation in relation to the use of infant capsules has been superseded by the fact that the Ambulance Service has replaced them in ambulances with infant restraints.

12.3 Dr Piper also outlines various changes that have been made which are unrelated to the HCCC Review recommendations.[150]

12.4 Finally, she sets out the increase in paediatric staff employed at the Shoalhaven Hospital and the introduction of video technology to monitor patients in paediatric areas.[151]

13. Disciplinary Proceedings

13.1 Disciplinary proceedings relating to some of the health practitioners involved in Kyran's treatment have been heard in another jurisdiction.

13.2 The particulars of these complaints, the findings and the protective orders made are not relevant to this Inquest.

14. Findings required by s81(1)

14.1 As a result of considering all of the documentary evidence and the oral evidence heard at the inquest, I am able to make the following findings:

(a) Identity of deceased: Kyran Day.

(b) Date of death: 22 October 2013.

[149] Exhibit 1, Vol 3, Tab 42, Statement of Dr Susan Piper, paragraphs 24-27.
[150] Exhibit 1, Vol 3, Tab 42, Statement of Dr Susan Piper, paragraphs 31-53.
[151] Exhibit 1, Vol 3, Tab 42, Statement of Dr Susan Piper, paragraphs 54-58.

(c) Place of death: Intensive Care Unit, Sydney Children's Hospital, Randwick.

(d) Cause of death:

Direct cause:

(i) Complications of hypoxic ischaemic encephalopathy.

Antecedent causes:

(ii) Recurrent episodes of cardiopulmonary arrest and resuscitation.

(iii) Complications of ileocaecal intussusception with malrotation of the bowel including hypovolaemia.

(e) Manner of death:

Kyran Day died after those treating him failed to detect the ileocaecal intussusception with malrotation of the bowel and respond to his condition in a sufficiently timely manner.

Ryan's Rule and REACH

14.2 In paragraphs 68-73 and 83 the submissions on behalf of the Family outline a program operating in Queensland known as 'Ryan's Rule' and submit that the Deputy State Coroner make the following recommendation:

> 83(c) That NSW Health consider the appropriateness of the principles of Ryan's Rule being applied in NSW generally, with the adoption of Kyran's Rule.

14.3 It should be noted that nothing was put to the witnesses nor was any material tendered in relation to the suggestion that Ryan's Rule be adopted in NSW. I requested further information from the ISLDH about Ryan's Rule and invited the parties to respond to the proposal.

14.4 In response to my request for further information about Ryan's Rule and whether there was an equivalent system in place in NSW, Carrie Marr, Chief Executive of the Clinical Excellence Commission (CEC), provided a letter

dated 22 September 2016 in relation to the REACH program and Ryan's Rule.

14.5 In addition, Robert Marco, Clinical Governance Unit, Illawarra LHD, provided a letter outlining the status of the implementation of REACH.

14.6 In summary, Carrie Marr advised:

(i) In NSW, the CEC has developed a program called 'Partnering with Patients';

(ii) Partnering with Patients is designed to support NSW Health LHD's to include patients, family, and carers as health team members to improve safety and quality;

(iii) Recognise, Engage, Act, Call, Help (REACH) is a component of the Partnering with Patients program;

(iv) Working with the Day family and NSW health services, the CEC will revitalise REACH;

(v) REACH was developed by the CEC in partnership with patients and families and piloted in 2012-13. Implementation of REACH working with NSW hospitals started in 2013;

(vi) REACH is being used by all NSW LHD's, except for the Far West LHD which has implemented its own patient and family escalation process;

(vii) in NSW, REACH has been implemented by over eighty (80) hospitals to date with many additional hospitals working with the CEC to adopt this patient centred approach to care;

(viii) the CEC intends to expand REACH across all of NSW by end of 2017; and

(ix) in NSW, tertiary referral hospitals typically have between 1 and 2 REACH calls per month. Regional district hospitals have an average of about 4 REACH calls per year.

How the REACH program works in NSW.

14.7

(i) REACH enables a patient, family, or carer to escalate concerns about the condition of themselves or their loved ones whilst in a NSW Health hospital.

(ii) Patients, family and carers are encouraged to initially engage with the treating nurse or doctor if they have concerns.

(iii) If they remain concerned following the clinical review, the patient, family or carer can request an emergency response by calling a local hospital phone number designated by the health service as a 'REACH number' to speak with an advanced nurse or to initiate an emergency team response.

(iv) This local phone number for REACH is promoted through posters displayed within the hospital and included in patient brochures.

How Ryan's Rule works in QLD

14.8 Ryan's Rule in Queensland is based on the NSW REACH model.

(i) It is not mandatory and does not have a legislative basis in Queensland.

(ii) Unlike REACH it has a centralised 1300 Qld Health telephone number. This central number covers fifteen (15) Queensland LHD's.

(iii) An average of forty-five (45) calls are received per month. On average twenty-two (22) of these calls are deemed to require a clinical intervention.

(iv) When an escalation call is made to the 1300 telephone number in Queensland, it is then necessary for Queensland Health to identify the call and telephone the hospital concerned to activate a response.

(v) Queensland Health has acknowledged that identifying appropriate local contacts in each hospital has been one of the difficulties in using this centralised number.

(vi) Feedback from NSW senior clinical staff, including Directors of Clinical Governance, indicates they prefer REACH to Ryan's Rule for four (4) key reasons:

(i) REACH works well with existing CEC programs such as 'Between the Flags' and 'In Safe Hands' team work;

(ii) REACH is for all patients - both adult and paediatric - whereas Ryan's Rule is perceived as 'paediatric only' in focus;

(iii) REACH has already identified significant failures at an early stage in NSW hospitals hence prevented serious events; and

(iv) the REACH response process and team is tailored to reflect the availability and skill mix of the local responding clinical staff.

14.9 The Day family has generously met with the Clinical Excellence Commission (CEC) and agreed to be involved in improving the REACH program in NSW. I am hopeful that their involvement will help to ensure that the REACH program in NSW is well publicised and even more effective.

15. Kyran's family

15.1 Naomi Towey made a family statement on the last day of the inquest. She spoke beautifully about Kyran and the pain she and Grant continue to experience; I was very moved. Naomi and Grant attended court every day of this inquest along with Kyran's grandparents. Naomi and Grant have known each other since they were 13 years old. Grant's mother and Naomi's mother both worked as nurses at the Shoalhaven District Memorial Hospital and are close friends. Kyran's death has been extremely traumatic for the whole family. I offer the family my heartfelt condolences. I thank them for their enormous contribution to this inquest.

16. Power to make Recommendations

16.1 Section 3(e) of the Coroners Act 2009 provides that one of the objects of the Act is to enable a coroner to make recommendations in relation to matters in connection with an inquest, including recommendations concerning public health and safety and the investigation or review of matters by persons or bodies. Clearly preventing future deaths is a primary function of the coronial system. It is a mechanism to identify any systemic failures.

16.2 The power to make recommendations is specifically outlined in s.82(1). A coroner may make such recommendations as are considered necessary or desirable to make in relation to any matter connected with the death, with

which an inquest is concerned. Without limiting the scope of ss.(1) the following matters are specified in ss.(2) as being appropriate subjects of recommendations:

(a) public health and safety, and

(b) that a matter be investigated or reviewed by a specified person or body.

16.3 Subsection (4) specifies to whom any recommendations must be communicated. Apart the State Coroner, any relevant Minister and "any person or body to which a recommendation included in the record is directed,"[152]

17. Recommendations

17.1 Since Kyran passed away the following reviews, investigations and proceedings have been conducted into the circumstances of his death.

(i) A review by the Shoalhaven Hospital - Root Cause Analysis.

(ii) Health Care Complaints Commission Review.

(iii) Investigation by the Health Care Complaints Commission into the conduct of some health practitioners and the hearing of the resultant disciplinary complaints

17.2 The HCCC review resulted in a number of recommendations for action by the NSW Ambulance Service and the Illawarra Shoalhaven Local Health District (ISLHD).

17.3 Dr Susan Piper advised on behalf of the ISLHD that a policy entitled "Paediatric Resuscitation, Deteriorating Patient - Training and Assessment Requirement" (Document No. PAEDS CLIN PD 02) has been approved by the ISLHD and is currently being implemented in stages.

Recommendation 1.

17.4 That the New South Wales Minister for Health:

[152] ss.(4)(b).

(a) Examine the policy and training programs that have been activated by the ISLHD (as reflected in paragraph 17.3 above) and give consideration as to whether a similar policy and training programs should be implemented in any other Local Health Districts in New South Wales.

(b) Advise the Coroner in writing of the result of the exercise referred to in (a) above no later than 30 June 2017.

17.5 Graham McCarthy advised on behalf of the NSW Ambulance Service that "As at the end of May 2016, all ambulances will be equipped with DHS multi fit paediatric restraints which can be attached to the full range of DHS drop stretchers as well as the Stryker powered stretcher."

Recommendation 2

17.6 That the NSW Ambulance Service advise the Coroner as soon as the Medical Priority Dispatch System ("MPDS"), Protocol 33 and Protocol 37 have been implemented. If implementation has not been completed by the end of 2016 the Coroner be immediately advised and a timetable for implementation be provided.

17.7 There was an inadequate level of knowledge amongst many medical and nursing practitioners, including the independent experts, who gave evidence about the qualifications of paramedics and the nine categories of response codes. The NSW Ambulance Service has endeavoured to educate health practitioners about these issues by notifying Area Health Services and placing information on the Ambulance website but it is apparent that these steps proved relatively ineffective and that more needs to be done.

Recommendation 3

17.8 That the NSW Ambulance Service and the NSW Department of Health give consideration to more effective ways in which the qualifications of paramedics, and the categories employed by the Ambulance Service to delineate calls to the Service for assistance, can be better communicated to all health professionals who may be required to book an ambulance, or be involved in the process of booking an ambulance.

17.9 The Coroner be advised by the NSW Ambulance Service and the NSW Department of Health of the particulars of any proposal (when finalised) to better communicate the qualifications of paramedics, and the categories employed by the Service to delineate calls to the Service for assistance, to all

health professionals who may be required to book an ambulance, or be involved in the process of booking an ambulance.

17.10 In the absence of the above recommendation being implemented that the NSW Ambulance Service and the NSW Department of Health advise the Coroner of the reason why the recommendation has not been implemented.

Finally, I would like to thank my Counsel Assisting, Mr Patrick Griffin SC and his instructing solicitor, Mr Stephen Hogan from the Crown Solicitor's Office for their tireless efforts before during and after this inquest.

I close this inquest.

Magistrate Teresa O'Sullivan
Deputy State Coroner

Date 21 December 2016