CORONERS COURT
OF NEW SOUTH WALES

Inquest:	Inquest into the death of RD
Hearing dates:	25 and 26 February 2025
Date of findings:	4 April 2025
Place of findings:	NSW Coroners Court - Albury
Findings of:	Magistrate Sally McLaughlin, Coroner
Catchwords:	CORONIAL LAW – Group A Streptococcus pneumonia with sepsis – NSW Ambulance protocols for transportation when vital signs outside the reference range/outside the flags – point of care recognition of vital signs outside of reference range
File number:	2019/289857
Representation:	**Counsel Assisting the Inquest**: Jake Harris of Counsel, instructed by Rosanna Muniz of the NSW Crown Solicitor's Office **NSW Ambulance:** Ben Bradley of Counsel, instructed by Mitchell Turner of MinterEllison
Findings:	**Identity of deceased**: The person who has died is RD **Date of death**: 16 September 2019 **Place of death**: Albury Base Hospital **Manner of death**: Natural causes **Cause of death**: Group A Streptococcus (Streptococcus pyogenes) pneumonia with sepsis.

Recommendations:	Consider developing a feature in current or future New South Wales Ambulance systems that are used at a point of care, whereby a visual prompt or alert is activated where a patient's vital signs are outside normal limits and or requires transport to hospital in accordance with relevant protocols or clinical practice guidelines.
Non-publication orders:	Non-publication and pseudonym orders apply to the evidence in this inquest. A copy of the orders made by Coroner McLaughlin is available upon request from the Court Registry.

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REASONS FOR DECISION

Introduction

1 These are the findings of an inquest into the circumstances of the death of RD.

2 In accordance with s 75(5) of the *Coroners Act 2009* (NSW) (the Act), and subject to non-publication and pseudonym orders, I make an order permitting the publication of a report of the proceedings as I find it is desirable in the public interest to do so.

3 RD died on 16 September 2019, at Albury hospital. She was just 7 years old. She was a healthy young girl with an unremarkable health history. On returning from school on Friday, 13 September, she told the mother she had not eaten lunch because she felt unwell, and later complained she felt cold. She developed a temperature and vomited. She was given Panadol. On Saturday, 14 September, the father presented her to a GP, Dr Kamra. Dr Kamra examined RD, and believed she had a viral infection. Paramedics were called to the home in the early hours of Sunday, 15 September, when RD complained she was short of breath. They found her vital signs were largely normal, except for her heart rate which was fast and outside of the normal range. They decided not to transport her to hospital and provided some advice to her parents. Just over 24 hours later, at 03:09 on Monday, 16 September, the mother called an ambulance again. While paramedics were performing an assessment, RD suffered a cardiac arrest. CPR was commenced and she was transported to Albury hospital, where resuscitation efforts continued. Tragically, she was pronounced deceased at 04:19.

4 RD was a much-loved and cherished daughter and sister. The mother described her as a sweet child who was caring and kind-hearted. Her favourite things were drawing, dress up dolls and Lego. She loved fairy tales and cheese pizza. At the time of her death, she was in year 1 at Thurgoona Public school. She had many friends, and the mother described her as a very favourite student of her teacher.

5 RD was born in Amritsar, in Punjab, India, on 6 August 2012. She was an Indian national. She was the second child of the mother and the father. She had an older sister and a younger brother. The father first came to Australia in 2006, and the mother joined him in late 2012. RD remained with her maternal grandparents and came to Australia in 2017.

6 The family initially lived at Dandenong, VIC, and moved to Thurgoona, NSW, in 2018.

7 RD had an unremarkable medical history. She had normal childhood illnesses but no serious health problems. Her immunisations were up to date, and she had received a flu vaccination in the months prior to her death.

8 About 4 months prior to her death, in April 2019, she presented to a GP at Lavington with a 3-day history of lethargy, fevers, malaise and abdominal pain. Her parents were given some advice about "red flag signs" and advised to attend the ED if RD developed these. That illness appears to have resolved without further issue.

9 I acknowledge RD's family's profound loss and continuing anguish and heartbreak and would like to express my sincere condolences and respect for their loss. I would also like to acknowledge and thank her parents for their contribution and participation in this inquest. I hope RD's memory has been honoured by the careful examination of the circumstances of her death during this inquest and the lessons that have been learned from the circumstances of her tragic passing.

The role of the coroner

10 Section 81(1) of the Act requires that when an inquest is held, the coroner must record in writing their findings as to whether a person has died and if so the date and place of the person's death, and the cause and manner of their death.

11 In addition, pursuant to section 82 of the Act the coroner may make recommendations, based on the evidence adduced during the inquest, which may improve public health and safety in the future.

12 The inquest received evidence in the form of statements and other documentation, which was tendered in court and admitted into evidence. In addition, evidence was received from the two NSW Ambulance (NSWA) officers who attended on RD in the early hours of 15 September 2019, Mr Philip Wiltjer and Mr David Cunningham. A conclave of evidence from Mr Adam Moon, Senior Manager of Clinical Practice within NSWA and Mr Michael Richer, Associate Director of Clinical Education within NSWA. Expert evidence was called from Professor Simon Craig.

13 All the evidence has been thoroughly considered and reviewed. I have been greatly assisted by the submissions prepared by counsel assisting, Mr Jake Harris and Mr Ben Bradley appearing for NSWA. I have adopted their descriptions at times in these findings.

The list of issues considered during the inquest

14 The following list of issues was prepared before the proceedings commenced and were the focus during the inquest:

(i) Was the assessment by paramedics on 15 September 2019 adequate and appropriate?

(ii) Should RD have been transported to hospital?

(iii) Do NSW Ambulance protocols, systems and training sufficiently alert paramedics to the need to transport a patient to hospital, where the patient has at least one observation in the Red Zone?

(iv) What findings may be made, pursuant to s 81 of the Coroners Act 2009?

(v) Is it necessary or desirable to make recommendations in relation to any matter connected with the death?

Group A Streptococcus with Sepsis

15 RD's cause of death was Group A Streptococcus (*Streptococcus pyogenes*) pneumonia with sepsis.

16 Professor Simon Craig is a paediatric emergency physician with 22 years of clinical experience. His expert evidence in the proceedings is unchallenged. His evidence confirms that:

(a) Group A Streptococcus infection is caused by bacteria known as Group A beta-haemolytic Streptococcus, the most common type of which is *Streptococcus pyogenes*.

(b) In rare cases, Group A Streptococcus can cause serious (also known as "invasive") infection. This can be life-threatening and is thought to cause over 150,000 deaths per year worldwide. Although relatively rare, Group A Streptococcal can be very dangerous. One series of children with invasive Group A Streptococcal infection after influenza infection found that more than half of the children died.

(c) Pneumonia is a type of lung infection, caused by a virus or bacteria. The lungs are filled with thousands of tubes, called bronchi, which end in smaller sacs called alveoli. If a person has pneumonia, the alveoli in one or both lungs fill with pus and fluids. Pneumonia is the single largest infectious cause of death in children worldwide, accounting for over 740,000 children under 5 years of age in 2019.

(d) Typical features of pneumonia include cough, rapid breathing, rapid pulse rate, increased work of breathing and fever. However,

there are no clinical signs that reliably suggest the presence of pneumonia in children.

(e) Sepsis refers to a condition where the body's response to an infection injures its own tissues and organs. This can progress to failure of multiple body systems (such as breathing, circulation, kidney function), and death. Sepsis is suspected when there is evidence of infection, and signs of severe illness (such as low blood pressure, a rapid heart rate, rapid breathing, an unwell appearance, or an altered conscious state). Sepsis can progress rapidly and sometimes cause critical illness or death.

17 In his oral evidence Professor Craig outlined the difficulty in diagnosing serious or invasive Group A Streptococcal as follows *"The difficulty is lots of kids have a fever, a cough, a runny nose, and are a bit unwell. Most of them don't have Group A Streptococcal. But the ones that do go on to get something, and the ones that don't go on to get something, early on, can look identical. Which is one of the hardest parts of my job, is that, you know, we see - what - we'd see, you know, 20, 30, 40 kids with fever a day, and we would see a kid with Group A Streptococcal who gets really sick once every six months. So, there's lots of kids who are unwell with a fever, or a runny nose, and a cough who don't have Group A Streptococcal and do fine, and there are some kids that just get horribly sick, and it can be very quick."*

18 When explaining sepsis he gave the following evidence "*And again, we don't know why some people with streptococcus or meningococcal, those other sort of bacterial infections that are quite nasty, some kids will get sepsis and get horribly sick, and some kids won't. So, it's sort of - so, sepsis is life-threatening organ damage from an infection, and that can be pretty mild, or it can be severe, and it can be life-threatening. So, sepsis is one of those things that even a bunch of medical experts sitting around still don't have a neat and tidy definition for, but you can look at a single case at any point in time and say this is sepsis or this isn't. But it is obviously easy looking back to say this is clearly sepsis at a particular point. But I don't think* RD *had sepsis all the way through"*

19 Professor Craig's evidence makes clear that invasive Group A Streptococcal and pneumonia in children is difficult to diagnose because it initially presents with the same symptoms commonly seen in many other childhood viral illnesses. It is within this context that the inquest into the circumstances of RD's death are to be considered.

The course of RD's illness

Thursday, 12 September 2019

20 On Thursday, 12 September 2019, RD attended school as normal. She returned home and ate some chapati and milk. She went to the school disco between about 17:00 and 19:30. Her parents observed her to be excited to attend the disco, active and happy.

21 When brushing her teeth that evening, she told the mother she had blood in her mouth, but the mother was not concerned as RD had previously lost a tooth.

22 RD went to bed at about 20:30. She slept as usual in the same bed as her elder sister.

Friday, 13 September 2019

23 The father woke for work the next morning at about 04:30. He checked the girls before he left and did not notice anything unusual. He spoke to the mother during the day, and everything appeared okay.

24 RD attended school again as normal. On returning home, her parents discovered she had not eaten all her lunch. That wasn't particularly unusual. She told the mother she wasn't feeling well.

25 That evening, she complained of a headache, and did not eat all her dinner, only chapati. The mother gave her Panadol. She had a shower and went to bed about 20:30.

Saturday, 14 September 2019

26 On 14 September 2019, the father woke up at 04:30 for work. He again checked the girls and did not observe anything unusual.

27 RD woke up about 06:30. She told the mother she wasn't feeling well but appeared to improve after breakfast. By about lunchtime, RD had a temperature.

28 The mother called the father at about 13:00. She told him RD had vomited and had a temperature.

First Triple 0 call

29 At 13:30, the mother made a first call to 000. The transcript of the call reveals that the mother reported RD had a temperature of 104, and had vomited, with a bit of blood in the vomit. However, shortly after, the mother called back and cancelled the ambulance, because she was not sure if their private health insurance would cover the cost. The operator recommended RD be taken to hospital to be checked out straight away.

30 The father already had an appointment scheduled that day with general practitioner Dr Sumit Kamra, for a medical check-up for his taxi licence. He asked the mother to call the surgery to arrange an appointment for v at the same time, which she did.

Visit to Dr Kamra

31 The father presented with RD to Sarkon Medical Centre at about 15:00. The father told Dr Kamra that RD had been unwell with a high temperature and had vomited once. The notes record him saying RD had no rash or sore throat, no lethargy, malaise or nausea. Dr Kamra performed an examination. He found RD was not dehydrated, anaemic or jaundiced, and her temperature was normal (36.8 degrees). Shpe had a runny nose, but no inflammation in the throat or swelling. He listened to RD's chest, which was normal with normal air entry. She did not appear to be very unwell. Dr Kamra's impression was that

RD had a viral infection. He recommended giving her Panadol and to seek further advice if her fever did not resolve, or she became unwell, or if the father had any other concerns.

32 According to the father, he asked Dr Kamra if he could give RD an antibiotic, which Dr Kamra declined, saying "there's no problem". There is no reference to this exchange in Dr Kamra's notes.

33 The father then took RD home, where she played in her room that afternoon. In the evening, she again developed a high temperature. The mother gave her Panadol, and used a wet towel to cool her down.

34 Professor Craig on reviewing Dr Kamra's notes opined that his examination was adequate; that at that stage RD did not appear unwell, and had signs and symptoms consistent with a viral illness.

Sunday, 15 September 2019

35 In the early hours of the following morning, Sunday 15 September, RD felt unwell and vomited 3 or 4 times, and complained she was short of breath.

Second Triple 0 call

36 At 01:39, the mother called 000. She told the operator that RD had a high temperature and was saying it was hard to breathe.

37 NSWA recorded the case as a "*1C – Emergency … abnormal breathing*".

First paramedics attend, 15 September 2019

38 Paramedics Philip Wiltjer and David Cunningham were contacted by the NSWA coordinator and asked to respond. They were dispatched (confirmed by Wiltjer in evidence to mean the time in which they received the call) at 01:42, and attended the home about 12 minutes later, at 01:54.

Paramedic Philip Wiltjer

39 Mr Wiltjer was a considered and impressive witness. He is clearly dedicated to his profession and was obviously very effected by RD's death. Understandably given the passage of time whilst he was able to recall some of the events of 15 September 2019, he was also reliant on the medical records. He believed he had a reasonable recollection of the events.

40 As of 15 September 2019, he had been employed with NSWA for 14 and a half years and stationed at Albury for six years. He was a qualified paramedic and Station officer.

41 Mr Wiltjer was assigned the role of treating clinician, meaning that he was responsible for the assessment and the recording of the clinical record. Mr Cunningham was assigned the role of assisting paramedic which, while also responsible for clinical considerations, was predominantly responsible for the set up of any equipment and/or for extraction, if that was necessary.

42 At this time Mr Wiltjer was working a 14-day shift pattern of 8-day work cycle consisting of 08:00 to 17:30 and then a 6-day rest period. During that regular shift pattern, he was also required to be on call. His on call days depended on roster demands.

43 He had worked 08:00 to 17:30 on Saturday 14 September 2019. This was the sixth day of his 8-day work cycle. He was on call that evening before commencing his seventh shift at 08:00 on Sunday 15 September 2019. He believed he had attended at least one other call out job following this shift before he was dispatched to attended RD's home at 01:42.

44 Mr Wiltjer and Mr Cunningham travelled together to RD's home. The Ambulance electronic medical record was consistent with what they understood they were attending, being a 1C emergency, meaning the use of lights, sirens and direct travel to the required location.

45 The evidence of Mr Wiltjer and the statement of Ms Tracey Clarke, Director of Clinical Governance for NSWA confirms that whilst there is a mechanism to alert dispatchers to duplicate calls from the same number with an alert system to the Senior Control Centre Officer, currently there is no functionality within Computer Aided Dispatch to notify treating paramedics of multiple call outs to the same address.

46 On arrival Mr Wiltjer and Mr Cunningham were met by her parents and directed to a bedroom where RD was sitting up in the middle of a double bed. She was observed to be pale and quiet. Mr Wiltjer opined that she was very concerned about the paramedics attendance and very anxious. He formed this opinion because he had difficulty engaging her and because she was very focused on her parents. He found it difficult to get her to talk to him and to build the rapport that he typically likes to try and get during an assessment.

47 He observed her to be congested but not particularly short of breath. He tried to talk to her to assess her presentation, and whether she could create sentences. He took a history from her parents as he was also performing an assessment of RD. He was told the presentation was relatively new and that there was a mention of a GP. That there was mention of vomiting, that she had vomited clear fluid or water 4 times, and that Panadol had been administered before they arrived, which appeared to have had an effect on her temperature. He was aware that she had mild abdominal pain which was worse when she coughed or vomited.

48 During the assessment he was still trying to develop a rapport with RD. Whilst she didn't talk to him at times she smiled and nodded and would comply with his directions during the assessment.

49 With the assistance of Mr Cunningham, Mr Wiltjer took RD's vital observations including pulse, lung sounds and oxygen saturation. It is not clear if he took her temperature or if he relied on the temperature provided by the mother as indicated in his statement. He used a stethoscope to listen to her lungs which he found to be clear with equal air entry at the point of observation.

50 He was able to clearly understand what her parents were conveying to him and observed that the mother was clearly concerned about her daughter.

51 Mr Wiltjer recorded his observations in the Ambulance electronic medical record, which also included the vital signs survey. He didn't do this as he took each reading or made an observation but recalled entering them on an indestructible laptop-type device inside the house. The vital signs are recorded twice. The first was at 01:59 and the second at 02:13. He agreed he took them twice as he was looking for a change in presentation. He explained that for some people if they are particularly unwell, vital signs can change very quickly.

52 RD's observations and vital signs were predominately normal. He recorded her as having mild respiratory distress, which referred to an observation of nasal congestion and a little bit of difficulty with the breathing through her nose. He found her lung fields to be clear.

53 One observation on both readings was out of the ordinary. RD's heart rate. When it was first recorded at 01:59 it was 172 and regular. At 02:13 it was 168. At the time of taking the observations Mr Wiltjer appreciated it was a very elevated heart rate.

54 NSWA protocols and references refer to the NSW Between the Flags program when discussing normal and abnormal vital signs in children. For a child aged 5-12 years, a heart rate above 160 beats/minute is in the "red zone" and suggests serious illness.

55 Mr Wiltjer and Mr Cunningham did not refer to any reference ranges or protocols to check how elevated RD's heart rate was or in their consideration of whether to transport her to hospital.

56 Mr Wiltjer accepted that both readings were well outside the normal range for a child of her age. At the time of the assessment he thought that RD was quite scared, worried and anxious. This informed part of his decision making, and he thought that her anxiety was at least contributing to her high heart rate.

57 During the assessment Mr Wiltjer discussed with Mr Cunningham and her parents that she was unwell and that it appeared to be an upper respiratory illness that would produce a nasal drip and throat irritation which may make her feel like vomiting.

58 Mr Wiltjer and Mr Cunningham discussed whether to transport her to hospital at that point or whether to continue strategies at home, including medication, small sips of water and a plan for further assessment if she hadn't improved.

59 Mr Wiltjer described his thought process as recognising she was indeed unwell and if she continued to deteriorate, she'd be at risk but hoped that with the interventions planned at home she would become better. That given her anxiety, the fact that it was the middle of the night and cold outside transportation to hospital might not be the best course of action.

60 Mr Wiltjer provided advice to her parents to encourage RD to consume small sips of water frequently to keep up hydration and maintain Panadol as designated on the packet. He also gave advice about contagion especially to other children. He specifically did not administer RD with any anti-emetic medication in order not to mask any priority symptoms.

61 The Ambulance electronic medical record states "Pt remains in care of family with advice to call 000 back if Pt deteriorates or becomes unusually drowsy or further concerning symptoms". Mr Wiltjer confirmed in his evidence that there was no specific discussion about what sort of symptoms might be concerning or what would amount to deterioration. Mr Wiltjer did not recall and there is no further evidence of any written information being provided to her parents, other than as written in the Ambulance electronic medical records.

62 The Ambulance electronic medical record was finalised (clear) at 02:27, when the paramedics were driving home to go back to bed. They were still on call. Mr Wiltjer was to commence his next regular shift in five and a half hours' time.

Paramedic David Cunningham

63 Mr Cunningham had been employed by NSWA for 13 and a half years in September 2019. Mr Cunningham at the time was working a five by four shift pattern. Meaning he would have been working two-day shifts 08:00 to 20:00, followed by either an afternoon shift and a night shift or two night shifts. He had worked 08:00 to 20:00 on 14 September. He was then on call. He attended a call out between 20:00 and when he was again called at 01:42 on 15 September to attend RD's home.

64 He had worked between 18 and 20 hours (with breaks) from 08:00 on 14 September and 02:27 on 15 September when he completed the call out to RD's home.

65 At the time of giving evidence Mr Cunningham didn't recall in detail the night of 15 September 2019. He recalled feeling fatigued and standing by the bed at RD's home.

66 He assisted Mr Wiltjer with taking RD's vital signs. He was aware that she had an elevated heart rate, based on his clinical experience, training and knowledge.

67 He had a discussion with Mr Wiltjer and her parents in relation to the decision not to transport RD to hospital. He recalled coming to the clinical decision that RD could be cared for at home.

NSW Ambulance Protocols

68 Reference 18 - Paediatric observation range guides notes that normal pulse rate for children aged 5-12 years is between 80 and 120 beats per minute.

69 Protocol M25 – Medical hypoperfusion / hypovolaemia notes that tachycardia (abnormally fast heart rate) would be considered to be any heart rate faster than 120 beats per minute.

70 Protocol A5 – Recognition of the Sick Child states that paramedics should "Minimise scene time (consider urgent transport) for any patient with criteria outside the paediatric white zone (Reference 18) and/or is observed to be deteriorating".

71 Protocol M6 – Nausea and Vomiting notes a P5 Protocol Specific Exclusion for "high risk patients" Children and infants are considered high-risk patients.

72 Protocol A10 - Treatment and Referral Decisions sets out guidance on the different options that may be available to a paramedic who attends a patient. It refers to the options available to paramedics and includes "Self-care with advice (P5) states that all clinical and referral advice provided to patients/person responsible must be recorded on the clinical record and the patient/person responsible asked to sign the 'P5' disclaimer to acknowledge their understanding of the advice.

73 Protocol P5 – Referral Decision notes that any paediatric (Reference 18) observations outside the ranges listed are an exclusion to following this protocol.

74 Protocol M23 (Sepsis) provides advice on the recognition and timely management of sepsis. A number of risk factors for sepsis are outlined in the protocol, including the presence of fever and abnormal vital signs, along with any of; recent surgery, high level of parental concern, immunocompromised, deterioration despite treatment, 3 months of age or younger, and re-presentation within 48 hours of medical care.

Considerations of References and Protocols

75 The Ambulance electronic medical record has *P5 – Non Tx LAP* and the disclaimer in accordance with Protocol A10 was signed by the mother.

76 Page three of the record includes *Protocol Codes A2 – Patient Care and A3 – Informed consent, capacity and competency*. These were manually selected by Mr Wiltjer as protocols that applied to the incident.

77 Mr Wiltjer's statement of 2 November 2023 states that in September 2019 he understood NSWA had a range of various protocols, policies and reference guides which assisted and guided paramedics in their clinical practice. He was broadly aware of them but did not have a thorough understanding of them. He recalled that at some stage these policies were kept in large physical volumes within each ambulance. His evidence was that he did not specifically have reference to them on 15 September 2019.

78 In his evidence Mr Wiltjer accepted that Reference 18 was a guide to heart rates and that RD's high heart rate placed her in the red zone and outside of the normal range. He accepted it meant that Protocol A10 the treatment and referral decision protocol required her to be transferred. He agreed that Protocol A5 also required her to be transported to hospital. He agreed that the generic and P5 exclusions included any paediatric observations outside the ranges listed and therefore P5 also required her to be transported to hospital.

79 Mr Cunningham was aware in September 2019 that NSWA had a number of protocols. In his statement of October 2023, he said he was broadly aware of them but didn't have a thorough understanding of them and didn't have regard to any reference guide or protocol when assessing RD. In evidence he said it was not his practice to refer to protocols in the course of attending on a patient in 2019.

80 While his evidence was that he did realise on this evening that the protocols provided that a patient with an elevated heart rate ought to be transferred to hospital, he stated that he wouldn't have known what the exact rate was without referring to the protocol, which he did not do.

Events during the day

81 During the day on 15 September, RD told her parents she felt weak, and only drank water. She was vomiting, and her temperature was raised at times, showing readings between 36 and 38 degrees. Her parents gave her Panadol. They were concerned that the thermometer was not working, and the father purchased a new one from Chemist Warehouse, as well as some hydrolyte.

82 Although she remained unwell, RD was not presented to a doctor or hospital that day.

83 She went to bed at about 20:00, and the father stayed with her.

84 During the night, she complained of feeling sick and weak, and again vomited. She said her feet felt "weird". The father carried her to the bathroom to wash her feet, and noticed that her feet were limp and she did not appear "active".

85 The father was concerned about this, and says they decided to call 000 straight away.

Monday, 16 September 2019

Third 000 call

86 The mother called 000 at 03:09 on 16 September 2019. She told the operator she had called an ambulance yesterday, and that her daughter was not well. RD was breathing very fast, and said RD could not move her feet.

87 NSWA recorded this call as "2 - immediate", which is a non-emergency coding. The incident description was "sick person altered loc [level of consciousness]" and "rapid breathing abdo [abdominal] pain".

Second paramedics attendance - 16 September 2019

88 Paramedics Andrew Martyn and Angie Trewhella were the first to attend, about 17 minutes later, at 03:26. Mr Martyn is an Intensive Care Paramedic. He had some concerns about the nature of the call and had asked another colleague to attend as well.

89 On arrival, the paramedics were met by her parents and went inside. They did not immediately bring emergency resuscitation equipment with them, as the incident did not suggest it was needed. They observed RD lying on her left side in bed. She appeared fatigued and in discomfort, although she could initially obey commands. Mr Martyn formed the impression she was very unwell.

90 Mr Martyn commenced an assessment on RD and took a history, while Ms Trewhella took observations. They were unable to find a peripheral pulse, her capillary refill was poor, but she was not breathing quickly. She had low blood sugar [3.5] and a high temperature [38.6]. They placed a pulse oximeter on her finger, but were unable to get a reading. They formed the view she would need to go to hospital.

91 Mr Martyn prepared to insert an IV cannula. He was briefly distracted by a question from her parents. He then noticed that RD had stopped responding.

92 He carried RD to the lounge room and commenced CPR. While performing compressions, copious fluid came from RD's mouth. Ms Trewhella obtained equipment from the ambulance, and called for backup at 03:35 (about 9 minutes after their arrival).

93 Over the course of the resuscitation, the paramedics experienced difficulties with their equipment and in maintaining RD's airway. A piece of equipment called a laryngeal mask airway did not fit well. Another airway, a nasopharyngeal airway, could not be inserted because the correct size could not be found. An intraosseous needle could not be inserted due to a lack of the correct equipment.

94 A decision was made to take RD to hospital as soon as possible. The ambulance departed at 03:49.

95 Police had been asked to attend at 03:37 and were on scene at about 03:45. They attempted to speak with her parents and remained on scene to commence a crime scene log, and later commenced an investigation.

96 Professor Craig opined that the treating paramedics on 16 September provided appropriate care and treatment under very difficult circumstances. He opined that by the time RD suffered a cardiac arrest (with a cardiac rhythm of asystole), shortly after the arrival of the paramedics, that any intervention or treatment would have led to an outcome other than her death.

97 He opined that the issues with equipment have been sufficiently addressed by NSWA since 2019 and that the presence or absence of any equipment would not have made the difference between RD surviving or not.

Albury hospital

98 RD was conveyed to the emergency department at Albury Base Hospital [Albury Wodonga Health, Albury Campus], arriving at 03:55.

99 RD was reviewed by paediatrician, Dr Mark Norden, at 04:00. CPR was in progress. RD was intubated and given IV adrenalin. However, despite further efforts, RD could not be revived. CPR was ceased and she was pronounced deceased at 04:19.

Autopsy

100 An autopsy was conducted on 20 September 2019 by Dr Melissa Thompson. Dr Thomson gave the cause of death as "Group A Streptococcus (Streptococcus pyogenes) pneumonia with sepsis." CT imaging showed bilateral pneumonia and pleural effusions. There was no evidence of trauma or injury. Microbiology detected Group A Streptococcus bacteria in samples taken from the lungs and other organs. No organisms were grown from blood cultures. Virology also showed common viruses. Toxicology revealed an antihistamine (chlorpheniramine), paracetamol, and ibuprofen.

Issue One – Was the assessment by paramedics on 15 September 2019 adequate and appropriate?

101 Professor Craig opined that both paramedics' overall assessment of RD was conducted in good faith. That they had gathered all of the necessary information from speaking with her parents and conducting an appropriate physical examination.

102 However, despite recording a severely elevated heart rate, the paramedics did not appear to recognise the importance of this finding, that there was something going on. He said that "*something doesn't necessarily mean you're horribly sick,*

but the more abnormal the heart rate is, or more abnormal the blood pressure or respiratory rate or any of those vital signs the more you've got to think about whether something dangerous is happening".

Issue Two – Should RD have been transported to hospital?

103 Professor Craig confirmed as accepted by both paramedics, that RD's heart rate was well outside the parameters outlined in Reference R18. In accordance with Protocols P5, A5 and M25, this should have prompted the paramedics to transport her to hospital and to consider the possibility of shock/hypoperfusion.

104 Professor Craig noted in his report that RD had some features of sepsis being fever and elevated heart rate, however did not clearly meet any other criteria, apart from perhaps "re-presentation within 48 hours of medical care".

105 Recognising his perspective as a paediatric emergency physician rather than an ambulance officer and with the benefit of having reviewed all of the NSWA protocols, Professor Craig concluded that the most appropriate care would have been to transfer her to hospital. Concluding that he did not think that RD needed urgent treatment right at that point, but that she did need to be observed and further assessed to work out what the trajectory of her illness was.

106 The decision not to transport her to hospital was not in accordance with NSWA protocols and was a missed opportunity for further observation and assessment.

Issue three – Do NSW Ambulance protocols, systems and training sufficiently alert paramedics to the need to transport a patient to hospital, where the patient has a least one observation in the Red Zone?

Fatigue

107 Professor Craig's report included evidence from Landrigan 2004 that diagnostic errors are more likely if a health provider is fatigued. He acknowledges as did both paramedics that this was likely to have been a contributing factor in their decision making on 15 September 2019.

108 Clare Lorenzen, Director of Regional Operations within NSWA as at 29 November 2021 confirmed that since September 2019 NSWA have made changes to both the core operating rosters and the fatigue management policy. This included a process of statewide staff enhancements and the removal of on call from a number of locations commencing in March 2019.

109 The inquest heard that as of 22 February 2025 there is no on call shift requirement at Albury Ambulance Station. This was noted by Mr Wiltjer as being a significant change. Since 2006, he has worked in the capacity described, being required to work full day shifts with a number of on call evenings between these shifts. He reflected that this was fatiguing.

110 It is noted that this fatigue management process has taken a number of years to implement across the state. Given the evidence of how fatigue can affect diagnostic errors, it is positive that there has been the removal of on call from a number of locations, including recently Albury. It is unknown which areas still operate with on call rosters.

111 NSWA have a work-related fatigue mitigation and management policy directive. There is a mutual responsibility shared between managers and paramedics for preventing and managing work related fatigue. It includes a 'Sleep Wake Fatigue Calculator', a tool for self-assessment which provides a scientific toll allowing for prediction of fatigue over a period of time, thereby providing an opportunity for preventive fatigue management.

NSW Ambulance Protocols

112 The volume of evidence in relation to NSWA protocols clearly supports the opinion of Professor Craig, that the NSWA protocols provide detailed information regarding the appropriate steps to take in a number of situations, including specific and clear guidance that a patient with significantly abnormal vital signs should be transported to hospital.

113 Mr Moon and Mr Richer evidence at the inquest focused on NSWA protocols and the current transition to clinical practice guidelines as well as standard and ongoing training for NSWA paramedics.

114 Mr Moon's evidence was that protocols are meant to be followed from start to finish, but that there is always an element of clinical judgment that paramedics are required to bring to a particular protocol. For example, omitting parts of a protocol where there is a valid reason for doing so, such as if a patient was allergic to a drug directed to be given by the protocol. It is expected that where a paramedic deviates from the protocol, they would record their reasons for doing so.

115 There has been a change in Protocol P5 since 2019 with the current version referring to "unreconciled red flags". Mr Moon gave an example of hypoglycaemia or low blood sugar, where the patient may have a very low sugar level but after administering treatment it has risen but may not be back in the green zone. It would be taken to be a reconciled red flag, which would mean the paramedic in accordance with P5 could decide on a disposition other than transport.

116 NSWA plan to replace P5 with a Clinical Practice Guideline (CPG) called *Transfer of Care*. The purpose of the guideline will be to convey a message to all paramedics that the care of the patient continues via whichever pathway is chosen. It is anticipated this will be operational by May 2025. This CPG will encompass a similar referral decision making process as Protocol P5 but will change the terminology to red flags rather than generic and specific exclusions. The CPG will include some of the exclusions that previously existed as well as some new ones which will also be red flags and will guide paramedics to transport to hospital as being the only option.

117 Training for NSWA paramedics on these Protocols, Reference guides and systems commence during their training to become a paramedic. This occurs through three pathways; as a graduate paramedic through the completion of tertiary studies in an approved course, vocational paramedics, who complete a

Diploma of Paramedicine over three years or as a credentialled paramedic who are overseas or interstate qualified. All three of these qualifications include induction programs which includes education on NSWA Protocols.

118 In 2019 the ongoing training consisted of a clinical training program that was an 18-month cycle, where every clinician would undertake three days of mandatory training every 18 months. As at now, the requirement is two days of mandatory training every six months. The curriculum for the mandatory training is set by NSWA and it is based on shifts and treads within healthcare, including recommendations from NSW Health and at times from recommendations and reviews including from coronial inquests.

119 The mandatory clinical professional development for 2024-2025 happens to be specific training on sepsis as well as treatment referrals. Part of the change to six monthly training as opposed to 18-months was to ensure that as the Protocols change to CPGs, there is more regular training available.

120 In addition to the mandatory training, NSWA is involved with the College of Paramedicine who run regular online programs and face to face conferences. Aeromedical bases run education session where they review a case and its positive and negative outcomes. There are also communities of practice for a variety of different specialists, such as intensive care specialists, qualified paramedics and educators, where an individual subject of choice will come up and then the clinicians get the opportunity to participate.

121 The evidence establishes that NSWA paramedics are required to retain and apply a range of clinical expertise on a wide range of medical issues. They are required to do so by applying detailed Protocols and CPG. They are provided with a broad range of training, which reflects the myriad of presentations they may be required to treat. It is a fast-paced and demanding role in which paramedics are unable to predict what they will do on any given day. As Mr Wiltjer reflected in his evidence, sometimes they do not have time to pick themselves up after the last job before they go onto the next. "*Its just par for the course*".

122 The evidence confirms that Mr Wiltjer had participated in Clinical Pathways training in February 2018, some 18 months prior to the call out to RD's home and Mr Cunningham some 6 months prior. This training included instructions on Protocol P5 the referral protocol. Despite this the protocols were not considered or referred to by either paramedic on 15 September 2019. As of this date Mr Wiltjer did not have any specific recollection of the course.

123 Mr Wiltjer's evidence was that the training provided was useful, but was not as frequent as may benefit paramedics, and further that; there is a lot of information, so it is sometime difficult to remember everything that has been taught.

124 Mr Moon conceded that it is a struggle to ensure that paramedics had Protocols and CPGs at the front of mind when in a treating situation. He noted that was particularly the case in 2019 when the only direct training was every 18 months and mobile devices were not a standardised piece of equipment.

125 An important aspect of Mr Moon's evidence was that in 2019 NSWA was in a period of transitioning from a transport service, where there was no option for not transporting. But as of 2019, there was a significant increase in the number of presentations at emergency departments and calls to triple 0 for ambulance assistance. This required NSWA to transition to where they are today, being a pre-hospital medical service with their role including assessment, providing treatment where possible, transport where required but also to look at safe referral and alternative options. I note that Protocol P5 which includes other referral pathways first provided by NSWA was revised in July 2018, the other referral pathways have the same revised date. Therefore, considerations of non-transport options had been in effect for NSWA for at least 14 months prior to September 2019.

126 A significant development in NSWA since September 2019 is the use of technology in providing Protocols and CPGs to paramedics. They are all available through an application as well as being stored natively on NSWA-

issued mobile devices. The contents of the material contained in the app is also found at http://cpg.ambulance.nsw.gov.au/tabs/guidelines.

127 Both paramedics Wiltjer and Cunningham agreed with Mr Moon that this has been a significant change in how they and other paramedics utilise the Protocols and CPGs in their everyday practice. Mr Wiltjer said that he goes through the application on his phone while in the presence of a patient.

128 Professor Craig pointed out that the current online version of the application is not particularly user-friendly and could be significantly improved with integration and links between the different pages. The example given by Professor Craig is Protocol P5 referral decision which mentions that there are exclusions for abnormal vital signs in adults (refers to Reference R28) and children (refers to Reference R18). However instead of having hyperlinks in the text which direct the paramedic straight to the relevant information, the paramedic would have to exit Protocol P5 go back to the main menu screen, find the references section, identify the correct reference and click on this. Mr Wiltjer agreed that in situations where he is very time-compressed or in situations where fatigue may be a factor, having easy access to information would be beneficial.

129 The current application includes a checklist which is intended to inform the paramedic of the treatment or referral outcome. Mr Wiltjer and Mr Cunningham both agreed that checklists were useful at the point of care. However, the checklist and other features on the website and mobile application do not provide an automated alert, warning or prompt in relation to circumstances where a patient's observations are in the "red zone" or "outside of the normal reference range" in accordance with the current CPGs or Protocols. Nor do the checklists direct the paramedic to relevant CPGs or Protocols.

130 Mr Moon's evidence established that as the CPGs are rolled out, further hyperlinks will be built into the application. The current application does not prompt an outcome for the paramedic. NSWA is currently in discussion with the application developer to seek enhancements to the application to allow paramedics to enter data and then be directed to move through the steps

required by CGPs or Protocols. Mr Moon's evidence established that it is "*hoped*" that the application development will include a feature where observations can be entered and then the boarder would change colour to indicate what the zone they were in.

131 The evidence of Mr Moon and Mr Richer in conclave established that there is no data which allows NSWA to track how many paramedics access the Protocols and CPGs through the application or download it on their mobile devices in real time. It is generally known through feedback or corrections suggested shortly after an update to the application. During education sessions paramedics are observed to have their mobile device out and the application open. There is no data which allows NSWA to understand how it is being used at the point of care or indeed what features of the application are being used at the point of care. Whilst its use cannot be quantified, it is clearly the best resource available for the development of a point of care alert system.

132 The other system utilised by NSWA is its Ambulance electronic medical record software known as Victorian Ambulance Clinical Information System (VACIS). This is a system for documenting the clinical records and progress notes. This system is nearing its end of life and is used as part of a consortium along with Ambulance Victoria and South Australia Ambulance and this means that changing the architecture of the system is challenging. The application, which has been developed specifically for NSWA, is intended to be used at the point of care and, in consultation with the developer and subject to funding limitations, can otherwise be adapted specifically to suit NSWA needs.

133 The evidence overwhelming establishes that in the often highly urgent and evolving situations that paramedics are routinely required to deal with, they are required to make decisions under time pressure. The application is the best resource available to paramedics at the point of care to direct them to CPGs and Protocols. Including a feature envisage by Mr Moon, that would draw the paramedic's attention to observations in the red zone and accessing applicable guidance quickly would be highly advantageous in ensuring the Protocols and CPGs are followed as expected.

FINDINGS IN RELATION TO THE ISSUES

134 For the reasons outlined I make the following findings:

(1) Paramedics Wiltjer and Cunningham's assessment of RD on 15 September 2019 was conducted in good faith and was adequate and appropriate.

(2) The decision of paramedics Wiltjer and Cunningham not to transport RD to hospital was not in accordance with NSWA protocols and was a missed opportunity for further observation and assessment.

(3) NSWA protocols provide detailed information regarding the appropriate steps to take in the vast range of situations NSWA paramedics encounter, including specific and clear guidance that a patient with significantly abnormal vital signs should be transported to hospital.

(4) The training provided in person to NSW Ambulance officers in 2019 was not sufficient to ensure that protocols were at the forefront of paramedic's minds when considering whether a patient should be transported to hospital.

(5) In September 2019 Protocols being available in hard copy folders did not allow paramedics to be able to easily refer to applicable protocols and be guided by them at the point of care.

(6) There have been a number of developments in NSWA training since September 2019 including training in person every six months rather than 18 months.

(7) The mobile device application has been a significant development in NSWA paramedics accessing Protocols and CPGs. The application is the best resource available to paramedics at the point of care to direct them to CPGs and protocols. Including a feature that would draw a paramedics attention to observations in the red zone and linking these

to applicable guidance would be highly advantageous in ensuring the Protocols and CPGs are followed as expected.

FINDINGS REQUIRED BY SECTION 81 (1) OF THE ACT

135 Consistent with the documentary and oral evidence at the inquest, I make the following findings:

Identity: The person who has died is RD.

Date of death: 16 September 2019

Place of death: Albury Base Hospital

Manner of death: Natural cause

Cause of death: Group A Streptococcus (Streptococcus pyogenes) pneumonia with sepsis

RECOMMENDATIONS

136 Section 82 of the Act provides that the Court may make recommendations if it considers those recommendations are necessary or desirable in relation to any matter connected with the death the subject of the inquest.

137 At the close of the inquest, the following recommendation was proposed

"That NSWA consider developing a feature in current or future NSW Ambulance systems that are used at the point of care, whereby a visual prompt or alert is activated where a patient's vital signs are outside normal limits and/or requires transport to hospital, in accordance with relevant protocols or clinical practice guidelines".

138 NSWA submits that whilst the proposed recommendation is reasonable, it is neither necessary or desirable when viewed against the evidence as a whole and the Court was taken to the evidence of Mr Moon and Mr Richer to support

the submission that NSWA has already consider the matters set out in the recommendation and has taken steps to advance the technology and systems accessible by paramedics at the point of care. It is submitted that the Court could endorse the NSWA's current system development.

139 Mr Moon and Mr Richer's evidence was framed as "hopes" for the development of the application. While I accept steps are being taken to develop the current application, there is no certainty about what features will be updated or developed and no timeframe for such development. The Court has considered the obligations of NSWA should a recommendation be made, along with the administrative burden. It is desirable that the proposed recommendation be made to ensure certainty in the recommendation and that attention is directed to its implementation.

140 I therefore make the following recommendation:

<u>To NSW Ambulance:</u>

1. That NSW Ambulance consider developing a feature in current or future NSW Ambulance systems that are used at the point of care, whereby a visual prompt or alert is activated where a patient's vital signs are outside normal limits and/or requires transport to hospital, in accordance with relevant protocols or clinical practice guidelines.

CONCLUSION

141 I will close this inquest by conveying to the family of RD my sincere sympathy for the loss of their beloved child.

142 I thank the assisting team, Jake Harris and Rosanna Muniz as well as Sergeant Amanda Chytra, for their outstanding assistance in the conduct of this inquest.

Magistrate S McLaughlin
Coroner
NSW Coroners Court Albury
Date 4 April 2025

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