SHERIFFDOM OF NORTH STRATHCLYDE AT PAISLEY

[2022] FAI 18

PAI-B243-21

DETERMINATION

BY

SHERIFF PRINCIPAL DUNCAN L MURRAY WS

UNDER THE INQUIRIES INTO FATAL ACCIDENTS AND SUDDEN DEATHS ETC (SCOTLAND) ACT 2016

into the death of

FEARNE MAISIE ADGER

PAISLEY, 5 May 2022

DETERMINATION

The Sheriff Principal having considered all of the evidence, and the submissions of parties, determines in terms of section 26 of the Inquiries into Fatal Accidents and Sudden Deaths Etc (Scotland) Act 2016 ("the Act") that:

F1. In terms of section 26(2)(a): Fearne Maise Adger, born 27 August 2016, who resided in Paisley, died in the treatment room, ward 15 Royal Alexandra Hospital, Paisley at 01:15 on 29 April 2017.F2. In terms of section 26(2)(b): no accident took place.

F3. In terms of section 26(2)(c): the cause of death was disseminated parechovirus infection which gave rise to myocarditis, which in turn gave rise to a fatal cardiac arrhythmia.

F4. In terms of section 26(2)(d): no accident having taken place no finding is made under this subsection.

F5. In terms of section 26(2)(e): it is not possible to say, on a balance of probabilities, that the outcome would have been different if an alternative hydration regime had been adopted or had Fearne been admitted to the Royal Alexandra Hospital earlier than she was.

F6. In terms of section 26(2)(f): it is not possible to say on a balance of probabilities that there were any defects in the system of working which contributed to the death.

F7. In terms of section 26(2)(g) the following matters are relevant to the circumstances of the death:

1. There were shortcomings in the maintenance of nursing and medical records.

2. Fearne should have been medically examined and admitted to ward 15 of RAH at approximately 22:45 on 27 April 2017.

3. The handover from Dr Hillis to the late shift registrar on 28 April 2017 was inadequate and there was a lack of a clear plan for Fearne's ongoing rehydration following IV fluids having commenced.

4. Fearne should not have been placed on oral fluids when the cannula tissued at 19:10 on 28 April 2017 without a medical examination and assessment.

5. The Serious Clinical Incident Investigation Report dated 2 November 2017 ("SCIIR") Datix ID 460436 was inadequate.

RECOMMENDATIONS

The Sheriff Principal having considered the information presented at the Inquiry, makes no recommendations in terms of section 26(1)(b) of the Act.

NOTE

1. Introduction and contents

[1] This determination follows an inquiry into the death of Fearne Maisie Adger ("Fearne") who died on 29 April 2017 in Royal Alexandra Hospital, Paisley, ("RAH"). It is made up of 15 chapters and an appendix, namely:

1. Introduction and Contents
2. The Legal Framework
3. Participants and Representation
4. The Inquiry Process
5. What Happened
6. Areas of Factual Dispute
7. Proposed Findings as Agreed by the Parties
8. Section 26(2)(c) The Cause of Death
9. Section 26(2)(e) Reasonable Precautions Which Might Have Avoided Death
10. Section 26(2)(f) System Failings
11. Section 26(2)(g) Other Facts Relevant to the Circumstances of the Death
12. The Significant Clinical Incident Investigation ("SCII")

2. The legal framework

[2] This was a discretionary inquiry held under section 4 of the Act. The Lord Advocate required that an inquiry be held as he considered that the death occurred in circumstances giving rise to serious public concern and that it was in the public interest an inquiry be held.

[3] Fatal accident inquiries and the procedure to be followed in the conduct of such inquiries are governed by the provisions of the Act and the Act of Sederunt (Fatal Accident Inquiry Rules) 2017. In terms of section 1(3) of the Act the purpose of an inquiry is to establish the circumstances of the death and to consider what steps, if any may be taken to prevent other deaths occurring in similar circumstances. Section 26 requires the sheriff to make a determination which in terms of section 26(2) is to set out the following five factors relevant to the circumstances of the death, in so far as they have been established to their satisfaction. These are: (i) when and where the death occurred; (ii) the cause or causes of such death; (iii) any precautions that could have reasonably been taken, and if so might realistically have avoided the death; (iv) any defects in any system of working which contributed to the death; (v) any other facts

which are relevant to the circumstances of the death. The provisions in relation to an accident are not relevant to this inquiry.

[4] In terms of section 26 subsections (1)(b) and (4), the inquiry is to make such recommendations (if any) as the sheriff considers appropriate as to (a) the taking of reasonable precautions, (b) the making of improvements to any system of working, (c) the introduction of a system of working, and (d) the taking of any other steps.

[5] In order to identify precautions which, had they been taken, might realistically have avoided the death, or to defects in the system of working which contributed to the death it is necessary that the sheriff is satisfied on the balance of probabilities that those precautions or the defects in the system of working contributed to the death. Likewise, in order to make recommendations the sheriff has to be satisfied that there is a reasonable possibility that the recommendations may prevent deaths in similar circumstances.

[6] The procurator fiscal represents the public interest. An inquiry is an inquisitorial process and the manner in which evidence is presented is not restricted. The Court proceeds on the basis of evidence placed before it by the procurator fiscal and by any other party to the inquiry. The determination must be based on the evidence presented at the inquiry and is limited to the matters defined in section 26 of the Act. Section 26(6) of the Act provides that the determination shall not be admissible in evidence or be founded on in any judicial proceedings, of any nature. This prohibition is intended to encourage a full and open exploration of the circumstances of a death, while also

reflecting the position that it is not the purpose of a Fatal Accident Inquiry to establish civil or criminal liability (section 1(4)).

[7] The scope of the inquiry extends beyond mere fact finding. It looks to the future and seeks to prevent deaths occurring in similar circumstances. Where the circumstances have given cause for serious public concern an inquiry may serve to restore public confidence and allay public anxiety.

3. Participants and representation

[8] The procurator fiscal represents the public interest in a fatal accident inquiry and Ms Brown, procurator fiscal depute, appeared.

[9] Mr and Mrs Adger, Fearne's parents, were represented by Mr Pollock, solicitor. Greater Glasgow Health Board ("the Board") was represented by Ms Doherty QC. Dr Wu was represented by Ms McCartney solicitor.

[10] I am grateful to all those appearing at the inquiry and to those instructing them for their professionalism and assistance in the conduct of this inquiry. The contributions of all those appearing and in particular the agreement of uncontentious matters by joint minute, and the preparation of affidavits have greatly assisted the inquiry.

4. The inquiry process

[11] The Notice of an Inquiry was received on 23 August 2021. I made a first order on 30 August 2021 fixing a preliminary hearings for 21 October 2021. Further preliminary hearings were held on 10 January 2022, 4 February 2022, 28 February 2022 and 9 March

2022. The inquiry heard evidence on 15, 16, 17, 18, 21, 22, 23, 24 and 25 March and a hearing on submissions took place on 31 March 2022. As a result of the coronavirus pandemic all hearings with the exception of the first preliminary hearing were conducted by WebEx. Parties lodged extensive productions, two joint minutes of agreement, and written submissions.

[12] Evidence was led principally by the procurator fiscal depute, in accordance with the duty under section 20(1)(a) of the Act. A list of Witnesses is included as an appendix. Witnesses provided affidavits or reports which they spoke to. The report of Dr Marnerides, Consultant Perinatal and Paediatric Pathologist at Guy's and St Thomas' NHS Foundation Trust, dated 16 December 2021, was in terms of the second joint minute: "to be treated as being his unchallenged evidence to this inquiry, without being further spoken to."

[13] The inquiry was greatly assisted by the Note of the Meeting of Dr Ninis, Dr Ainsworth and Dr Nadel on 24 February 2022. Dr Ninis has been a consultant in general paediatrics based at Imperial College NHS Trust, London since 2006. Dr Ainsworth has been a Consultant Paediatrician and Neonatologist at the Victoria Hospital, Kirkcaldy, since September 2001. Until 2010, his responsibilities included acute general paediatrics (in both an in-patient and out-patient capacity) and neonatal paediatrics. Dr Nadel has been a consultant in paediatric intensive care at St Mary's NHS Trust, London since 1994 and since 2014 an adjunct professor at Imperial College London. For convenience, where appropriate I refer to them as the three paediatric experts. This meeting considered key matters which parties identified would arise in

the inquiry and the note set out the areas of agreement and the respective positions where views differed.

[14] Fearne's death happened almost five years before the hearing in this inquiry and that passage of time has impacted on the ability of witnesses to recall events accurately. The next chapter sets out a narrative of the important parts of what was established on the evidence. Much of this was non contentious and was agreed by the parties in the first joint minute. In the subsequent chapter I consider the evidence where there was dispute or a lack of clarity and explain my assessment of such evidence. The following chapters examine particular issues which were raised in the course of the inquiry.

5. What happened

[15] Fearne was born on 27 August 2016 at the RAH. She was the first born child of David and Lauren Adger. At her initial birth examination Fearne was noted to have an anteriorly placed anus.

[16] Following surgical review by Mr Carl Davis, Consultant Pediatric and Neonatal Surgeon at the Royal Hospital for Children, Glasgow, hereinafter referred to as "RHC." Mr Davis identified that Fearne had a rectoperineal fistula, a form of anorectal anomaly. On 1 December 2016, Fearne underwent a Posterior Sagittal Anorectoplasty and covering Sigmoid Colostomy ("PSARP"). The operation was performed by Mr Davis without complication and a stoma was formed. Mr and Mrs Adger were given training on how to deal with the colostomy bag and dilation of Fearne's bowel.

Mrs Adger was advised that should the regularity of Fearne passing urine decrease or if Fearne started to look dehydrated she should seek further advice.

24 April 2017

[17] On 24 April Fearne attended an outpatient appointment at the RHC and was seen by a Surgical Registrar, who noted that Fearne had moved onto solid food and was clearly thriving and well. Mr and Mrs Adger were asked to continue dilations until Fearne was admitted for closure of the colostomy which was to be scheduled.

25 April 2017

[18] On 25 April at approximately 22:00 Mrs Adger attended the Out of Hours Centre, based at the RAH with Fearne. A history of Fearne's illness was taken by Nurse Canavan, with Fearne's symptoms noted as: vomiting, taking water but then vomiting, drier than usual nappies. Due to these symptoms Mrs Adger was concerned about Fearne being dehydrated. Fearne was then examined by Dr Haque.

[19] On examination Fearne presented with a normal temperature and colouring, and as a bright and well perfused baby (circulation of blood going to all the organs and skin). Her respiration rate was in a normal range. On examination of Fearne's ears, nose and throat, Dr Haque could detect no abnormality. Fearne's heart sounds were normal, her chest was clear, her abdomen was soft, the colostomy bag held semi solid stools, he found no rash at the stoma site and the anterior fontanelle was normal. Dr Haque diagnosed a probable mild viral illness with vomiting. Dr Haque reassured

Mrs Adger and advised her to contact the out of hours service if Fearne's condition did not resolve or worsened.

26 April 2017

[20] On 26 April Mrs Adger remained concerned about Fearne and had a telephone consultation with Dr Andrew Crawford at her GP practice. During the consultation Dr Crawford was advised that Fearne had attended the Out of Hours Centre. Dr Crawford was told that Fearne had not managed to keep fluids down and had only passed a small amount of urine and had minimal output in her stoma. Mrs Adger also thought the mucosa of the stoma was less firm than usual and was concerned about dehydration. Mrs Adger was told to bring Fearne to the GP Surgery for an appointment that afternoon.

[21] At approximately 16:10 Fearne was examined by Dr Crawford at the GP surgery. On examination, Fearne was tired, grumbly and clingy. Fearne did not have a fever and no abnormality was detected on examination of her ears, nose and throat. There was loose stool in the stoma bag and Dr Crawford was advised that Fearne had been passing small amounts of flatus into the bag. Although no abnormality was detected in his examination of Fearne's throat, Dr Crawford noted slightly dry mucosa. Dr Crawford referred Fearne to the RAH for review and Mrs Adger was told to take Fearne to ward 15. No criticism was made of the treatment received by Fearne up to this point.

[22] Mrs Adger arrived with Fearne at the RAH, paediatric short stay ward ("SSW") which was part of ward 15, at approximately 17:05 on 26 April. Fearne attended with

symptoms of diarrhoea, projectile vomiting, and dry nappies. Nurse Young noted Fearne's nappies had been dry since the previous day, although there had been a damp nappy on the morning of 26 April, and her stoma output was softer than normal. Nurse Young checked Fearne's temperature, heart rate and oxygen saturation. As Fearne was upset when she arrived at the SSW Nurse Young was unable to obtain respirations or blood pressure. These first measurements were obtained at 17:30, at which time: oxygen saturation was at 96%, temperature was 37C, heart rate was 154 bpm and Fearne was noted as being alert. The total score on the Children's Early Warning Scoring System (hereinafter referred to as "CEWS") was 0. Fearne was weighed and her weight was recorded as 8.34kg.

[23] At approximately 18:00 Fearne was examined by Dr Wu, at that time an experienced, ST8, paediatric registrar. Dr Wu took Fearne's medical history from Mrs Adger. She noted the background history including Fearne's anorectal malformation, her surgery and colostomy in situ. She noted Fearne had a 48 hour history of increased vomiting and increased stoma output, her nappy was less wet, she had been projectile vomiting that day, she had no fever, she was still keen to drink, was not coryzal and she was reasonably well hydrated. On physical examination, Dr Wu noted Fearne as well hydrated, warm and with a capillary refill time of under two seconds. Fearne was crying (producing tears) and had moist mucous membranes, her abdomen was soft with a healthy stoma site. Dr Wu noted her vital signs. Her diagnosis was mild gastroenteritis and a plan was made for oral rehydration solution (Dioralyte) to be given and for Fearne to be observed in the SSW.

[24] Mrs Adger was told to give Fearne 5ml of Dioralyte by syringe into Fearne's mouth every five minutes. Fearne vomited a small amount on the floor but this did not result in any re-evaluation of the plan. The fluid balance sheet records that between 18:00 and 19:00 Fearne took 90ml of Dioralyte, no output was recorded.

[25] At approximately 19:00 Fearne's observations were recorded on the CEWS as respiratory rate 32, oxygen saturation 99%, temperature 37C, heart rate 145 bpm and Fearne was noted as being alert. The total score at that time was recorded as 0. A further set of observations was obtained at 19:50 which noted Fearne's respiratory rate at being 32, oxygen saturation 100%, temperature 37C and heart rate 132 bpm. A nurse and Mrs Adger checked Fearne's nappy to see if she had urinated and they agreed there was possibly a small amount of urine in the nappy.

[26] Fearne was reviewed by Dr Wu at approximately 20:00. Dr Wu noted Fearne had tolerated 100ml of Dioralyte and had passed urine. Mrs Adger was given advice by Dr Wu to return to the SSW within 48 hours if Fearne's condition worsened. Fearne was discharged at approximately 20:30 with a diagnosis of viral gastroenteritis. Mrs Adger was given advice on the use of the Dioralyte and provided with four sachets of Dioralyte to give to Fearne at home. The only indication at this time that Fearne was dehydrated was a reduced urine output. Fearne woke a couple of times overnight and Mrs Adger gave her Dioralyte which she tolerated without vomiting.

27 April 2017

[27] On 27 April Fearne awoke at what Mrs Adger described as her usual time and in a good mood. Although she refused her toast she tolerated the Dioralyte given to her by Mrs Adger. Mr and Mrs Adger thought she was getting better. At approximately 15:00, Mrs Adger made up 4 ounces of Aptamil Follow on Milk to give to Fearne. Fearne took approximately an ounce of milk which she vomited back up shortly afterwards. Fearne had seemed very sleepy and although Mrs Adger would normally change Fearne's nappy about 5 - 6 times a day, on this day Fearne only had one slightly wet nappy with minimal output from her stoma. At approximately 19:45 Fearne woke up from her nap and started repeatedly retching, although she didn't initially bring anything up. After gagging repeatedly Fearne brought up some yellow/green bile. It seemed to Mrs Adger that Fearne was having stomach cramps. Mrs Adger telephoned the SSW and was told to bring Fearne into the ward to be re-examined.

[28] Fearne arrived at the SSW at approximately 20:30 on 27 April. Observations were carried out by Nurse Crockett which were noted on the CEWS paperwork that held entries from the attendance on the 26 April. Fearne's respiratory rate was noted as 31, oxygen saturation 100%, temperature 36.4C, and heart rate 131 bpm. Fearne presented to Nurse Crockett as being alert and responsive. Her eyes were not heavy or sunken and she looked hydrated. Fearne's total CEWS score was 0. Nurse Crockett was informed that Fearne had vomited milk and was passing green stools.

[29] At 20:50 Fearne was examined by Dr Lee, a Junior Doctor FY2, who took a history of Fearne's presentation at the RAH. Dr Lee noted Fearne as having bilious

vomiting and refusing Dioralyte and then regurgitating small amounts of mucus. Dr Lee noted Fearne as being apyrexial. On examination Fearne was unhappy, and described as tired but ok to examine. The colostomy bag contained stool and air. Dr Lee noted the stoma site as "healthy, and mucous fistula healthy". Dr Lee's impression was Fearne had gastroenteritis and the plan was to give Fearne Dioralyte mixture 5ml every 5 minutes and to monitor her within the SSW. Dr Lee noted to discuss the case with the Registrar. The Registrar on shift that night was Dr Wu.

[30] Dr Wu undertook a brief examination of Fearne, she explored further with Mrs Adger the reference to bilious vomit which Mrs Adger had described to Dr Lee as being green in colour. In the course of further discussion about this with Dr Wu, Mrs Adger described the vomit as being "yellow-ish, green in colour". Dr Wu failed to record this conversation in the notes, which suggested that the vomiting was not of the bright "fairy liquid" green which might be associated with a surgical obstruction. Neither was that indicated by her physical examination of Fearne.

[31] Dr Wu noted at 21:00 that Fearne had projectile vomited once that day after a milk feed, but otherwise she was clinically well, hydrated, observations were normal and Fearne's abdomen was soft with stoma site normal. The plan was to observe Fearne within the SSW, to try half strength milk feed and to discharge home if tolerated. Dr Wu reviewed Fearne again at 22:30 and noted Fearne had tolerated 100ml of milk, she was afebrile and asleep. Dr Wu's plan at that time was for Fearne to be discharged home with 48 hour open access to the SSW. Nurse Crockett took another set of observations at 22:30 and noted on the CEWS chart, respiratory rate 28, Oxygen saturation 100%,

temperature 36.6C, heart rate 126 bpm and Fearne's conscious level was AS (asleep). The total CEWS score was assessed as 0. Nurse Crockett was unable to obtain a stool sample as the colostomy bag was empty.

[32] Nurse Crockett spoke to Mrs Adger about the feeds Fearne should get at home and in particular increasing to ¾ strength feeds for a couple of feeds before increasing to full strength feeds. Mrs Adger was advised that if she was concerned at any time that she was to telephone and bring Fearne back to the ward. Nurse Crockett wrote a nursing note at 22:45 recording Fearne 'had taken 30ml Dioralyte, 30ml ½ strength feed and 30ml ½ strength feed' and 'explained ½ strength – ¾ strength to full strength feeds.'

[33] As Mr and Mrs Adger and Fearne waited at the lift outside the SSW Fearne vomited and her coat was covered in white vomit. They were readmitted to the SSW by Nurse Hansen nee Haig. Mr and Mrs Adger spoke with Dr Wu at the desk and Dr Wu was advised that Fearne had vomited outside the SSW. She discounted this significant but single instance of vomiting as demonstrating that Fearne was not tolerating oral fluids and remained content with her plan for Fearne to be discharged home with advice to return in the event of further concerns. Fearne's vomiting at the lifts and this reattendance at the SSW was not recorded in the medical or nursing records.

[34] Following this return to the SSW Fearne should have been admitted. The significant vomit demonstrated that she was not tolerating oral fluids. Had she been readmitted it is likely Fearne would have received IV fluids before she did on the afternoon on Friday 28 April.

[35] On returning home Mrs Adger made up the Dioralyte mixture with water and gave Fearne two or three 5ml syringes, but Fearne was sleepy and refused some of the Dioralyte.

28 April 2017

[36] At approximately 04:00 Fearne woke Mr and Mrs Adger and she was sick. Mrs Adger noted the vomit was dark in colour and thought it was bile. She was concerned, but following Fearne being sick she seemed to improve. Mrs Adger gave her a few syringes of Dioralyte and she slept until about 07:00 when Mrs Adger changed Fearne's stoma bag. It was fairly full and contained greeny brown smelly liquid. The overnight nappy only contained a small amount of urine. Mrs Adger attempted to give Fearne further syringes of Dioralyte but she was not able to tolerate the Dioralyte and would gag and retch. Fearne was sick again and Mrs Adger called the RAH at about 11:35, and was advised to bring Fearne back to the SSW.

[37] On arrival at the SSW, Fearne was seen by Nurse Sloan and taken to a cubicle where Fearne was sick again, producing dark coloured vomit. Nurse Sloan noted Fearne as being pale and quiet on arrival. She also noted the history and undertook observations which she recorded on the CEWS chart at 12:30. These were: respiratory rate 36, oxygen saturation 100%, temperature 36.6C, heart rate 172 bpm, which produced a CEWS score of 2. Dr Hillis who was the on call consultant, working a shift which had commenced at 09:00 for 24 hours, was asked by Nurse Sloan to see Fearne. This was done before 13:00, when the junior doctors went off to their protected teaching session.

[38] At 13:00 Dr Hillis saw Fearne with both her parents, in a cubicle in the SSW. She reviewed Fearne's clinical notes from her attendance on each of the previous two days and accessed the RHC notes through the clinical portal, so was aware of the PSARP and of Fearne having attended the surgical clinic on 24 April. She was given a history of vomiting, with recent "coffee ground" vomit and loose stool and Mr and Mrs Adger expressed their concerns. Dr Hillis examined Fearne while she was asleep - her peripheral profusion, her foot and the skin on her chest, her anterior fontanelle, her mucous membranes and her cardiovascular, respiratory and abdominal systems. She examined the stoma site which looked healthy. The concern was that Fearne's heart-rate was elevated at 176 bpm, which can be a sign of shock in an infant with vomiting and loose stool. On examination Dr Hillis found that Fearne's abdomen was not distended, was soft to palpation and she had active bowel sounds. She excluded a surgical abdomen and supported the previous diagnosis of viral gastro-enteritis. She concluded that the coffee-ground vomit was secondary to recurrent vomiting, and that Fearne was not tolerating oral rehydration attempts. Given the presentation and diagnosis she did not consider it necessary to contact the surgical team at the RHC. She noted that Fearne's weight had reduced by 340g in 48 hours.

[39] Dr Hillis's plan, as recorded in the notes, was: for Fearne to be admitted to the ward; IV access to be obtained; full blood count taken with urea and electrolytes ("U+E"); renal and liver function and a C reactive protein (a marker for inflammation) were also to be checked. IV Ranitidine was prescribed to counteract any ongoing acid production. Stool was to be sent for culture, sensitivity and virology. In her evidence

Dr Hillis stated that blood sugar was to be checked at the same time as cannula insertion so that venepuncture would be kept to a minimum.

[40] Dr Hillis prescribed that Fearne be started on maintenance fluids at a rate of 33ml per hour, which she calculated on her admission weight of 8.00kg. Dr Hillis accepted she should have calculated this on the weight of 8.34kg taken on 26 April 2017. That would have increased the rate to 35ml per hour.

[41] On her return from teaching at approximately 14:00 Dr Henderson, at the time a ST5, paediatric registrar ascertained that Dr Hillis had prescribed IV fluids for Fearne and that intravenous access was required. She arranged for Fearne to be taken to the treatment room where she set up for the cannula. It was a difficult cannulation and Dr Henderson succeeded in siting the cannula at the third attempt. Fearne was lethargic, in the sense of having low energy and being less alert when Dr Henderson sought to insert the cannula, but she was not unresponsive and her presentation was in Dr Henderson's assessment in keeping with an infant who had been vomiting and required IV fluids for rehydration. Fearne was as reported by Mr and Mrs Adger markedly less distressed by the cannulation than she had been when cannulated previously. They asked Dr Henderson if they should be concerned. Dr Henderson told them that this was not uncommon, and that they should not worry. Dr Henderson checked Fearne's blood sugar as she was lethargic. Fearne was showing signs of clinical dehydration when seen by Dr Hillis and Dr Henderson.

[42] The time at which the IV fluid was started appears to read 14:45, but the entry is not entirely legible. The Ranitidine IV was started with a dose of 8mg to be given four

times a day. The nursing note completed by Nurse French at 15:00 noted IV fluids had started and Ranitidine had been administered. A fluid balance chart was started at 13:30 with the first entry for 30ml IV input and 56ml faeces output recorded at 16:00.

[43] Dr Henderson reviewed the cannula, before her shift finished at 17:00 at the request of the nursing staff, because the pump had been alarming during the afternoon. She ascertained that the pump was providing fluids at the prescribed rate. Fearne was at the time in Mrs Adger's arms and was brighter. The observations chart showed that Fearne's heart rate was decreasing.

[44] Dr Henderson reported to Dr Wu that it had been a difficult cannulation. Dr Wu was not made aware of Dr Hillis's plan for Fearne and did not seek to clarify this with Dr Hillis. The evidence was not such as to enable me to make any further findings on the handover to Dr Wu.

[45] The observations recorded by Nurse French at 17:10 were respiratory rate 38, oxygen saturation 99% temperature 37.9C, heart rate 150 bpm which produced a CEWS score of 1. As a consequence of Fearne's temperature paracetamol was prescribed and administered and her temperature when recorded at 18:00 had reduced to 37.4C.

[46] Nurse French recalled that he had attended on a number of occasions as the pump had alarmed. At 18:15 Nurse French recorded in the nursing note. "Fearne been sleepy since coming on to ward. IV fluids running. Cannula very positional. Doctors happy to remove if not working and attempt oral fluid. Dad resident and attending to care[s]." The pump was stopped between 19:00 and 19:10 by Nurse French. His entry in the notes timed at 19:10 recorded that the machine was continuing to alarm and the IV

fluids were disconnected on the instruction of Dr Wu. Dioralyte 5ml every 5 minutes was to be given and if not tolerated a nasogastric tube was to be put in. At 19:10 Nurse French also recorded that Fearne had passed urine. Nurse French stated it was not routine practice at the time for a wet nappy to be weighed to measure the amount of urine passed. That was only done when measurement of urine passed was specifically directed by the medical staff.

[47] Nurse French gave a nursing handover on Fearne to Nurse Hansen, who commenced her shift at 19:00, prior to the end of his shift at 19:30. She was told that Fearne had been admitted to the ward following repeated presentation to the SSW with a history of vomiting and loose stoma output. Diagnosis was of gastroenteritis with concerns of dehydration on admission. Fearne was described as brighter and the report was positive. Fearne had been commenced on IV fluids which had been discontinued and commenced on oral rehydration solution. Nurse French and Nurse Young both recalled Fearne looking brighter when they left the ward after their shifts ended at about 19:30.

[48] When Nurse Hansen introduced herself to the family that evening she assessed Fearne to be bright and alert. Mrs Adger was giving Fearne Dioralyte which Fearne was tolerating and appeared keen to drink. Mrs Adger had returned to the ward, with a Chinese meal for her and her husband between 19:30 and 20.00, by which time the drip had been removed. From about 20:00 onwards she felt that Fearne was more sleepy again and had to be woken to be given the Dioralyte which she took, but that she was a bit grumbly.

[49] Nurse Hansen recorded observations at 21:00: respiratory rate 36, oxygen saturation 99%, temperature 36.2C, heart rate 150 bpm, which produced a CEWS score of 0. A cot bed was provided for Mrs Adger, and Mr Adger left the hospital about 22:00 leaving her at the hospital to stay the night. At about 22:30 Mrs Adger went to sleep. While Mrs Adger slept Nurse Hansen continued to give oral Dioralyte to Fearne. Fearne took 90ml of Dioralyte between 19:30 and 00:00. When Nurse Hansen came in to take Fearne's observations at 00:00 Mrs Adger awoke. The observations were respiratory rate 44, oxygen saturation 98%, temperature 36.5C, heart rate 146 bpm which produced a CEWS score of 0.

29 April 2017

[50] Mrs Adger settled Fearne again. She then had a further small cry which Mrs Adger did not find alarming and she lifted Fearne from the cot and sat in the chair with Fearne lifting her up in her arms and gazing into her eyes. Fearne then started to breathe quickly which caused Mrs Adger concern. Mrs Adger came out of the cubicle holding Fearne at 00:25 and advised Nurse Crockett that Fearne's breathing had become fast. Nurse Crockett immediately noted Fearne to be pale and unresponsive and took Fearne from her mother's arms, calling out to staff for immediate support. Nurse Hansen responded to Nurse Crockett's instruction, put out a 222 crash call and requested an anaesthetist and Dr Hillis, the on-call consultant, be called in. The paediatric crash team attended and Nurse Hansen assisted with the resuscitation efforts. Dr Hillis was called at 00:35 to attend a very sick baby as a matter of urgency, as the

team had asked for her attendance. She did not consider that the request was to attend for Fearne. When she arrived in the treatment room she observed full resuscitation in progress. The paediatric medical and nursing teams, and the anaesthetic registrar were present and had been performing full resuscitation for 35 minutes. The on-call anaesthetic consultant arrived and the two consultants made a decision to stop resuscitation. Fearne was pronounced dead at 01:15. No criticism was made of the attempts of the staff at the RAH to resuscitate Fearne.

[51] The procurator fiscal was informed and a DATIX incident form ID 460436 was generated. This triggered a Significant Clinical Incident Investigation ("SCII") into Fearne's death. This was commissioned by Mr Redfern, the then General Manager for Emergency Care and Medical Services. Following the report of the death to the Procurator Fiscal a police investigation commenced and a post mortem was ordered. Arrangements were made to transfer Fearne to the local children's hospice, Robin House until the post mortem could be carried out. The post mortem was undertaken on 5 May 2017 by Dr Dawn Penman, Consultant Paediatric and Perinatal Pathologist. Her final report is dated 4 August 2017.

[52] Through Dr Crawford, their GP, Mr and Mrs Adger asked to meet with Dr Hillis to discuss Fearne's presentation to the RAH, her treatment and results. The meeting took place on 1 June 2017, Dr Hillis was accompanied by Dr Kelly. Dr Hillis's notes of that meeting were recorded in a clinical letter dated 2 June 2017. In the letter of 2 June 2017 Dr Hillis advised Mr and Mrs Adger that their concerns about the assessment of Fearne, when she returned to the ward after vomiting at the lifts, would be investigated

as part of the case review ("the SCII") which was to be undertaken. Further correspondence followed.

[53] The Board Policy on the Management of Significant Clinical Incidents which was in place at the time directed that a robust investigation be conducted into all Significant Clinical Incidents. The review team convened to undertake the SCII and report were: Dr Bland, Consultant, General Paediatrics, RHC; Sister Mohammed, Senior Charge Nurse RHC; Ms McQueen, Clinical Risk Manager Greater Glasgow and Clyde; Dr Stirling, Consultant, Emergency Medicine, RCH; and Dr Doherty, Consultant Paediatric Infectious Diseases, RHC. Ms McQueen was the only member of the review team who had at the time completed root cause analysis training for SCII. The team primarily undertook a paper review of the medical and nursing notes and Ms McQueen met with the senior charge nurse on ward 15 to discuss the way admissions to the SSW and ward 15 were recorded in the notes. The medical and nursing staff involved in the care of Fearne were not asked to provide statements for the SCII. The SCII final report was issued on 2 November 2017 following consideration of the final Post Mortem report.

[54] A formal letter of complaint was submitted by Mr and Mrs Adger dated 4 April 2018 and statements were obtained from Dr Hillis, Dr Wu, Dr Henderson, and Nurses Young, French and Sloan who were involved in the treatment of Fearne. In response to the complaint a letter dated 7 August 2018 was sent by the Board to Mr and Mrs Adger.

6. The areas of factual dispute

[55] There were seven key areas of factual dispute:

1. Vomiting during Fearne's presentation on 26 April 2017;

2. Fearne's state of alertness at the SSW on 27 April 2017;

3. What happened when Mr and Mrs Adger brought Fearne back to the short-stay ward following Fearne vomiting at the lift at approximately 22:00 on Thursday 27 April 2017;

4. The time period within which a cannula was sited and IV fluids commenced on 28 April 2017;

5. Fearne's state of alertness during the afternoon of 28 April 2017, and in particular her response to cannulation;

6. The handover and instructions for future management from Dr Hillis to the medical team and the late shift medical team on the afternoon of 28 April 2017;

7. Fearne's state of alertness and the extent of her clinical improvement after commenting on IV fluids on 28 April 2017.

Vomiting during Fearne's presentation on 26 April 2017

[56] Mrs Adger, both in her affidavit and police statement stated that while Fearne was being given Dioralyte she was a little sick on the floor and that she told the nurse. Nurse Young did not recall this, but was clear in her evidence she would have recorded this in the notes had she been advised.

[57] I accepted Mrs Adger's account that Fearne had been sick and that she told a nurse but that may not have been Nurse Young. This should have been recorded in the nursing notes and reported to the medical staff.

Fearne's state of alertness on 27 April 2017

[58] I accept that Fearne was sleepy on the evening of 27 April. That is the position as recorded by Nurse Crockett at the entry at 22:00. However I also accept Nurse Crockett's evidence that when she examined Fearne at about 20:30 she appeared quite well, in the context of a child who had been vomiting and in nursing parlance described Fearne as being bright and alert. I find this description is to be preferred to a description of her being lethargic.

Return to the SSW

[59] The inquiry heard evidence from Mr and Mrs Adger, Nurse Hansen, Dr Wu and Nurse Crockett about the circumstances surrounding Mr and Mrs Adger's return to the ward after Fearne vomited at the lift. I accept Mr and Mrs Adger were let back into the ward by Nurse Hansen who walked with them towards the short-stay ward. This involved passing the desk where Dr Wu was sitting working. It was Mrs Adger's impression that they re-entered the ward with the nurse and that therefore the nurse did not have the opportunity to go and speak to Dr Wu before they did. On their return to the SSW Mr and Mrs Adger and Fearne were taken to a room where Fearne's coat was removed and placed in a plastic bag and Fearne was wrapped in a blanket. I cannot

establish whether this happened before or after the conversation which I accept they had with Dr Wu.

[60] An interaction between Mr and Mrs Adger and Dr Wu at the desk was spoken to by Nurse Crockett who, from behind the glass in one of the adjacent rooms, observed Mr and Mrs Adger standing beside Dr Wu at the desk. Nurse Crockett also spoke of having seen Dr Wu gesticulate corroborating the evidence of Mr and Mrs Adger. Dr Wu herself explained that she often moved her hands when communicating. I preferred the evidence of Mr and Mrs Adger that they spoke to Dr Wu, to that of Dr Wu who did not recall speaking to them. Memories are cloudy after such a passage of time but I accept that the interaction between Dr Wu and Mr and Mrs Adger on their return to the SSW on 27 April was more memorable to Mr and Mrs Adger. It is also notable that the statement which Mrs Adger gave to the police on 2 May 2017 records:

> "We told the registrar that Fearne had just brought everything back up. Without looking at Fearne she just said that she was happy for us to take her home and continue with Dioralyte. A nurse gave us a bag to put Fearne's coat in as it was covered in sick. Fearne was sleepy and we reluctantly took her home."

[61] Dr Wu recalled the information that Fearne had vomited being given to her by a nurse and Nurse Hansen believed she had told Dr Wu about Fearne being sick and was then told by Dr Wu that she remained content for Fearne to go home. Her recollection was of Dr Wu being curt with her. That conversation too may have taken place.

[62] Mr and Mrs Adger's return to the ward following Fearne being sick should have been recorded by Dr Wu in the notes. Nurse Crockett told the inquiry that the nursing auxiliary had told her Fearne had vomited on leaving the SSW, but she did not record

that in the notes. She told the inquiry she should have done so and regretted not having done so.

The time taken to cannulate Fearne and commence IV fluids on 28 April 2017

[63] The medical notes record Dr Hillis commenced her examination at 13:00. Dr Henderson was requested to undertake the cannulation as a priority on her return from teaching at 14:00 and she requested blood analysis at 14:29. The IV infusion is shown on the Fluid Additive and Prescription sheet as having commenced at 14:45.

[64] The expert evidence was to the effect that given Fearne's presentation it was reasonable for Dr Hillis to have instructed that another doctor should cannulate Fearne. Her assessment was that Fearne, while dehydrated, was not in shock and there was no immediate requirement for resuscitation by means of IV fluids. Despite slightly more than an hour passing before the IV fluids were commenced, this was undertaken with satisfactory expedition - particularly given that Dr Henderson had experienced some difficulty in siting the cannula. In so far as Mr and Mrs Adger thought this took some hours, I find that they were mistaken in recalling that a longer time had passed, presumably due to their anxiety about Fearne's wellbeing and their desire that the cannulation be done as quickly as possible.

Fearne's state of alertness on 28 April 2017

[65] Fearne was asleep when Dr Hillis examined her at 13:00 on 28 April. In evidence Dr Hillis accepted that she was lethargic. Mr and Mrs Adger reported that when Fearne

had to be cannulated in connection with her surgical procedure, she responded as one would expect an otherwise healthy baby to do, with some degree of distress and irritation. Her response was markedly different when Dr Henderson sought to cannulate her on 28 April. I have found that Fearne was dehydrated and it was not a matter of dispute that she required IV fluids. In these circumstances I accept Dr Henderson's evidence that her presentation was as she would expect for a child suffering from dehydration and requiring fluids. I also accept Dr Henderson's assessment that Fearne was not unconscious and that there was eye movement and response to the cannulation which clearly proved difficult. Had Fearne been in a better state of health, cannulation would doubtless have generated a much more significant response. I found Mrs Adger's description of Fearne as being "lethargic" on 28 April prior to her responding to the IV fluids to be accurate.

[66] That position, however, has to be contrasted with the improvement which was seen in Fearne's condition following the administration of IV fluids. The evidence, including that of Mr and Mrs Adger, was of improvement. Dr Henderson's evidence which I accepted was that when she was asked to review the cannula as a result of the pump alarming she found Fearne to be brighter, but the time or occurrence of that review was not recorded. The entry in the charts by Nurse French at 17:10 suggests an improving picture. Nurse French could not recall his discussion with Dr Wu but her recollection is of being told that Fearne was more alert and had improved. Nurse French did recall that Fearne was improving and appeared bright and alert when he saw her about the end of his shift. That was also the recollection of Nurse Sloan. Nurse Crockett

recalled being told about 20:30 by Nursing Auxiliary Barlow that Fearne was bright and alert and that both Mr and Mrs Adger were happier with Fearne and that Mr Adger intended to go home later.

[67] Nurse Hansen's first recollection of seeing Fearne that evening was when she was being held by Mr Adger by the window and she was smiling and happy. She returned on another occasion to get a name band and to leave some toys. At 21:00 Fearne was awake and perfused when observations were taken and then settled when she went back to Mrs Adger. Nurse Hansen did not describe Fearne as being lethargic during the course of the evening. She recalled that she had given Fearne 30ml of fluid. At around 22:30, while Mrs Adger was asleep, Nurse Hansen lifted Fearne from her cot and gave her Dioralyte.

Instructions from Dr Hillis

[68] Dr Hillis' evidence to the inquiry was not consistent in two respects with her statement dated 22 January 2019. The statement recorded that she spoke with the doctor tasked with the cannulation and said if she had any concerns about Fearne's capillary refill time when she cannulated Fearne she was to receive a fluid bolus. It also recorded that a plan was made to have an evening medical review as her heart rate had been elevated on admission. The reference to capillary refill time was not mentioned in the note which she prepared on 5 May 2017. In her evidence she accepted that she had a plan in her head but this had not been communicated to the other medical staff and she made no reference in her evidence to requesting that the registrar who undertook the

cannulation should review Fearne's capillary refill time lest a fluid bolus was required. These two matters were not recorded by Dr Hillis in the medical notes at the time.

[69] Dr Hillis explained she carried the pager while the protected training session took place, she reported that she had returned the pager direct to Dr Henderson and had attended the 16:00 handover meeting at which all personnel were present except Dr Wu who she said had phoned Dr Henderson to say she was running late. Dr Hillis stated that she had a clear recollection of the handover to the extent that she could remember where people were sitting. She could not recall being told of any context for Dr Wu running late. It would have been an obvious matter to record Dr Wu's absence in her retrospective note of 5 May but that is not mentioned. If it was a note, as she suggested, to clarify what happened so as to be of assistance to the SCII it did not achieve its objective. I found the inconsistencies in Dr Hillis's position cast doubt on her reliability as a witness.

[70] Dr Henderson who as the day shift medical registrar undertook the cannulation, accepted she had a limited recollection of events of that afternoon, and for that reason was not an entirely reliable witness. As she pointed out she was not asked to comment on events that afternoon until the formal letter of complaint was received from Mr and Mrs Adger which was almost a year later. Although it was not put to her directly, it might be supposed that a clear instruction about review of capillary reflex time and prescribing a fluid bolus would have been memorable.

[71] Nurse Sloan had limited recollection of events that afternoon and was unable to confirm matters reliably beyond what she derived from the contemporaneous notes. Dr Henderson recalled that when she returned to the ward after teaching, Nurse Sloan had advised her that Dr Hillis had instructed that Fearne should be given IV fluids and a cannula was required. Dr Henderson believed she could rely on the instructions from Nurse Sloan of what Dr Hillis had directed and did not look at the medical or nursing notes. Dr Henderson did not recall seeing Dr Hillis that afternoon and did not recall how the pager was returned to her, although she thought this was after she had sited the cannula. She indicated that it would not be routine to record the siting of the cannula in the notes, but stated that she had told Dr Wu the cannulation had been difficult to highlight a more senior doctor should re-site the cannula if required.

[72] Neither was it clear where the information that Fearne was brighter came from, the evidence to the inquiry was indeed of that being the case, but it appeared to arise from later nursing observations which post-dated a 16:00 handover. Dr Henderson's evidence, which I accepted, was that when she was asked to review the cannula as a result of the pump alarming she found Fearne to be brighter, however that review was not recorded by her.

[73] Dr Henderson and Dr Wu both spoke of a conversation they had about Fearne, but their recollections of that conversation differed and the conflicting evidence was such that I was unable to make a finding about the handover discussion(s). Given Dr Henderson thought it was important to advise Dr Wu that it had been a difficult cannulation, it might also have been expected she would have mentioned it at the

routine handover but Dr Hillis had no recollection of this being mentioned by Dr Henderson at the handover. There was no evidence of Fearne's perfusion at the time of cannulation or discussion of a fluid bolus being discussed at the handover. It was unsurprising that Dr Henderson had no recollection of an ongoing plan, given Dr Hillis accepted that she had neither communicated her plan nor recorded the plan beyond commencing IV fluids in the medical notes. Dr Wu recalled a discussion about Fearne which logically followed from a report of a difficult cannulation and gave some consideration to an ongoing plan, but her recollection differed from the recollection of Dr Henderson.

[74] The expectation at the RAH in 2017 was that the handover would take place with the on-call consultant, the medical registrar approaching the end of her shift, the medical registrar commencing the late shift at 16:00, the FY2's for both shifts, and the senior nurse. Dr Henderson had no recollection of such a handover that afternoon, but did recall discussions with Dr Wu. Dr Hillis's evidence was that Dr Wu was late, and did not attend the main handover meeting. That was contradicted by Dr Wu who said she was not late, and attended the handover with both Dr Hillis and Dr Henderson. The lack of reliable evidence and the conflicts in the evidence meant I was unable to make a finding beyond concluding that the handover was unsatisfactory and did not articulate a clear plan for Fearne's treatment.

[75] Given Dr Hillis's position that Dr Wu was not present at the handover meeting it might have been expected that Dr Hillis would have been more thorough in confirming the need for a further evening review in the notes; or, to have sought out Dr Wu to

discuss matters with her, as the senior resident doctor, prior to her departure from the RAH at about 18:30 on Friday 28 April. That accorded with the evidence of Dr Nairn who at the time undertook on-call consultant shifts at the RAH. This was not put directly to Dr Hillis but her evidence was that Dr Wu was not around when she checked into the ward prior to leaving the RAH at about 18:30.

[76] The three paediatric experts were of the opinion that there should have been a medical review of the effectiveness of the IV fluids in the early evening and that the decision to discontinue IV fluids should only have been taken after a medical assessment of Fearne and a review of her fluid balance. It was therefore rather surprising that Dr Wu's position to the inquiry was that she did not require to assess Fearne and that she was simply modifying the method of supply or fluids, which failed to recognise the need for a proper assessment to be made before reaching such a decision. Given Dr Wu discharged Fearne the previous evening and in her evidence expressed surprise that Fearne had been admitted to the ward, it might have been anticipated that professional curiosity would in any event have caused her to review Fearne. It was not suggested by her that the demands of other patients had prevented her from doing so.

[77] Although I did not find them to be key matters, for completeness I should explain my view on two other areas of conflict. I was unable to resolve the evidence of Mrs Adger, that she had reported Fearne as having reduced stoma output on 26 April, which was in conflict with the contemporaneous note by Dr Wu that this had been increasing. I found it equally possible that this was an error on Dr Wu's part having erroneously reversed the descriptive arrow or that in her concern about Fearne being

dehydrated Mrs Adger misspoke. I accepted Mrs Adger's account that Nurse Crockett told her shortly after Fearne's death that she (Nurse Crockett) felt bad that Fearne had been discharged the previous night. Nurse Crockett had no detailed recollection of the conversation and explained that she had been distressed by Fearne's unexpected death. I concluded that it would have been an understandable comment for her to have made, given her evidence that after learning Fearne had vomited when leaving the SSW (which she did not know about until later), she thought Fearne should have been admitted for further observation.

7. Proposed findings as agreed by the parties

[78] All parties were agreed that I should find the time and place of death to be the treatment room, ward 15, Royal Alexandra Hospital, Paisley at 0:15 on 29 April 2017. Parties were also all agreed that no accident took place and therefore no finding fell to be made under section 26(2)(b), or 26(2)(d).

8. Section 26(2)(c): the cause of death

[79] The inquiry had to determine the cause and in this case the mechanism of death. The Crown and the family proposed that the cause of death should be:

> "Cardiac arrhythmia caused by disseminated parechovirus infection leading to inflammation of the sinoatrial and atrioventricular nodes of the heart, said arrhythmia being contributed to by the effects of dehydration and depletion of physiological reserves."

[80] They submitted that Dr Penman, who carried out the post mortem found that the immediate cause of death was as a consequence of disseminated parechovirus infection. All parties accepted that parechovirus can cause myocarditis. In the submission of the Crown the evidence was that the level of histological myocarditis was less that was typically seen in cases of myocarditis-mediated death. On Dr Penman's evidence it was not possible to determine on the basis of histological findings the physiological effect of myocarditis. That was supported by Dr Marnerides in his report at paragraph 5.13, where he concluded: the inflammation of the heart was not a histological extent sufficient to confirm Fearne's death as being "parechovirus myocarditis." The mechanism of death required that the whole picture was considered. It was submitted that I should accept the conclusion of Dr Ninis, the general consultant paediatrician, who was said to have the most relevant clinical experience of the expert paediatricians that dehydration had made a material contribution to Fearne's death. It was also suggested that Dr Ninis's experience in the investigation of deaths as designated doctor for the Hammersmith and Fulham, Westminster and Kensington and Chelsea NHS Trusts and as one of the regular examiners for Imperial College added weight to her view.

[81] For the family it was submitted that Fearne was clinically dehydrated at the time of her death and that I should accept the opinion of Dr Ninis that Fearne's dehydration had contributed to her demise. It played a part in causing a tachycardia which caused the oedematous sinoatrial and atrioventricular node to malfunction. I was invited to

accept Dr Ninis's view that without dehydration there was a realistic possibility that Fearne's death might have been avoided.

[82] Dr Ninis considered that multiple factors may have played a part, and in particular that the impact of the dehydration and high heart rate over a period may have impacted on Fearne's "physiological reserve". That was supported by both Dr Penman and Dr Marnerides. Dr Eunson had also stated in evidence that children do not have the same reserves as adults and that physiological effects can be multi-faceted.

[83] It was suggested that the proposition that Fearne was brighter after receiving IV fluids was over simplistic, and it did not follow that she could no longer have been dehydrated. I was invited to prefer what was termed the more nuanced view of Dr Penman that a number of factors may have contributed to Fearne's death, which reflected the analysis of Dr Ninis, to the conclusion of Dr Magee.

[84] The submissions for the Board and Dr Wu invited me to find that the cause of death was: "parechovirus which gave rise to myocarditis, which gave rise to fatal cardiac arrhythmia." I was invited to reject Dr Ninis's view of causation on the basis that it was illogical, inconsistent with the improvement in Fearne's clinical condition, and unsupported by literature. It was noted that when Mr Patel prepared his initial report he had access to reports by Dr Ninis and Dr Eunson, and in that report he stated the cause of death to have been cardiac failure from hypovolemic shock, secondary to gastro-enteritis and due to parechovirus infection. Mr Patel modified his initial view that Fearne was in clinical shock as a result of dehydration on the basis that Fearne was displaying signs of less severe clinical dehydration. In his oral evidence, he had

accepted he was not familiar with parechovirus in particular, and its effect on the heart was outside his area of expertise. Having seen and read the other expert reports, including the report of Dr Magee, a consultant cardiologist, Mr Patel deferred to Dr Magee's opinion. Mr Patel no longer maintained a position that Fearne's physiological reserve was running out and this contributed to her death. He recognised that given the amount of fluid given, and the extent of improvement in Fearne's condition the level of dehydration was not as high as he had previously thought.

[85] Dr Eunson, while respecting Dr Ninis's opinion, did not agree that dehydration increased the risk of Fearne encountering a cardiac rhythm problem. He did not accept that the post mortem findings when taken alongside the clinical picture suggested that the cause of death was severe dehydration leading to circulatory collapse. In his oral evidence Dr Eunson agreed that cardiac arrhythmia was the likely cause of death and he could not identify a mechanism in terms of physiology that would have triggered the cardiac rhythm problem other than the oedema around the cardiac tissues. He did not think that additional care would have affected the outcome for Fearne.

[86] Dr Magee, who retired as a consultant paediatric cardiologist in 2020 having been first appointed in that role 1998, provided two expert reports. His opinion was that the most likely explanation for Fearne's death was a sudden cardiac rhythm event. He explained with reference to literature, that parechovirus is a known cause of myocarditis which in children can result in sudden death. He concluded that the mechanism of death was most likely due to inflammatory mediated cardiac arrhythmia given low-grade inflammatory infiltrate of lymphocytes with associated oedema found in some

areas. This having been observed in the atrioventricular node and the sinoatrial node where the oedema was quite marked on histological examination. He referred in particular to the study by Weber *"Clinicopathological features of paediatric deaths due to myocarditis"* DRCH DIS Child 2008: 93 594 – 598.

[87] The final report by Dr Dawn Penman on the post-mortem examination of Fearne was dated 20 July 2017 and Dr Penman spoke to her report. The report from Dr Marnerides dated 16 December 2021, which parties agreed should be treated as being his unchallenged evidence without being further spoken to, was for practical purposes consistent with Dr Penman's report. The conclusion of both pathologists was that this was a sudden unexpected death associated with disseminated parechovirus infection. Parechovirus is recognised as causing cardiac issues including myocarditis.

Dr Penman's report provides:

> "The heart is structurally normal but there is a very low-grade diffuse infiltrate of lymphocytes throughout the myocardium. In areas there is associated oedema and some fibre separation. This is also seen in sections from the AV node. In the section from the sinoatrial node there is quite marked oedema…"
>
> "Post-mortem virology has identified parechovirus in multiple sites with CT values of 25 to 27 in keeping with current or recent infection. The CT value of parechovirus in the heart was 35, which could indicate prior rather than current infection but notably histological myocarditis is evident.
>
> Post-mortem biochemistry does not provide an explanation for the death of this infant.
>
> Overall, the findings suggest that Fearne had an active viral infection at the time of her death with involvement of the heart and although this is not histologically particularly florid, this may well have been involved in mediating her demise….Although the level of myocarditis is less than would typically be seen in cases of myocarditis mediated death, this is certainly a mechanism for Fearne's death."

[88] Both pathologists agreed this was a potential mechanism for death and they deferred to clinicians for their view of the precise mechanism of death. Dr Penman also explained that pathological findings of hypovolemia at post-mortem would be almost impossible to assert.

[89] Estimating the severity of dehydration is clinically challenging and requires a clinician to interpret a mixture of clinical symptoms and signs and they may be aided by blood and other test results. Dr Penman explained that even with a shorter post-mortem interval the progression on decomposition and dehydration is variable and should be interpreted with caution. Fearne required rehydration from her attendance at the RAH on 26 April until her death. The lack of accurate recording of Fearne's fluid balance prejudiced the assessment of the extent of her dehydration over these days.

[90] Dr Penman confirmed that Dr Ninis's theory - that parechovirus must have been causative to Fearne's death and that the lack of resuscitation over the preceding few days resulted in cardio vascular failure in the context of a mildly inflamed heart was not precluded by the post mortem findings.

[91] Dr Ninis's view was that the lack of resuscitation over the preceding days had allowed Fearne to become significantly dehydrated and resulted in her sustaining many hours of tachycardia, which extinguished or significantly reduced her physiological reserve. In her opinion the combination of the dehydration with tachycardia, exhaustion and metabolic stress (loss of calories, Ketosis and decreased bicarbonate) combined with mild inflammation of the heart, allowed a fatal arrhythmia to occur. She concluded on

the balance of probabilities that had Fearne been adequately resuscitated over the previous twenty four or forty eight hours she would have been in a better condition to cope with the effects of the parechovirus and the terminal arrhythmia would not have occurred.

[92] In congruence with Dr Ainsworth, while I initially considered Dr Ninis view to be plausible it did not match the facts as I have found them in a number of respects. There was a lack of coherence with the improving picture of Fearne as she received IV fluids on the afternoon of 28 April and received further oral Dioralyte over the course of that evening.

[93] It was not a matter of controversy that Fearne remained dehydrated at the time of her death although there was a dispute about the level of her dehydration. I was however satisfied on the evidence that following her being commenced on IV fluids that there was an improvement in her condition, and she received a further 90ml of Dioralyte following the cessation of IV fluids. It is regrettable that no detailed assessment or examination of Fearne was undertaken or recorded following the initial assessment by Dr Hillis prior to IV fluids being commenced. There was however a recognition by Mr and Mrs Adger themselves that Fearne was better than she had been before and that accorded with the casual observation of the nursing staff leaving shift. Nurse Hansen, who saw Fearne a number of times between coming on shift at 19:00 and 00:00, gave a description of Fearne which was plainly improved from her lethargy as described by Dr Hillis and Dr Henderson. That did not support Dr Ninis' view that her psychiological reserve had been diminished rather it suggested that it was recovering.

[94] That there was improvement in her condition was also demonstrated by the progressive reduction in her heart rate from 172 bpm on admission on 28 April to 146 bpm at 00:00.

[95] Dr Ainsworth produced a note dated 18 February 2022 in response to Dr Ninis's further note of 9 January 2022. He explained that there is disagreement across various sources for an exact reference range for the normal heart rate at any given age. He noted that the CEWS chart used by the paediatric department at the RAH in 2017 used a cut off of 160 bpm as the upper limit of normal. That was in keeping with the values used by the advanced paediatric life support course which give a normal rate for infants of 6 to 12 months as being between the 5th centile rate of 110 bpm and the 95th centile of 160 bpm. He noted that Dr Ninis cited a meta-analysis by Fleming and colleagues: *Normal ranges of heart rate and respiratory rate in children from birth to eighteen years of age, a systematic review of observational studies Lancet* 2011; 377: 1011-8 which reports a heart rate of 150 bpm as being on the 90th centile. Dr Ainsworth extrapolated from a table in this article which he interpreted as suggesting that the recorded heart rate of 146 bpm at 00:00 was in fact closer to the 75th than to the 90th centile. However in his opinion, even with the reference ranges of the 2011 paper used by Dr Ninis, that heart rate of 146 bpm was within the normal limits for a child of eight months, and at that time Fearne should not be viewed as being tachycardic.

[96] Although there was improvement in Fearne's condition in that she was more alert and her heart rate was reducing, that did not mean she ceased to be dehydrated and I fully accept that she had a continuing requirement for rehydration at 00:00 on

29 April. I also accept that the prescription regime on 28 April was for less fluid than would have been supported by the experts. The question which the inquiry had to answer was whether on the balance of probabilities had Fearne's fluid management been better would she have survived?

[97] Dr Magee's analysis proceeded, correctly in my view, on the basis that Fearne probably remained in negative fluid balance at the time of the terminal event. It was his view that he did not believe that this level of dehydration made a material contribution and instead held that even if Fearne had not been dehydrated the terminal event would still have occurred. In his opinion the presence or absence of relative dehydration would be unlikely to influence the risk of sudden cardiac death in parechovirus myocarditis. He quoted literature which recognised that parechovirus is a known cause of myocarditis which can cause sudden death in children.

[98] Dr Magee explained that, without cardiac monitoring being in place it was not possible to establish precisely what caused the death but I did not find there to be an evidential vacuum of the nature proposed on behalf of the family. The pathologists Dr Penman and Dr Marnerides identified histological features, but found those to be insufficient for them to determine the precise mechanism of death. They accepted that clinical input was required. It is of note that the other experts, with the exception of Dr Ninis, all deferred to Dr Magee's expertise as a cardiologist as being better placed to inform the inquiry of the position. He explained that the most likely explanation for Fearne's death was a sudden cardiac rhythm event. He proposed that the cause of death

should be found to be disseminated parechovirus infection which gave rise to myocarditis, which in turn gave rise to a fatal cardiac arrhythmia.

[99] For the family it was submitted that I should be wary of Dr Magee's evidence, which in essence was not unduly concerned about the impact of a high heart rate. However Dr Ainsworth too was not unduly concerned by Fearne's heart rate and he did not agree with Dr Ninis's interpretation that Fearne had a sustained period of tachycardia. The trend was downward, Fearne's heart rate had reduced to 150 bpm by 21:00 and to 146 bpm at the observations taken at 00:00. He also observed that Fearne's bicarbonate had also been low when measured at a time when she was otherwise well.

[100] I found that Dr Ninis's theory that in the face of ongoing dehydration and calorific deficit of the previous three days Fearne ran out of physiological reserve and her heart stopped pumping adequately or she suffered an arrhythmia due to the oedema around the sinoatrial node, was not supported by the improving picture of Fearne as she received IV fluids on the afternoon of 28 April and received further oral Dioralyte over the course of the evening.

[101] Dr Magee is a paediatric cardiologist and contrary to the submission on behalf of the family, I consider he was best placed to give authoritative evidence. I therefore preferred the evidence of Dr Magee and accepted his formulation of the cause and mechanism of death. I did not find that on the balance of probabilities dehydration was a contributory factor. That accorded with Dr Ainsworth's view, and was further fortified by the evidence of the other experts who with the exception of Dr Ninis deferred to his opinion and accepted his formulation. Given that finding I also accepted

the evidence of Dr Magee, Dr Ainsworth, Dr Nadel and Dr Eunson that better management would not have avoided Fearne's death.

Section 26(2)(e) reasonable precautions which might have avoided death

[102] In relation to section 26(2)(e) there were a number of shortcomings in the treatment of Fearne. The subsection requires that an assessment must be made as to whether had any reasonable precautions been taken, these might realistically have avoided Fearne's death. Only Dr Ninis suggested that the delay in supplying Fearne with IV fluids impacted on Fearne's death. No finding falls to be made under this subsection given the finding that dehydration was not a factor which on the balance of probability contributed to Fearne's death.

10. Section 26(2)(f) system failings

[103] In terms of findings to be made under Section 26(2)(f). It was submitted by the Crown that there was a systematic failing whereby doctors routinely failed to attend at the handover and the handover failed to provide key information, namely that Fearne required a medical review that evening. For the family it was submitted there were several areas where defects in the system contributed to Fearne's death: that input should have been sought from the surgical team; failures by various members of staff to record Fearne's ongoing clinical condition in detail, resulting in a loss of vital information that had a significant impact on the care and treatment of Fearne; failures relating to documentation, monitoring, and management of Fearne's fluid input and output; failures relating to documentation, monitoring and management of Fearne's

vital physiological signs; failures relating to nursing staff reporting concerns on 27 April 2017; failures in relation to the communication and review of the medical plan as prescribed by Dr Hillis on Thursday 28 April; and failures to respond to the level of parental concerns.

[104] For the Board it was submitted that no defects in any system of working contributed to the death, and for Dr Wu it was submitted that the evidence of Dr Ainsworth, Dr Nadel and Dr Magee and Dr Eunson was that the systemic issues identified by the experts did not contribute to Fearne's death.

[105] Section 26(2)(f) is concerned with any defects in any system of working which contributed to the death. The explanatory notes to the Act state that the section is based on section 6(1)(d) of the 1976 Act. I accept the submission of the Board that this section is broadly equivalent to the terms of the 1976 Act. The observations made in *Carmichael, Sudden Deaths and Fatal Accident Inquiries*, 3rd edition, paragraph 5-76, remain relevant. A finding under section 26(2)(f) requires a positive finding that the defect in the system of working actually contributed to the death. Given the conclusion reached on the cause of death in terms of section 26(2)(e)(ii) no findings fall to be made under section 26(2)(f) as it is not open on the evidence to make a finding on the balance of probability that any defects in the system of working contributed to Fearne's death.

11. Section 26(2)(g) other facts relevant to the circumstances of the death

[106] Section 26(2)(g) allows findings to be made which are relevant to the circumstances of the death. I agree with the submission made by the Board that the

various areas of concern identified in the course of the inquiry should be addressed in terms of this subsection. This subsection encourages findings to be directed at such relevant circumstances even if there is no finding that they, on the balance of probability, contributed to the death. A number of matters relevant to the circumstances of the death fall to be illuminated, bearing in mind the purpose of an inquiry is to establish the circumstances of the death and to consider whether any precautions could be taken which may prevent other deaths in similar circumstances. The submissions made by the Crown and the family are considered in the context of this section.

[107] The SCII report, about which I shall say more below, concluded that Fearne should have been admitted on 27 April, when Mr and Mrs Adger brought her back to the ward after she vomited at the lifts. That the recorded IV and oral fluid given to Fearne on 28 April between IV fluids being commenced and Fearne's death were inadequate given her initial mild dehydration and ongoing losses. The report also found that the documentation in relation to fluid input and output could have been more accurately recorded. In addition the report recommended that all contact between families and medical staff should be recorded in the medical notes; where the decision is made to cease IV fluids because of problems with the cannula this should be recorded in the medical notes with a plan for ongoing fluid management; whether fluid is being given orally or IV an accurate fluid balance chart should be kept recording inputs and outputs; Diorolyte should be prescribed with a target volume within a time period and a plan with action points as to what is to be done if this is not achieved; blood pressures should be undertaken as indicated by guidance and patient acuity.

[108] The Board, when responding to Mr and Mrs Adger's formal complaint also accepted that there were errors in the discharge letter of 26 April 2017. Fearne should have been considered for either escalation of care or for admission on 27 April 2017 and if there was uncertainty advice should have been sought from the on-call consultant. It was a clinical error for there to have been no record in the medical notes of Fearne's return to the ward after having vomited on 27 April. Best practice indicated that Dr Wu should have examined Fearne on the evening of 27 April.

[109] In submissions to the inquiry the Board accepted the following deficiencies in relation to Fearne's care and the medical and nursing records in relation to her care at the RAH between 26 and 29 April.

[110] On 26 April, the handwritten clinical note inaccurately stated that Fearne's surgery had taken place in the neonatal period. This error was repeated in the immediate discharge letter dated 26 April. There was no blood pressure recording noted, or a documented explanation why there was no such recording. The fluid balance record was incomplete with no outputs shown.

[111] On 27 April, there was inadequate documentation of the medical assessment of Fearne's condition on presentation. There was no measurement and record of Fearne's weight. There was no blood pressure recording noted or at least a documented explanation for why there was no such recording. There was no documentation or assessment of Fearne's urine or stool output since her discharge on 26 April. There was a failure to admit Fearne to the ward. There was a failure to document Fearne's return

to the SSW immediately after discharge, after vomiting, and what occurred then. There was a further failure to admit Fearne to the ward then.

[112] On 28 April, the incorrect weight was used to calculate the IV maintenance fluids: 8.34kg should have been used instead of 8kg. There should have been a plan for fluid management, including regular review of the fluid balance, and what to do if the losses were excessive. The instructions on the CEWS chart for the steps to be taken when the score was 1 or 2 were not followed by the nursing staff. There should have been more frequent nursing observations recorded on the CEWS chart and a medical review in the evening of the effectiveness of the IV fluids. The record of Fearne's fluid output was inadequate, as her urine output was not measured. There were deficiencies in the end of day shift medical handover. As well as inaccuracies in the handover sheet prepared in advance of the handover, there were issues as to whether necessary information was handed over by Dr Hillis to Dr Henderson, and by Dr Henderson to Dr Wu. The decision to commence oral fluids instead of re-siting the cannula and continuing with IV fluids should not have taken place without a full review including a clinical examination and a review of the fluid balance. The documentation regarding the change in management of fluids from IV to oral was inadequate.

[113] There were therefore a significant number of accepted failings. Of the various failings I consider five of these to be the most significant. The errors on the part of Dr Wu on 27 April not to examine Fearne, to review her plan reconsidering the need to commence IV fluids (given Fearne had vomited on leaving the SSW), and to admit Fearne at that point. The lack of a clear plan by Dr Hillis for Fearne's rehydration

following her commencing IV fluids on the afternoon of 28 April. The inadequate handover between the day shift and late shift that afternoon. Dr Wu's decision to move Fearne to oral fluid rehydration when the cannula tissued, having neither examined Fearne nor reviewed her fluid balance. The repeated failures to maintain accurate and comprehensive fluid input and output charts. Before saying more about these five failings I shall address the other alleged failings.

Involvement of the surgical team at RCH and management given Fearne's Stoma

[114] I accept that both Dr Wu and Dr Hillis were able to access the records relating to Fearne's surgery, at the RCH, through the clinical portal and in the absence of any signs on examination of a surgical issue that they did not require to contact the surgeons. The evidence was that the loss of almost one third of the colon's length meant there was a reduced ability to absorb water and electrolytes, thus Fearne was at greater risk of dehydration than a child with an intact and fully-functioning bowel and oral rehydration might be less effective than in a child with an intact and fully functioning bowel. I accept both Dr Wu and Dr Hillis were aware of the existence of the stoma although they should have done more to clarify normal stoma output. They did take account of the effect of the stoma in their assessment and treatment regime. I discounted the criticism voiced by Dr Ninis as she did not appreciate that they had access to the surgical records. It would have been a courtesy to contact Mr Davis, but given the lack of any indication of a surgical issue there was no requirement to contact him or the surgical team.

Systematic failure of medical staff to attend at the 16:00 handover

[115] I did not find it established on the evidence that it was a regular occurrence for the late shift registrar to miss the handover meeting. Dr Hillis qualified the terms of her affidavit in cross examination and accepted this happened on occasion. Dr Bland, Dr Nairn and Dr Qayyum, who were all paediatric consultants at the RAH in 2017, did not accept that there was an issue with late attendance.

Failures relating to nursing staff reporting concerns

[116] The criticism that nursing staff failed to report concerns was not expanded upon. It would appear to relate to the observations of Nurse Crockett that she was concerned having been told that Fearne had vomited on 27 April, but did not act on that concern. This was not explored with other witnesses in their evidence and absent evidence of it being a failure of nursing practice no finding falls to be made. Given the other findings, this apparent omission was not material in this case.

Admission on 27 April 2017

[117] Mrs Adger recounted her impression of Dr Wu's attitude as being dismissive following their return to the ward. Dr Wu certainly did not demonstrate to Mr and Mrs Adger that she was taking their concerns sufficiently seriously. Dr Ainsworth in his evidence stressed the importance of interaction with parents and Dr Wu's interaction

with Mr and Mrs Adger was at the very least not at a level which provided sufficient reassurance to them.

[118] Dr Wu recognised in the course of her evidence, having clearly reflected on this matter over the years since Fearne's death, she should have given greater weight to Mr and Mrs Adger's concerns. The three paediatric experts and Dr Eunson were clear that Fearne should have been admitted to the ward when she returned at around 22:45 on 27 April 2017 after having vomited. That was also the conclusion of the SCII. The concerns of Mr and Mrs Adger were secondary to Dr Wu taking proper account of the fact that Fearne had vomited. The weight of evidence to the inquiry was that the episode of vomiting at the lift demonstrated that Fearne was not tolerating oral fluids. This should have prompted a reassessment of the plan for discharge on oral fluids with advice to return under the open access policy.

[119] In their submissions to the inquiry the position of the Board was that Dr Wu should have admitted Fearne rather than discharging her following her presentation to the SSW that evening prior to her vomiting. Given that position, and the recognition that Dr Wu as an ST8, an experienced paediatric registrar, should have reached that conclusion herself there should have been no necessity to discuss Fearne's case with the on-call consultant. Such a discussion may however have served some purpose in allowing a discussion of the options of continuing with oral fluids or commencing IV fluids at that time. Dr Ainsworth expressed his opinion that if the blood tests (U+E) were normal continuing oral hydration might be tried provided Fearne's fluid balance, both input and output, were monitored and regularly assessed with a plan to progress

the IV fluids should oral hydration prove ineffective. Dr Ninis believed that admission would have allowed for further assessment of Fearne's hydration status, which would have been informed by undertaking blood tests for U+E. It was her view that IV fluids should have been commenced at that time. Dr Ainsworth felt admission was warranted as this was the second presentation for the same symptoms and illness in 24 hours. That decision would have been assisted by more accurate recording of Fearne's fluid balance. Dr Nadel was less definitive about admission prior to Fearne vomiting at the lifts.

[120] There were therefore a range of clinical options which could have been supported. Dr Wu had assessed Fearne's level of dehydration and seen her toleration of fluids as being satisfactory to allow for her discharge with advice to return if concerns arose. It was a reasonable hypothesis to evaluate that Fearne was suffering from gastro-enteritis and as the NICE guidance notes, such symptoms usually resolve in a few days without treatment, however the symptoms are unpleasant both for the child and family. Dr Wu's initial plan for oral fluids on 27 April was not inconsistent with NICE guidelines.

[121] I did not accept or find any basis to support the position which Dr Wu maintained before the inquiry that she discounted the significant but single instance of vomiting as Fearne waited at the lifts as demonstrating that Fearne was not tolerating oral fluids. None of the experts supported Dr Wu's position. The vomit demonstrated that Fearne was not tolerating oral fluid and the plan for her discharge should have been reversed. The three paediatric experts were clear that Fearne should have been admitted at this point (if she had not been admitted earlier) with a full assessment comprising

weight, accurate fluid balance, bloods for U+E, and consideration of IV fluids. That was a decision which should have been taken by Dr Wu as an experienced registrar.

[122] Had Fearne been admitted on 27 April the immediate decision whether to maintain oral rehydration or commence IV fluids, was a matter of clinical judgement. Given that Fearne vomited again at 04:00 is likely that any trial with oral fluids would have failed and IV infusion would then have commenced. In either scenario IV fluids would have been commenced before they were on the afternoon of 28 April.

Error in the fluids prescribed by Dr Hillis and lack of a clear management plan

[123] The three paediatric experts identified several reasons why they concluded that the fluids prescribed by Dr Hillis on 28 April were wrong. Firstly the weight used was incorrect. The calculation for maintenance fluids should have been based on Fearne's weight of 8.34kg when she was weighed at the SSW on presentation on 26 April, rather than the 8.00kg weight on admission on 28 April. Had the weight of 8.34kg been used, this would have increased the rate of maintenance fluids from 33ml per hour to 35ml per hour.

[124] Secondly, the experts also considered that Dr Hillis had failed to take account of Fearne's pre-existing deficit in her plan for addressing ongoing fluid losses. Dr Hillis herself accepted that she had not given sufficient consideration to replacement fluids.

[125] Both Dr Ninis and Dr Nadel were critical of the prescription being for hypotonic saline containing 0.45% sodium chloride. They thought that the NICE guidance NG 29 Intravenous Fluid Therapy in Children and Young People in Hospital, which has been in

place since 2015, for the prescription of 0.9% sodium chloride solution should have been adopted. They commented that NICE had recommended isotonic saline since its 2009 paper *Diarrhoea and Vomiting Caused by Gastroenteritis Diagnosis, Assessment and Management in Children Younger than 5 Years*, and were surprised that that was not standard practice. The evidence of other witnesses was that the NICE guidelines were not widely adopted at that time, and the Board's local guidance was for IV fluids as prescribed by Dr Hillis. There was however no suggestion that the perceived risks of hypotonic as opposed to isotonic saline played any part in Fearne's death. There was no suggestion that Fearne suffered from hyponatremia which was the particular cause of concern over the use of hypotonic as opposed to isotonic saline.

[126] The inquiry heard evidence and much time was spent in the cross examination of the witnesses discussing Fearne's presentation, her degree of lethargy and the extent of her dehydration. Dr Hillis at the time assed Fearne's dehydration as being 4%. Under reference to the table in the NICE guidelines 2015 at paragraph 2.1 which from left to right moved from no clinically detectable dehydration – clinical dehydration – clinical shock reflecting an increasing severity of dehydration. Dr Ainsworth explained that the columns might be categorised as being mild, less than 5%, 5%-10% and over 10% dehydrated. The greater the number of and more abnormal the positive signs the more severe is the dehydration. The symptoms displayed by a particular patient will not necessarily fall consistently into the same column. There is a need for a clinical evaluation looking at the patient in the round to assess the level of dehydration.

[127] Dr Hillis's clinical assessment was that Fearne had good capillary capacity, her blood pressure was OK, her anterior fontanelle was not sunken, she had moist mucous membranes, and she had passed urine although at a reduced volume. Dr Hillis stated that she had in mind that this was the start of Fearne's treatment and this would be reviewed depending on Fearne's response. Fearne's signs and symptoms were in terms of the columns of the NICE table indicative of less than 5% (mild) and between 5%-10% (clinical dehydration). Dr Hillis at the time viewed Fearne's dehydration to be less than 5% which she explained was why at the time she did not prescribe replacement fluids. She also recognised that the three paediatric experts were of the view that Fearne was more than 5% dehydrated at that point. I accept that Dr Hillis may have marginally underestimated the extent of Fearne's dehydration. Fearne was on the cusp between mild and clinical dehydration and thus I recognise that it was in the range of clinical options for Dr Hillis not to prescribe an immediate fluid bolus. However, as noted above, Dr Hillis in retrospect accepted that she should have given more consideration to the provision of replacement fluids to account for past losses and also ongoing outputs.

The quality of note keeping and maintenance of fluid balance charts

[128] The witness evidence identified, and the records demonstrated, that the quality of the note keeping was poor and not always at the expected frequency. There was also a lack of precision and care taken in the recording of fluid balance charts. No record was kept of Fearne's return to the SSW after she vomited on 27 April. Observations were not undertaken in accordance with CEWS guidance. No record was made of the episode of Fearne vomiting at the lift or that Dr Wu remained content for her to return home.

While I did accept the evidence of Nurse French and Nurse Sloan that they observed Fearne to be brighter when they finished their shift on 28 April 2017 these were not formal observations and were not written up in the nursing notes. Likewise Nurse Crockett accepted that when she heard that Fearne had been sick on leaving the SSW that should have but did not result in her recording this in the nursing notes, which is a further example of a lack of diligence in maintaining accurate records. Nurse French reported it was not usual practice for nappies to be weighed, but this was done when directed by medical staff.

[129] In the context of section 26(2)(g),circumstances relevant to the death I conclude that the repeated examples of deficiencies in the maintenance of medical and nursing records and in the recording of an accurate fluid balance amounted to significant shortcoming in the maintenance of records at the RAH.

12. SCII

[130] The three paediatric experts were critical of the SCII and report and Dr Ninis characterised it as being superficial. I found there to be substance to their criticisms and that the SCII was unsatisfactory. Dr Bland who chaired the panel had no previous involvement with such an investigation and had received no training to support her in conducting such an investigation. She was unable to say at what point she had looked at the Policy on Management of Significant Clinical Incidents for Significant Clinical Investigations.

[131] The February 2017 issue of that policy which was current at the time the SCII was undertaken enumerates a number of basic principles, in particular:

> "The SCI investigation is a transparent process and there must be evidence of appropriate staff/patient/relative involvement."
>
> "All staff who contribute to the investigation will have the opportunity to review draft reports for factual accuracy, a final report will then be agreed by the investigation team and submitted to the investigation commissioner."

The purpose of the investigation is stated at the beginning of the report to be:

> "To identify the root causes and key learnings from an incident and use this information to significantly reduce the likelihood of future harm to patients."

The objectives of the investigation are stated as being:

> "To establish the background and sequence of events that led up to the incident. To identify underlying contributing factors in management and organisational systems. To identify lessons learned and develop a list of recommendations that would prevent similar incidents occurring in the future. To communicate any findings and recommendations across the organisation including those individuals directly affected or involved. To provide a means of sharing learning from the incident. To provide a report and record of the investigation process and outcome."

[132] Dr Bland told the inquiry she relied on guidance provided by Ms McQueen. It is extraordinary that Ms McQueen, who did not give evidence to the inquiry, and who had been trained in root cause analysis allowed the investigation to take place as a paper exercise with the panel reviewing the medical and nursing records. The report narrates that Mr and Mrs Adger reported to the consultant who is assumed to be Dr Hillis that Fearne had vomited at the lifts and returned to the ward, were reassured and she was again discharged. While it was recognised that there was no record of this in the notes this did not prompt further enquiry. It is unclear on what basis the panel considered

that Mr and Mrs Adger were reassured as clearly they were not. As a result of the investigation proceeding as a review of the records, the opportunity for the relevant medical and nursing staff to contribute to the investigation and provide statements while recollections were fresh was lost. Statements should have been taken from the medical and nursing staff involved. I also consider statements should have been taken from Mr Davis and from Mr and Mrs Adger. As statements were not obtained, the fact finding process was unsatisfactory, and failed to establish critical facts. Dr Bland accepted that the issues of poor communication, the accuracy of the notes and adequacy of the handover to the late shift on 28 April were not identified or considered by the panel. The SCII therefore did not have visibility of some of the main areas for consideration by this inquiry.

[133] Mr and Mrs Adger raised concerns about the report. They then met with Dr Bland, Dr Hillis and Maggie Reaves who was Fearne's stoma nurse, on 26 January 2018 and raised issues as detailed in the minute of the meeting, which was simply retained with the report.

[134] The SCII review of the medical records which was undertaken did identify many of the issues which arose in this inquiry, but many were not. Dr Bland and Mr Redfern and Dr Nairn accepted the report had deficiencies.

13. System improvements

[135] Dr Lesley Nairn was a general paediatric consultant at the RAH between November 2000 and the closure of the paediatric unit at the RAH in August 2018

following the amalgamation of the RAH into the RCH. She became a consultant in paediatrics and was appointed as Clinical Director of General Paediatrics and Emergency Medicine in July 2019. She explained that the incorporation of services previously provided by the RAH within general paediatric service in the RHC sought to achieve greater compliance with the Royal College of Paediatrics and Child Health 2015 publication: *Facing the Future Standards for Acute General Paediatric Services*. The inquiry heard evidence from her on the steps taken to implement the recommendations in the SCII Report.

[136] Following the recommendations of the SCII report a communication had been issued on 11 December 2017 by the then Clinical Services Manager. This highlighted that all contact between families and medical staff should be documented in the notes and that when a decision is made to stop an IV infusion because of problems with the cannula this too should be documented in the notes, with a plan for ongoing fluid management.

[137] The new guidelines now in place address the recommendations made in the SCII report. These make clear that where oral rehydration is prescribed an accurate fluid balance chart should be maintained and a target volume of fluid within a specified period should be stated. An audit of oral fluid prescription had been undertaken which resulted in the development of a parent record sheet, and an oral fluid challenge parent information sheet. She confirmed that the use of these forms were embedded as part of everyday nursing practice and were discussed at the induction of new junior doctors and had been highlighted in a weekly bulletin.

[138] Dr Qayyum was a consultant paediatrician at the RAH between 2006 and the closure of that paediatric inpatient unit in August 2008 when she transferred to the RHC. She is currently the governance lead for medical paediatrics at the RHC. Dr Qayyum spoke to the different on-call arrangements which now operate within the RHC which means that the on-call consultant remains resident at the hospital until midnight. She also expanded on the enhanced handover arrangements referred to by Dr Nairn. These had been significantly improved by the live electronic handover system which is now operational at the RHC. This is maintained on the IT system and can be accessed by all medical staff on all computers. It is updated regularly and utilises a traffic light system so that red and amber patients are discussed at the handover, with all patients being reviewed on the daily ward round.

[139] Dr Bell, a consultant in anaesthetics at the RHC, has had management responsibility for hospital guidelines for the Board since 2014. He explained that he had visibility of NG 29 in draft prior to its formal publication and had been tasked to update local policy in line with the new national advice. This resulted in a decision that there was a need to design a better guidance platform and to update recommended monitoring practice. He also explained that it had taken some two years to do this and the introduction of new systems had to be accompanied by a package of education measures. The new process guidance had been trialled in the RCH shortly prior to Fearne's death but was not rolled out to all clinical areas until some months later. In June 2019 he became part of a small group led by Dr Bland which was tasked to look specifically at the process of oral rehydration addressing recommendations 3,4 and 5 of

the SCII report. This resulted in the formalisation of updated oral fluid challenge documentation mentioned above. Given the evidence of Dr Ninis and Dr Nadel, I am surprised that it took such a long time to implement the recommendations arising from the safety reports and the NICE recommendations in 2009. The 2015 update reinforced what had been existing guidance for some six years. I am surprised that the Board Women and Children's Directorate intravenous fluid guidelines which dated from 2008 but had been reviewed in 2014 continued to make reference to 0.45% sodium chloride and that Dr Hillis indicated that is what she would routinely prescribe to a child of Fearne's age at that time. The apparent emphasis on local guidelines may have been a contributing factor in the delay in implementing the NICE guidelines.

[140] I found the evidence of Nurse Crockett, Nurse Young and Nurse Hansen to be less than satisfactory in the manner in which they endeavoured to explain away absence of recorded blood pressure readings. It appears entirely appropriate as Nurse Crockett and Nurse Clements explained that in the paediatric early warning system ("PEWS") which has replaced CEWS greater emphasis is placed on the need to record BP or to explain why such a reading has not been taken or may be inaccurate. It was explained to the inquiry that taking an accurate blood pressure reading from an infant can be challenging and there may be occasions where there is scepticism over the validity of reading obtained. The PEWS guidance requires that to be qualified in the notes. BP did form part of the CEWS scoring system and there should have been more effort to obtain and record blood pressure.

[141] In the letter of response to Mr and Mrs Adger's complaint dated 7 August 2018 the Board recognised that the SCII review had recommended that there be additional training of staff in the importance of fluid balance. The letter advised that the chief nurse "will ensure that all nursing staff are reminded and offered the opportunity for additional training if required, and this will be reinforced and monitored." This was progressed through the work undertaken by the group which included Dr Bland and Dr Bell.

Policy for the Management of Significant Adverse Events

[142] The new policy on the Management of Serious Adverse Events, issued by the Board in August 2020, is clearly an improvement of the previous arrangements under which the SCII proceeded. An enhanced and expanded toolkit to support investigations is available to supplement the new policy. This includes a process guide, comprehensive quality assurance checklist, briefing note for severity 4 and 5 incidents, lead reviewer checklist, timeline template, and human errors table. These are valuable resources but are dependent on those investigating an event utilising them and being rigorous and balanced in their investigation. Mr Redfern confirmed to the inquiry that training in root cause analysis has been widely rolled out.

[143] The new policy addresses a number of the obvious shortcomings which this inquiry has identified in the production of the SCII report. The starting point for any such report is to establish what happened. That is best done by approaching the relevant people as soon as possible when memories are fresh. Mr Redfern also

explained that he had asked the Board to consider whether in significant red flag events interviews of key staff should be mandated. It is important that the instruction that the draft report should be shared with those participating, and that they are required to sign statements is complied with to improve the accuracy of the report. It is also suggested that more attention could be focused on the need to establish an accurate factual matrix and to seek to resolve conflicts of evidence in order to do so. It is recognised that the purpose of such a report is to establish process improvements and undertake root cause analysis. Its function is not to attribute blame. That analysis and recommendations for improvements should be founded on clear factual findings, reached on the balance of probabilities.

[144] Dr Ninis's observation that such investigations should "start small and become big" was a helpful descriptor. I took this to mean that the investigation should seek to establish the facts in the particular incident and then extrapolate from those facts what system issues arose with a view to those matters being addressed. The investigation may provide a means to promote an improvement of practice for particular individuals, but the real benefit to be achieved is for systemic improvement to enhance future care and avoid the recurrence of similar situations.

[145] The policy requires that the final report must be shared with all staff involved in the incident. This represents an important requirement and is to be contrasted with the lack of interaction with those involved in Fearne's care except Dr Hillis.

[146] The new policy, if followed, should avoid the shortcomings of the SCII which was unsatisfactory for the reasons explained. The investigation of a severe adverse

event should be the primary means whereby such deaths are investigated. Operated properly and expeditiously by those with the specialist knowledge to ascertain and analyse what occurred, it should result in a thorough independent inquiry. It offers a means by which lessons may be learned, improvements introduced and an explanation provided to the family of the deceased as to what happened.

14. **Recommendations**

[147] I have not made any recommendations in terms of Section 26(1)(b) as matters have moved on to such an extent in the five years since Fearne's death. Ward 15 and the SSW which provided inpatient paediatric care at the RAH closed in 2018 with paediatric in-patient services being transferred to the RHC. As was explained to the inquiry, paediatric services are now working in a completely different hospital with a different way of working and access to all specialities as required.

[148] I also recognise the steps taken by the Board to improve systems. A new handover procedure operates at the RHC. The new oral fluid challenge documentation reinforces the need for accurate fluid balance charts to be kept, when medical staff are prescribing oral rehydration they are encouraged to set a target volume; PEWS has superseded CEWS and clearer guidance is given on the recording of blood pressure. The evidence on changes to practice offers some reassurance that the shortcomings in Fearne's care in so far as these related to the handover, recording of BP and practice as regards the maintenance of accurate fluid balance charts especially for oral rehydration have been addressed and improved.

[149] Likewise, while I have identified significant concerns over what I find to be failings and omissions in the SCII, that procedure has changed significantly and I would express the hope that the new regime will offer what should be the optimal opportunity to address issues and to improve performance in future. Had the SCII been conducted thoroughly with a full investigation clarifying the facts of what happened when minds were fresh, and made recommendations to address those issues there may have been no requirement for this Fatal Accident Inquiry. The important matters for Mr and Mrs Adger were that their concerns as to the treatment which Fearne received were not fully recognised or addressed in the SCII report. This inquiry has sought to thoroughly explore these matters and has identified various additional shortcomings.

15. Conclusion

[150] The formal findings and the reasons for them are set out above. The inquiry has established that the care which Fearne received from the 27 April and the steps taken to address her dehydration were not at the standard which should have been expected. I have set out my acceptance of the criticisms identified by the experts of the management of Fearne's rehydration both on 27 April after she vomited and again after IV fluids were commenced on 28 April. While those shortcomings did not on the balance of probabilities impact on the tragic outcome they are clearly to be regretted.

[151] I should again offer my most sincere condolences to Mr and Mrs Adger. The loss of a child is particularly poignant. I especially noted the impact which Mr Adger said that Fearne's death had on him. I am glad that Mrs Adger was able to record taking

some comfort from the special moment which she had with Fearne as she was settling her just after midnight on 29 April and I have no doubt that the tragic loss will have had a devastating impact on her. It cannot have been easy for Mr and Mrs Adger having to give evidence to the inquiry and to watch the other witnesses give their evidence, the fortitude and dignity which they demonstrated was commendable.

Appendix

Witnesses to the Inquiry

1. Mrs Lauren Adger, Fearne's mother
2. Mr David Adger, her father
3. Fiona Young, Nurse SSW and Ward 15 RAH
4. Victoria Sloan, Nurse SSW and Ward 15 RAH
5. Eunice Crockett, Nurse SSW and Ward 15 RAH
6. Dr Fiona Hillis, General Paediatric Consultant RAH
7. Lynne Hansen, Nurse SSW and Ward 15 RAH
8. Dr Peishan Wu, ST8 Medical Registrar RAH
9. Dr Elizabeth Henderson, ST5 Medical Registrar RAH
10. Nicholas French, Nurse SSW and Ward 15 RAH
11. Mr Carl Davies, Paediatric Surgeon RCH
12. Mr Yatin Patel, Consultant Paediatric and Neonatal Surgeon, Royal Aberdeen Children's Hospital
13. Dr Alan Magee, Locum Consultant in Adult Congenital Heart Disease, University of Southampton NHS Foundation Trust, Consultant Paediatric Cardiologist, Spire Hospital Southampton
14. Dr Paul Eunson, latterly, Consultant Paediatric Neurologist, Royal Hospital for Sick Children, Edinburgh
15. Dr Simon Nadel, Consultant in Paediatric Intensive Care Medicine at St Mary's Hospital, London

16. Dr Nelly Ninis, Consultant in General Paediatrics, Imperial College NHS Trust, London

17. Dr Sean Ainsworth, latterly Consultant Paediatrician & Neonatologist, NHS Fife, Acute Services Division)Victoria Hospital, Kirkcaldy

18. Dr Dawn Penman. Consultant Paediatric and Perinatal Pathologist Southern General Hospital, Glasgow

19. Dr Ruth Bland, Consultant in General Paediatrics, RHC

20. Dr Graham Bell, Consultant in Anaesthetics, RHC

21. Fiona Clements, Resuscitation Officer, Yorkhill Hospital, Glasgow

22. Dr Nadia Qayyum, Consultant in Paediatrics, Governance Lead for Medical Paediatrics, RCH

23. Jamie Redfern, Director of Women and Children's Directorate for NHS Greater Glasgow and Clyde

24. Dr Lesley Nairn, Consultant in General Paediatrics, Clinical Director General Paediatrics and Emergency Medicine, RHC

Witnesses 1- 10 were primarily witness to fact and are designed with reference to the post they held in April 2017. The remaining witnesses are designed with reference to their post at the time of the hearing or their last substantive post.